HEITEC

engineering solutions

ELECTRONICS

CATALOGUE
CHASSIS TECHNOLOGY

INDUSTRY EXPERTISE
IN AUTOMATION
AND ELECTRONICS

CONTENTS

COMPANY OVERVIEW 4

TECHNOLOGY EXPERTISE 18

SUBRACKS 28

INSTRUMENT CASES AND SYSTEM ENCLOSURES 94

COMPONENTS AND ACCESSORIES 124

INDUSTRIAL PC 204

SYSTEM PLATFORMS 218

LIST OF ORDER NUMBERS 258

LIST OF TECHNICAL TERMS 268

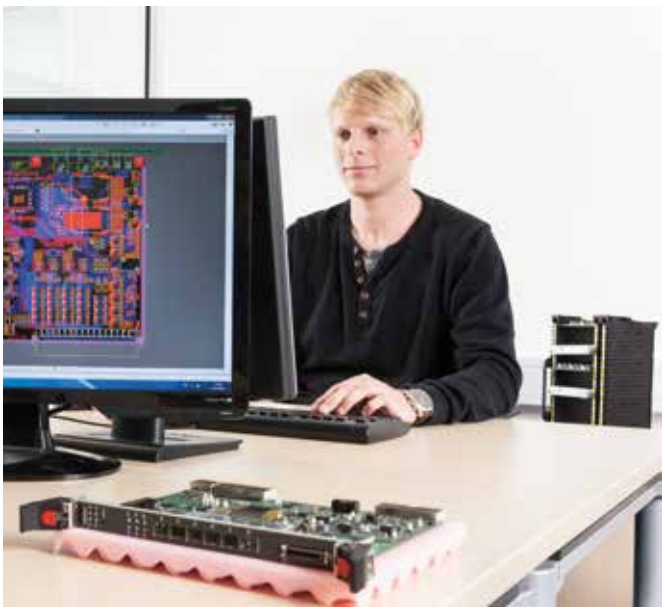
COMPANY OVERVIEW

CORE COMPETENCE

HEITEC is known for industrial expertise in automation and electronics and offers solutions, products and services in the fields of software, mechanics and electronics. Its customers improve their productivity and optimise their products with the help of HEITEC's state-of-the-art, reliable and economical system solutions. A work force of over 1000 employees at numerous sites worldwide provides high-quality industry skills close to the customer.

Our experienced employees have in-depth, specialised technical knowledge and are also familiar with the specific requirements of industries such as plant and machine construction, energy supply, transportation, aerospace and aeronautics, medical technology, information and communications technology, and measurement and test engineering.

We are always finding new applications for this accumulated knowledge and experience, and thus have access to a wealth of tried-and-tested solutions for a variety of fields. Our design and manufacturing processes are audited and certified to meet the requirements of their respective sectors, guaranteeing the robustness and long service life of our products.



INDUSTRY EXPERTISE IN AUTOMATION AND ELECTRONICS

HEITEC offers innovative automation solutions for both newly planned projects and system modernisations (retrofits) in plant and machine construction, as well as in production – from planning to all-inclusive implementation.

AUTOMATION

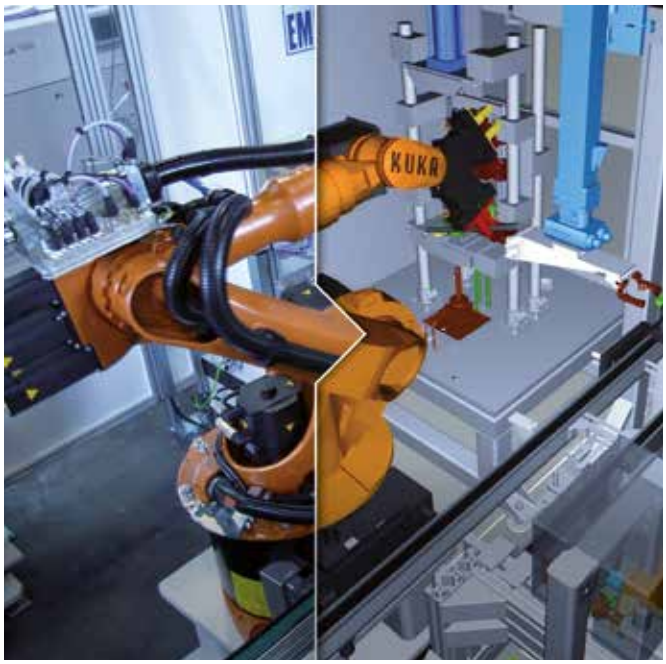
Faster to networked production

The solution portfolio from HEITEC's Business Unit Automation includes measurement and test engineering, robotics, complete production systems, and energy technology. As experts in automation and information technology, we can offer solutions for rapid production networking under the HEITEC 4.0 banner:

From digital plant and process planning to virtual commissioning and the monitoring of plants and manufacturing processes: our solutions make it possible to develop a smart factory with adaptive machines and systems, as well as decentralised manufacturing controls.

Practical, step-by-step introduction of Industry 4.0

- Optimisation of processes, plant and quality
- Shortened commissioning periods
- Reduced throughput times
- Reliable planning thanks to real-time data
- Optimised material and component consumption
- Improved construction quality



INDUSTRY EXPERTISE IN AUTOMATION AND ELECTRONICS

What is it that makes HEITEC electronics so special?

Three areas of expertise – design, chassis technology and manufacturing – that work together smoothly to meet the increasingly complex requirements of our customers:

Design: This is based on our 30-years history as an expert service provider in the area of electronic design.

Chassis technology: A stable, modular system of chassis technology and an extensive library of proven hardware, software and mechanical building blocks from Rittal's former portfolio of electronic packaging systems.

Manufacturing: Since we know how important it is to manufacture products flexibly and yet cost-effectively, particularly when it comes to low and medium module quantities, our portfolio is rounded out by the right manufacturing capacities to meet your needs.

ELECTRONICS

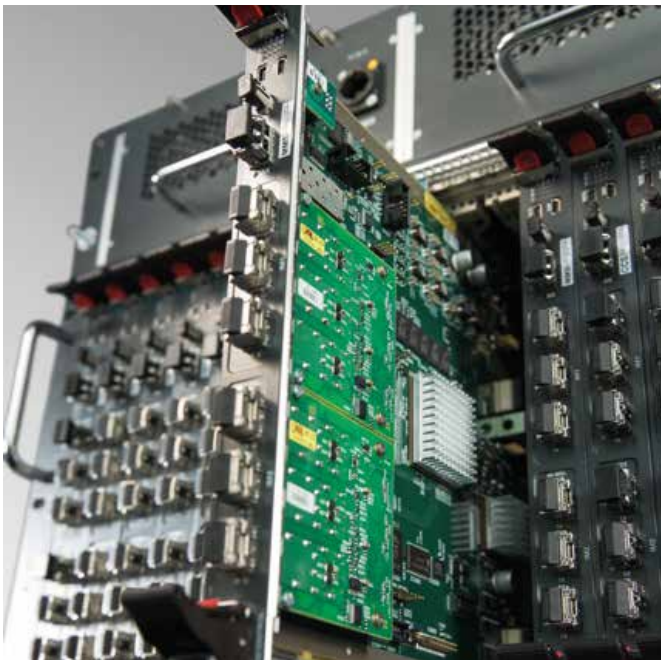
From idea to product

Our comprehensive portfolio helps you achieve your system solution more swiftly, cost effectively, flexibly and safely – from the module to the board design, all the way to the complete chassis. Thanks to our extensive experience from many projects, with differing levels of added value in a range of demanding industries and for many different target applications, we understand your specific requirements and reflect them in our solutions.

We have a comprehensive library of proven hardware, software and mechanical building blocks that we can draw on for every solution we create.

Expertise in tailor-made solutions

- Customer-specific products and solutions implemented more swiftly, safely, and cost-effectively
- Products perfectly optimised thanks to in-depth knowledge of the industry – including for demanding, regulated markets
- The same high design and manufacturing quality for both small and large series
- Optimised products with a large test depth
- Ongoing development of products throughout the entire lifecycle



EXPERTISE IN SOFTWARE, MECHANICS AND ELECTRONICS

INDUSTRY EXPERTISE: WE FOCUS ON THE APPLICATION

Our employees not only have profound technical specialist knowledge, they also have experience in numerous key indutries such as industrial automation, aerospace and aeronautics, medical, energy, communications and transportation technology.

This means we have an in-depth understanding of your requirements – even if these are not always explicitly formulated.

INDUSTRIAL CONTROL

ENERGY

DEFENSE & AEROSPACE

MEDICAL

EXPERTISE IN SOFTWARE, MECHANICS AND ELECTRONICS

QUALITY IS AT THE CORE OF OUR ACTIVITIES

Our products and services are based on established and certified processes, methods, and quality management systems. Additionally, we have industry-sector-specific process know-how.

Our skills in design and manufacturing the appropriate components and systems are confirmed by a range of certificates.

TRANSPORTATION

MEASUREMENT AND TEST

INFORMATION
AND COMMUNICATION

Certifications, Standards, Guidelines
ISO 9001
EN ISO 13485
EN ISO 14971
EN 60601
EN 62304
DO-160, DO-178, DO-254
NSQ 100
EN 50155
ETSI
NEBS

COMPETENCE AND KNOW-HOW

Development of customer-specific systems

Manufacturing and testing of electronic products for batch sizes starting at quantaty 1

Professional chassis technology from standard products to system solutions

We help you build the best system solutions

Our experience ranges from defining system architecture to developing and implementing individual components, through to manufacturing and integrating entire systems, throughout the entire life cycle of the systems in question. Coordinated processes guarantee excellent quality and provide the flexibility to adapt rapidly when new application requirements call for it. Our experienced employees have in-depth technical knowledge in their fields and understand the industry-specific requirements. Our design and manufacturing processes are coordinated with these requirements, and are audited and certified.

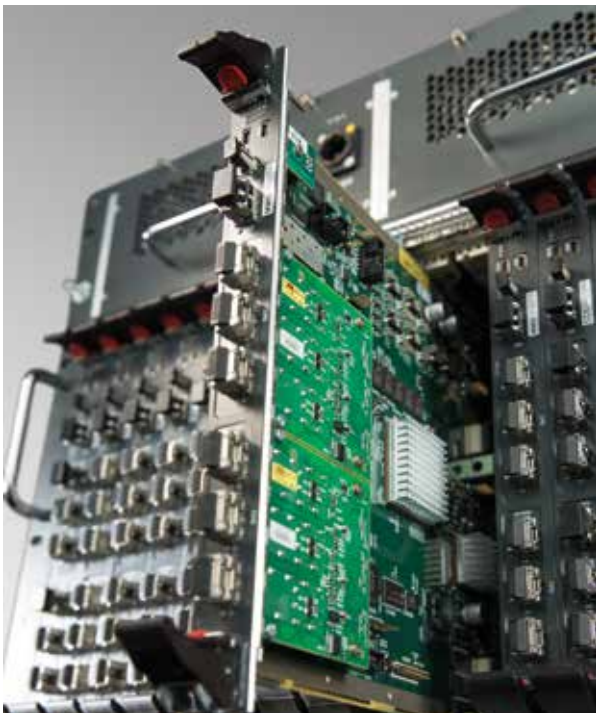
Our solutions minimize your design and production risks and can be applied to your product at lower cost and on time. We look after your products throughout their entire lifecycle. We strive to offer you the best system solution every time, one that will give you a lasting competitive edge.

Everything comes with the same quality objective – whether it's for a "simple" board or for a more complex system comprising hardware, software and chassis technology.

BOARD DESIGN

CHASSIS AND SYSTEM TECHNOLOGY

SOFTWARE DESIGN



SYSTEM DESIGN

BOARD MANUFACTURING

SYSTEM INTEGRATION

From idea to product:
Expertise in tailor-made solutions

To turn your electronic product, which is often not more than a concept at first, into reality, you need reliable partners. We know all the steps and processes needed to make the transition from system design to prototyping, the necessary tests and inspections, through to series production. We know how important it is for design, manufacturing and service interfaces to mesh together. We create targeted industry applications with all the necessary certification. Whether it's electronic modules with the associated firmware, chassis systems in rail-mounted format or any kind of industrial PC for complex, high-availability systems, our teams will be there even after the project is completed to offer consulting, change management, after-sales service and long-term availability. HEITEC can provide everything from a single source – you maintain an overview of your projects and we provide the support and coordinate all the processes.

Design services | Manufacturing services | Chassis Technology

- A single contact from design through to quality certification and series production
- Use of existing technology and industry expertise
- Use of proven building blocks and standard components

You get to your product/system solution

- faster and at lower cost
- more flexibly and more easily

PRODUCT DEFINITION

- Feasibility studies
- Architecture concepts
- Technology analyses
- Requirement analyses
- Creation of requirements and other specifications

DESIGN CONSTRUCTION PROTOTYPING

- System engineering
- Chip design
- Hardware design
- Mechanics and construction
- Chassis incl. EMC and heat dissipation
- Software engineering

APPROVALS AND VALIDATION

- CE labeling, UL, FCC
- EMC testing
- Shock/vibration
- Climate testing
- Electrical safety
- Validation

VOLUME MANUFACTURING

- Component procurement/SCM
- Board assembly
- Component assembly
- System assembly
- System integration
- Function tests

POST-MANUFACTURING SERVICES

- Global supply logistics
- Repairs
- Returns management
- Obsolescence management
- Long-term supply guarantees
- Redesigns

Use of building blocks:

- Library elements (software, mechanics and electronics)
- Wealth of experience from prior projects
- Chassis technology components and system platforms

PARTNERSHIP RITTAL – HEITEC

YOUR PARTNER FOR ELECTRONIC CHASSIS AND SYSTEMS

The current product portfolio offered by HEITEC AG in the area of electronic packaging systems and chassis is based originally on the corresponding product range from Rittal. Starting in early 2010, HEITEC has been steadily taking over this product range from Rittal and integrating it into its current range of products and services – constantly refining and expanding it.

2010

PRODUCT BRANDS

INTERNATIONAL SALES

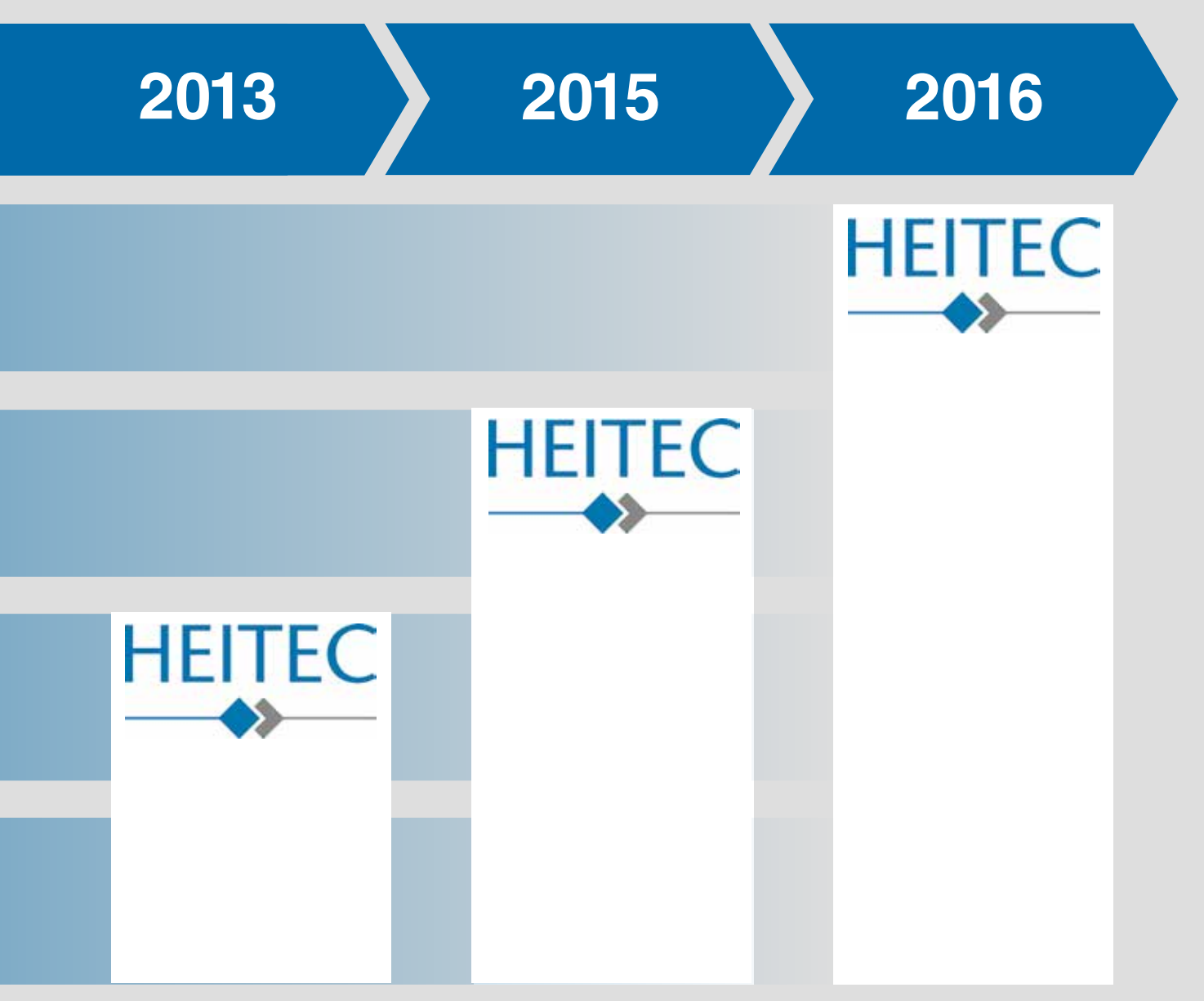
STANDARD CATALOG PRODUCTS AND PRODUCT LINE OWNERSHIP

CUSTOMER-SPECIFIC ELECTRONIC PACKAGING SYSTEMS AND COMPONENTS

CONSISTENCY AND CONTINUITY

HEITEC not only maintains the original Rittal part numbers but guarantees consistency, product longevity, supply chain security and continuous enhancement of its broad product range.

HEITEC was originally able to guarantee global customer support thanks to its partnership with Rittal subsidiaries abroad. Today, HEITEC has its own global network of sales partners that ensure customer support right around the world.



In 2010, HEITEC took over Rittal's customer-specific products, followed by the complete product portfolio for electronic packaging systems, product line ownership and national sales in 2013. Starting in 2015, HEITEC began expanding its own global sales network of distribution and system integration partners in all key industrialised nations around the world. Lastly, in 2016, all product names and brands were changed over to the HEITEC range.

PRODUCTS AND SERVICES

HEITEC's comprehensive portfolio of standard products and individual solutions gives you professional chassis technology – we "package" your electronics to suit your applications, every time.

We are constantly expanding this broad spectrum of chassis components, subracks, instrument cases and system enclosures as well as system platforms. We also offer individual adaptations to these products, in addition to special, customer-specific developments.

Selecting the right chassis technology is the basis for an efficient end product. Our skills lie in our many years of experience covering everything from mechanical design to ensuring electromagnetic compatibility and effective heat dissipation concepts for highly complex systems. If you would prefer to take responsibility for the bulk of the system integration process yourself, you can order individual components, pre-assembled components or system enclosures from us to suit your requirements. If you prefer pre-integrated or fully integrated solutions, incorporating your own hardware and software if needed, we can provide a complete service through to a customer-specific system solution.

We support you in exactly those areas that match your business model best.

From components through to the complete system

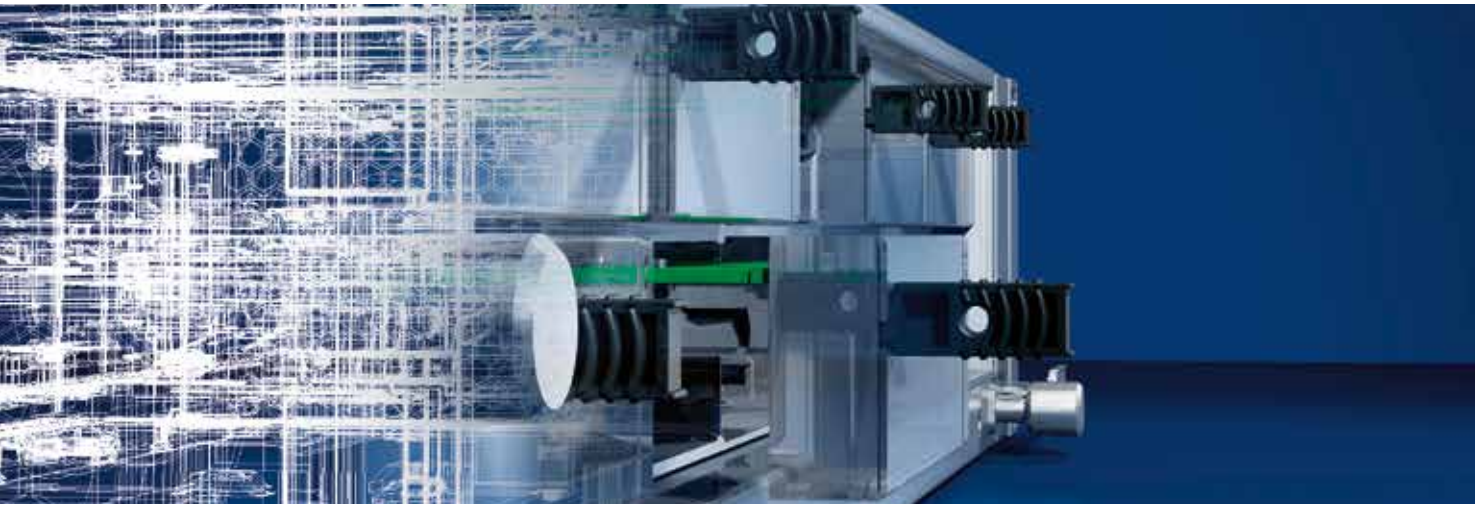
5

4

3

2

1



SYSTEM SOLUTION	Ready-to-use, fully integrated with hardware and software
PRE-INTEGRATED SYSTEMS	Partial or full integration of active modules and/or software
SYSTEM PLATFORMS	Chassis incl. ventilation/cooling, power supply, backplane
CHASSIS	Subracks, instrument cases and system enclosures, industrial PC, box-type plug-in units
COMPONENTS	Individual components and accessories e.g. handles, front panels, EMC components

PRODUCTS AND SERVICES

HEITEC is more than just a manufacturer of high-quality chassis solutions – it offers much more besides. Our highly flexible range of services maximizes customer benefit, even when low unit quantities are involved.

It doesn't matter if you want your preferred components assembled to suit your requirements, or if you need our experienced manufacturing staff to assemble all the mechanical, electrical and electronic components. We also strive to offer a long-term delivery capacity and delivery times to suit customer requirements.

HEITEC SERVICE

Configuration

The wide range of variations available for chassis products means they can be combined easily and in many different ways

→ Online configuration using the HEITEC subrack configurator

→ Easy-to-follow product tables make it easy to put your desired product together

Assembly

HEITEC production facilities offer the latest in certified assembly and manufacturing options

→ Skilled and reliable assembly, including final inspections, even for small unit quantities

→ Assembly of individual parts, wiring, or even complete system configuration – depending on what the customer needs

Logistics

HEITEC's experienced logistics team can develop individual logistics plans to suit customer requirements

→ Holding stocks of critical components for your project means HEITEC can guarantee a long-term delivery capacity

→ HEITEC is a known Consignor that delivers worldwide

Customised adaptations and system solutions

HEITEC can provide adjustments from single-part level through to customer-specific system solutions

→ Front panel processing, special colors for chassis and decorative elements

→ Design and manufacturing of individual, ready-to-use system solutions

Individual | **19-inch format**

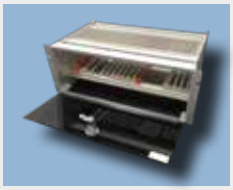
Ready-to-use system with integrated hardware and software, e.g.

→ Mobile charging station for cars

Subracks/chassis, e.g.

→ Small chassis

→ Din rail chassis



Customised spare parts processing, e.g.

→ Front panel adaptations

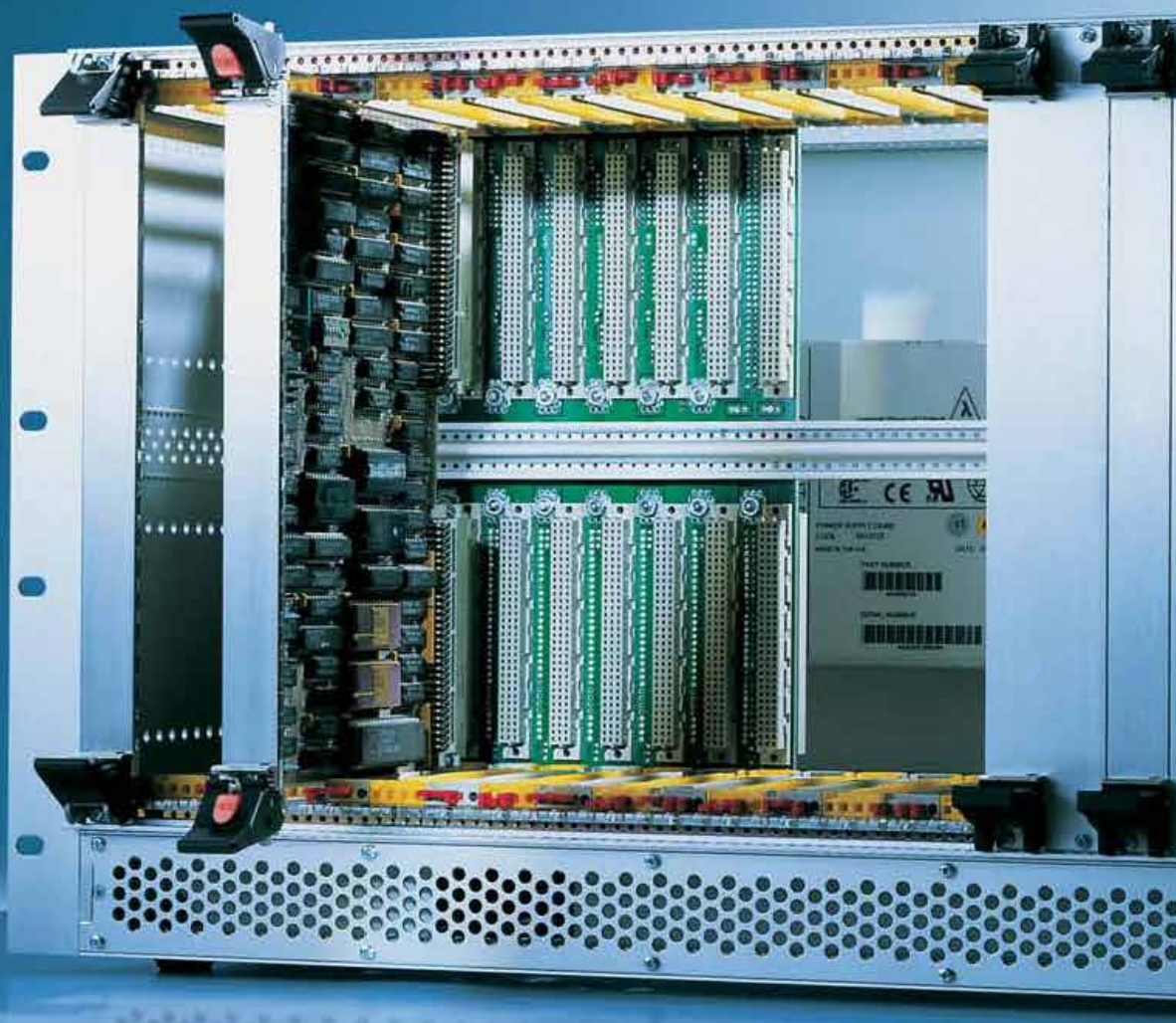
Besides a multitude of standard products in this catalogue, we provide individual, tailor-made solutions.

Be it customer specific front panels – drilled, milled or printed according to your requirements, be it subracks, system enclosures or system configurations adapted to your application:

We create the appropriate product for you.

Please do not hesitate to contact our specialists.

TECHNOLOGY EXPERTISE



Overview of standards

Designs for electronic systems (dimensions for 19-inch design)	
IEC 60297-3-100	Basic dimensions of front panels, subracks, rack-mount systems, racks and cabinets
IEC 60297-3-101	Subracks and assembly modules
IEC 60297-3-102	Injector/extractor handle
IEC 60297-3-103	Keying and guide pin
IEC 60297-3-104	Connector dependent interface dimensions of subracks and assembly modules
IEC 60297-3-105	Dimensions and layout of 1 U high rack-mount systems
IEC 60297-3-106	Adaptation dimensions for subracks and rack-mount systems applicable with metric cabinets or racks in accordance with IEC 60917-2-1
Environmental conditions for designs as per IEC 60917, IEC 60297	
DIN EN 61587-1	Climatic and mechanic tests and safety aspects for cabinets, racks, subracks and rack-mount systems
DIN EN 61587-2	Seismic tests for cabinets and racks
DIN EN 61587-3	Electromagnetic shielding performance tests for cabinets and subracks
VG 95373, part 15	Electromagnetic compatibility of equipment Part 15: Measuring method for coupling and shielding
Safety	
IEC 60950-1	Information Technology Equipment – Safety Part 1: General requirements
Rail	
EN 50155	Electronic equipment used on rail vehicles

19-INCH PACKAGING SYSTEM

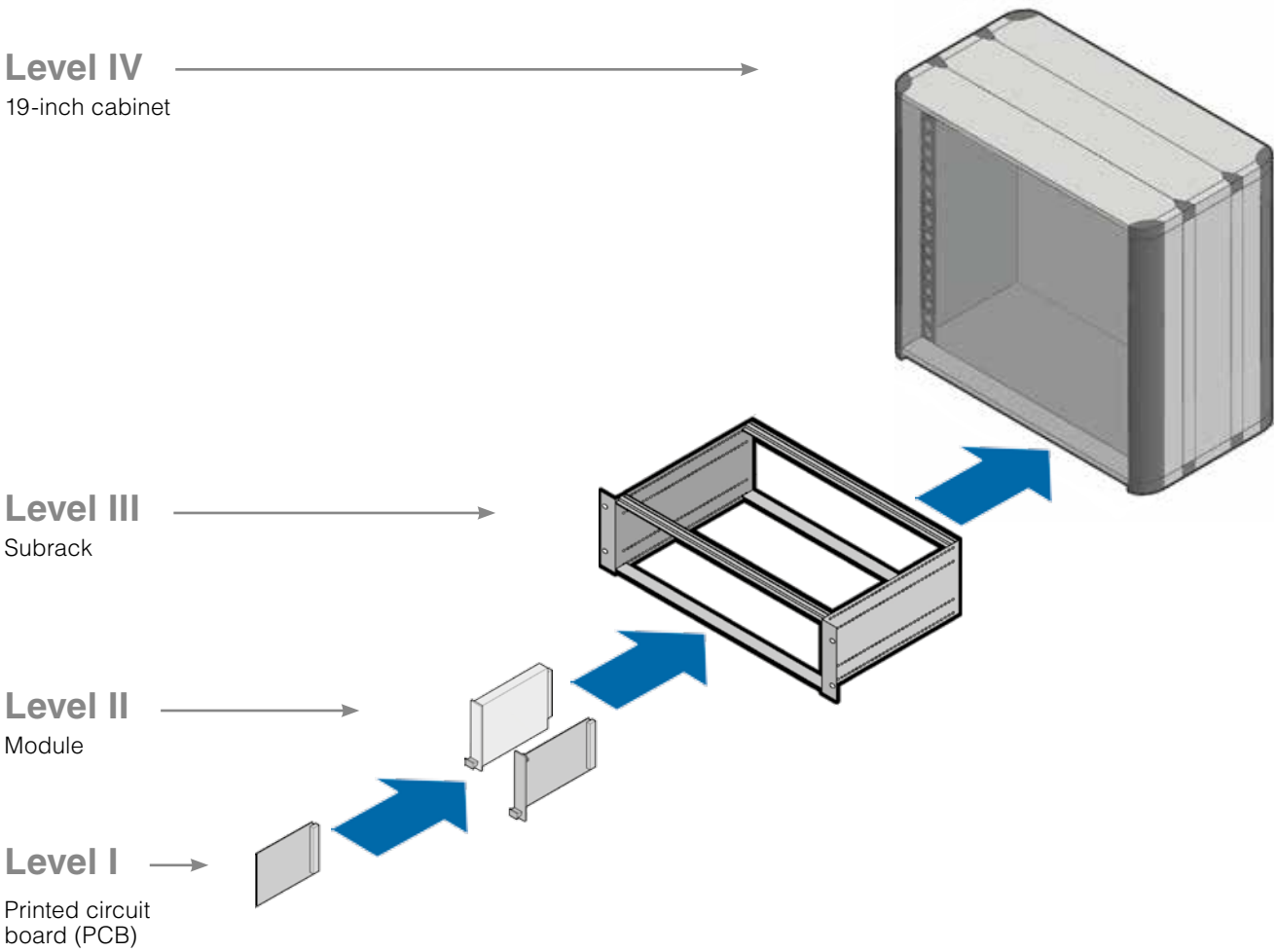
19-inch technology: dimensional relationships

The 19” packaging system is based on internationally applicable dimensional standards that describe the coordinated, modular system structure. The various parts making up the IEC 60297 series of standards describes the mechanical structure of the system.

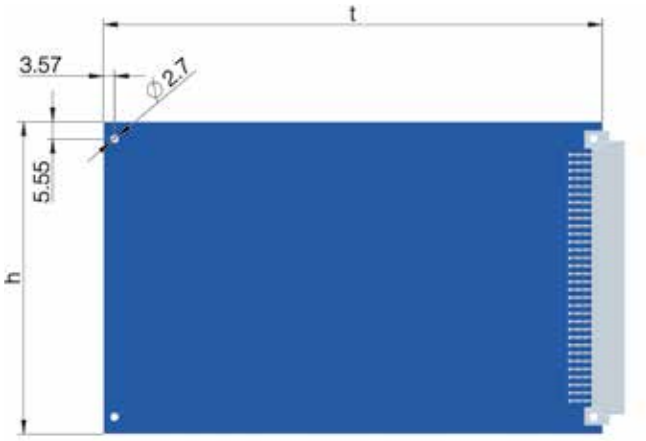
The objective of these provisions is to ensure that different devices and modules from all potential manufacturers can be combined and substituted without difficulty.

The 19” packaging system is now used in almost every area of industrial electronics: transportation, energy, IT and industrial control.

More specifically, the 19” packaging system can be divided into the following four levels:



Level 1: Printed circuit board



Subrack height	PCB height h - 0.3 mm	PCB depth (mm) t - 0.3 mm			
		100 mm	160 mm	220 mm	280 mm
3 U	100 mm	-	x	x	-
6 U	233.35 mm	-	x	x	-
9 U	366.70 mm	-	x	x	-

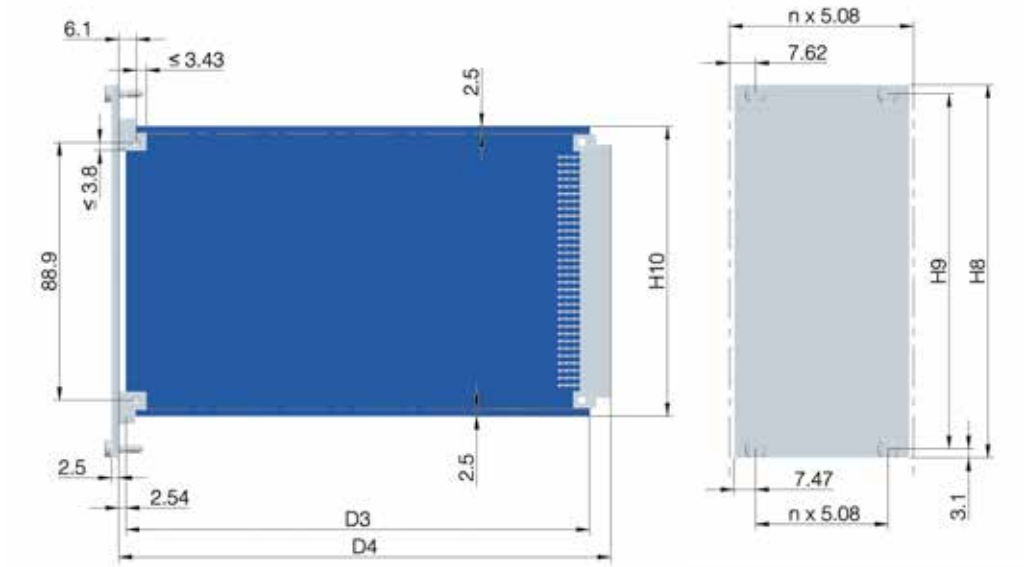
x most common dimensions

The PCB dimensions are defined on the basis of the eurocard format and are set forth in standard IEC 60297-3-101. Starting from a height of 100 mm and a depth of 160 mm as the basic dimensions, the height increases by multiples of one height unit (1 U = 44.45 mm) and the depth by multiples of 60 mm.

The table above shows the PCB formats most commonly used.

PCBs are generally 1.6 mm thick. Different, higher values must be coordinated between the user and the manufacturer to arrange suitable guide rails. Standard subrack depths are arranged in accordance with PCB depths of 160, 220 and 280 mm.

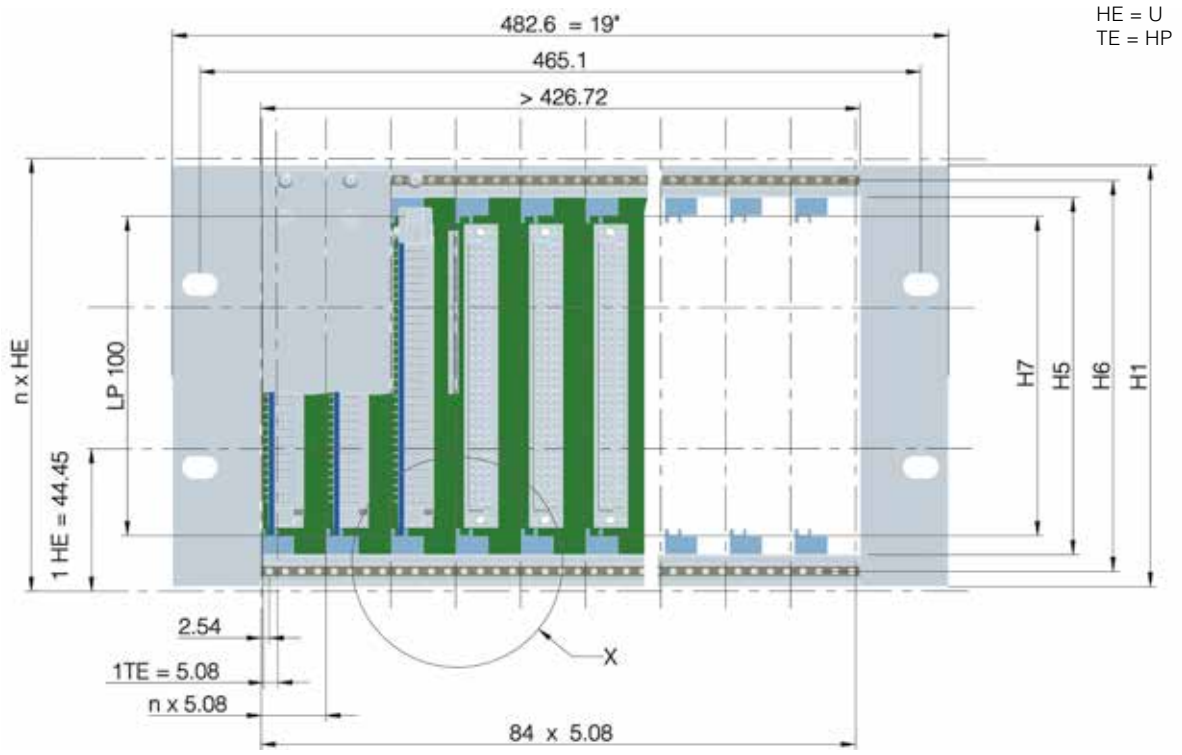
Level 2: Module



The IEC 60297-3-101 standard also describes the dimensions of the entire module and associated front panel, together with the screw fixing points. The following table shows the most common dimensions.

Height H				Depth D			
Height units	3 U	6 U	9 U	Depth units			
H8 ± 0.15	128.55	261.9	395.25	D1 ± 0.5	175.6	235.6	295.6
H9 ± 0.2	122.5	255.85	389.2	D3 – 0.3	160	180	220
H10 +0 -0.3	100	233.35	366.7	D4 ± 0.4	169.93	229.93	289.93

Level 3: Subrack



Height units	3 U	6 U	9 U
H1 ± 0.4	132.55	265.90	399.25
H5 ≥	112.00	245.35	378.70
H6 ± 0.2	122.50	255.85	389.20
H7 + 0.5 -0	100.20	233.55	366.90

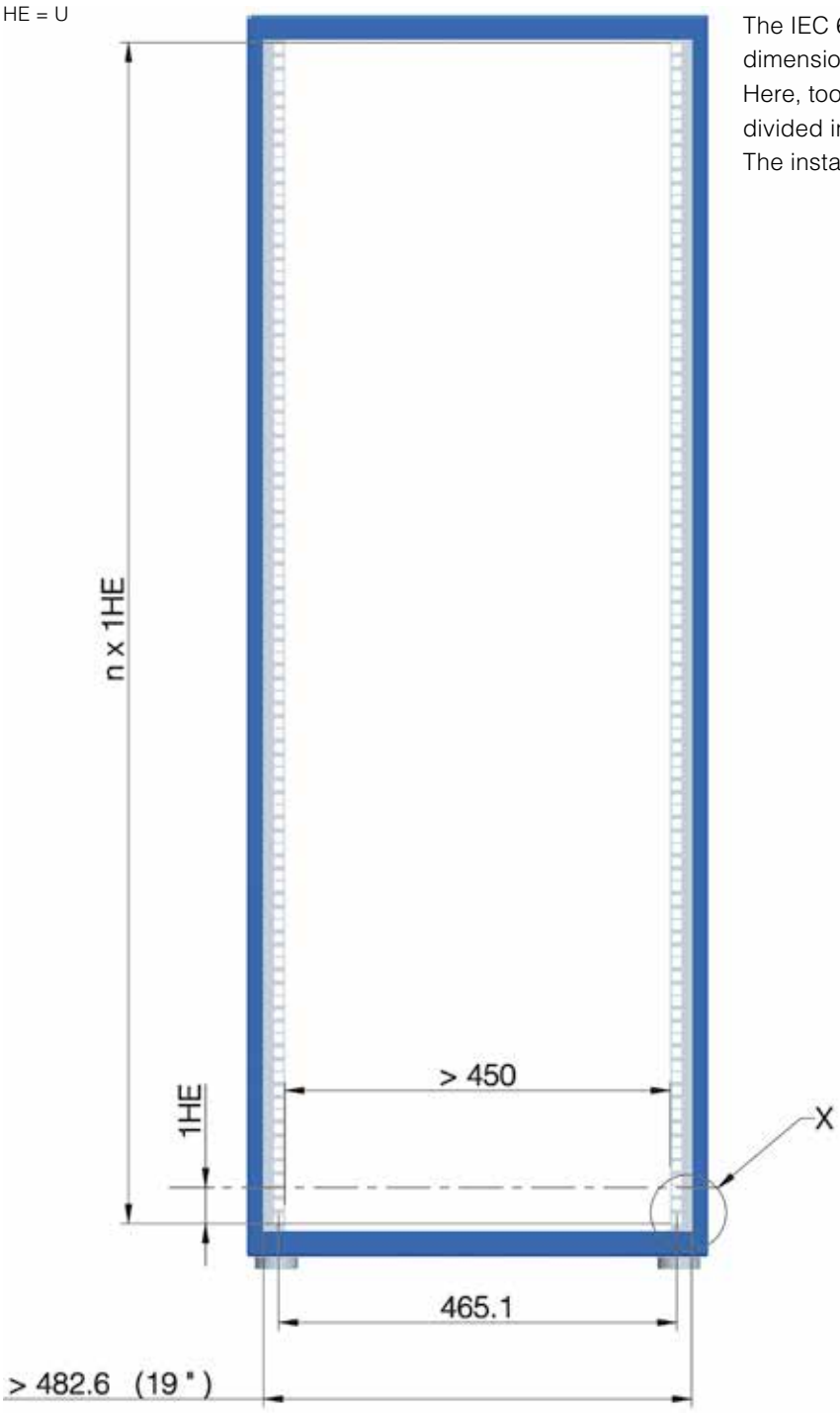
DIN EN 60297-3-101 provides a figure of 482.6 mm (19 inches) for the width of the subrack front.

The maximum subrack height is given as a multiple of one height unit (1 U), or 44.45 mm. This ensures that the subrack height is coordinated with the height of the plug-in units used. Typical sizes are 3 U, 6 U and 9 U (refer to table).

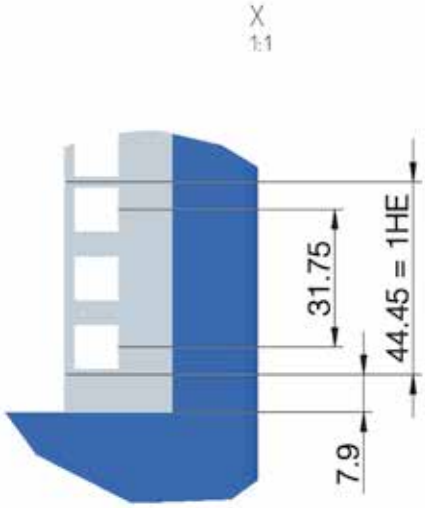
The installation space for the modules is divided into horizontal pitch units (HP) of 5.08 mm (0.2 inch), or 84 HP for a subrack width of 19 inches.

Level 4: 19-inch cabinet

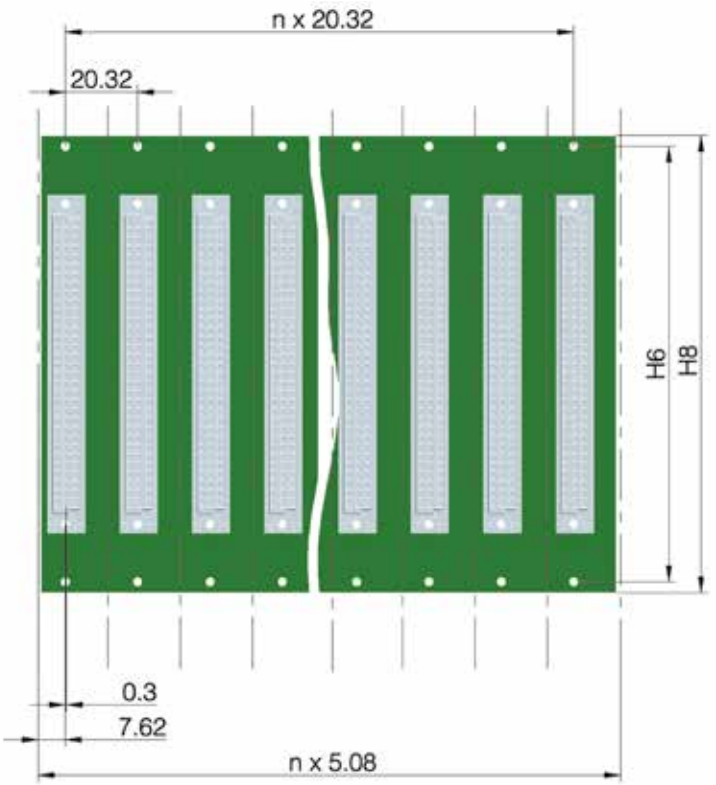
HE = U



The IEC 60297-3-100 standard describes the basic dimensions of the 19-inch cabinet.
Here, too, the space available to fit the subracks is divided into multiples of 1 U.
The installation space must be at least 450 mm wide.

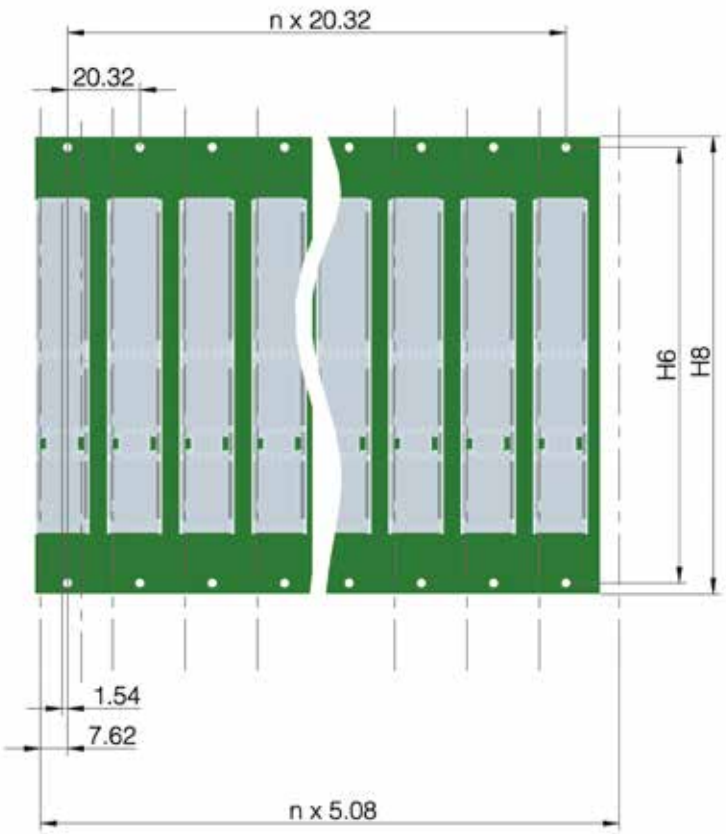


Backplane



Backplane with plug connector as per
DIN 41612/IEC 60603-2 and IEC 61076-4-113

Typical application: VME/VME64 systems



Backplane with plug connector as per
IEC 61076-4-101

Typical application: CPCI systems

The IEC 60297-3-104 standard describes the dimensions of the backplanes for the most common height variations (refer to table).

Height units	3 U	6 U	9 U
H6 ± 0.2	122.50	255.85	389.20
H8 ± 0.15	128.55	261.90	395.25

IP protection levels – chassis protection classes (IP code)

1st IP number

	Protection against solid objects
0	No protection
1	Protected against solid objects over 50 mm in diameter
2	Protected against solid objects over 12.5 mm in diameter
3	Protected against solid objects over 2.5 mm in diameter
4	Protected against solid objects over 1.0 mm in diameter
5	Protected against dust (limited ingress, no harmful deposit)
6	Totally protected against dust

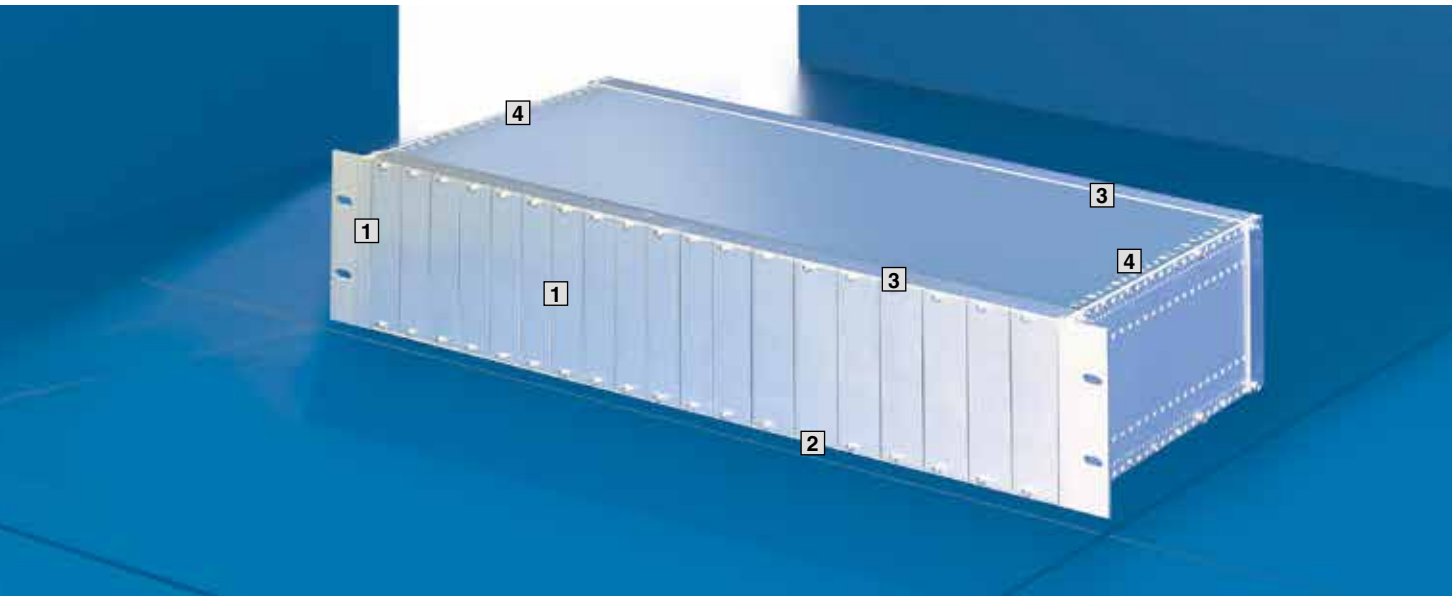
	Protection against contact
0	No protection
1	Protected against contact with back of hand
2	Protected against contact with fingers
3	Protected against tools
4	Protected against wires
5	Complete protection against contact
6	Complete protection against contact

2nd IP number

	Protection against liquid
0	No protection
1	Protected against vertically falling drops of water, e.g. condensation
2	Protected against direct sprays of water up to 15 degrees from vertical
3	Protected against sprays up to 60 degrees from vertical
4	Protected against water sprayed from all directions
5	Protected against low-pressure jets of water from all directions
6	Protected against strong jets of water
7	Protected against the effects of short-term immersion
8	Protected against long periods of immersion

PROTECTION REQUIREMENTS

Electromagnetic compatibility (EMC)



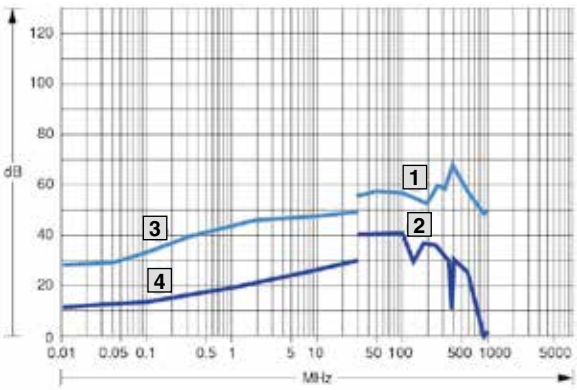
1 EMC gaskets, vertical
2 EMC gaskets, horizontal
3 EMC gaskets for cover plates
4 Mounting blocks

EMC (electromagnetic compatibility) refers to the ability of an electrical device to function satisfactorily in its electromagnetic environment without influencing this environment more than is admissible. These requirements were taken into account when developing the HEITEC subracks.
They are made entirely from metal and coated with a conductive surface finish.
Stainless steel EMC gaskets ensure a conductive connection between the separate parts.

Testing of measurements of the shielding effectiveness of empty chassis is based on DIN EN 61587-3 or military standards, e.g. MIL STD 285 (US) or VG 95373 Part 15 (GER).

International EMC standards are published mainly by IEC (International Electrotechnical Commission) and CISPR (International Special Committee on Radio Interference).

Key series of EMC standards with global importance: IEC 61000



MHz = frequency
dB = HF attenuation
1 E-Field = electric field (V/m)
EMC chassis
2 E-Field standard chassis

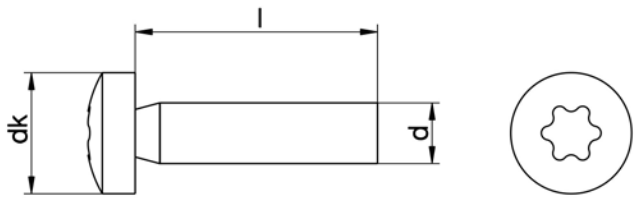
3 H-Field = magnetic field (A/m)
EMC chassis
4 H-Field standard chassis

The above diagram shows the extent to which EMC shielding influences the attenuation of the electromagnetic field. The attenuation of a standard chassis with no suitable EMC components is thus much lower than that of a HeiPac Vario EMC subrack.

Of particular interest is the shielding factor provided by the attenuation.

HF attenuation (dB)	Shielding (%)
6	50
20	90
40	99
60	99.9

Screws



Screws are used to achieve a tight connection between two or more components. They form part of a screw gear consisting of two standardised, paired components. Friction on the wedge-shaped thread under load prevents the screws from coming loose.

Examples

Hexagonal head screw	ISO 4017 - M12 x 100 - A4 - 50 - H
Screw plug	DIN 910 - M24 x 2.5 - St
Panhead screw	ISO 4762 - M10 x 65 - 9.8

Designation

Reference standard, e.g. ISO, DIN, EN

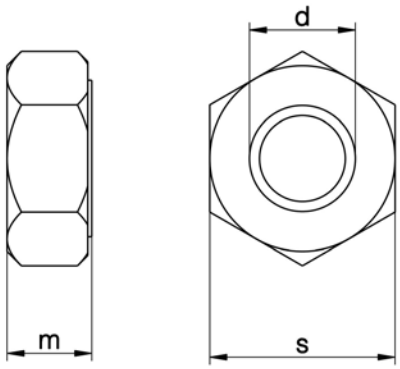
Dimensions and other ratings, e.g.
M → Metric thread
24 → Nominal diameter d
100 → Shank length l

Strength class, e.g.
9.8, 12.9, A2 - 50

Material, e.g.
St steel

Drive, e.g.
H → Phillips
Z → Pozidriv
T → Torx

Nuts



Nuts are the counterpart to the screws. They have a standardised inside thread that matches the thread of the screw. The prismatic outside contour is shaped to accommodate a wrench, which is used to tighten the nut. In terms of dimensions, the height of a nut is approximately half the width across the flats.

Examples

Hexagonal nut	ISO 4032 - M10 - St
Castellated nut	DIN 935 - M4 x 1 - St
Hexagonal nut	EN 1661 - M12 - 8

Designation

Reference standard, e.g. ISO, DIN, EN

Dimensions and other ratings, e.g.
M → Metric thread
10 → Nominal diameter d
1 → Thread pitch for fine threads

Strength class, e.g
8, 12

Material, e.g.
St steel

HeiPac subrack systems

A minimum of components – a multitude of applications

SUBRACKS

The modular concept of HeiPac subracks facilitates a wide range of application options with a minimum of components.

All HeiPac subracks are based on the same horizontal rails and system components. The difference lies in the design of the side panels and installation options. The only exception is the HeiPac EASY subrack system, which is based on a horizontal rail system of its own. All front systems can be universally applied for all subrack families.

The subracks are shock and vibration-tested and comply with IEC 60 297-3-101, 102 and 103.

HeiPac Vario

Universal 19" subrack system

- Varied size range
- Flexible design options
- A wealth of accessories
- EMC screening optional

→ Page 30

HeiPac Vario EMV

Universal 19" subrack system for EMC applications

- Varied size range
- Flexible design options
- A wealth of accessories
- EMC screening

→ Page 30

HeiPac Vario ECO

Economical 19" subrack system

- Available in standard sizes
- A wealth of accessories
- EMC screening optional

→ Page 58

HeiPac Vario Compact

Compact subrack system in 21 HP and 42 HP

- For rail or wall mounting
- A wealth of accessories
- EMC screening optional

→ Page 66

HeiPac Vario HEAVY

Sturdy 19" subrack system for mobile use

- Increased mechanical strength
- Certified for use in railway applications as per EN 50155
- A wealth of accessories
- EMC screening optional

→ Page 76

HeiPac EASY

Economical, sturdy 19" subrack system

- Bolts pre-assembled
- A wealth of accessories
- Very easy to assemble

→ Page 82

HeiPac Vario / Vario EMC

For standard applications/EMC applications or complex installations

Applications

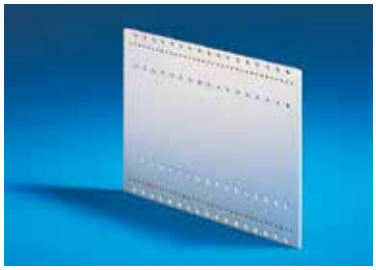
Subrack system for standard applications or complex installations. Suitable for installation of standardised PCBs or plug-in units up to 400 mm depth.

Technical specifications

- 482.6 mm (19˝) subrack according to IEC 60 297-3
- 3, 4, 6, 7 and 9 U
- For board depths up to 400 mm
- Side panels of aluminium, clear-chromated
- 10 mm mounting grids for horizontal rails
- Rear equipment for installation of backplanes or connectors
- Separate 19˝ flanges
- EMC version including EMC gaskets

Benefits at a glance

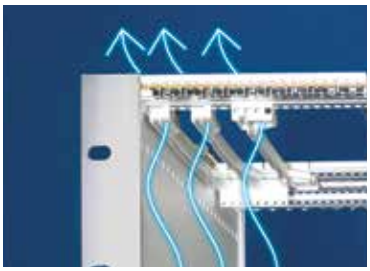
- Side panels with 10 mm mounting grid
- The HeiPac Vario is upgradeable to EMC
- 19˝ flanges optionally for front/rear mounting
- Wide range of standard sizes
- For installation of backplanes or connectors
- Broad range of accessories



10 mm pitch pattern of holes allows many varieties

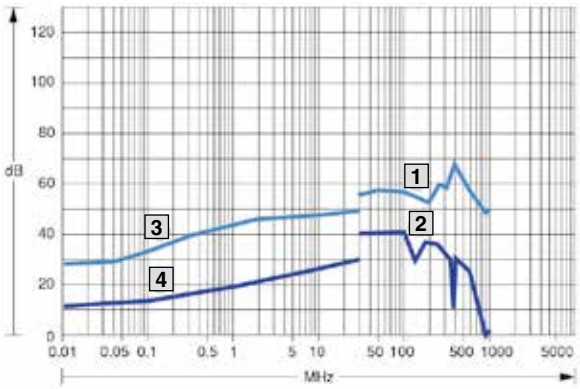
Components made of solid aluminium alloy

Contact springs made of stainless steel provide high EMC protection



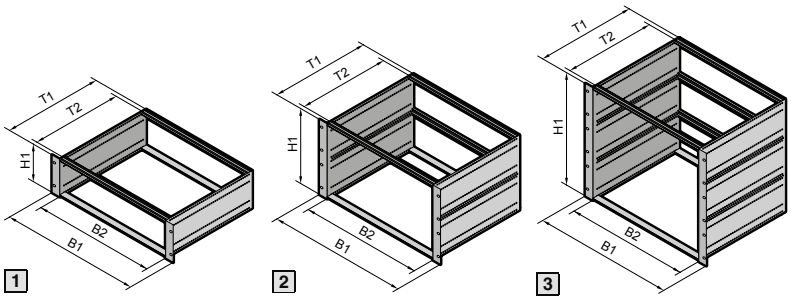
Effective heat dissipation due to open design

EMC diagram for HeiPac Vario/Vario EMC



MHz	=	Frequency
dB	=	HF-attenuation
1		E-Field = Electric field (V/m) EMC subrack
2		E-Field standard subrack
3		H-Field = Magnetic field (A/m) EMC subrack
4		H-Field standard subrack

HeiPac Vario 3 U, 6 U, 9 U



Material/surface finish

Side panels: 2.5 mm aluminium, clear-chromated
Horizontal rails: Extruded aluminium section, clear-chromated
19“ flanges: Extruded aluminium section, clear-chromated

Supply includes

Flanges, side panels, horizontal rails, threaded inserts, insulating strips or Z rails.

Tests

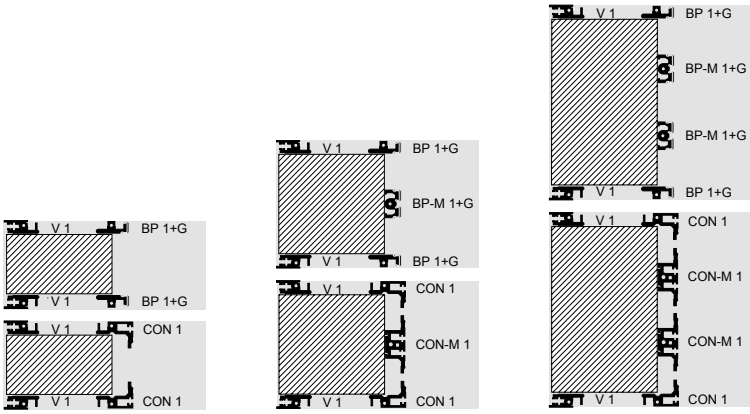
Shock and vibration tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-6 test Ea

Standards

HeiPac subracks are based on the system dimensions of IEC 60 297-3

Note

Upgradeable to EMC



1 Top: for backplane
Bottom: for connector

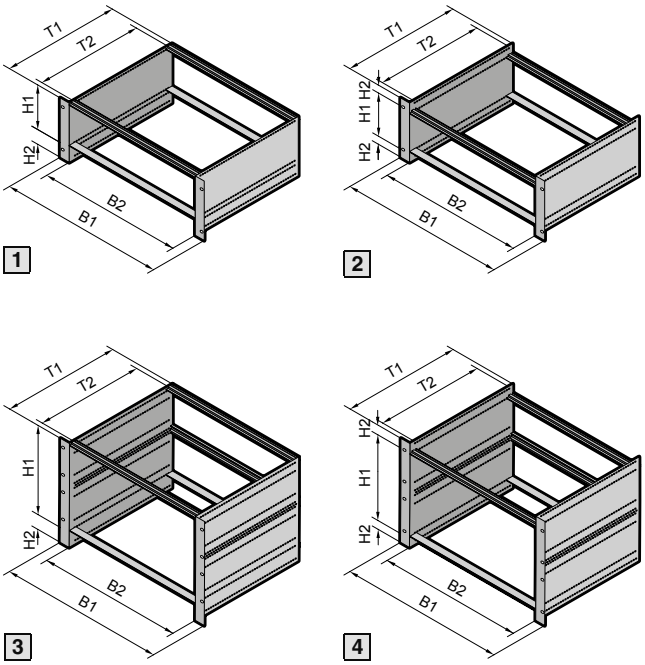
2 Top: for backplane
Bottom: for connector

3 Top: for backplane
Bottom: for connector

					Order No.					
					1		2		3	
U					**3**		**6**		**9**	
Height (H1) mm					132		265.35		398.70	
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For connector IEC 60 603-2	For backplane	For connector IEC 60 603-2	For backplane	For connector IEC 60 603-2
482.6 (19“)	84	185	160	160	**3684.020**	**3684.034**	**3684.043**	**3684.056**	-	-
		225	200	160	**3684.021**	**3684.035**	**3684.044**	**3684.057**	-	-
		245	220	220	**3684.022**	**3684.036**	**3684.045**	**3684.058**	-	-
		285	260	220	**3684.023**	**3685.281**	**3684.046**	-	-	-
		305	280	280	**3685.231**	**3685.233**	**3685.238**	**3685.240**	-	-
		345	320	280	**3684.024**	-	**3684.047**	-	**3684.051**	**3684.059**
		365	340	340	**3685.232**	**3685.234**	**3685.239**	-	-	-
		405	380	340	**3684.025**	-	**3684.048**	-	**3684.052**	**3684.060**
		465	440	400	**3684.026**	-	**3684.049**	-	**3684.053**	**3684.061**
		525	500	400	**3684.027**	-	**3684.050**	-	**3684.054**	-
		585	560	400	-	-	-	-	**3684.055**	-

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HeiPac Vario 4 U, 7 U



Material/surface finish

Side panels:	2.5 mm aluminium, clear-chromated
Horizontal rails:	Extruded aluminium section, clear-chromated
19“ flanges:	Extruded aluminium section, clear-chromated

Supply includes

Flanges, side panels, horizontal rails, threaded inserts, insulating strips or Z rails.

Tests

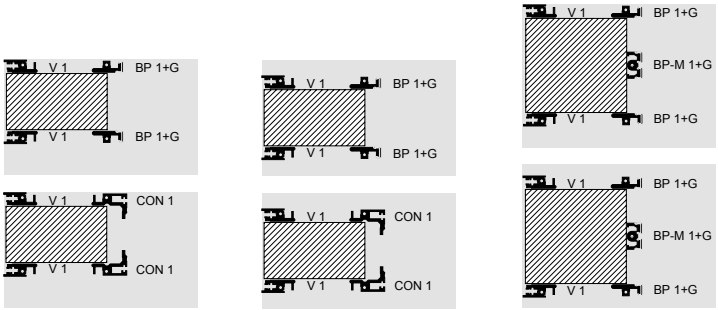
Shock and vibration tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-6 test Ea

Standards

HeiPac subracks are based on the system dimensions of IEC 60 297-3

Note

Upgradeable to EMC



1 Top: for backplane
Bottom: for connector

2 Top: for backplane
Bottom: for connector

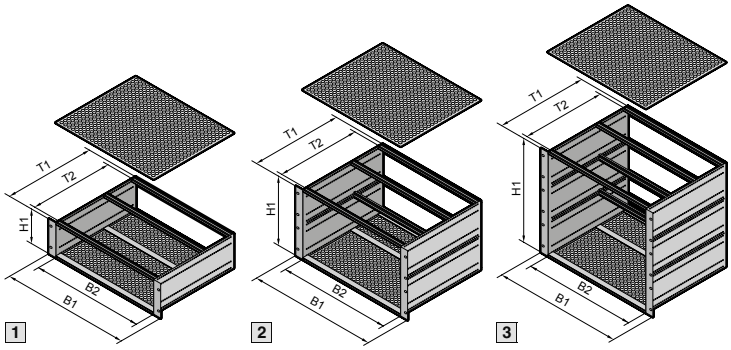
3 Top: for backplane (6 U + 1 U)

4 Bottom: for backplane (6 U + 2 x 1/2 U)

					Order No.					
					1		2		3	4
U (H1 + H2)					**4 (3 + 1)**	**4 (3 + 1)**	**4 (3 + 2 x ½)**	**4 (3 + 2 x ½)**	**7 (6 + 1)**	**7 (6 + 2 x ½)**
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For connector IEC 60 603-2	For backplane	For connector IEC 60 603-2	For backplane	For backplane
482.6 (19“)	84	245	220	220	**3685.235**	-	-	-	-	-
		285	260	220	**3684.028**	**3684.037**	**3684.031**	**3684.040**	-	-
		305	280	280	**3685.236**	-	-	-	-	-
		345	320	280	**3684.029**	**3684.038**	**3684.032**	**3684.041**	-	-
		365	340	340	**3685.237**	-	-	-	-	-
		405	380	340	**3684.030**	**3684.039**	**3684.033**	**3684.042**	**3684.064**	**3684.062**
		465	440	400	-	-	-	-	**3684.065**	**3684.063**

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HeiPac Vario EMC 3 U, 6 U, 9 U



EMC

Material/surface finish

Side panels:	2.5 mm aluminium, clear-chromated
Horizontal rails:	Extruded aluminium section, clear-chromated
19“ flanges:	Extruded aluminium section, clear-chromated
Covers:	Aluminium, unplated

Supply includes

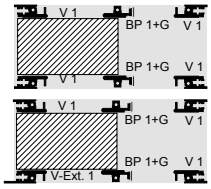
Flanges, rear trim, side panels, EMC gaskets, covers, mounting blocks, horizontal rails, threaded inserts, insulating strips

Tests

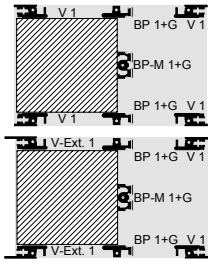
Shock and vibration tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-27 test Ea

Standards

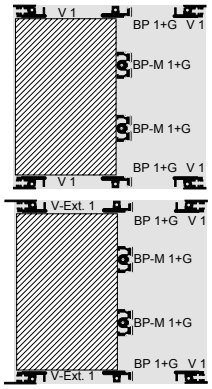
HeiPac subracks are based on the system dimensions of IEC 60 297-3



1
Top: for backplane
Bottom: for backplane/ front horizontal rail with 10 mm extension



2
Top: for backplane
Bottom: for backplane/ front horizontal rail with 10 mm extension



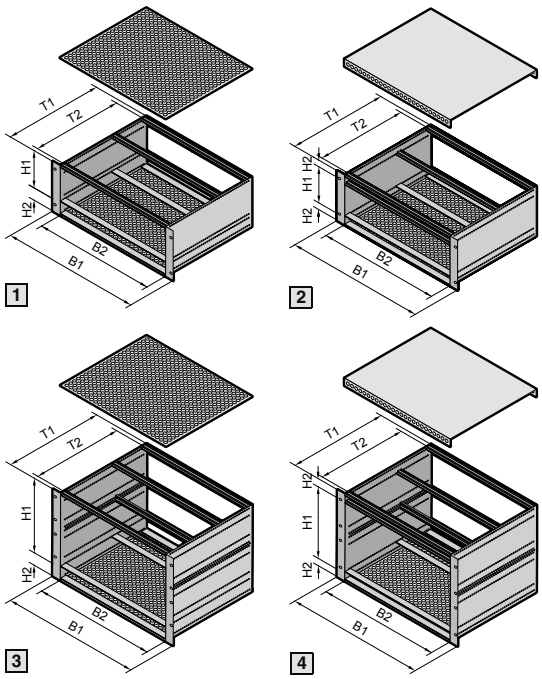
3
Top: for backplane
Bottom: for backplane/ front horizontal rail with 10 mm extension

					Order No.					
					1		2		3	
U					**3**		**6**		**9**	
Height (H1) mm					132		265.35		398.70	
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For backplane [1]	For backplane	For backplane [1]	For backplane	For backplane [1]
482.6 (19“)	84	245	220	160	**3684.128**	**3684.142**	**3684.156**	**3684.169**	**-**	**-**
		285	260	220	**3684.129**	**3684.143**	**3684.157**	**3684.170**	**-**	**-**
		305	280	220	**3685.241**	**3685.243**	**3685.242**	**3685.244**	**-**	**-**
		345	320	280	**3684.130**	**3684.144**	**3684.158**	**3684.171**	**3684.162**	**3684.175**
		405	380	340	**3684.131**	**3684.145**	**3684.159**	**3684.172**	**3684.163**	**3684.176**
		465	440	400	**3684.132**	**3684.146**	**3684.160**	**3684.173**	**3684.164**	**3684.177**
		525	500	400	**3684.133**	**3684.147**	**3684.161**	**3684.174**	**3684.165**	**3684.178**
		585	560	400	**-**	**-**	**-**	**-**	**3684.166**	**3684.179**

[1] Front horizontal rails with 10 mm extension for injector/extractor handles

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HeiPac Vario EMC 4 U, 7 U



Material/surface finish

Side panels:	2.5 mm aluminium, clear-chromated
Horizontal rails:	Extruded aluminium section, clear-chromated
19“ flanges:	Extruded aluminium section, clear-chromated
Covers:	Aluminium, unplated

Supply includes

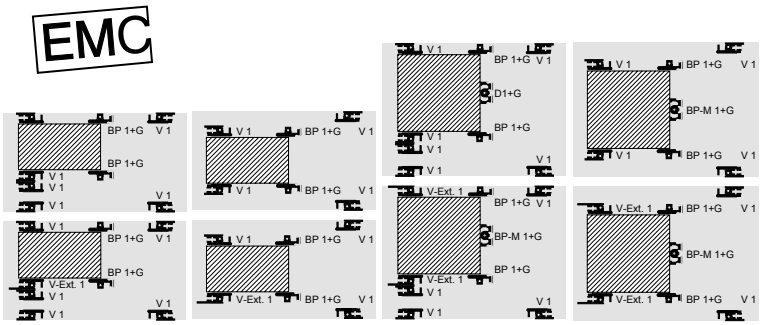
Flanges, rear trim, side panels, EMC gaskets, covers, mounting blocks, horizontal rails, threaded inserts, insulating strips

Tests

Shock and vibration tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-27 test Ea

Standards

HeiPac subracks are based on the system dimensions of IEC 60 297-3



1 Top: for backplane bottom: for backplane/ front horizontal rail with 10 mm extension

2 Top: for backplane bottom: for backplane/ front horizontal rail with 10 mm extension

3 Top: for backplane bottom: for backplane/ front horizontal rail with 10 mm extension

4 Top: for backplane bottom: for backplane/ front horizontal rail with 10 mm extension

					Order No.							
					1		2		3		4	
U (H1+H2)					**4 (3 + 1)**	**4 (3 + 1)**	**4 (3 + 2 x ½)**	**4 (3 + 2 x ½)**	**7 (6 + 1)**	**7 (6 + 1)**	**7 (6 + 2 x ½)**	**7 (6 + 2 x ½)**
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For backplane[1)]	For backplane	For backplane[1)]	For backplane	For backplane[1)]	For backplane	For backplane[1)]
482,6 (19“)	84	285	260	220	**3684.134**	**3684.148**	**3684.137**	**3684.151**	**3684.187**	**3684.192**	**-**	**-**
		345	320	280	**3684.135**	**3684.149**	**3684.138**	**3684.152**	**3684.188**	**3684.193**	**3684.189**	**3684.196**
		405	380	340	**3684.136**	**3684.150**	**3684.139**	**3684.153**	**3684.180**	**3684.194**	**3684.190**	**3684.197**
		465	440	400	**-**	**-**	**-**	**-**	**3684.181**	**3684.195**	**3684.191**	**3684.198**

[1)] Front horizontal rails with 10 mm extension for injector/extractor handles

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

Components, accessories and services for HeiPac Vario

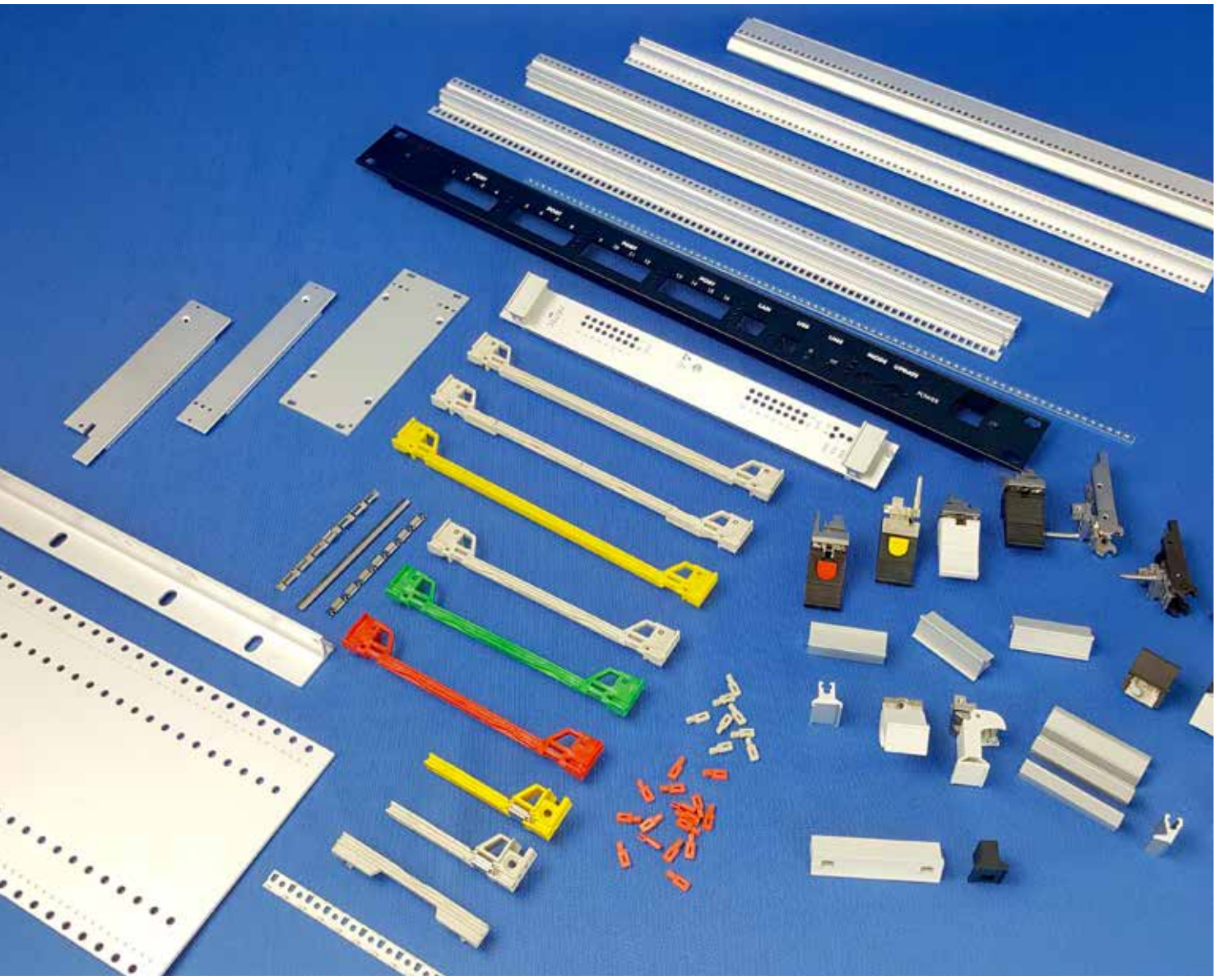
In addition to the presented subrack-kits, we offer components and accessories for your individual configuration on the following pages

WE MEET YOUR INDIVIDUAL NEEDS!

You are looking for a product in the field of electronic packaging that is not in our catalogue? Please contact us! Due to our extensive range of services we can meet all your demands.
We will gladly submit a tailored quotation.

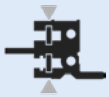
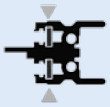
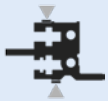
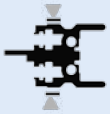
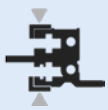
Phone: 09126 - 29 34 0
E-Mail: eps-quote@heitec.de

HEITEC SERVICE



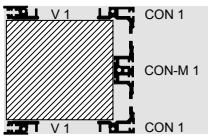
HORIZONTAL RAILS HeiPac Vario / Vario EMC

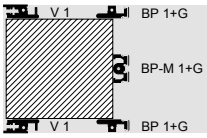
Overview horizontal rails HeiPac Vario

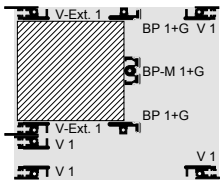
Main sections / Additional sections	**V 1** Front horizontal rail	**V 2** Front horizontal rail, with double screw fastening	**V 3** Double front horizontal rail	**V-Ext. 1** Front horizontal rail, with 10 mm extension, for extractor handle type IV or VII	**V-Ext. 2** Double front horizontal rail, with 10 mm extension	**V-Ext. 3** Front horizontal rail, with 10 mm extension, with double screw fastening	**V-Ext. 4** Double front horizontal rail, with 10 mm extension	**BP 1** Rear horizontal rail	**BP 2** Rear horizontal rail, with double screw fastening
	Page 38	Page 38	Page 39	Page 39	Page 40	Page 40	Page 41	Page 41	Page 42
E Adaptor rail, rear centre, to acommodate guide rails Page 140	-	-	-	-	-	-	-	-	-
F Z rail for connector Page 144	-	-	-	-	-	-	-		
G Insulating strip [1] Page 145	-	-	-	-	-	-	-		
H Conductive strip [2] Page 145	-	-	-	-	-	-	-		
I Threaded insert Page 144								-	
J Identification strips Page 144									
K EMC gaskets, horizontal Page 145								-	-

For [1]insulated or [2]conductive attachment of backplanes.

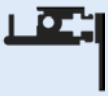
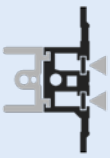
All system requirements may be covered with just a few basic types of horizontal rail. A cost-effective, easy-to-manage range.







Overview horizontal rails HeiPac Vario

Main sections / Additional sections	**BP 3** Rear horizontal rail	**BP 4** Rear horizontal rail	**BP 5** Rear horizontal rail	**BP-M 1** Rear horizontal rail, centre	**BP-M 2** Rear horizontal rail, centre (also for Hei-Pac EASY)	**CON 1** Rear horizontal rail, with integral Z rail	**CON 2** Rear horizontal rail, with integral Z rail	**CON-M 1** Rear horizontal rail, with integral Z rail (also for Hei-Pac EASY)
	Page 42	Page 43	Page 43	Page 44	Page 44	Page 45	Page 45	Page 46
E Adaptor rail, rear centre, to acommodate guide rails Page 140	-	-	-			-	-	
F Z rail for connector Page 144		-	-		-	-	-	-
G Insulating strip [1] Page 145		-	-		-	-	-	-
H Conductive strip [2] Page 145		-	-		-	-	-	-
I Threaded insert Page 144		-	-	-	-			
J Identification strips Page 144				-	-		-	-
K EMC gaskets, horizontal Page 145	-	-	-	-	-	-	-	-

For [1]insulated or [2]conductive attachment of backplanes.

HORIZONTAL RAILS HeiPac Vario / Vario EMC

Horizontal rail Vario V 1, front

To accommodate guide rails and for the attachment of front panels

- Front projection 2.5 mm corresponding to IEC 60 297-3-101
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole
- Horizontal rail 192 HP without machining on the end faces. Suitable for cutting to length

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
4 (left)	1	**3684.592**	-
4 (right)	1	**3684.955**	-
8 (left)	1	**3684.593**	-
8 (right)	1	**3684.956**	-
12	1	**3684.594**	-
16	1	**3684.595**	-
20	1	**3684.596**	-
21	1	**3685.985**	-
40	1	**3684.960**	-
42	1	**3684.560**	**9921.788**[3]
63	1	**3684.561**	-
84	1	**3684.562**	**9921.789**[3]
84	2	**3685.267**[1]	-
192	1	**3688.000**[2]	-

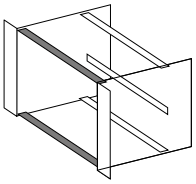
[1] Including 4 assembly screws
[2] Anodised
[3] with HP pattern printing

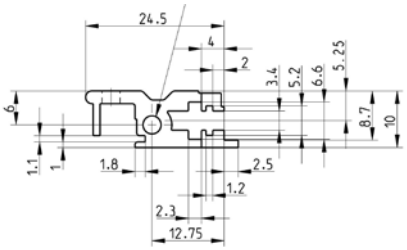
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144





Horizontal rail Vario V 2, front, with double screw fastening

To accommodate guide rails and for the attachment of front panels. The double screw fastening ensures a high level of stability even under extreme loads.

- Front projection 2.5 mm corresponding to IEC 60 297-3-101
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole
- Load test to DIN EN/IEC 61 587-1, requirement level SL1
- Shock and vibration tests undertaken as per IEC 61 373 (DIN EN 50 155), Category 1, Class B

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
84	1	**9908.721**	**9921.793**[1]

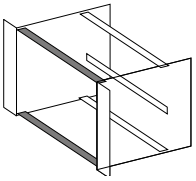
[1] with HP pattern printing

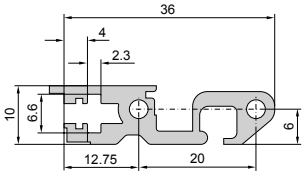
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

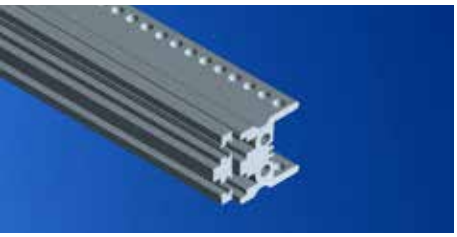
+ Accessories

Threaded inserts, packs of 1
order no. 3684.610
see page 144





Horizontal rail Vario V 3, front



To accommodate guide rails and for the attachment of front panels. For subdivision i. e. 6 U in 2 x 3 U.

- Front projection 2.5 mm corresponding to IEC 60 297-3-101
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
84	1	**9904.745**	**9921.799**[1)]

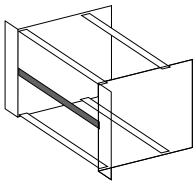
[1)] with HP pattern printing

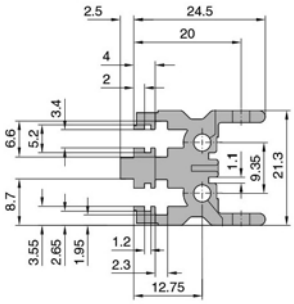
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Threaded inserts, packs of 1
order no. 3684.610
see page 144





Horizontal rail Vario V-Ext. 1, front, with 10 mm extension

For type IV, IVs and VII injector/extractor handle

To accommodate guide rails and for the attachment of front panels.

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60 297-3-102
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
40	1	**3684.961**	**-**
42	1	**3684.565**	**9921.790**[3)]
63	1	**3684.566**	**-**
84	1	**3684.567**	**9921.791**[3)]
84	2	**3685.269**[1)]	-
192	1	**3688.001**[2)]	-

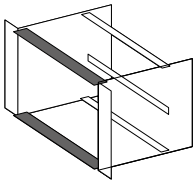
[1)] Including 4 assembly screws
[2)] Anodised
[3)] with HP pattern printing

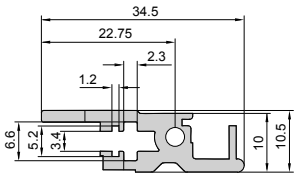
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

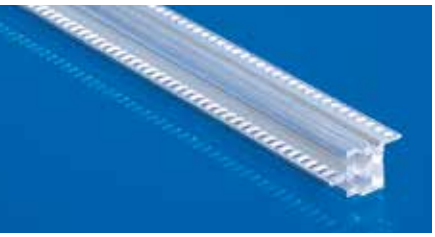
+ Accessories

Threaded inserts, packs of 1
order no. 3684.610
see page 144





Horizontal rail Vario V-Ext. 2, with 10 mm extension and double screw fastening, front



For type IV, IVs and VII injector/extractor handle

To accommodate guide rails and for the attachment of front panels. Double screw fastening and an extra high profile section ensure unique stability evens under extreme loads.

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60 297-3-102
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

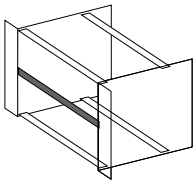
Usable width (HP)	Packs of	Order No.
84	1	**3687.724**

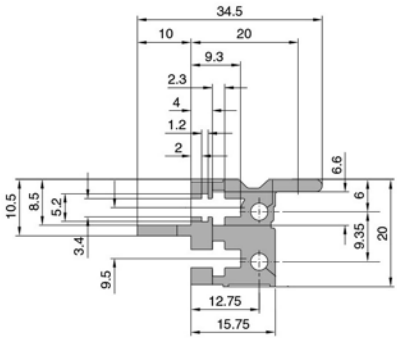
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144





Horizontal rail Vario V-Ext. 3, with 10 mm extension and double screw fastening, front

For type IV, IVs and VII injector/extractor handle

To accommodate guide rails and for the attachment of front panels. The double screw fastening ensures a high level of stability even under extreme loads.

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60 297-3-102
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No. unprinted	Order No. printed
84	1	**9908.722**	**9921.795**[1)]

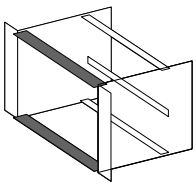
[1)] with HP pattern printing

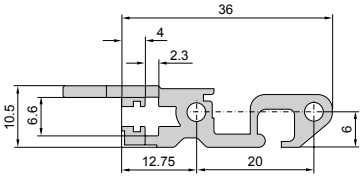
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

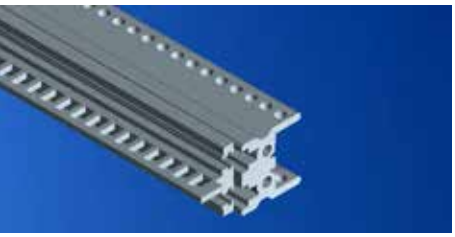
+ Accessories

Threaded inserts, packs of 1,
order no. 3684.610
see page 144





Horizontal rail Vario V-Ext. 4, with 10 mm extension and double screw fastening, front



For type IV, IVs and VII injector/extractor handle

For subdivision i. e. 6 U in 2 x 3 U. To accommodate guide rails and for the attachment of front panels

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60 297-3-102
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

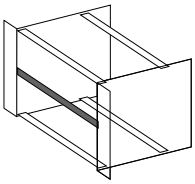
Usable width (HP)	Packs of	**Order No.**
84	1	**3688.704**

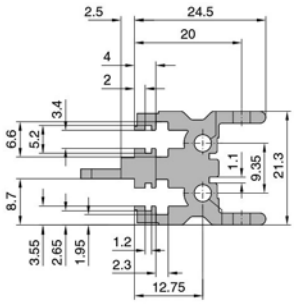
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Threaded inserts, packs of 1,
order no. 3684.610
see page 144





Horizontal rail Vario BP 1, for backplane

To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips.

- Tapped holes M2.5 on a 1 HP pitch pattern for mounting backplanes and Z rails
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Applicable for top-mounting under covers
- Straight-through core hole
- Horizontal rail 192 HP without machining on the end faces. Suitable for cutting to length

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.**
21	1	**3685.991**
40	1	**3684.962**
42	1	**3684.570**
63	1	**3684.571**
84	1	**3684.572**
84	2	**3685.268**[1)]
192	1	**3688.002**[2)]

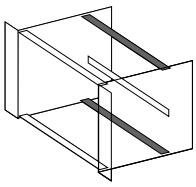
[1)] Including 4 assembly screws
[2)] Anodised

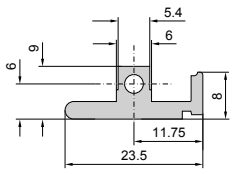
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Conductive strips
see page 145
Insulating strips
see page 145
Z rail
see page 144





Horizontal rail Vario BP 2, for backplane

To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips. The double screw fastening ensures a high level of stability even under extreme loads.

- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- For mounting backplanes/Z rails additional threaded inserts (9901.816) are reqiured
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

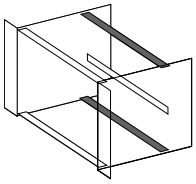
Usable width (HP)	Packs of	Order No.
84	1	**9908.723**

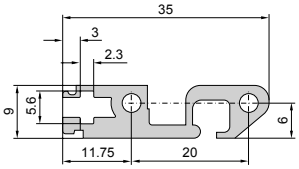
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

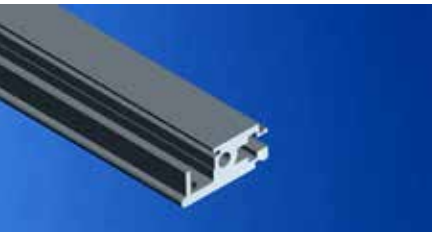
+ Accessories

Threaded inserts, packs of 1, order no. 9901.816
see page 144





Horizontal rail Vario BP 3, for backplane



To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips.

- HP pitch pattern of holes for the precise installation of guide rails
- Channel for slide-in covers
- Additional threaded inserts (3684.610) are reqiured for mounting backplanes/Z rails
- M4 thread on end face
- Straight-through core hole
- Not suitable for mounting under covers

Material

Extruded aluminium section

Surface finish

Clear-chromated

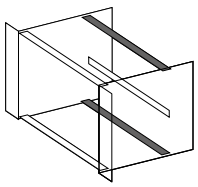
Usable width (HP)	Packs of	Order No.
84	1	**3688.104**

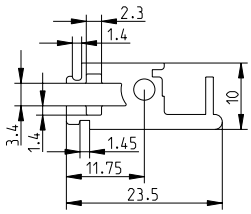
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

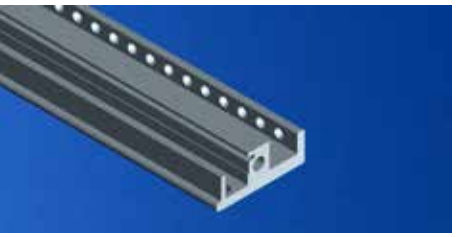
+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144
Insulating strips
see page 145
Conductive strips
see page 145





Horizontal rail Vario BP 4, for conductive mounting of backplanes



To accommodate guide rails and for the conductive attachment of backplanes

- HP pitch pattern of holes for the precise installation of guide rails
- Tapped holes M2.5 on a HP pitch pattern
- Channel for slide-in covers
- M4 thread on end face
- Straight-through core hole
- Not suitable for mounting under covers
- For mounting slide-in covers
- Due to integrated contact area, insulating strips cannot be used

Material

Extruded aluminium section

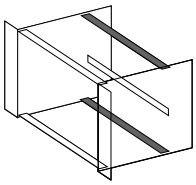
Surface finish

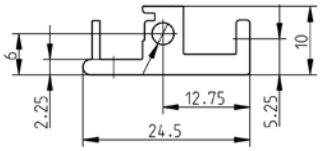
Clear-chromated

Usable width (HP)	Packs of	**Order No.**
84	1	**9920.069**

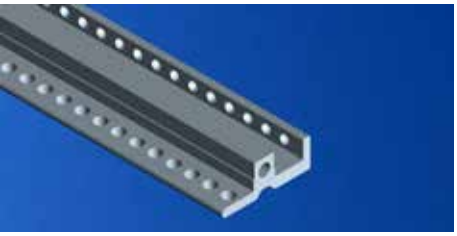
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





Horizontal rail Vario BP 5, for conductive mounting of backplanes



To accommodate guide rails and for the conductive mounting of backplanes

- Tapped holes M2.5 on a HP pitch pattern
- HP pitch pattern of holes for the precise installation of guide rails
- Due to integrated contact area, insulating strips cannot be used
- Applicable for top-mounting under covers
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

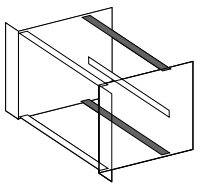
Surface finish

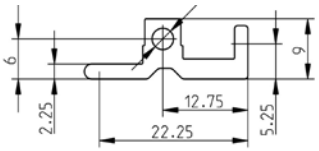
Clear-chromated

Usable width (HP)	Packs of	**Order No.**
84	1	**9912.522**

+ Also required

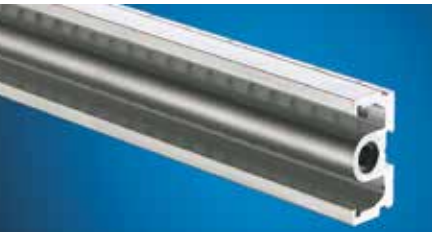
Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





HORIZONTAL RAILS HeiPac Vario / Vario EMC

Horizontal rail Vario BP-M 1, for backplane, centre



When using 6 U PCBs or box-type plug-in units. Facility for the attachment of Z rails, insulating strips or conductive strips.

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole
- Horizontal rail 192 HP for cutting to the required length

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
40	1	**3684.963**
42	1	**3684.580**
63	1	**3684.581**
84	1	**3684.582**
84	1	**3685.270** [1]
168	1	**3684.579**
192	1	**3688.003** [2]

[1] Including 2 assembly screws

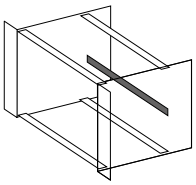
[2] Anodised

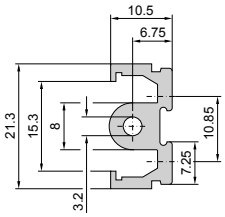
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300

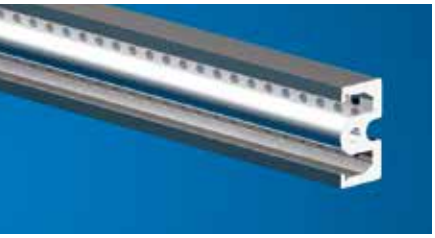
+ Accessories

Insulating strips
see page 145
Conductive strips
see page 145
Z rails
see page 144





Horizontal rail Vario BP-M 2, for backplane, centre



When using 6 U PCBs or box-type plug-in units. Facility for the attachment of Z rails or backplanes.

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole
- Due to integrated contact area, insulating strips cannot be used

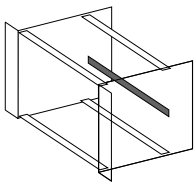
Material

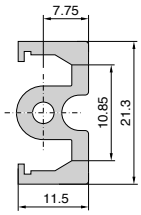
Extruded aluminium section

Surface finish

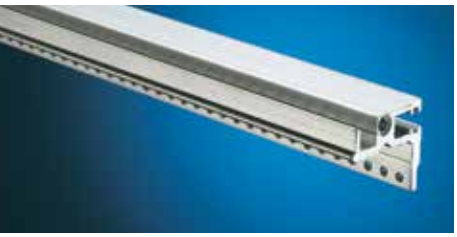
Clear-chromated

Usable width (HP)	Packs of	Order No.
84	1	**9912.523**





Horizontal rail Vario CON 1, with integral Z rail for connector



To accommodate guide rails. Integral Z rail for mounting connectors (CON) to IEC 60 603-2.

- HP pitch pattern of holes for the precise installation of guide rails
- Tapped holes M2.5 for connector mounting
- Applicable for top-mounting under covers
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

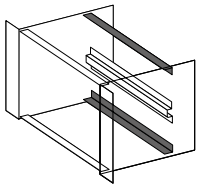
Surface finish

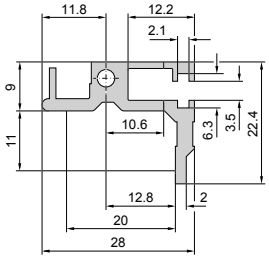
Clear-chromated

Usable width (HP)	Packs of	**Order No.**
42	1	**3686.191**
63	1	**3686.919**
84	1	**3686.159**

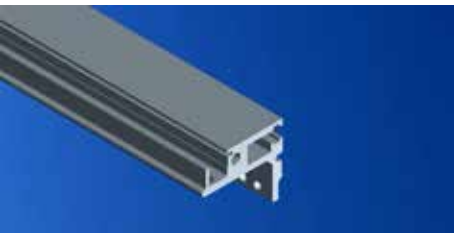
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





Horizontal rail Vario CON 2, with integral Z rail for connector



To accommodate guide rails. Integral Z rail for mounting connectors (CON) to DIN 41612

- HP pitch pattern of holes for the precise installation of guide rails
- 84 tapped holes M2.5 for connector mounting
- Not suitable for mounting under covers
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

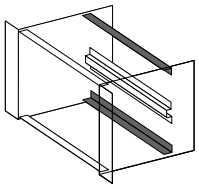
Usable width (HP)	Packs of	**Order No.**
84	1	**9901.991**

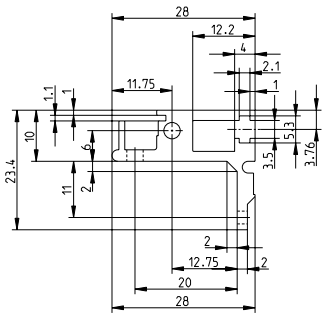
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

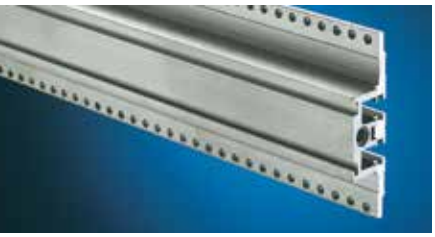
Threaded inserts, packs of 1, order no. 9901.816
see page 144





HORIZONTAL RAILS HeiPac Vario / Vario EMC

Horizontal rail Vario CON-M 1, with integral Z rail for connector, rear centre



When using 6 U PCBs or box-type plug-in units. Integral Z rail for mounting connectors (CON) to IEC 60 603-2

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

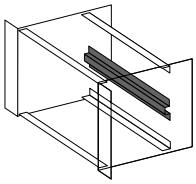
Surface finish

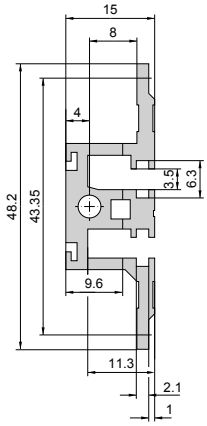
Clear-chromated

Usable width (HP)	Packs of	Order No.
42	1	**3687.600**
63	1	**3687.601**
84	1	**3687.602**
168	1	**3687.603**

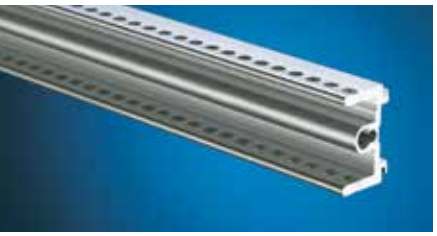
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





Adaptor rail, rear centre



When subdividing 6 U into 2 x 3 U, the adaptor rail accommodates the guide rails when fastened to the centre horizontal rail.

- HP pitch pattern of holes for the precise installation of guide railsr
- M4 and M2.5 thread on the end face
- Applicable in combination with BP-M 1, BP-M 2 and EST-M 1
- Straight-through core hole
- Horizontal rail 192 HP without machining on the end faces. Suitable for cutting to length

Material

Extruded aluminium section

Surface finish

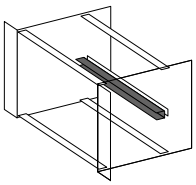
Clear-chromated

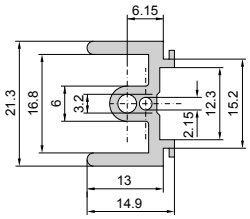
Usable width (HP)	Packs of	Order No.
12	1	**3684.587**
16	1	**3684.588**
20	1	**3684.589**
40	1	**3684.964**
42	1	**3684.590**
63	1	**3686.005**
84	1	**3684.591**
84	1	**3685.272**[1)]
168	1	**3684.584**
192	1	**3688.004**[2)]

[1)] Including 4 assembly screws
[2)] Anodised

+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

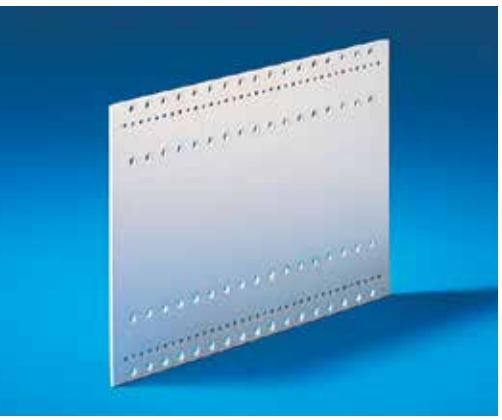




Overview HeiPac Vario horizontal rail descriptions

Description old	Description new	Main sections	Description old	Description new	Main sections
A	**V 1**		**C7**	**BP 3**	
A1	**V 2**		**-**	**BP 4**	
-	**V 3**		**-**	**BP 5**	
B	**V-Ext. 1**		**D1**	**BP-M 1**	
B1	**V-Ext. 2**		**D3**	**BP-M 2**	
B2	**V-Ext. 3**		**C3**	**CON 1**	
-	**V-Ext. 4**		**C8**	**CON 2**	
C1	**BP 1**		**D2**	**CON-M 1**	
C6	**BP 2**				

Side panels for HeiPac Vario



Mounting holes and anti-twist half-shears on a 10 mm pitch pattern.

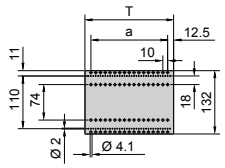
Material

2.5 mm Aluminium, Clear-chromated

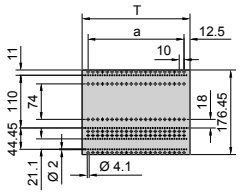
			Order No.								
U			**3**	**4 (3 + 1)**	**4 (3 + 2 x ½)**	**6**	**7 (6 + 1)**	**7 (6 + 2 x ½)**	**9**	**10**	**11**
D (T) mm	a [1] mm	Packs of									
175	150	1	**9901.021**	-	-	**9901.023**	-	-	-	-	-
185	160	1	**3684.511**	-	-	**3684.529**	-	-	-	-	-
225	200	1	**3684.512**	**3685.793**	**3685.890**	**3684.530**	**3685.896**	**3685.893**	**3685.797**	-	-
245	220	1	**3684.513**	**3685.850**	**3685.891**	**3684.531**	**3685.897**	**3685.894**	-	-	-
285	260	1	**3684.514**	**3684.523**	**3684.526**	**3684.532**	**3685.743**	**3685.895**	-	-	-
305	280	1	**3684.515**	**3685.794**	-	**3684.533**	-	-	**3685.798**	-	-
345	320	1	**3684.516**	**3684.524**	**3684.527**	**3684.534**	**3685.744**	**3685.745**	**3684.547**	-	-
365	340	1	**3684.517**	**3685.795**	-	**3684.535**	-	-	**3685.799**	-	-
405	380	1	**3684.518**	**3684.525**	**3684.528**	**3684.536**	**3684.541**	**3684.543**	**3684.548**	**3684.545**	-
425	400	1	**3684.519**	-	-	**3684.537**	-	-	-	-	-
465	440	1	**3684.520**	**3685.796**	**3685.892**	**3684.538**	**3684.542**	**3684.544**	**3684.549**	**3684.546**	**3684.552**
525	500	1	**3684.521**	**9906.727**	-	**3684.539**	**3685.898**	**3685.959**	**3684.550**	**3685.899**	**3684.553**
585	560	1	**3684.522**	**9906.914**	-	**3684.540**	-	-	**3684.551**	-	**3684.554**

[1] a = Distance between the first and last mounting hole.

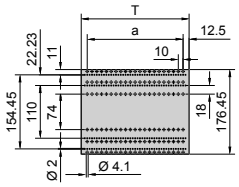
3 U



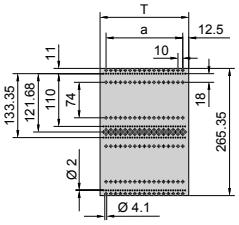
4 U (3 U + 1 U)



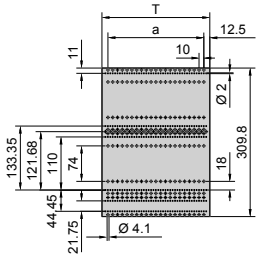
4 U (3 U + 2 x ½ U)



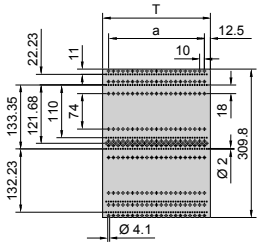
6 U



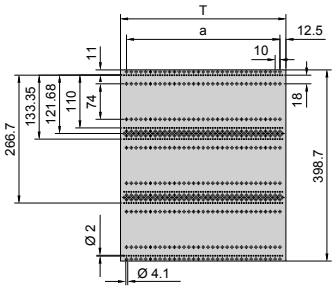
7 U (6 U + 1 U)



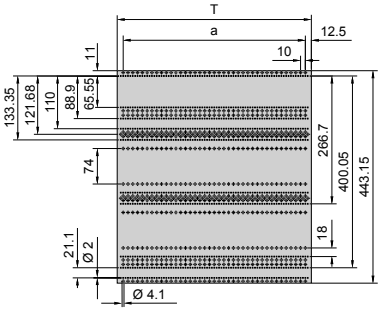
7 U (6 U + 2 x ½ U)



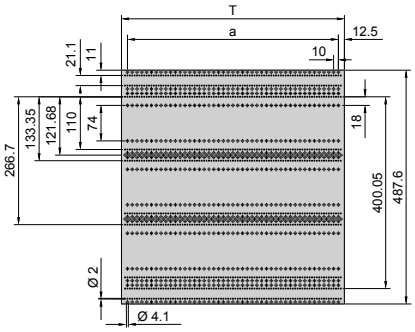
9 U



10 U



11 U



Flanges 19“ for HeiPac Vario

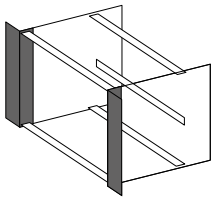
With integral channel to accommodate EMC gaskets.

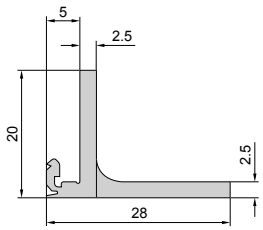
Material
Extruded aluminum section

Surface finish
Clear-chromated

U	Packs of	Order No. with handle holes	Order No. without handle holes
2	1	-	**3684.614**
3	1	**3684.622**	**3684.615**
4	1	**3684.623**	**3684.616**
6	1	**3684.624**	**3684.617**
7	1	**3684.625**	**3684.618**
9	1	-	**3684.619**
10	1	-	**3684.620**
11	1	-	**3684.621**

+ Accessories
EMC gaskets, vertical
see page 146
Handles for subrack
see page 57





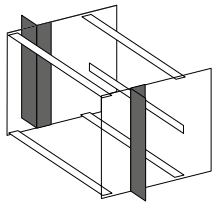
Flanges 19“ for HeiPac Vario, set-back

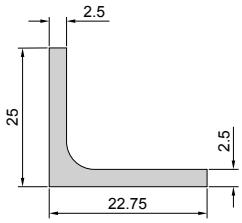
Material
Extruded aluminum section

Surface finish
Clear-chromated

U	Packs of	Order No.
3	1	**3684.626**
4	1	**3684.627**
6	1	**3684.628**
7	1	**3684.629**
9	1	**3684.630**
10	1	**3684.631**
11	1	**3684.632**

+ Also required
Assembly screws, nuts and washers
packs of 4 sets, Order No. 3687.015
see page 203





COVERS HeiPac Vario / Vario EMC

Covers version 1

For all HeiPac Vario subracks

To cover the overall-subrack depth
(EMC application) or as connector protection

- Flat design for top and bottom
- Optionally solid or perforated
- For mounting on the sub-rack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version.

Each set includes

2 cover plates
8 mounting blocks 28.5 mm
24 assembly screws

Individual unit includes

1 cover plate

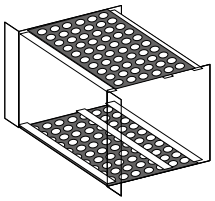
Note

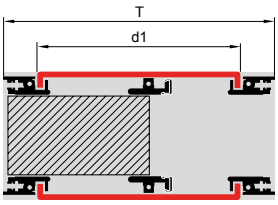
For EMC applications, additional mounting blocks must be fitted across the entire subrack depth.

			Order No.			
			Single piece [1]		Set	
HP	For side panel depth (T) mm	Cover depth (d1) mm	Perforated	Solid	Perforated	Solid
21	225	192	**3687.618**	**3687.620**	-	-
21	285	252	**3687.619**	**3687.621**	-	-
42	175	142	**3684.957**	**3687.626**	-	-
42	225	192	**3687.623**	**3687.627**	-	-
42	245	212	**3684.958**	**3687.628**	-	-
42	285	252	**3685.642**	**3687.629**	-	-
84	175	142	**3684.681**	**3684.680**	**3685.245**	**3685.250**
84	225	192	**3684.694**	**3684.683**	-	-
84	235	202	**3685.851**	**3685.813**	-	-
84	245	212	**3684.695**	**3684.684**	**3685.246**	**3685.251**
84	285	252	**3684.696**	**3684.685**	-	-
84	295	262	**3685.855**	**3685.814**	-	-
84	305	272	**3685.852**	**3684.686**	**3685.247**	**3685.252**
84	345	312	**3684.698**	**3684.687**	-	-
84	365	332	**3685.853**	**3684.688**	**3685.248**	**3685.253**
84	405	372	**3684.700**	**3684.689**	**3685.249**	**3685.254**
84	465	432	**3684.701**	**3684.691**	-	-
84	525	492	**3684.702**	**3684.692**	-	-
84	585	552	**3684.703**	**3684.693**	-	-

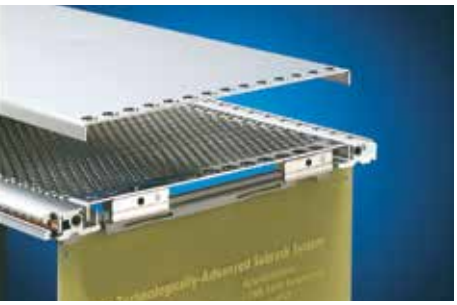
+ Also required

[1] Mounting blocks, see page 148
[1] EMC gaskets for cover plates, see page 147
[1] Assembly screws, packs of 100, order no. 3684.233 see page 202





Covers version 2



For all HeiPac Vario subracks

To cover the PCB depth

- Flat design for top and bottom
- Optionally solid or perforated
- For mounting on the subrack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version

Each set includes

2 cover plates
8 mounting blocks 28.5 mm
24 assembly screws

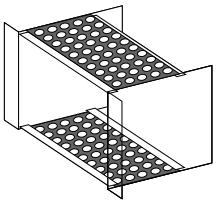
Individual unit includes:

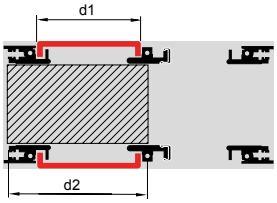
1 cover plates

			Order No.			
			Single piece [1]		Set	
HP	For PCB depth (d2) mm	Cover depth (d1) mm	Perforated	Solid	Perforated	Solid
21	160	142	**3687.630**	**3687.634**	-	-
21	220	202	**3687.631**	**3687.635**	-	-
42	160	142	**3684.957**	**3687.626**	-	-
42	220	202	**3687.633**	**3687.637**	-	-
42	280	262	**3687.638**	**3687.639**	-	-
84	160	142	**3684.681**	**3684.680**	**3685.245**	**3685.250**
84	220	202	**3685.851**	**3685.813**	-	-
84	280	262	**3685.855**	**3685.814**	-	-
84	340	322	**3685.856**	-	-	-
84	400	382	**3685.857**	-	-	-

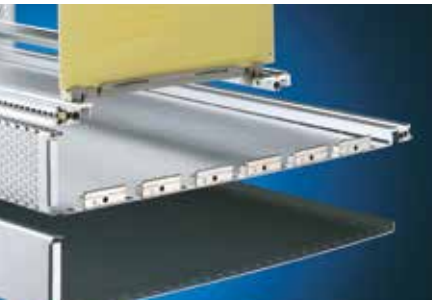
+ Also required

[1] Mounting blocks, see page 148
[1] Assembly screws, packs of 100, order no. 3684.233 see page 202





Covers version 3



For all HeiPac Vario subracks

To cover the overall subrack depth
(EMC application)

- Cover with 1 U edge fold (item 1), to conceal the 1 U area in the subrack
- A version 1 fl at cover (item 2) is additionally required
- Optionally perforated or solid on the front
- Suitable for subracks 4 U (3 + 1), 7 U (6 + 1)
- For mounting on the subrack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter
4 mm in perforated version.

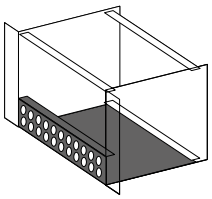
Note

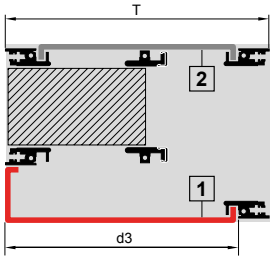
For EMC applications, mounting blocks must be fitted across the entire subrack depth.

			Order No.	
HP	For side panel depth (T) mm	Cover depth (d3) mm	Perforated	Solid
84	285	270	**3684.720**	**3684.714**
84	345	330	**3684.721**	**3684.715**
84	405	390	**3684.722**	**3684.716**
84	465	450	**3684.723**	**3684.717**
84	525	510	**3684.724**	**3684.718**
84	585	570	**3684.725**	**3684.719**

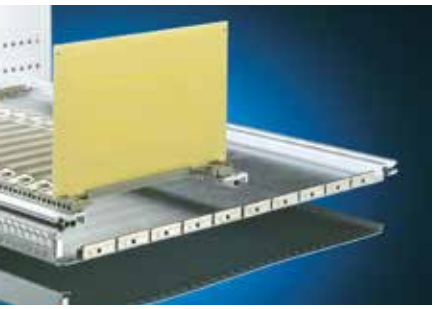
+ Also required

Mounting blocks, see page 148
EMC gaskets for covers, see page 147
Assembly screws, packs of 100, order no. 3684.233, see page 202
Cover, version 1, see page 161





Covers version 4



For all HeiPac Vario subracks

To cover the overall subrack depth
(EMC application)

- Cover top/bottom with ½ U edge fold to cover the ½ U section in the subrack
- Optionally perforated or solid on the front
- Suitable for subracks 4 U (3 + 2 x ½), 7 U (6 + 2 x ½)
- For mounting on the subrack side panel with the aid of mounting blocks.

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version.

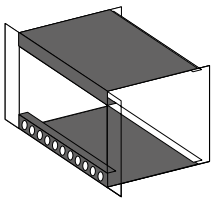
Note

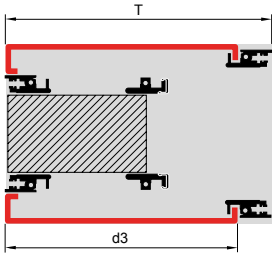
For EMC applications, mounting blocks must be fitted across the entire subrack depth.

			Order No.	
HP	For side panel depth (T) mm	Cover depth (d3) mm	Perforated	Solid
84	285	270	**3684.732**	**3684.726**
84	345	330	**3684.733**	**3684.727**
84	405	390	**3684.734**	**3684.728**
84	465	450	**3684.735**	**3684.729**
84	525	510	**3684.736**	**3684.730**
84	585	570	**3684.737**	**3684.731**

+ Also required

Mounting blocks, see page 148
EMC gaskets for covers, see page 147
Assembly screws, packs of 100, order no. 3684.233, see page 202





Covers version 5

For all HeiPac Vario subracks

To cover the overall subrack depth or PCB depth.
(EMC application)

Simple assembly:
- Side edge fold with half shears facilitates fast assembly (without mounting blocks) by simply snap-fastening
- Side notches for fitting horizontal rails in 160, 220 or 280 mm depth
- Optionally solid or perforated

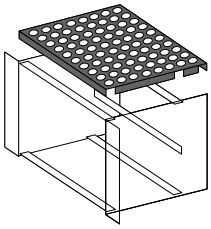
Material

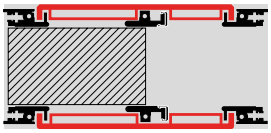
1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version.

Supply includes

2 gaskets

			Order No.	
HP	Position of side notches for horizontal rails mm	For side panel depth mm	Perforated	Solid
21	160	175/185	**3687.624**	**-**
21	160/220	235	**3687.692**	**-**
42	160	175/185	**3687.625**	**-**
42	160/220	235	**3687.677**	**-**
42	160	245	**3687.640**	**-**
84	160	175/185	**3687.641**	**3687.647**
84	160	245	**3687.642**	**3687.648**
84	160/220	235	**3687.643**	**3687.649**
84	160/220	285	**3687.644**	**3687.650**
84	160/220	305	**3687.645**	**3687.651**
84	160/220/280	345	**3687.646**	**3687.652**





MOUNTING COVERS HeiPac Vario / Vario EMC

Mounting blocks for cover plates

For mounting covers, versions 1 – 4, on the subrack side panel.

Material

Die-cast zinc

Surface finish

Nickel-plated

Note

For EMC applications, mounting blocks must be fi tted across the entire subrack depth.
The table here shows the number of mounting blocks required to install 1 cover plate with EMC shielding.

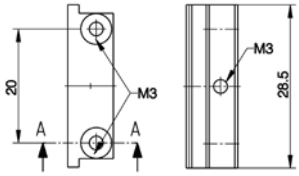
	Packs of	Order No.
Mounting blocks 28.5 mm long	10	**3684.234**

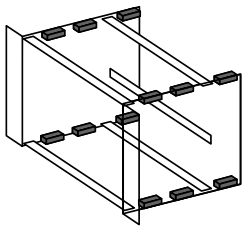
Number of mounting blocks for max. EMC protection	Cover plate depth mm
4	142
8	192
10	212
12	252
14	272
16	312
18	332
20	372
24	432
28	492
32	552

EMC

+ Also required

Assembly screws M3 x 6, packs of 100, order no. 3684.233, see page 202





Mounting clips for cover plates

For mounting covers on the subrack side panel

Compatible with cover plate versions 1-4 and the ECO and EASY versions, and with sheet metal blanks 0.8-1.0 mm thick. For EMC applications, mounting clips must be fitted across the full depth of the subrack.

Material

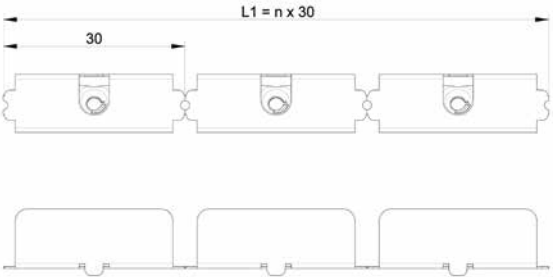
Stainless steel

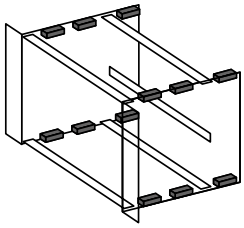
Length mm	n	Packs of	Order No.
30	1	1	**3688.109**
90	3	1	**9921.722**
120	4	1	**9921.883**
150	5	1	**9921.723**
180	6	1	**9921.884**
210	7	1	**9921.724**
240	8	1	**9921.885**

NEW

+ Also required

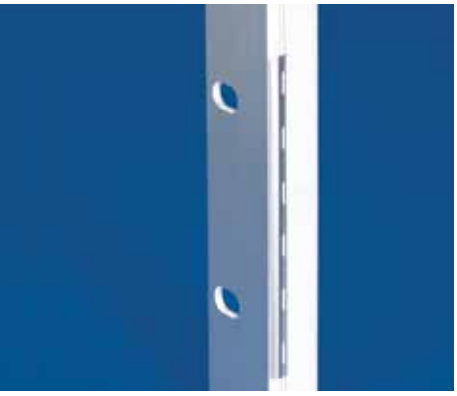
Assembly screws, order no. 9921.879





EMC

EMC gaskets, vertical



To ensure EMC protection between the subrack side panel and the front/rear panels. There are two versions available.

Suitable for mounting on:

- 482.6 mm (19″) fl anges for subracks
- Corner trims, rear
- EMC contact strip
- U-channel front panels

Material
Stainless steel

German patent
no. 101 15 525 and
no. 198 46 627
US patent no. 6,500,012
US patent no. 7,044,753

EMC

Version 1: Segmented

U	**Order No.** Packs of 1	**Order No.** Packs of 10
1	**3686.973**	**3684.236**
2	**3686.974**	**3684.237**
3	**3686.975**	**3684.238**
4	**3686.976**	**3684.239**
6	**3686.977**	**3684.240**
7	**3686.978**	**3684.241**
9	**3686.979**	**3684.242**
10	**3686.980**	**3684.243**
11	**3686.981**	**3684.244**

Version 2: One-piece

U	**Order No.** Packs of 1	**Order No.** Packs of 10
2	**3688.610**	**-**
3	**3688.611**	**9921.942**
4	**3688.612**	**-**
5	**3688.613**	**-**
6	**3688.614**	**9921.943**
7	**3688.615**	**-**
8	**3688.634**	**-**
9	**3688.616**	**9921.944**
10	**3688.609**	**-**
11	**3688.633**	**-**
12	**3688.606**	**-**

EMC contact strip

To ensure EMC protection when horizontal rails are set-back.
Integral channel to accommodate EMC gaskets.

Material
Extruded aluminium section

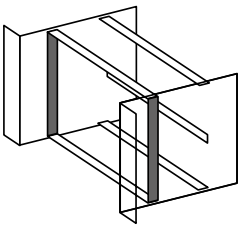
Surface finish
Clear-chromated

Note
2 sections are required for each subrack.

U	Packs of	**Order No.**
3	1	**3684.643**
6	1	**3684.644**
9	1	**3684.645**

+ Also required
EMC gaskets, vertical, see page 55
Assembly screws M3 x 6, packs of 100, order no. 3684.233, see page 202

EMC



COMPONENTS FOR EMC INSTALLATION HeiPac Vario / Vario EMC

EMC gaskets for front horizontal rails

For horizontal EMC protection. For snapfastening onto the front horizontal rails.

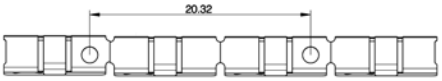
Material

Stainless steel

European patent no. 0 937 375 with validity for DE
US patent no. 6,137,052
Chinese patent no. ZL 97 1 98582.0

Usable width (HP)	Packs of	**Order No.**
For top/bottom horizontal rail		
40	1	**3684.974**
40	10	**9921.945**
84	1	**3684.808**
84	10	**3684.246**
For sub-division of 6 U into 2 x 3 U, between 2 horizontal rails		
84	1	**3685.789**
84	10	**3685.229**

EMC



EMC gaskets for covers

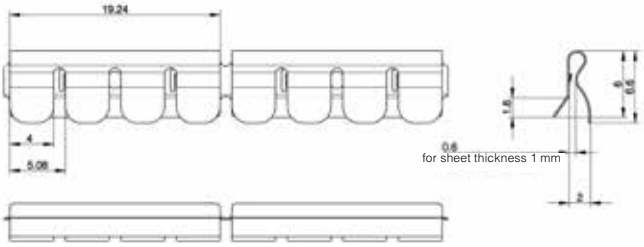
For EMC shielding between the horizontal rails and covers.

Material

Stainless steel

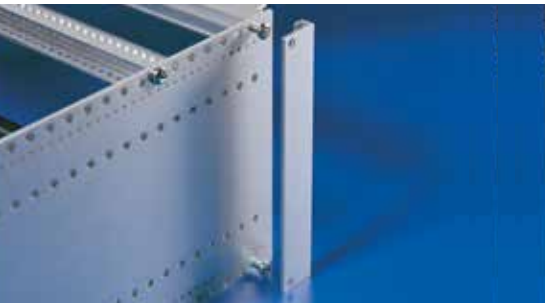
HP	Packs of	**Order No.**
40	1	**3684.975**
84	1	**3684.807**
84	10	**3684.245**

EMC



RECOMMENDED ACCESSORIES HeiPac Vario / Vario EMC

Trim section for HeiPac Vario, rear



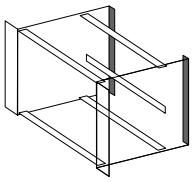
Ensures 84 HP fit at the rear of the subrack. With integral channel to accommodate EMC gaskets.

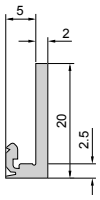
Material
Extruded aluminium section

Surface finish
Clear-chromated

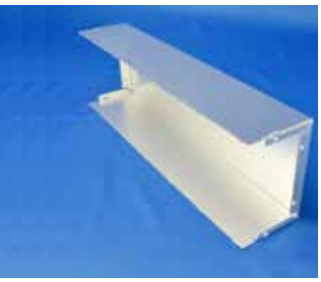
U	Order No.	
	Packs of 1	Packs of 2
2	**3684.633**	**-**
3	**3684.634**	**3685.276**
4	**3684.635**	**-**
6	**3684.636**	**3685.277**
7	**3684.637**	**-**
9	**3684.638**	**-**
10	**3684.639**	**-**
11	**3684.640**	**-**

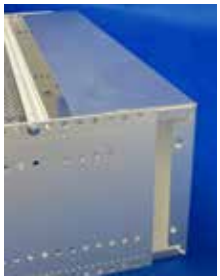
+ Accessories
EMC gaskets, vertical, see page 146





Back cover for HeiPac Vario





NEW

Ensures cover for back of subrack

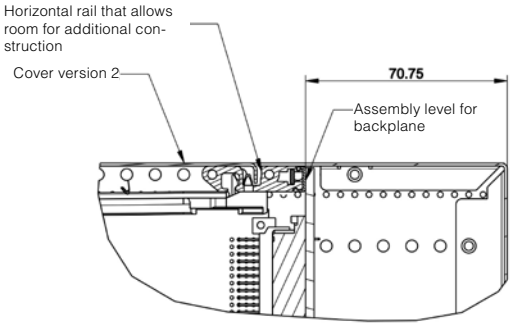
Material
Aluminium

Surface finish
Clear-chromated

Note
The side panel depth required is obtained by taking the length of the plug-in units used, and adding 85 mm (refer to table).
A precondition is the use of a horizontal rail that allows room for additional construction.

U	Packs of	Order No.
3	1	**9921.685**
6	1	**9921.710**

PCB depth mm	Side panel depth mm
160	245
220	305
280	365



Handles for HeiPac subracks

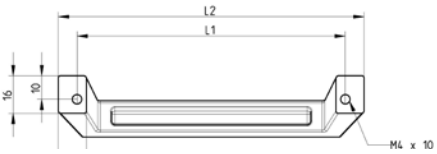
For fitting on the subrack flange with handle holes and on all component shelves.

Material
Die-cast zinc

Supply includes
Assembly parts

Surface finish
Spray-finished, silver-grey

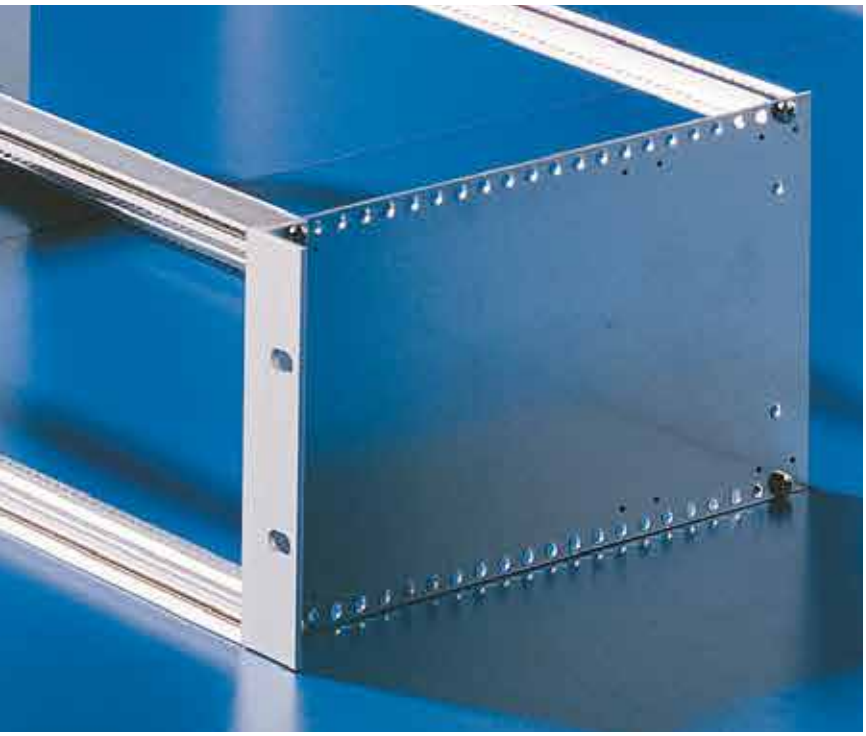
For	L1	L2	Packs of	Order No.
Subracks 3 U and 4 U	114.5	130.5	2	**3636.010**
Subracks 6 U and 7 U	248	264	2	**3666.010**



Additional accessories see page

Guide rails → 154
Assembly parts → 202

HeiPac Vario ECO



Economical 19" subrack system for standard applications

Applications

Economical subrack system for standard applications. Suitable for installation of standardised PCBs or plug-in units of 160 and 220 mm depth.

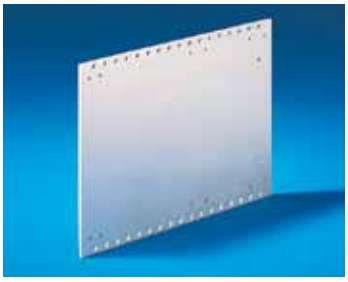
Technical specifications

- Based on the HeiPac Vario subrack family, the basic components (horizontal rails) of the HeiPac Vario ECO are partly compatible with the HeiPac Vario.
- 482.6 mm (19˝) subrack according to DIN 41 494, part 5/ IEC 60 297-3
- 3 and 6 U
- For board depths: 160 mm and 220 mm
- Side panels of sheet steel, zinc-plated
- Pre-configured assembly points for horizontal rails
- Rear installation for backplanes, optionally for connectors
- Separate 19˝ flanges

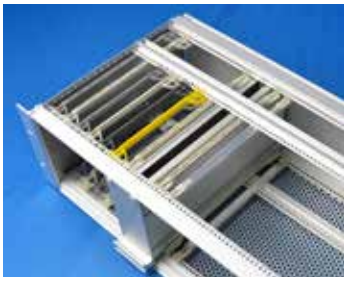
Benefits at a glance

- Fast and easy handling
- Low-cost version
- Upgradable for assembly of backplanes or connectors

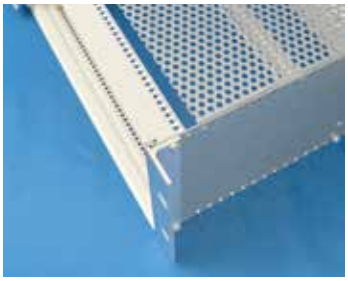
Optional EMC upgrade ensures high EMC protection



Side panels made of zinc-plated sheet steel

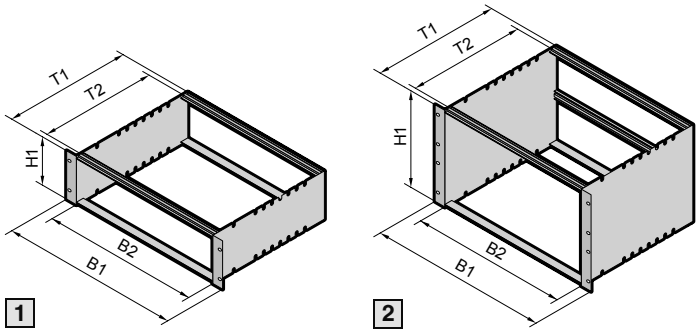


A wide range of accessories allow manifold expansions



Plug-in top covers facilitate an easy assembly

HeiPac Vario ECO 3 U, 6 U, sheet steel



Material/surface finish

Side panels:	1.5 mm sheet steel, zinc-plated
Horizontal rails:	Extruded aluminium section, clear-chromated
Flanges:	Extruded aluminium section, clear-chromated

Supply includes

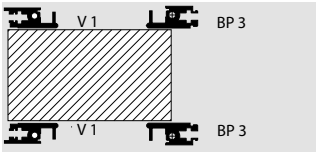
Side panels, flanges, horizontal rails, threaded inserts, assembly screws

Tests

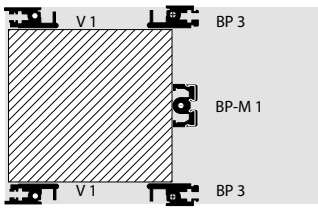
Shock and vibration tested to:
IEC 600-68-2-6 Prüfung Fc
IEC 600-68-2-27 Prüfung Ea

Standards

HeiPac subracks are based on the system dimensions of IEC 60 297-3.



1 for backplane



2 for backplane

					Order No.	
					1	2
U (H1)					**3**	**6**
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For backplane
482.6 (19“)	84	175	150	160	**3688.114**	**3688.116**
		235	210	220	**3688.115**	**3688.117**

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HORIZONTAL RAILS HeiPac Vario ECO

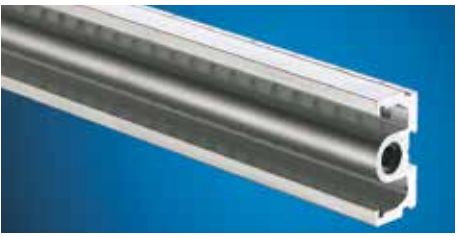
Overview horizontal rails HeiPac Vario ECO

Main sections / Additional sections	**V 1** Front horizontal rail	**BP 3** Rear horizontal rail	**CON 2** Rear horizontal rail, with integral Z rail	**BP-M 1** Rear horizontal rail, centre
	Page 62	Page 62	Page 61	Page 61
E Adaptor rail, rear centre, to acommodate guide rails Page 140	-	-	-	
F Z rail for connector Page 144	-		-	
G Insulating strip [1] Page 145	-		-	
H Conductive strip [2] Page 145	-		-	
I Threaded insert Page 144				-
J Identification strips Page 144			-	-
K EMC gaskets, horizontal Page 145			-	-

For [1]insulated or [2]conductive attachment of backplanes.

All system requirements may be covered with just a few basic types of horizontal rail. A cost-effective, easy-to-manage range.

Horizontal rail Vario BP-M 1, for backplane, centre



When using 6 U PCBs or box-type plug-in units. Facility for the attachment of Z rails, insulating strips or conductive strips.

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
84	1	**3684.582**
84	1	**3685.270** [1)]

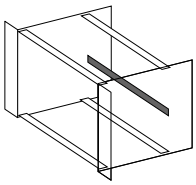
[1)] Including 2 assembly screws

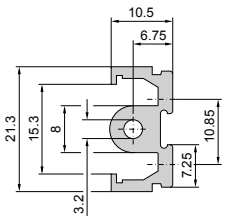
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300

+ Accessories

Conductive strips
see page 145
Insulating strips
see page 145
Z rails
see page 144





Horizontal rail Vario CON 2, with integral Z rail for connector

To accommodate guide rails. Integral Z rail for mounting connectors (CON) to DIN 41612

- HP pitch pattern of holes for the precise installation of guide rails
- 84 tapped holes M2.5 for connector mounting
- Not suitable for mounting under covers
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

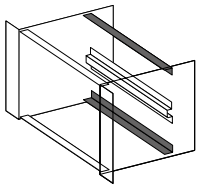
Usable width (HP)	Packs of	Order No.
84	1	**9901.991**

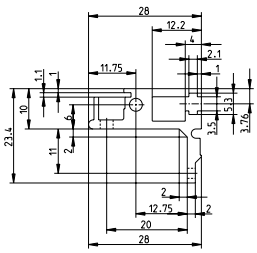
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300

+ Accessories

Threaded inserts, packs of 1, order no. 9901.816
see page 144





HORIZONTAL RAILS HeiPac Vario ECO

Horizontal rail Vario V 1, front

To accommodate guide rails and for the attachment of front panels

- Front projection 2.5 mm corresponding to IEC 60 297-3-101
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

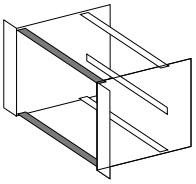
Usable width (HP)	Packs of	**Order No.**
84	1	**3684.562**

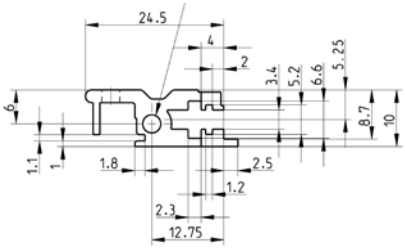
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

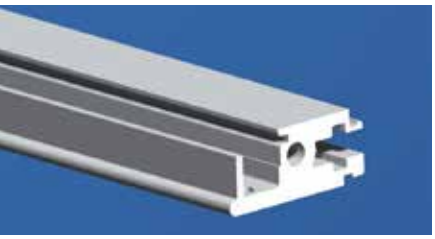
+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144





Horizontal rail Vario BP 3, for backplane, with integral channel for slide-in covers



To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips.

- HP pitch pattern of holes for the precise installation of guide rails
- Channel for slide-in covers
- Additional threaded inserts (3684.610) are reqiured for mounting backplanes/Z rails
- M4 thread on end face
- Straight-through core hole
- Not suitable for mounting under covers

Material

Extruded aluminium section

Surface finish

Clear-chromated

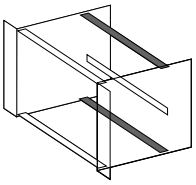
Usable width (HP)	Packs of	**Order No.**
84	1	**3688.104**

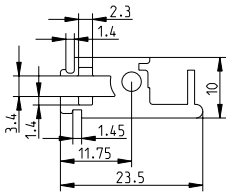
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300

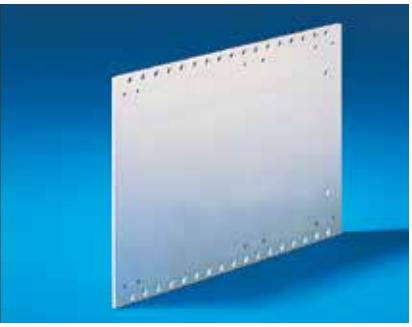
+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144





Side panels for HeiPac Vario ECO



Mounting holes on a 10 mm pitch pattern.

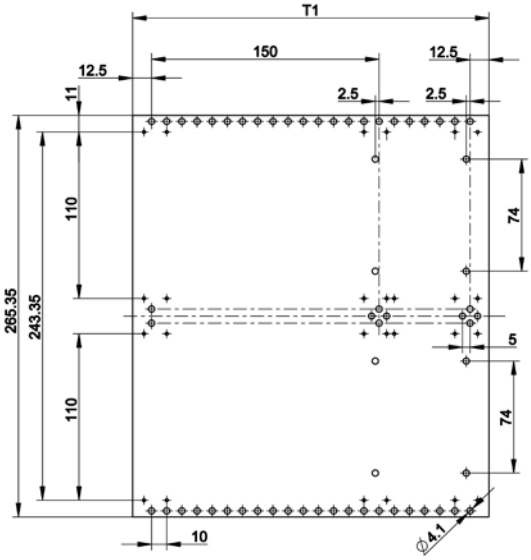
Material

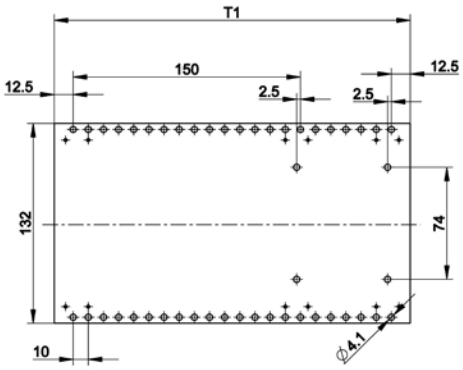
1.5 mm sheet steel
Zinc-plated

D (T) mm	Packs of	Max. board depth mm	Order No.	
			3 U	6 U
175	1	160	**3688.100**	**3688.102**
235	1	220	**3688.101**	**3688.103**

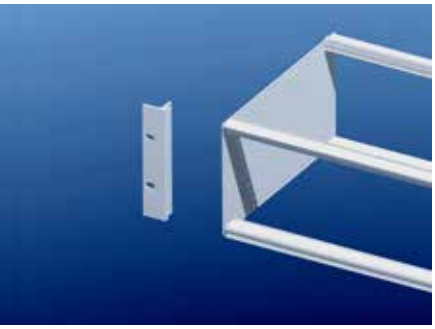
+ Accessories

Flanges for HeiPac ECO
see page 63





Flanges 19“ for HeiPac Vario ECO



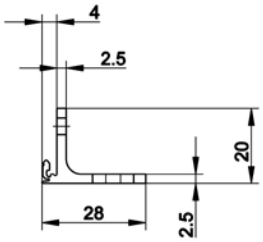
Material

Extruded aluminum section

Surface finish

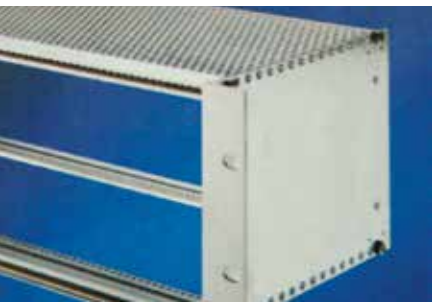
Clear-chromated

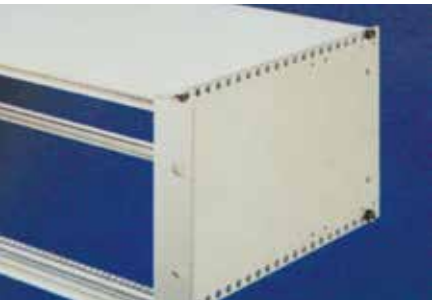
U	Packs of	Order No.
3	1	**3688.110**
6	1	**3688.111**



RECOMMENDED ACCESSORIES HeiPac Vario ECO

Covers for HeiPac Vario ECO





To cover the overall subrack depth
- Perforated or solid
- The covers are slid into the horizontal rails
- Optionally with screwed fastening clips for additional support

Material

Sheet steel

Surface finish

Zinc-plated

Supply includes

1 cover plate

HP	For side panel depth mm	Order No.	
		Perforated	Solid
84	175	**3688.105**	**3688.107**
84	235	**3688.106**	**3688.108**

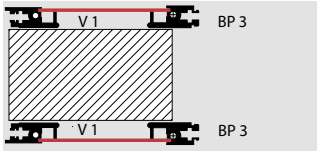
+ Accessories

Fastening clips

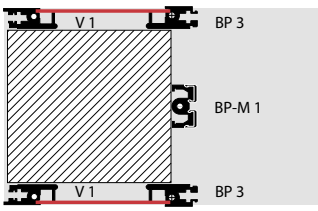
Packs of	Order No.
1	**3688.109**

Assembly screw

Packs of	Order No.
100	**9921.879**



1 for backplane



2 for backplane

Mounting clips for cover plates

For mounting covers on the subrack side panel

Compatible with cover plate versions 1-4 and the ECO and EASY versions, and with sheet metal blanks 0.8-1.0 mm thick. For EMC applications, mounting clips must be fitted across the full depth of the subrack.

Material

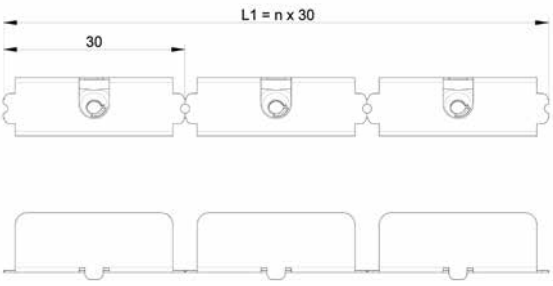
Stainless steel

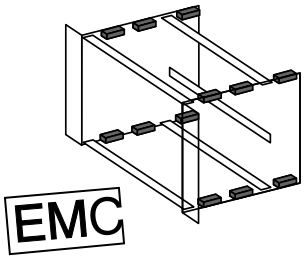
Length mm	n	Packs of	Order No.
30	1	1	**3688.109**
90	3	1	**9921.722**
120	4	1	**9921.883**
150	5	1	**9921.723**
180	6	1	**9921.884**
210	7	1	**9921.724**
240	8	1	**9921.885**

+ Also required

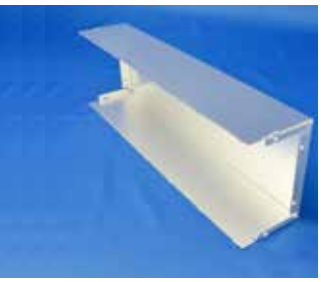
Assembly screws, order no. 9921.879

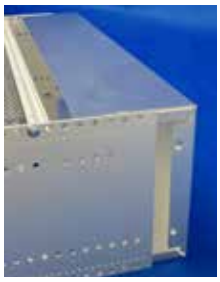
NEW





Back cover for HeiPac Vario





NEW

Ensures cover for back of subrack

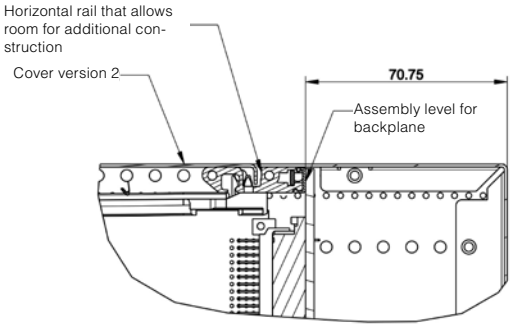
Material
Aluminium

Surface finish
Clear-chromated

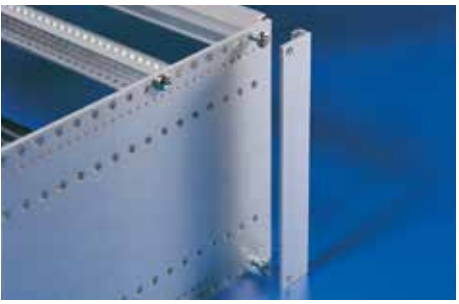
Note
The side panel depth required is obtained by taking the length of the plug-in units used, and adding 85 mm (refer to table).
A precondition is the use of a horizontal rail that allows room for additional construction.

U	Packs of	Order No.
3	1	**9921.685**
6	1	**9921.710**

PCB depth mm	Side panel depth mm
160	245
220	305
280	365



Trim section for HeiPac Vario ECO, rear



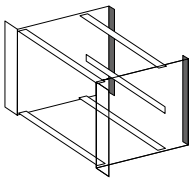
Ensures 84 HP fit at the rear of the subrack.
With integral channel
to accommodate EMC gaskets.

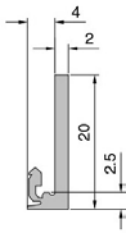
Material
Extruded aluminium section

Surface finish
Clear-chromated

U	Packs of	Order No.
3	1	**3688.112**
6	1	**3688.113**

+ Accessories
EMC gaskets, vertical,
see page 146





Additional accessories see page

Guide rails → 154
Assembly parts → 202

HeiPac Vario COMPACT

For mounting plates or top-hat rails

Applications

Subrack system for direct mounting in a cabinet. Mounting either on top hat rails or on mounting plate. Suitable for installation of standardised PCBs or plug-in units.

Technical specifications

- Based on the HeiPac Vario subrack family, the basic components of the HeiPac Vario COMPACT are compatible with the HeiPac Vario.
- Subrack according to IEC 60 297-3
- 3 and 6 U
- Side panels of aluminium, clear-chromated
- For board depths up to 160 mm
- Rear equipment for installation of backplanes
- Installation width: 21 and 42 HP

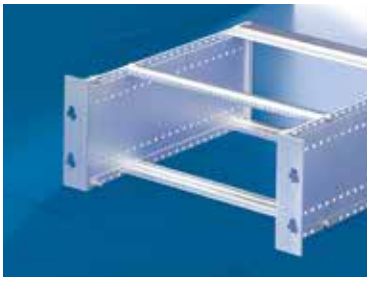
Benefits at a glance

- Direct mounting on a mounting plate or a top-hat rail
- Variable cable entry from bottom/top for EMC version
- Side panels with 10 mm mounting grids for variable system assembly
- Suitable for mounting backplanes
- Optionally in EMC version

Compact dimensions in 21 HP and 42 HP

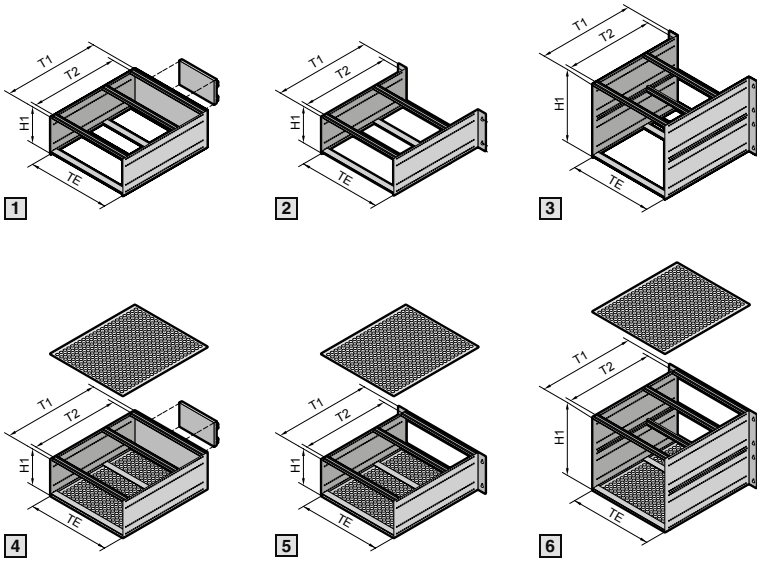
Adapter for rail mounting

Contact springs provide high EMC protection



Flange for wall-mounting

HeiPac Vario Compact 3 U, 6 U



B = Width HE = U
T = Depth TE = HP

1 4
HeiPac Compact 3 U for top-hat rail

2 3 5 6
HeiPac Compact 3 U for mounting plate

Material/surface finish

Side panels: 2.5 mm aluminium, clear-chromated
Horizontal rails: Extruded aluminium section, clear-chromated
Flanges: Extruded aluminium section, clear-chromated

Supply includes

Side panels, rear trims, flanges for mounting plates or top-hat rail adaptors, EMC front/rear panels, horizontal rails, threaded inserts, insulating strips

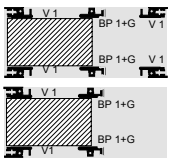
EMC version additional includes:
EMC gaskets, covers

Tests

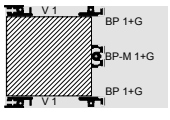
Shock and vibration tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-27 test Ea

Standards

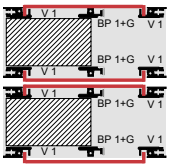
HeiPac subracks are based on the system dimensions of IEC 60 297-3.



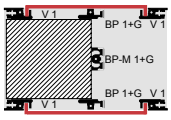
1 Top: for top-hat rail
2 Bottom: for mounting plate



3 For mounting plate



4 Top: EMC for top-hat rail
5 Bottom: EMC for mounting plate



6 EMC for mounting plate

			Order No.					Order No. EMC				
			1	2	1	2	3	4	5	4	5	6
U			**3**	**3**	**3**	**3**	**6**	**3**	**3**	**3**	**3**	**6**
Height (H1) mm			132	132	132	132	265.35	132	132	132	132	265.35
HP			21	21	42	42	42	21	21	42	42	42
Attachment			Top-hat rail	Mounting plate	Top-hat rail	Mounting plate	Mounting plate	Top-hat rail	Mounting plate	Top-hat rail	Mounting plate	Mounting plate
Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane									
225	200	160	**3687.667**	**3687.669**	**3687.671**	**3687.673**	**3687.680**	**3687.682**	**3687.684**	**3687.686**	**3687.688**	**3687.690**
285	260	220	**3687.668**	**3687.670**	**3687.672**	**3687.674**	**3687.681**	**3687.683**	**3687.685**	**3687.687**	**3687.689**	**3687.691**

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

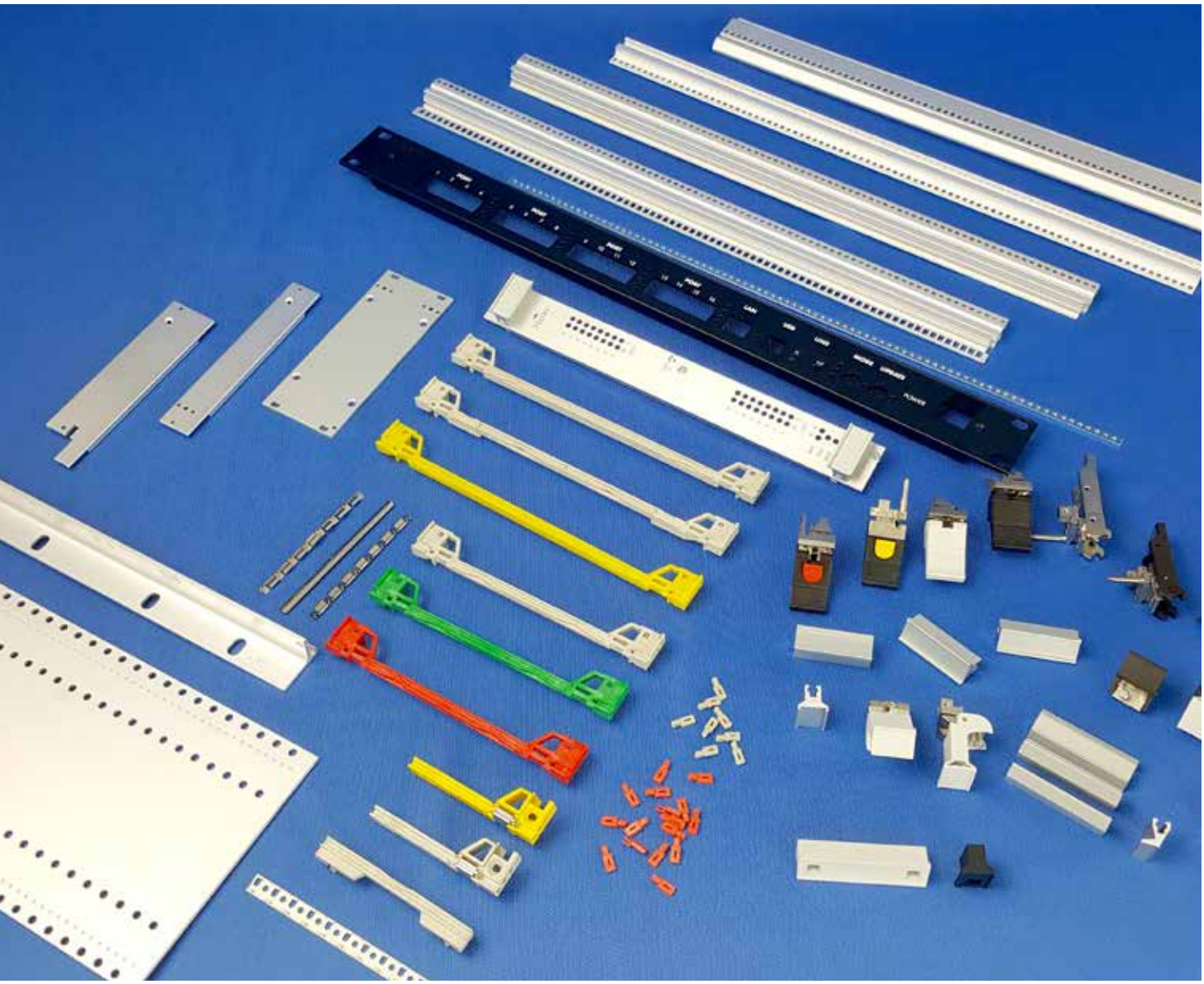
Components, accessories and services for HeiPac Vario COMPACT

In addition to the presented subrack-kits, we offer components and accessories for your individual configuration on the following pages.

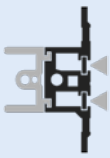
WE MEET YOUR INDIVIDUAL NEEDS!

You are looking for a product in the field of electronic packaging that is not in our catalogue? Please contact us! Due to our extensive range of services we can meet all your demands.
We will gladly submit a tailored quotation.

Phone: 09126 - 29 34 0
E-Mail: eps-quote@heitec.de



Overview horizontal rails HeiPac Vario COMPACT

Main sections / Additional sections	**V 1** Front horizontal rail	**V-Ext. 1** Front horizontal rail, with 10 mm extension, for extractor handle type IV or VII	**BP 1** Rear horizontal rail	**CON 1** Rear horizontal rail, with integral Z rail	**BP-M 1** Rear horizontal rail, centre	**CON-M 1** Rear horizontal rail, with integral Z rail (also for HeiPac EASY)
	Page 70	Page 70	Page 71	Page 71	Page 72	Page 72
E Adaptor rail, rear centre, to acommodate guide rails Page 140	-	-	-	-		
F Z rail for connector Page 144	-	-		-		-
G Insulating strip [1] Page 145	-	-		-		-
H Conductive strip [2] Page 145	-	-				-
I Threaded insert Page 144			-		-	
J Identification strips Page 144					-	-
K EMC gaskets, horizontal Page 145			-	-	-	-

For [1]insulated or [2]conductive attachment of backplanes.

All system requirements may be covered with just a few basic types of horizontal rail. A cost-effective, easy-to-manage range.

HORIZONTAL RAILS HeiPac Vario COMPACT

Horizontal rail Vario V 1, front

To accommodate guide rails and for the attachment of front panels

- Front projection 2.5 mm corresponding to IEC 60 297-3-101
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

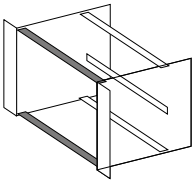
Usable width (HP)	Packs of	**Order No.**
21	1	**3685.985**
42	1	**3684.560**

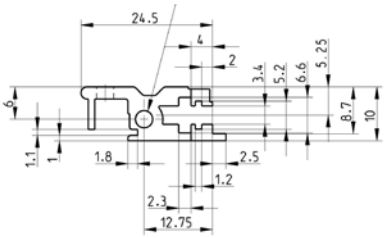
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300

+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144





Horizontal rail Vario V-Ext. 1, front, with 10 mm extension

For type IV, IVs and VII injector/extractor handle

To accommodate guide rails and for the attachment of front panels.

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60 297-3-102
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
42	1	**3684.565**	**9921.790**[1)]

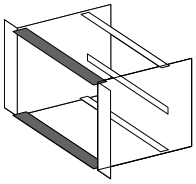
[1)] with HP pattern printing

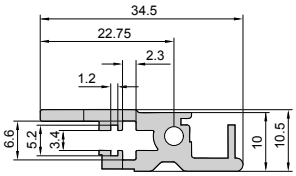
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Threaded inserts, packs of 1
order no. 3684.610
see page144





Horizontal rail Vario BP 1, for backplane

To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips.

- Tapped holes M2.5 on a 1 HP pitch pattern for mounting backplanes and Z rails
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Applicable for top-mounting under covers
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

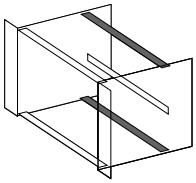
Usable width (HP)	Packs of	Order No.
21	1	**3685.991**
42	1	**3684.570**

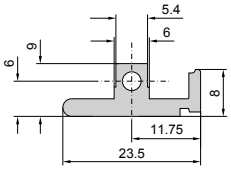
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

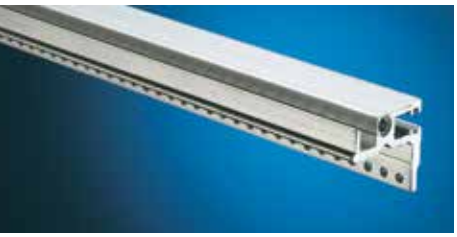
+ Accessories

Conductive strips
see page 145
Insulating strips
see page 145
Z rail
see page 144





Horizontal rail Vario CON 1, with integral Z rail for connector



To accommodate guide rails. Integral Z rail for mounting connectors (CON) to IEC 60 603-2.

- HP pitch pattern of holes for the precise installation of guide rails
- Tapped holes M2.5 for connector mounting
- Applicable for top-mounting under covers
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

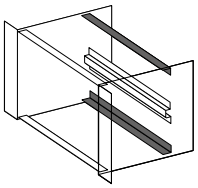
Usable width (HP)	Packs of	Order No.
42	1	**3686.191**

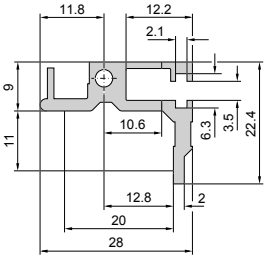
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

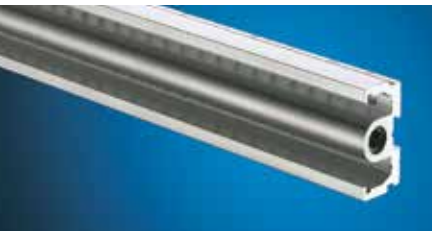
Threaded inserts, packs of 1
Order no. 3684.608
see page 144





HORIZONTAL RAILS HeiPac Vario COMPACT

Horizontal rail Vario BP-M 1, for backplane, centre



When using 6 U PCBs or box-type plug-in units. Facility for the attachment of Z rails, insulating strips or conductive strips.

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

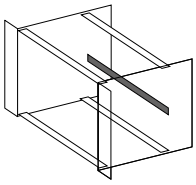
Usable width (HP)	Packs of	Order No.
42	1	**3684.580**

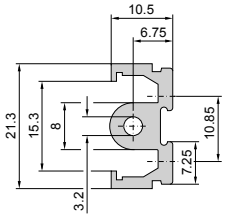
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

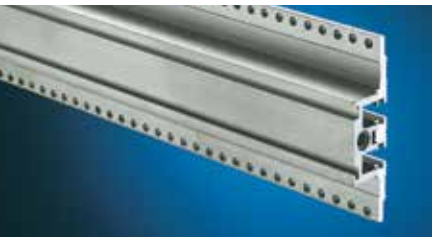
+ Accessories

Conductive strips
see page 145
Insulating strips
see page 145
Z rails
see page 144





Horizontal rail Vario CON-M 1, with integral Z rail for connector, rear centre



When using 6 U PCBs or box-type plug-in units. Integral Z rail for mounting connectors (CON) to IEC 60 603-2

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

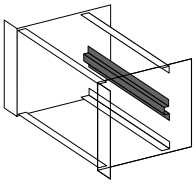
Surface finish

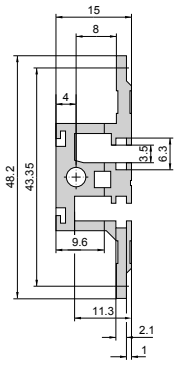
Clear-chromated

Usable width (HP)	Packs of	Order No.
42	1	**3687.600**

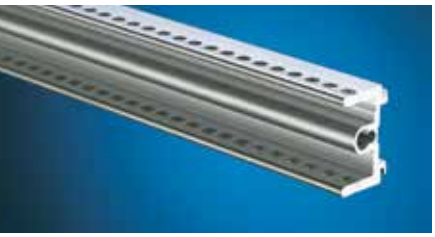
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





Adaptor rail, rear centre



When subdividing 6 U into 2 x 3 U, the adaptor rail accommodates the guide rails when fastened to the centre horizontal rail.

- HP pitch pattern of holes for the precise installation of guide railsr
- M4 and M2.5 thread on the end face
- Applicable in combination with BP-M 1, BP-M 2 and EST-M 1
- Straight-through core hole

Material

Extruded aluminium section

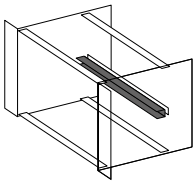
Surface finish

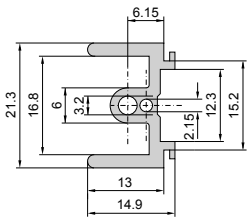
Clear-chromated

Usable width (HP)	Packs of	Order No.
42	1	**3684.590**

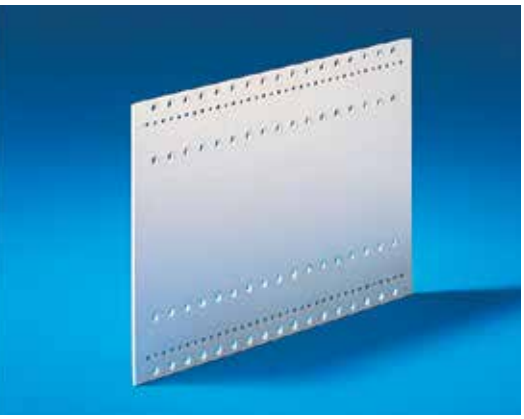
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





Side panels for HeiPac Vario



Mounting holes and anti-twist half-shears on a 10 mm pitch pattern.

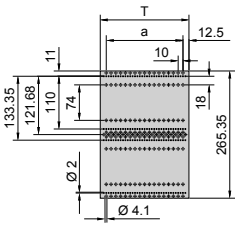
Material

2.5 mm Aluminium, Clear-chromated

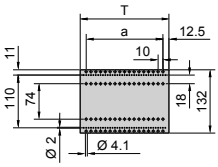
			Order No.	
U			**3**	**6**
T mm	a [1] mm	Packs of		
225	200	1	**3684.512**	**3684.530**
285	260	1	**3684.514**	**3684.532**
Versions with PG gland:				
225	200	1	**3687.746**	**3687.758**
285	260	1	**3687.747**	**3687.749**

[1] a = Distance between the first and last mounting hole.

6 U



3 U



Mounting blocks for cover plates

For mounting covers, versions 1 – 4, on the subrack side panel.

Material

Die-cast zinc

Surface finish

Nickel-plated

Note

For EMC applications, mounting blocks must be fi tted across the entire subrack depth.
The table here shows the number of mounting blocks required to install 1 cover plate with EMC shielding.

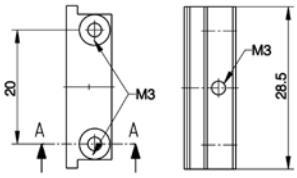
EMC

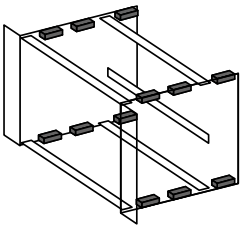
	Packs of	Order No.
Mounting blocks 28.5 mm long	10	**3684.234**

Number of mounting blocks for max. EMC protection	Cover plate depth mm
4	142
8	192
10	212
12	252
14	272
16	312
18	332
20	372
24	432
28	492
32	552

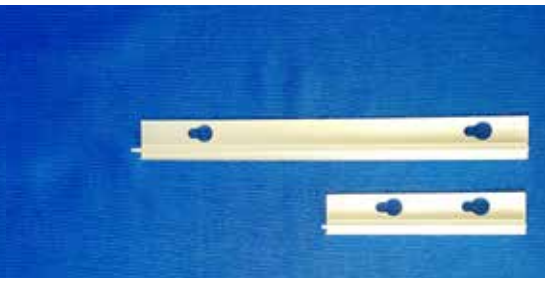
+ Also required

Assembly screws M3 x 6, packs of 100, order no. 3684.233, see page 202





Flange 19" for HeiPac Vario COMPACT, for applications with mounting plate



Material

Extruded aluminium section

Surface finish

Clear-chromated

	Packs of	Order No.	
U		**3**	**6**
left	1	**3687.776**	**3687.800**
right	1	**3687.743**	**3687.777**

NEW

COVERS HeiPac Vario COMPACT

Covers version 1

For all HeiPac Vario subracks

To cover the overall-subrack depth
(EMC application) or as connector protection

- Flat design for top and bottom
- Optionally solid or perforated
- For mounting on the subrack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version.

Supply includes

1 cover plate

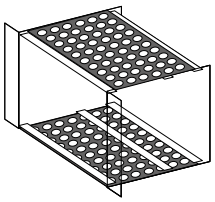
Note

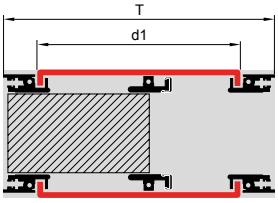
For EMC applications, additional mounting
blocks must be fitted across the entire subrack depth.

			Order No.	
			Single piece	
HP	For side panel depth (T) mm	Cover depth (d1) mm	Perforated	Solid
21	225	192	**3687.618**	**3687.620**
21	285	252	**3687.619**	**3687.621**
42	225	192	**3687.623**	**3687.627**
42	285	252	**3685.642**	**3687.629**

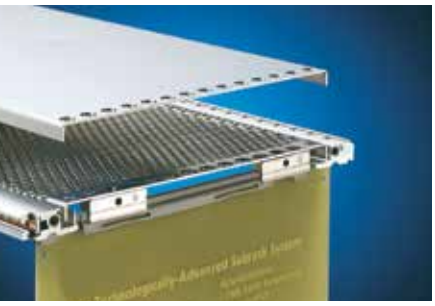
+ Also required

Mounting blocks, see page 148
EMC gaskets for cover plates, see page 147
Assembly screws, packs of 100, order no. 3684.233
see page 202





Covers version 2



For all HeiPac Vario subracks

To cover the PCB depth

- Flat design for top and bottom
- Optionally solid or perforated
- For mounting on the subrack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version

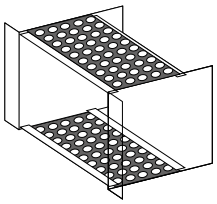
Supply includes

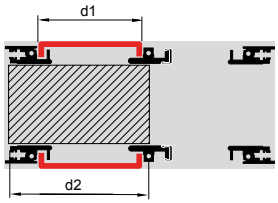
1 cover plates

			Order No.	
			Single piece	
HP	For side panel depth (T) mm	Cover depth (d1) mm	Perforated	Solid
21	160	142	**3687.630**	**3687.634**
21	220	202	**3687.631**	**3687.635**
42	160	142	**3684.957**	**3687.626**
42	220	202	**3687.633**	**3687.637**

+ Also required

Mounting blocks, see page 148
Assembly screws, packs of 100, order no. 3684.233
see page 202





Top-hat rail adapter

NEW

Top-hat rail adapter to directly mount a component or device on a top-hat rail

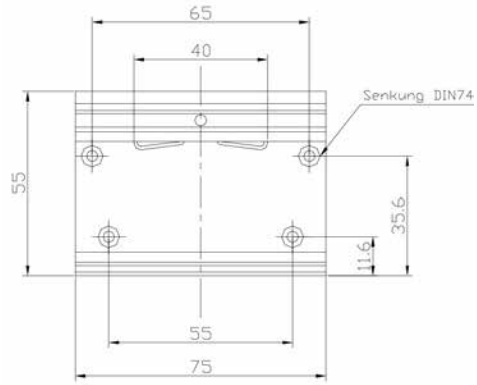
Material

Extruded aluminium section

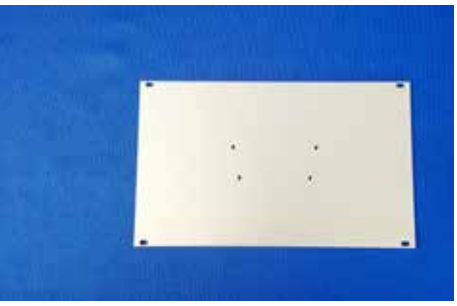
Packs of	Order No.
1	**3687.739**

+ Also required

Assembly screws ,packs of 100
Order no. 3606.550
see page 202



Back panel for top-hat rail mounting



NEW

For HeiPac Vario COMPACT subracks

For top-hat rail mounting of subracks

Material

Aluminium, clear-chromated

		Order No.	
U		**3**	**3**
Width HP	Packs of	Non-EMC	EMC
21	1	**3687.742**	**3687.750**
42	1	**3687.744**	**3687.751**

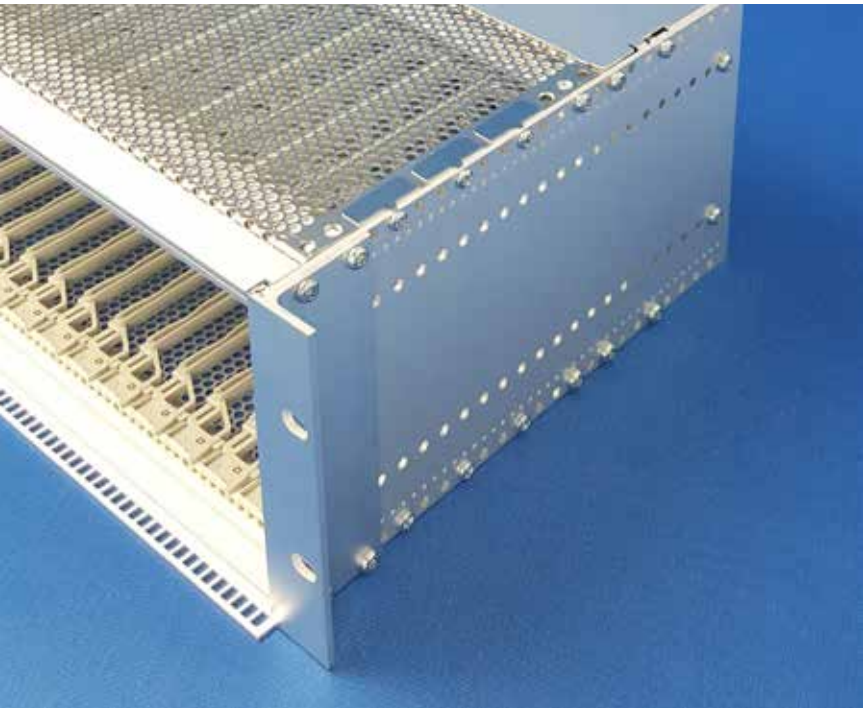
+ Also required

Top-hat rail adapter, packs of 1
Order no. 3687.739
see page 75

Additional accessories see page

EMC Accessories → 146
Guide rails → 154
Front panels → 165
Mounting kits → 150
Assembly parts → 202

HeiPac Vario HEAVY



For mobile applications and tough ambient conditions

Applications

The HeiPac Vario HEAVY is a subrack system designed especially for mobile applications and tough ambient conditions.
The subrack system is shock and vibration-tested in accordance with EN 50 155 and DIN EN 61587-2, and is designed to accommodate standardised PCBs.

Technical specifications

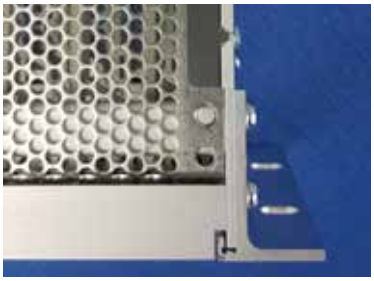
- rack-mount system in accordance with IEC 60 297-3
- 3 and 6 U
- Clear-chromated aluminium side panels
- For card formats up to 220 mm deep
- Front horizontal rails with 10 mm extension for injector/extractor handles
- Horizontal rails with double screw fastening
- Reinforced mounting flange
- Rear equipment for installation of backplanes
- Installation width: 84 HP

Benefits at a glance

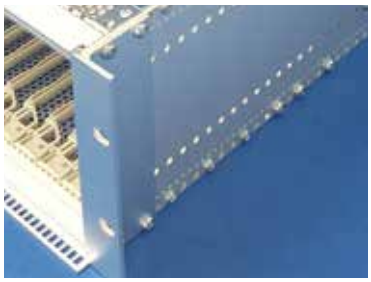
- Side panels with 10 mm mounting grids for variable system assembly
- For mounting backplanes
- Optionally in EMC version

NEW

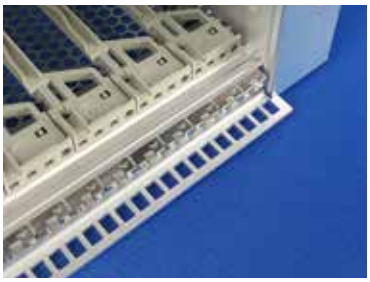
Extensive accessories allow for a wide range of expansion options



Reinforced flange ensures high resistance to shock and vibrations



Horizontal rails with double screw fastening provide high mechanical strength



EMC can be retrofitted

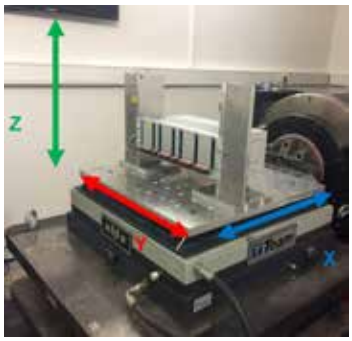
Shock/vibration profile HeiPac HEAVY

Shock/vibration testing in accordance with : IEC 61587-1

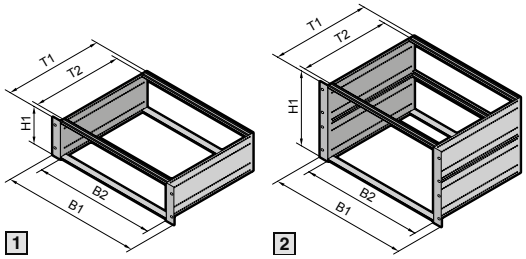
DL2V/DL2S for use in different locations

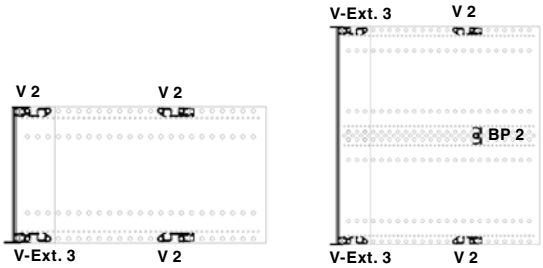
Shock/vibration testing in accordance with : EN 50155

EN 61373, category 1, class B



HeiPac Vario HEAVY 3 U, 6 U





Material/surface finish

Side panels: 2.5 mm Aluminium, clear-chromated
Horizontal rails: Extruded aluminium section, clear-chromated
Flanges: Extruded aluminium section, clear-chromated

Supply includes

Side panels, flanges, horizontal rails, threaded inserts, assembly screws

Tests

Shock and vibration tested in accordance with:
DIN EN 61587-2
EN 50 155

Standards

HeiPac subracks are based on the system dimensions of IEC 60 297-3.

NEW

			Order No. without handle holes		Order No. with handle holes	
			1	2	1	2
U			**3**	**6**	**3**	**6**
Height (H1) mm			132	265.35	132	265.35
HP			84	84	84	84
Side panel (T1) mm	T2 mm	Max. PCB depth mm				
245	220	160	**9921.860**	**9921.862**	**9921.864**	**9921.866**
305	280	220	**9921.861**	**9921.863**	**9921.865**	**9921.867**

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HORIZONTAL RAILS HeiPac Vario HEAVY

Horizontal rail Vario V 2, front, with double screw fastening

To accommodate guide rails and for the attachment of front panels. The double screw fastening ensures a high level of stability even under extreme loads.

- Front projection 2.5 mm corresponding to IEC 60 297-3-101
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole
- Load test to DIN EN/IEC 61 587-1, requirement level SL1
- Shock and vibration tests undertaken as per IEC 61 373 (DIN EN 50 155), Category 1, Class B

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
84	1	**9908.721**	**9921.793**[1)]

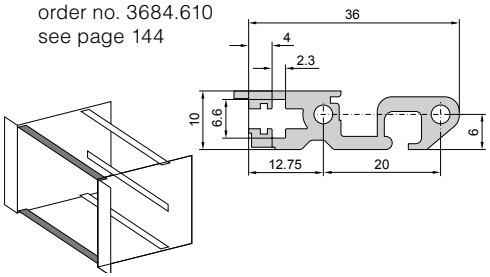
[1)] with HP pattern printing

+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Threaded inserts, packs of 1
order no. 3684.610
see page 144



Horizontal rail Vario V-Ext. 3, with 10 mm extension and double screw fastening, front

For type IV, IVs and VII injector/extractor handle

To accommodate guide rails and for the attachment of front panels. The double screw fastening ensures a high level of stability even under extreme loads.

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60 297-3-102
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
84	1	**9908.722**	**9921.795**[1)]

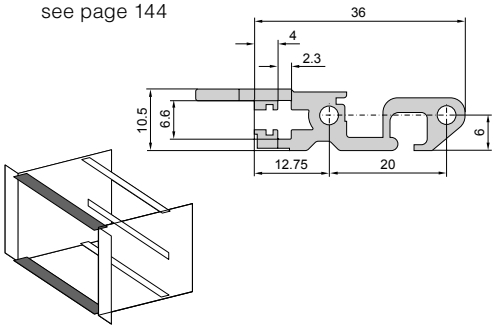
[1)] with HP pattern printing

+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144



Horizontal rail Vario BP 2, for backplane

To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips. The double screw fastening ensures a high level of stability even under extreme loads.

- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- For mounting backplanes/Z rails additional threaded inserts (9901.816) are reqiured
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

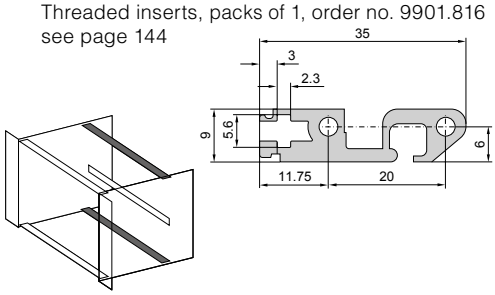
Usable width (HP)	Packs of	**Order No.**
84	1	**9908.723**

+ Also required

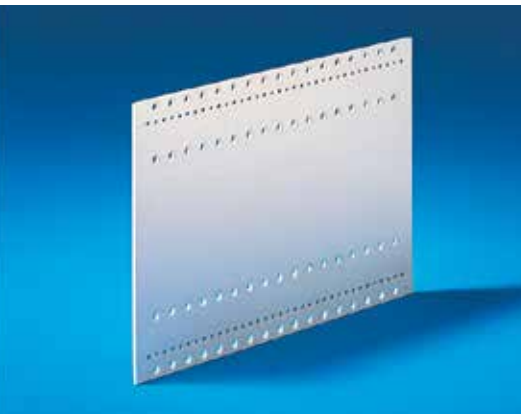
Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Threaded inserts, packs of 1, order no. 9901.816
see page 144



Side panels for HeiPac Vario



Mounting holes and anti-twist half-shears on a 10 mm pitch pattern.

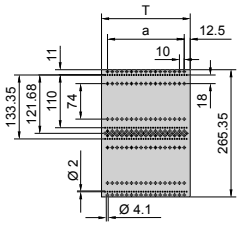
Material

2.5 mm Aluminium
Clear-chromated

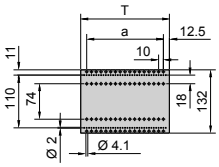
			Order No.	
U			**3**	**6**
T mm	a [1] mm	Packs of		
245	220	1	**3684.513**	**3684.531**
305	280	1	**3684.515**	**3684.533**

[1] a = Distance between the first and last mounting hole.

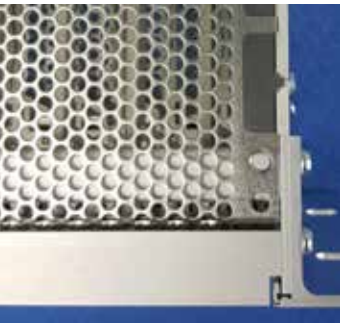
6 U



3 U



Reinforced flanges 19“ for HeiPac Vario



NEW

Reinforced flange ensures a high level of stability even under extreme loads.

Material

Extruded aluminum section
3 mm material thickness

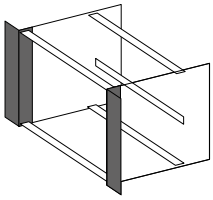
Surface finish

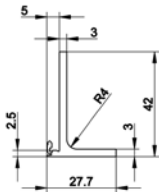
Clear-chromated

U	Packs of	Order No.	
		with handle holes	without handle holes
3	1	**9921.725**	**9914.268**
6	1	**9921.726**	**9921.721**

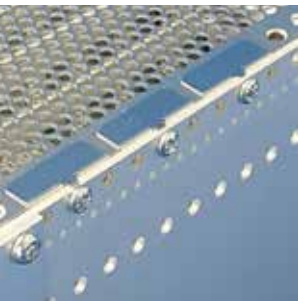
+ Accessories

Handles for subrack
see page 81





Mounting clips for cover plates



NEW

For mounting covers on the subrack side panel

Compatible with cover plate versions 1-4 and the ECO and EASY versions, and with sheet metal blanks 0.8-1.0 mm thick. For EMC applications, mounting clips must be fitted across the full depth of the subrack.

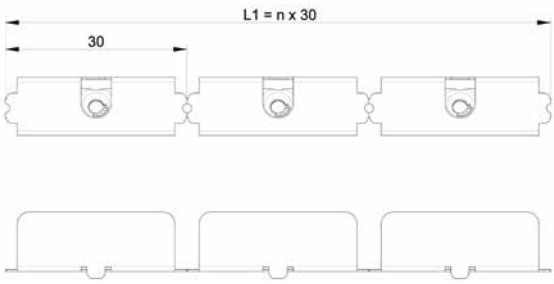
Material

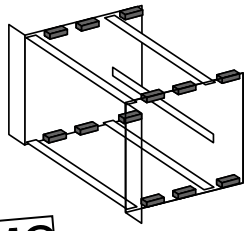
Stainless steel

Length mm	n	Packs of	Order No.
30	1	1	**3688.109**
90	3	1	**9921.722**
120	4	1	**9921.883**
150	5	1	**9921.723**
180	6	1	**9921.884**
210	7	1	**9921.724**
240	8	1	**9921.885**

+ Also required

Assembly screws, order no. 9921.879





EMC

COVERS HeiPac Vario HEAVY

Covers version 1

For all HeiPac Vario subracks

To cover the overall-subrack depth
(EMC application) or as connector protection

- Flat design for top and bottom
- Optionally solid or perforated
- For mounting on the subrack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version.

Supply includes

1 cover plate

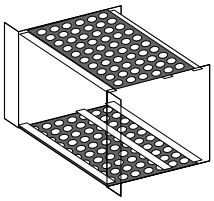
Note

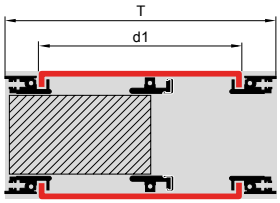
For EMC applications, additional mounting
blocks must be fitted across the entire subrack depth.

			Order No.	
			Single piece	
HP	For side panel depth (T) mm	Cover depth (d1) mm	Perforated	Solid
84	245	212	**3684.695**	**3684.684**
84	305	272	**3685.852**	**3684.686**

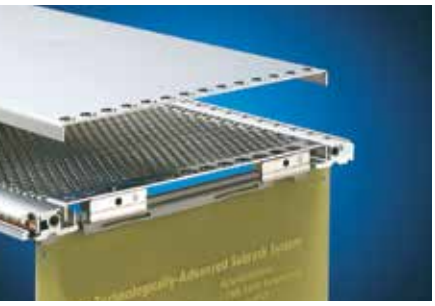
+ Also required

Mounting blocks, see page 148
EMC gaskets for cover plates, see page 147
Assembly screws, packs of 100, order no. 3684.233, see page 202





Covers version 2



For all HeiPac Vario subracks

To cover the PCB depth

- Flat design for top and bottom
- Optionally solid or perforated
- For mounting on the subrack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version

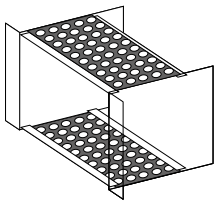
Supply includes

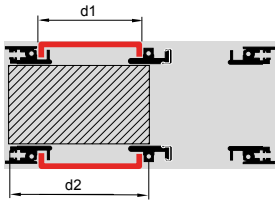
1 cover plates

			Order No.	
			Single piece	
HP	For PCB depth (d2) mm	Cover depth (d1) mm	Perforated	Solid
84	160	142	**3684.681**	**3684.680**
84	220	202	**3685.851**	**3685.813**

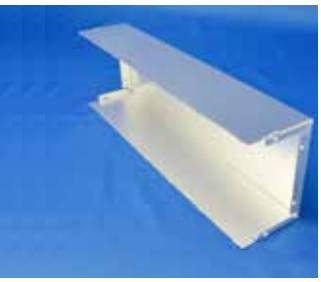
+ Also required

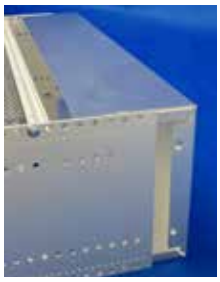
Mounting blocks, see page 148
Assembly screws, packs of 100, order no. 3684.233, see page 202





Back cover for HeiPac Vario





NEW

Ensures cover for back of subrack

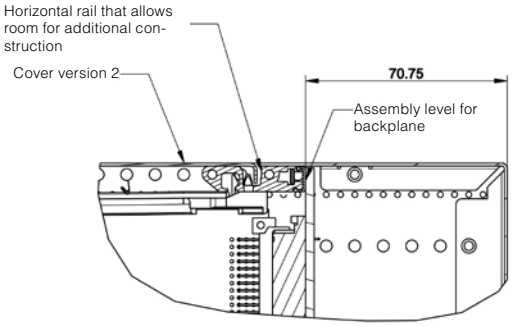
Material
Aluminium

Surface finish
Clear-chromated

Note
The side panel depth required is obtained by taking the length of the plug-in units used, and adding 85 mm (refer to table).
A precondition is the use of a horizontal rail that allows room for additional construction.

U	Packs of	**Order No.**
3	1	**9921.685**
6	1	**9921.710**

PCB depth mm	Side panel depth mm
160	245
220	305
280	365



Handles for HeiPac subracks

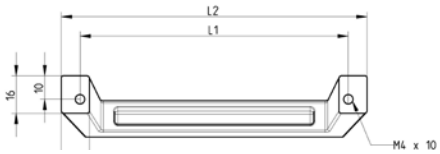
For fitting on the subrack flange with handle holes and on all component shelves.

Material
Die-cast zinc

Supply includes
Assembly parts

Surface finish
Spray-finished, silver-grey

For	L1	L2	Packs of	**Order No.**
Subracks 3 U and 4 U	114.5	130.5	2	**3636.010**
Subracks 6 U and 7 U	248	264	2	**3666.010**



Additional accessories see page

EMC Accessories → 146
Guide rails → 154
Front panels → 165
Mounting kits → 150
Assembly parts → 202

HeiPac EASY

Economical, sturdy 19" subrack system

Applications

Subrack system for standard applications or high mechanical loads. In cases that require easy handling and fast assembly. Suitable for installation of standardised PCBs or plugin units up to 400 mm depth.

Technical specifications

- 482.6 mm (19˝) subrack according to IEC 60 297-3
- 3 and 6 U
- For board depths: 160 mm, 220 mm, 280 mm, 340 mm, 400 mm
- Fast and easy assembly due to pre-assembled screws and longitudinal holes in the side panels
- Top covers easily retractable
- Horizontal rails with double screwed joint
- Material: aluminium, noncorrosive
- 60 mm mounting grids for horizontal rails
- Rear horizontal rails with integrated contact surface
- Rear equipment for installation of backplanes or connectors
- Separate 19˝ flanges

Benefits at a glance

- Fast and easy handling by pre-assembled screws in the horizontal rails
- Top covers retractable
- Horizontal rails with integrated contact surface (insulating strips cannot be used)
- Double screw joints of horizontal rails ensure stability even for high loads

Rails with double screw for heavy loads

Top covers easily to retract

Horizontal rails with optional double screwing ensure a higher mechanical resistance

EASY to handle and yet extremely versatile

Requirement Profile HeiPac EASY

EN 61587-1; Requirement Category C2

Climatic tests: cold, dry and damp heat, cyclic

EN 61587-1; Requirement Category A1

Industrial climate

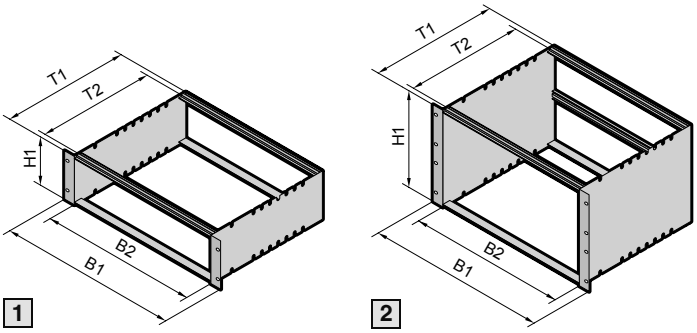
IEC 61587-1; Requirement Category SL1

Mechanical tests: mechanical loads (static)

IEC 61587-1; Requirement Category DL1

Mechanical loads, industrial applications (dynamic)

HeiPac EASY 3 U, 6 U, Aluminium



Material/surface finish

Side panels:	2 mm aluminium, unplated
Horizontal rails:	extruded aluminium section, noncorrosive
Flanges:	pre-anodised

Supply includes

Side panels, flanges, horizontal rails incl. pre-mounted threaded inserts and assembly screws

Tests

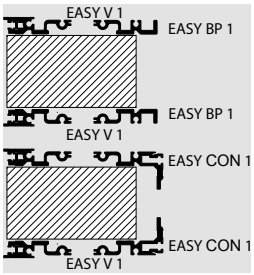
Shock- and vibration tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-27 test Ea

Standards

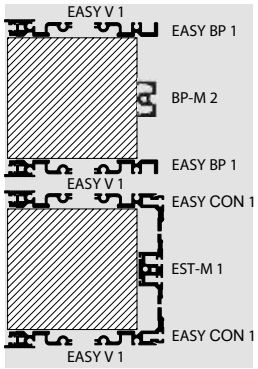
HeiPac subracks are based on the system dimensions of IEC 60 297-3

Note

Backplanes can be mounted directly on the rear horizontal rails. Isolating strips cannot be used.



1 Top: for backplane
Bottom: for connector



2 Top: for backplane
Bottom: for connector

					Order No.			
					1		2	
U (H1)					**3**		**6**	
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For connector IEC 60 603-2	For backplane	For connector IEC 60 603-2
482.6 (19“)	84	175	160	160	**3634.100**	**3634.150**	**3634.180**	**3634.230**
		235	220	220	**3634.110**	**3634.160**	**3634.190**	**3634.240**
		295	280	280	**3634.120**	**3634.170**	**3634.200**	**3634.250**
		355	340	340	**3634.130**	**-**	**3634.210**	**-**
		415	400	400	**3634.140**	**-**	**3634.220**	**-**

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

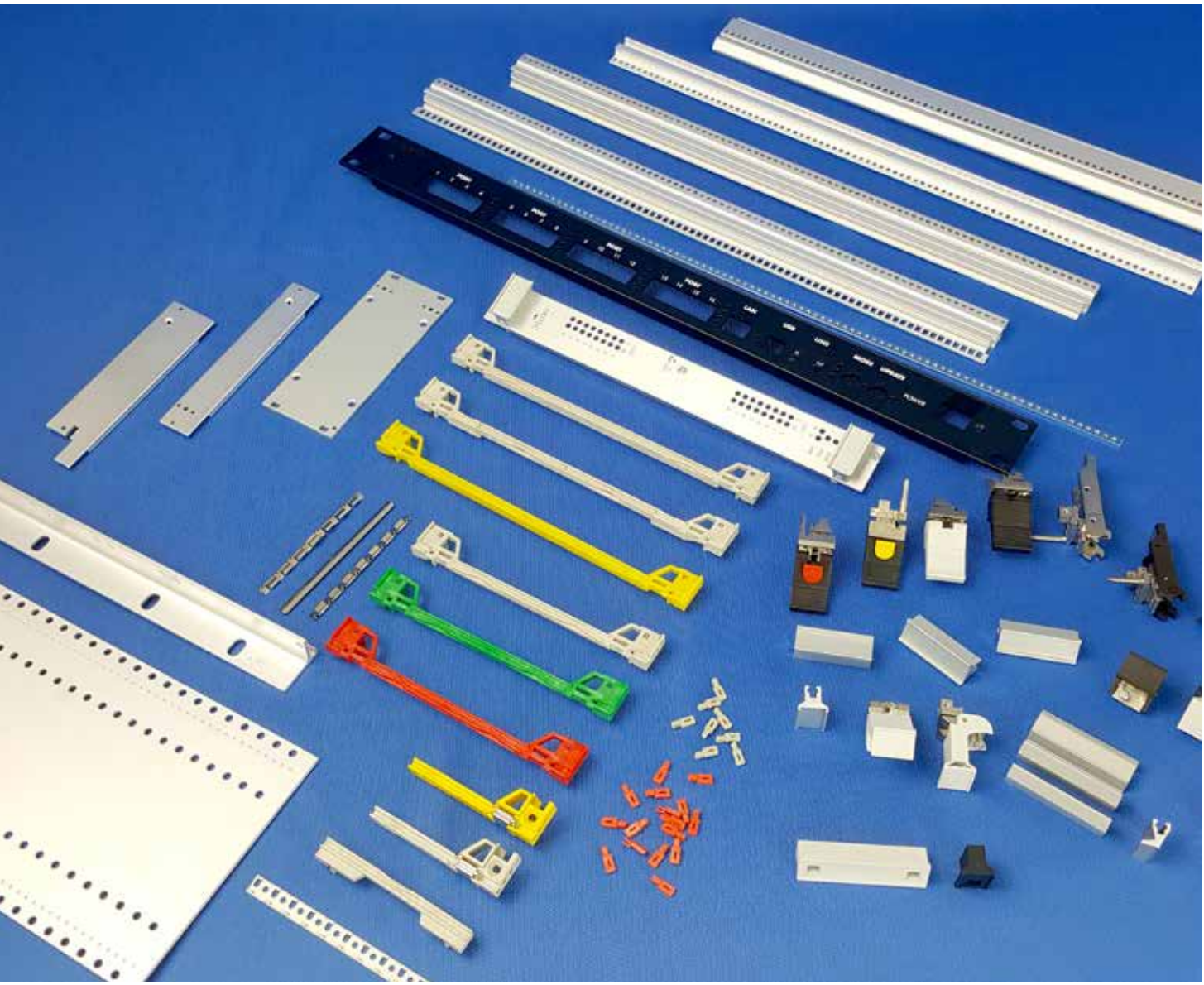
Components, accessories and services for HeiPac EASY

In addition to the presented subrack-kits, we offer components and accessories for your individual configuration on the following pages.

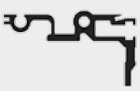
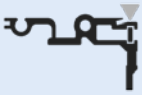
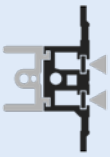
WE MEET YOUR INDIVIDUAL NEEDS!

You are looking for a product in the field of electronic packaging that is not in our catalogue? Please contact us! Due to our extensive range of services we can meet all your demands.
We will gladly submit a tailored quotation.

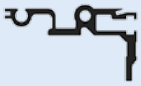
Phone: 09126 - 29 34 0
E-Mail: eps-quote@heitec.de



Overview horizontal rails HeiPac EASY

Main sections / Additional sections	**EASY V 1** Front horizontal rail, with double screw fastening	**EASY BP 1** Rear horizontal rail, with double screw fastening, for mounting backplanes	**EASY CON 1** Rear horizontal rail, with double screw fastening, with integral Z rail	**Vario CON-M 1** Rear horizontal rail, with integral Z rail	**Vario BP-M 2** Rear horizontal rail, centre	**EASY H 1** Rear horizontal rail, with double screw fastening, for mounting rear panels
	Page 86	Page 88	Page 87	Page 88	Page 86	Page 87
						
E Adaptor rail, rear centre, to acommodate guide rails Page 140	-	-	-			-
F Z rail for connector Page 144	-	-	-	-	-	-
G Insulating strip [1] Page 145	-	-	-	-	-	-
H Conductive strip [2] Page 145	-	-	-	-	-	-
I Threaded insert Page 144		-			-	
J Identification strips Page 144	-	-	-	-	-	-
K EMC gaskets, horizontal Page 145	-	-	-	-	-	-

For [1]insulated or [2]conductive attachment of backplanes.

Description old	Description new	Main sections	Description old	Description new	Main sections
A	**V 1**		**C7**	**CON 1**	
A1	**BP 1**		**-**	**H 1**	

Horizontal rail EASY V 1, with double screw fastening, front

To accommodate guide rails and for the attachment of front panels

- Pre-assembled screws M 4x16 for fast mounting on the subrack side panel
- Front excess length 2.5 mm corresponding to IEC 60 297-3
- HP pitch pattern of holes for the precise installation of guide rails
- On request with double screw fastening to ensure a high stability
- M4 thread on end face
- Straight-through core hole for optional double screw fastening

Material

Extruded aluminium section

Surface finish

Non-corrosive

Supply includes

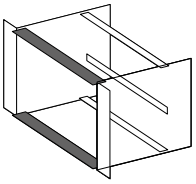
2 horizontal rails with pre-assembled threaded inserts and screws M4 x 16

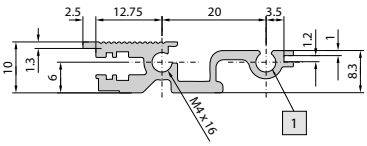
Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
84	2	**3634.600**	**9921.803**[1)]

[1)] with HP pattern printing

+ Also required

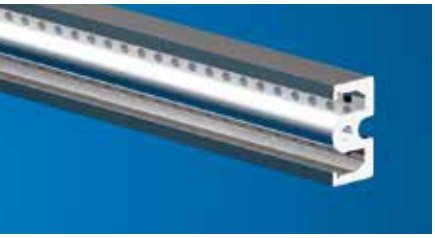
Assembly screws M4 x 16 for double screw fastening, order no. 3634.430 (packs of 100)





1 Core hole M4

Horizontal rail Vario BP-M 2, for backplane, centre



When using 6 U PCBs or box-type plug-in units. Facility for the attachment of Z rails or backplanes.

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole
- Due to integrated contact area, insulating strips cannot be used

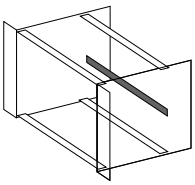
Material

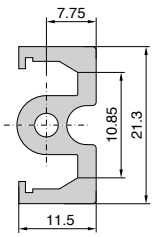
Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.**
84	1	**9912.523**





Horizontal rail EASY H 1, with double screw fastening, for mounting rear panels

To accommodate rear front panels

- With channel for mounting top covers see page 164 Covers EASY version 2
- On request with double screw fastening to ensure a high stability
- Straight-through core hole for optional double screw fastening
- M4 thread on end face
- Pre-assembled screws M 4x16 for fast mounting on the subrack side panel

Material

Extruded aluminium section

Surface finish

Non-corrosive

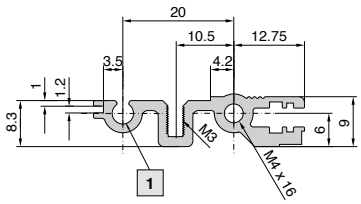
Supply includes

2 horizontal rails with threaded inserts and screws M4 x 16

Usable width (HP)	Packs of	**Order No.**
84	1	**3634.510**

+ Also required

Assembly screws M4 x 16 for double screw fastening, order no. 3634.430 (packs of 100)



1 Core hole M4

Horizontal rail EASY CON 1, with integral Z rail for connector, with double screw fastening

To accommodate guide rails, integral Z rail for the attachment of connectors (CON)

- Pre-assembled screws M 4x16 for fast mounting on the subrack side panel
- On request with double screw fastening to ensure a high stability
- HP pitch pattern of holes for precise mounting of guide rails
- M4 thread on end face
- Straight-through core hole for optional double screw fastening
- Height of the profile allows cover extension

Material

Extruded aluminium section

Surface finish

Non-corrosive

Supply includes

2 horizontal rails with pre-assembleds screws M4 x 16

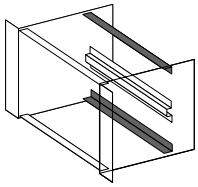
Usable width (HP)	Packs of	**Order No.**
84	2	**3634.620**

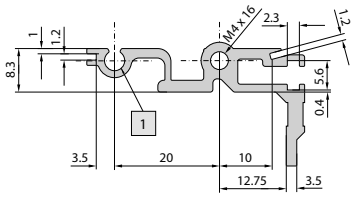
+ Also required

Threaded inserts, packs of 1, order no. 9901.816 see page 144

+ Also required

Assembly screws M4 x 16 for double screw fastening, order no. 3634.430 (packs of 100)





1 Core hole M4

Horizontal rail EASY BP 1, with double screw fastening, for backplane

To accommodate guide rails and for the attachment of backplanes

- Pre-assembled screws M 4x16 for fast mounting on the subrack side panel
- Due to integrated contact area, insulating strips cannot be used
- Tapped holes M2.5 in 1 HP pitch pattern for mounting backplanes
- HP pitch pattern of holes for the precise installation of guide rails
- On request with double screw fastening to ensure a high stability
- M4 thread on end face
- Height of the profile allows cover extension
- Straight-through core hole for optional double screw fastening

Material

Extruded aluminium section

Surface finish

Non-corrosive

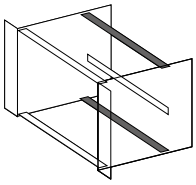
Supply includes

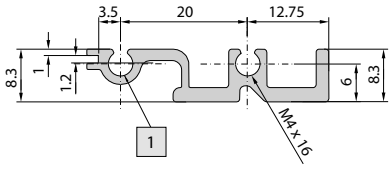
2 horizontal rails with pre-assembled threaded inserts and screws M4 x 16

Usable width (HP)	Packs of	**Order No.**
84	2	**3634.615**

+ Also required

Assembly screws M4 x 16 for double screw fastening, order no. 3634.430 (packs of 100)





1 Core hole M4

Horizontal rail Vario CON-M 1, with integral Z rail for connector, rear centre

When using 6 U PCBs or box-type plug-in units. Integral Z rail for mounting connectors (CON) to IEC 60 603-2

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

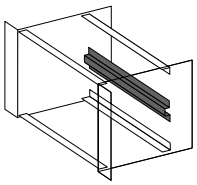
Surface finish

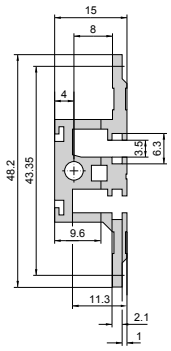
Anodised

Supply includes

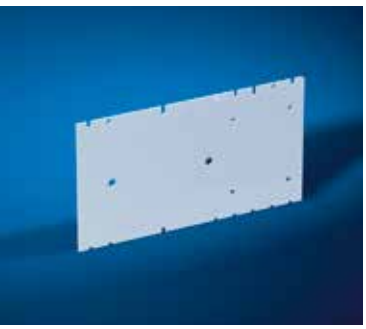
1 horizontal rail
2 assembly screws

Usable width (HP)	Packs of	**Order No.**
84	1	**3634.085**





Side panels for HeiPac EASY



Mounting holes on a 60 mm pitch pattern as long holes
Drill holes for mounting telescopic slides

Material

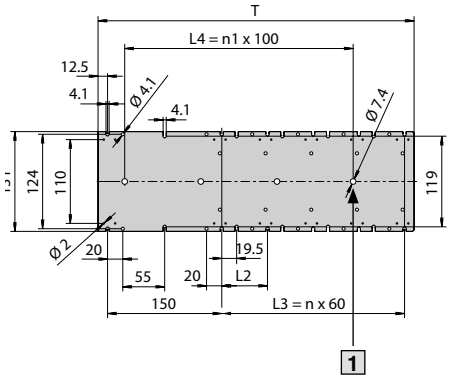
2 mm Aluminium
Non-corrosive

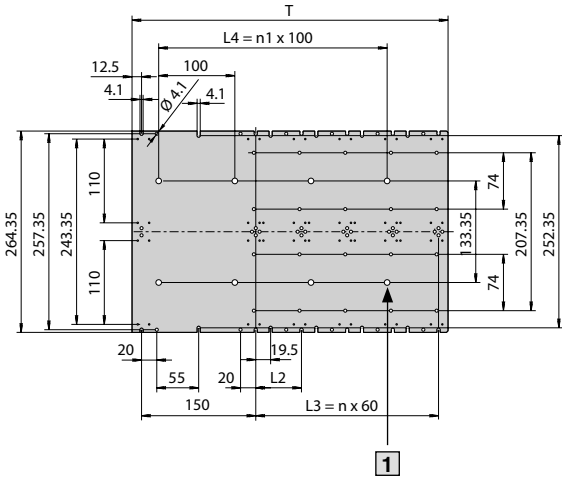
1 Mounting holes suitable for threaded insert PEM-FM4-1 for mounting telescopic slides

d (T) mm	L2	n	n1	Packs of	Max. board depth mm	Order No.	
						3 U	6 U
175	-	-	-	2	160	**3634.695**	**3634.720**
235	60	-	-	2	220	**3634.700**	**3634.725**
295	60	2	2	2	280	**3634.705**	**3634.730**
355	60	3	3	2	340	**3634.710**	**3634.735**
415	60	4	3	2	400	**3634.715**	**3634.740**

+ Accessories

Flanges for HeiPac EASY
see page 129





Flanges 19“ for HeiPac EASY

Integrated mounting holes for installation of handles

Material

Extruded aluminium profiles

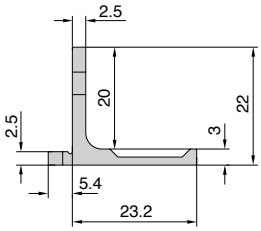
Surface finish

Pre-anodised

U	Packs of	Order No.
3	2	**3634.745**
6	2	**3634.750**

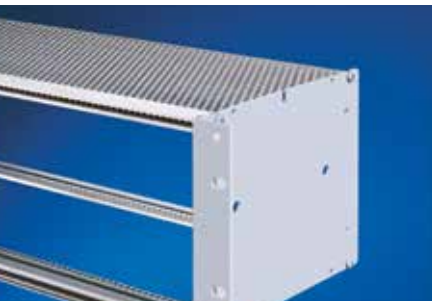
+ Accessories

Handles for subrack
see page 90



RECOMMENDED ACCESSORIES HeiPac EASY

Covers for HeiPac EASY



- Perforated or solid
- Optionally with screwed fastening clips on the side panels for additional support

Material

Aluminium

Supply includes

2 cover plates

Cover plates

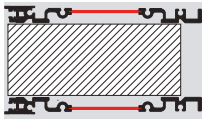
version 1 (slide- in)

The covers are simply slid into the front and rear horizontal rails for mounting backplanes/ connectors.

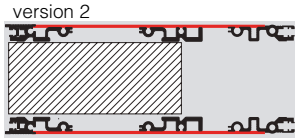
version 2 (slide-in/screw-in)

For mounting additional rear horizontal rails on the rear panels. The horizontal rails for back-plane/connector
assembly are top-mounted.
The covers are slid in the front horizontal rails and screwed in the rear horizontal rails for rear panel mounting.

version 1



version 2



Version 1

HP	For side panel depth mm	Order No.	
		Perforated	Solid
84	175	**3634.685**	**3634.675**
84	235	**3634.690**	**3634.680**

Version 2

HP	For side panel depth mm	Order No.	
		Perforated [1]	Solid [1]
84	175	**3634.650**	**3634.625**
84	235	**3634.655**	**3634.630**
84	295	**3634.660**	**3634.635**
84	355	**3634.665**	**3634.640**
84	415	**3634.670**	**3634.645**

+ Also required

[1] assembly screws, packs of 100
order no. 3684.233
see page 202

+ Accessories

Fastening clips
see page 148

Fastening clips

Packs of	Order No.
50	**3634.450**

Assembly screws for fastening clips

Packs of	Order No.
100	**9921.879**

Handles for HeiPac subracks

For fitting on the subrack flange with handle holes and on all component shelves.

Material

Die-cast zinc

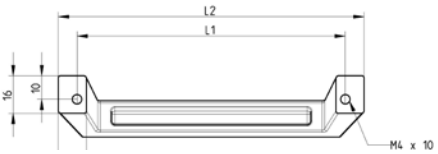
Supply includes

Assembly parts

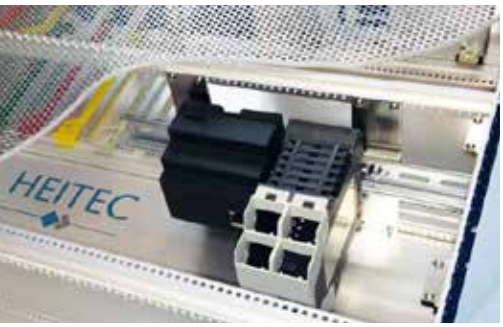
Surface finish

Spray-finished, silver-grey

For	L1	L2	Packs of	Order No.
Subracks 3 U and 4 U	114.5	130.5	2	**3636.010**
Subracks 6 U and 7 U	248	264	2	**3666.010**



Fixing for HeiPac top-hat rail version 1



NEW

Rail holder to mount a top-hat rail on the horizontal subrack rails

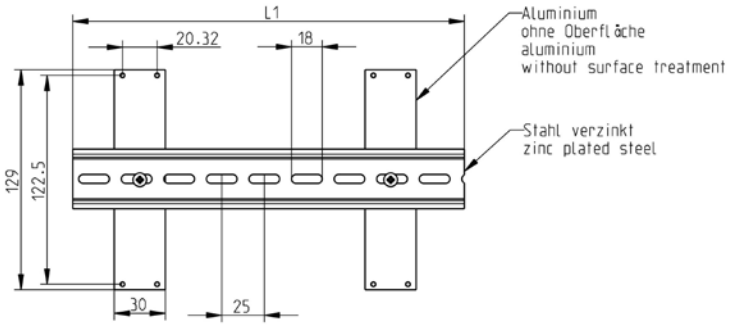
Material

Rail holder: Aluminium, not surface-coated
Top-hat rail: steel, zinc-plated

Supply includes

2 rail holders
1 top-hat rail, perforated
Assembly parts

Height	HS	L1	L2	Packs of	**Order No.**
3 U	35	100	7.5	1	**9918814**
3 U	35	200	7.5	1	**9918815**
3 U	35	300	7.5	1	**9918816**
3 U	35	400	7.5	1	**9918817**
3 U	35	100	15	1	**9918818**
3 U	35	200	15	1	**9918819**
3 U	35	300	15	1	**9918820**
3 U	35	400	15	1	**9918821**



Fixing for HeiPac top-hat rail version 2

NEW

Fixing bracket to mount a top-hat rail on the subrack side panel

Material

Fixing bracket: steel plate, zinc-plated

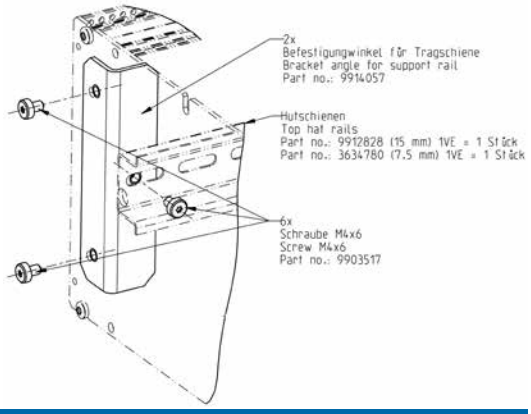
Supply includes

2 fixing brackets
Assembly parts

Packs of	**Order No.**
1 set	**3634.770**

+ Also required

Top-hat rail, packs of 1, see page 91



Top-hat rail

NEW

Material

Steel

Surface finish

Zinc-plated

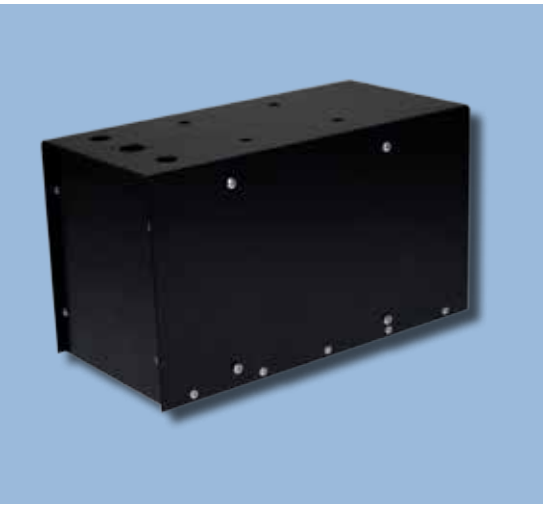
For Width	Dimensions mm	Packs of	**Order No.**
84 HP	35 x 7.5 x 425	1	**3634.780**
84 HP	35 x 15 x 425	1	**9912.828**

Additional accessories see page

Guide rails → 154
Assembly parts → 202

APPLICATION EXAMPLE

Industrial Control



Customised chassis solution for grinder control device

Industrial environments are typically characterised by harsh ambient conditions. This was why one of HEITEC's customers in the automation field needed a customised system platform to accommodate the control mechanism for the central processing unit of a grinder. Right at the outset, the customer had opted for a solution in the 19-inch range, since 19"-specific units had to be built in to the chassis.

For its solution, HEITEC designed a low-cost sheet metal casing that was powder-coated to provide protection against harsh ambient conditions and humidity. In addition, to guarantee a particularly high level of protection (IP54) against dust and humidity, PU foam seals were used for the front and rear plates. These provide a secure seal even under very harsh ambient conditions. The optimised design meant that other adaptations to the chassis, such as openings in the cover plate for wiring ducts, were also achievable at a modest cost. As a result, the chassis developed by HEITEC for its customer was ideally suited to the customer's requirements, combining maximum space availability with the most precise wire routing for the customer's application, and ensuring very high IP protection.

Inside the casing, the familiar HeiPac Vario rack components were used to meet the customer's expectations. The HeiPac Vario series is the most variable 19-inch rack family offered by HEITEC: its many size variations and accessories make it ideally suited for even the most complex applications.

To ensure very short delivery times, this project drew on systematic warehousing offered by HEITEC, which offers the customer great flexibility combined with guaranteed delivery capacity. When blanket orders are placed, this enables the logistics and customer call-off orders to be perfectly coordinated.

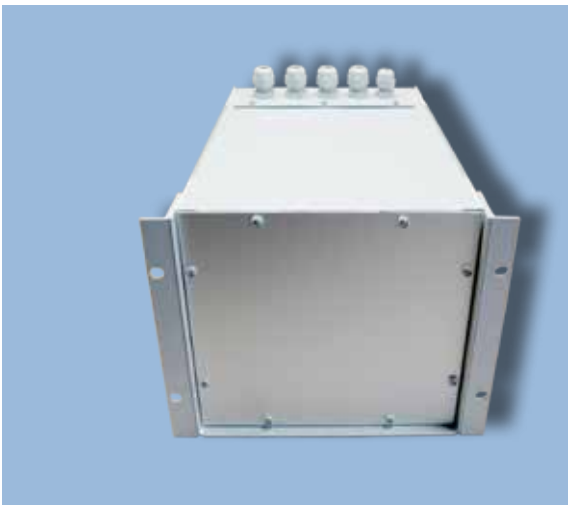
Technical Summary

- Customer-specifi c system platform
- Customised rack with internal structure consisting of standard HeiPac Vario components
- L x W x H: 296 mm x 30HP x 4U
- LP card brackets = 160 x 2.00 mm
- Protection class IP54

Customer Benefits

- Customised rack for a customer-specific system
- Powder coating and PU foam seals on front and back plates provide very high protection against harsh ambient conditions
- Fully prefabricated system platform for PCBs
- Cost-optimised design
- Short delivery times despite customer-specific manufacture

Transportation



Customised chassis solution for railway electrifi cation control device

Applications for railway electrification are subject to stringent conditions. To deal with these, one of HEITEC's customers needed a customised system platform to accommodate the control mechanism for the central processing unit of a railway application.

For its solution, HEITEC designed a low-cost sheet metal casing that was painted to provide protection against harsh ambient conditions and humidity, and fitted with a thermoplastic front plate. The optimised design meant that other adaptations to the casing, such as openings in the cover plate for wiring connectors, were also achievable at a modest cost. As a result, the casing developed by HEITEC for its customer was ideally suited to the customer's requirements, combining maximum space availability with the most precise wire routing for the customer's application, and thus offering very good protection against harsh ambient conditions such as humidity, dust, high temperatures and vibrations. This was vital for the project, since the system was intended for use in the Australian desert and would have to cope with extreme changes in ambient conditions.

Inside the casing, the familiar HeiPac Vario rack components were used. The HeiPac Vario series is the most variable 19-inch rack family offered by HEITEC: its many size variations and accessories make it ideally suited for even the most complex applications.

Implementing the project depended on a number of specific criteria. Swift handling was essential – it took just a few weeks from the initial sketch to building a prototype and through to the test stage. It also had to offer very good value for money, and the optimised design made that possible.

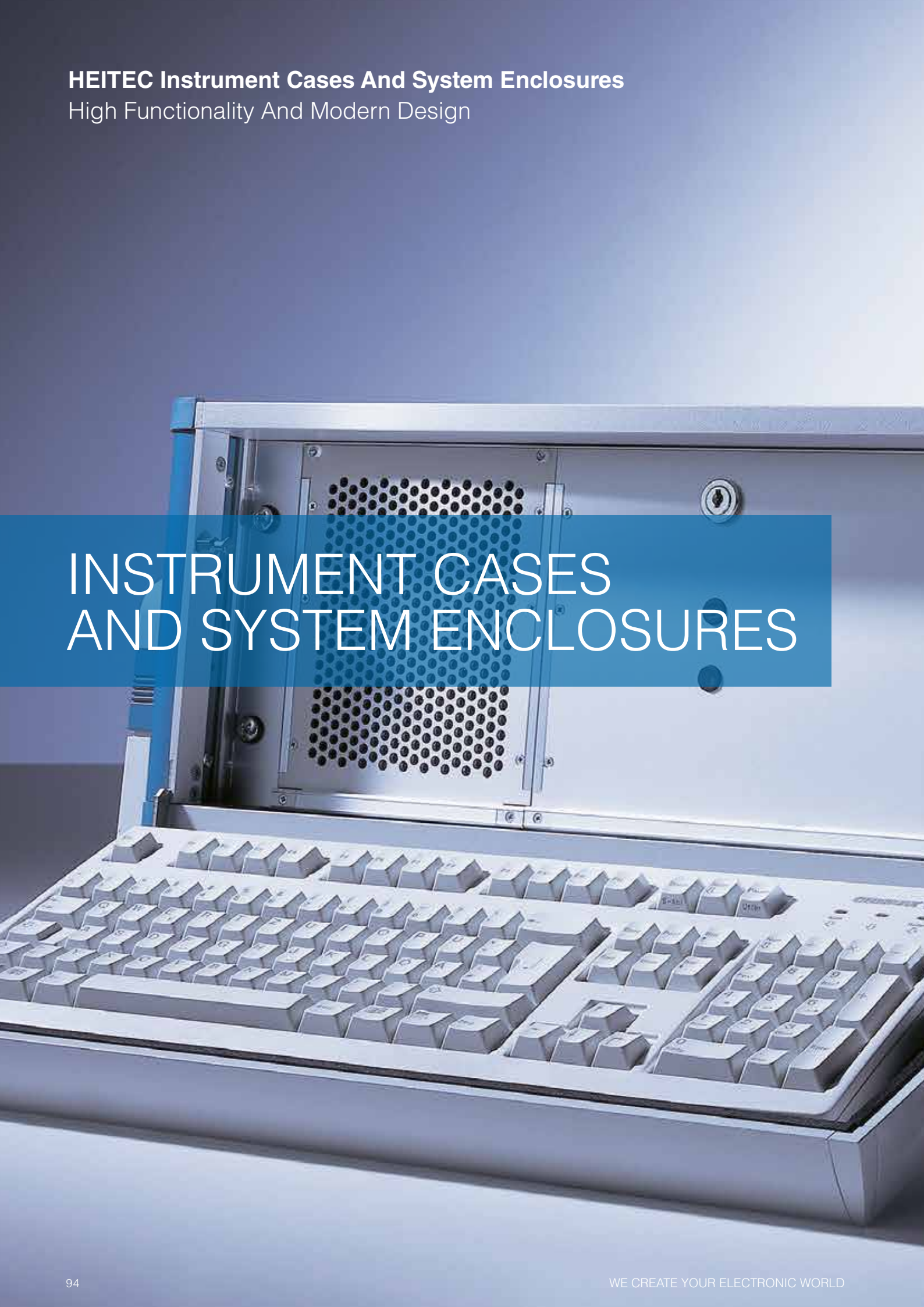
Technical Summary

- Customer-specifi c system platform
- Customised painted casing with internal structure consisting of HeiPac Vario components for a 7-slot backplane
- L x W x H: 325 mm x 42HP x 4U
- LP card brackets = 160 x 2.00 mm for seven single eurocards
- Macrolon front plate
- Protection class IP54
- 5 wiring connectors

Customer Benefits

- Customised rack for a customer-specific system
- Very high protection against harsh ambient conditions (IP54)
- Fully prefabricated system platform for PCBs
- Stable construction for rail-based vehicles ensures high resistance to shock and vibrations
- Good tolerance for high temperatures makes it ideal for use in desert transportation
- Very good protection against dust and moisture
- Cost-optimised design
- High service friendliness: rapid access and replacement

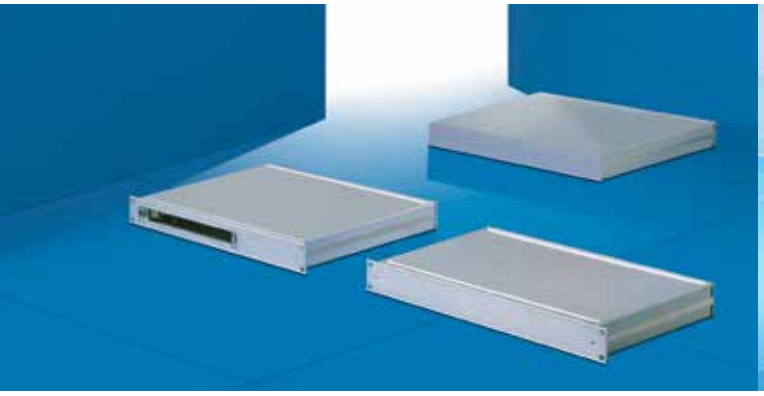
HEITEC Instrument Cases And System Enclosures
High Functionality And Modern Design



INSTRUMENT CASES AND SYSTEM ENCLOSURES

The HeiCase instrument case impresses with its modern design and high functionality. Particular features include the numerous colour variants and the all-metal enclosure construction. The HeiPac Vario-Module system enclosure (instrument case or rack-mount enclosure) is fully compatible with the latest HeiPac subrack range, making it ideal for individual configuration and assembly as a microcomputer system.
At just 1 U, the HeiBox system enclosure offers a high packaging density in the smallest space.

HeiBox ALU

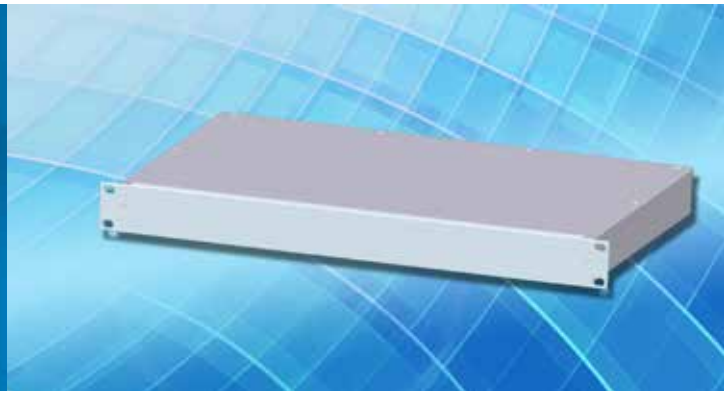


High-quality 1 U 19" system enclosure

- Optionally for use as an instrument case or rack-mount enclosure
- For horizontal installation of standardised 6 U boards
- For individual expansion
- High-quality design
- Extremely easy to assemble
- EMC upgradeable

→ Page 96

HeiBox ECO



Well-priced 1 U 19" system enclosure

- Optionally for use as an instrument case or rack-mount enclosure
- For individual expansion
- EMC upgradeable

→ Page 98

HeiPac Vario-Module

Universal 19" system eclosure

- Optionally for use as an instrument case or rack-mount enclosure
- Varied selection of sizes
- Flexibel design options
- Wide range of accessories
- EMC upgradeable

→ Page 100

HeiCase

Universal instrument case

- Instrument case for the installation of 19˝- slide-in assemblies and- elements
- For individual expansion
- Outstanding stability
- Varied selection of sizes
- Flexibel design options
- Wide range of accessories
- Modern design

→ Page 112

HeiBox ALU

Innovative system enclosure for standard applications

Applications

The HeiBox ALU is optionally for use as an instrument case or rack-mount enclosure. Accommodates Eurocards/ Double Eurocards (horizontal), bridges, hubs, routers or modems.

Technical specifications

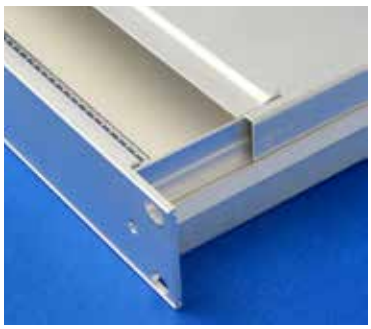
- 19˝ system enclosure, complies with IEC 60 297-3
- Optionally for use as an instrument case or rack-mount enclosure
- Height: 1 U
- Installation width: 84 HP
- Optionally with mounting kit for 1 Double Eurocard
- Mounting plate (accessory) for individual population
- Extruded aluminium section
- Protection category IP 40

Benefits at a glance

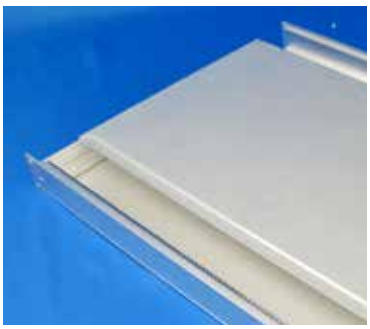
- Minimum space requirement
- Easy and fast mounting
- High-quality design
- EMC upgradeable
- Individual assembly according to customer needs

Installation of standardised 6 U boards with mounting kit

Solid, high-quality design of extruded aluminium section

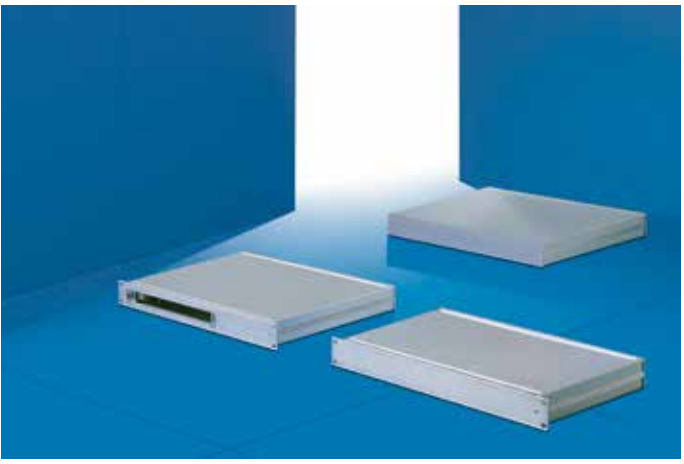


High EMC protection with additional EMC kit

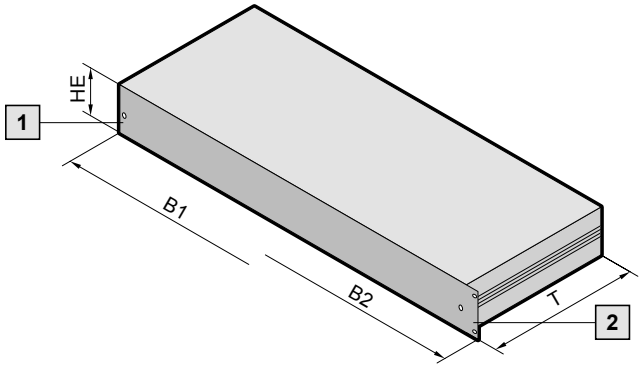


Easy to assemble with just 4 screws

HeiBox system enclosure 1 U



B = Width
T = Depth
HE = U



Technical specifications

System enclosures 1 U, 150, 200, 250, 300, 350 mm deep.
Easy to assemble with just 4 screws. Optionally for use as an instrument case or 19˝ rack-mount enclosure.
Front panel to hold an overlay to conceal the screws.
Maximum interior space. Optional EMC upgrades with additional EMC gaskets.
Option of installing electronic boards such as 1 VME or CPCI board horizontally.

Design

System enclosure 1 U, to IEC 60 297-3.
Optionally available for 19˝ rack-mounting in the enclosure or as an instrument case version.

1 Equipped as an instrument case

2 Equipped as a rack-mount unit

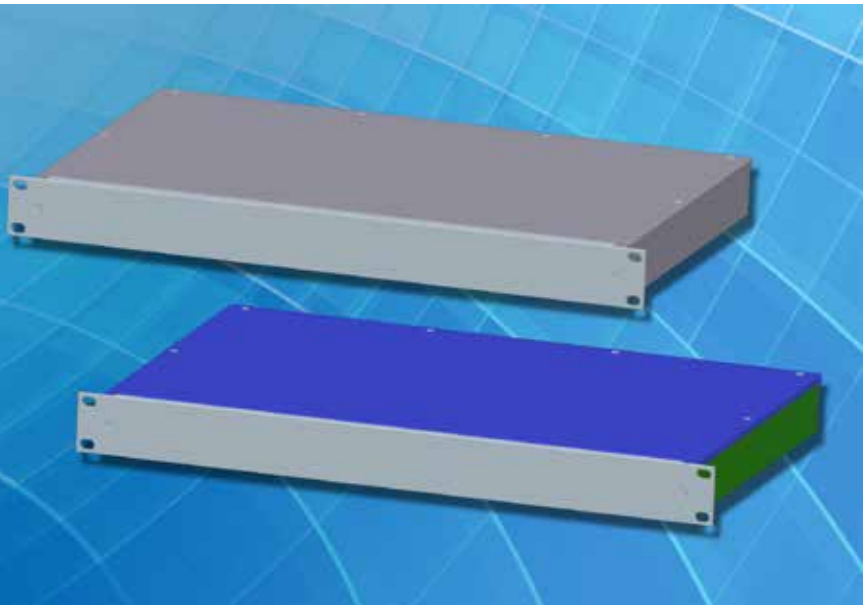
Material/surface finish

Side panels:	Extruded aluminium section, untreated
Base/cover trays:	Aluminium, clear-chromated
Front/rear panel:	Extruded aluminium section, clear-chromated
Mounting plate :	Aluminium

U	1	1	1	1	1	-	-
Width (B1) mm	447	447	447	447	447	-	-
Width (B2) mm	482.6 (19")	482.6 (19")	482.6 (19")	482.6 (19")	482.6 (19")	482.6 (19")	482.6 (19")
Depth (T) mm	150	200	250	300	350	250	350
Model No. instrument case	**3687.819**	**3687.820**	**3687.821**	**3687.822**	**3687.823**	**-**	**-**
Model No. rack case	**3687.814**	**3687.815**	**3687.816**	**3687.817**	**3687.818**	**-**	**-**
Model No. rack-mount including mounting kit for double Euroboards	**-**	**-**	**-**	**-**	**-**	**3684.072**	**3684.073**
Supply includes							
Side panel	2	2	2	2	2	2	2
Front panel	1	1	1	1	1	1	1
Rear panel	1	1	1	1	1	1	1
Base/cover tray	2	2	2	2	2	2	2
Mounting kit	-	-	-	-	-	1	1
Accessories							
EMC set	**9919.999**	**9919.999**	**9919.999**	**9919.999**	**9919.999**	**9919.999**	**9919.999**
Mounting plate	**3684.074**	**3684.075**	**3684.076**	**3684.077**	**3684.078**	**-**	**-**

Other customised solutions regarding dimensions and coloring are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HeiBox ECO



Well-priced system enclosure for standard applications

Applications

The HeiBox ECO is for use as a rack-mount enclosure. Accommodates Eurocards/Double Eurocards (horizontal), bridges, hubs, routers or modems.

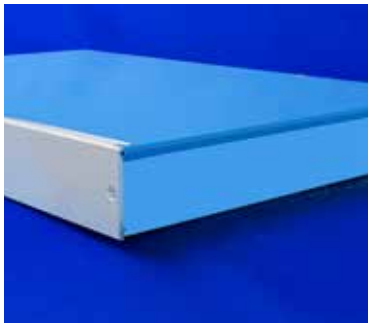
Technical specifications

- 19˝ system enclosure, complies with IEC 60 297-3
- For use as a rack-mount enclosure
- Height: 1 U
- Installation width: 84 HP
- Enclosure made of sheet steel, front panel and rear panel made of extruded aluminium section
- Optionally available as an instrument case or rack-mount enclosure
- Optional: highly effective EMC protection

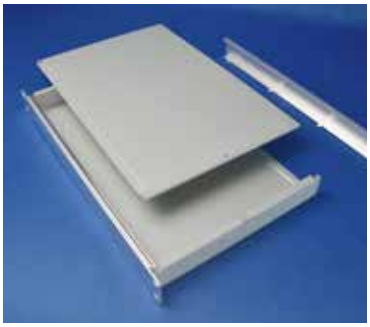
Benefits at a glance

- Minimum space requirement
- Well-priced and solid
- Easy and fast mounting
- EMC upgradeable
- Individual assembly according to customer needs

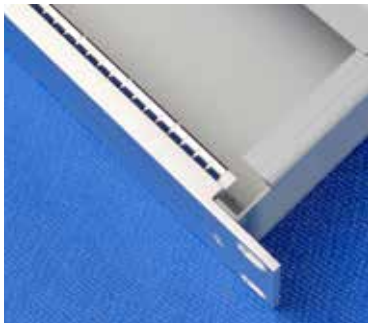
NEW



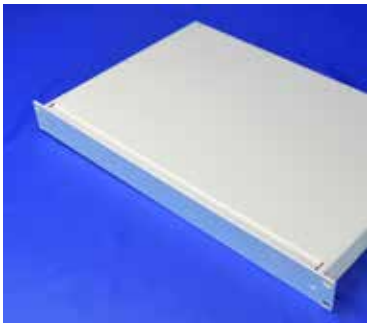
Available as instrument case with individual spray finish upon request



Easy to assemble with just 4 components

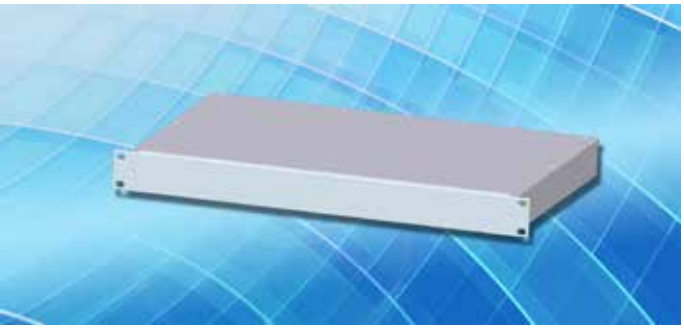


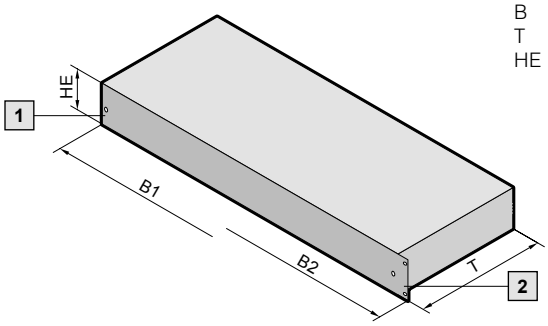
High EMC protection with additional EMC kit



Aluminium rear panel easy to process

HeiBox ECO system enclosure 1 U





B = Width
T = Depth
HE = U

1 Equipped as an instrument case

2 Equipped as a rack-mount unit

Technical specifications

System enclosures 1 HE, 150, 200, 250, 300, 350 mm deep. Easy to assemble with just 4 components. Optionally for use as an instrument case or 19″ rack-mount enclosure. Maximum interior space. Optional EMC upgrades with additional EMC gaskets.

Design

System enclosure 1 U, to IEC 60 297-3.
Optionally available for 19″ rack-mounting in the enclosure or as an instrument case version on customer request.

NEW

Material/surface finish

Base tray:	sheet steel
Front/rear panel:	Extruded aluminium section, clear-chromated
Cover:	sheet steel

Note

Upon request, the HeiBox ECO is also available as 2 U version as well as instrument case with individual spray finish.

U	1	1	1	1	1
Width (B1) mm	447	447	447	447	447
Width (B2) mm	482.6 (19")	482.6 (19")	482.6 (19")	482.6 (19")	482.6 (19")
Depth (T) mm	150	200	250	300	350
Model No. rack-mount unit	**9919.795**	**9919.796**	**9919.797**	**9919.798**	**9919.799**
Supply includes					
Cover	1	1	1	1	1
Front panel	1	1	1	1	1
Rear panel	1	1	1	1	1
Base tray	1	1	1	1	1
Accessories					
EMC set	**9919.800**	**9919.800**	**9919.800**	**9919.800**	**9919.800**

Other customised solutions regarding dimensions and coloring are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HeiPac Vario-Module

Modern system enclosure for mobile and stationary applications

Applications

Optionally for use as an instrument case or rack-mount enclosure. Accommodates PCBs or plug-in units.
For mobile and stationary applications.

Technical specifications

- 19˝ system enclosure, complies with IEC 60 297-3
- Optionally for use as an instrument case or rack-mount enclosure
- Basic case optionally with bottom or top cover
- Height: 2 - 7 U
- Installation width: 42, 63, 84 HP
- Depth: 250 - 430 mm
- Variable depth interior installation
- Extruded aluminium section
- Protection category IP 40

Benefits at a glance

- Easy modification from instrument case to rack-mount system
- Broad range of accessories
- Neutral design
- Basic case with variable expansions
- Optional EMC version

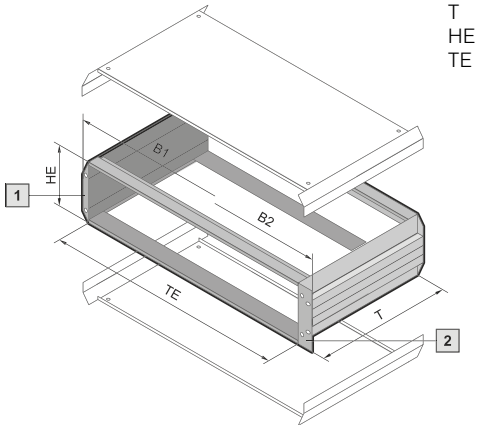
Broad range of accessories

Flange for 19" installation

Interior fittings from the HeiPac Vario range

Front corner trims for assembly as instrument case

HeiPac Vario-Module 2 U



B = Width
T = Depth
HE = U
TE = HP

Technical specifications

Optionally for use as an instrument case or rack-mount enclosure. External dimensions to IEC 60 297-3 for installation in enclosures, 482,6 mm (19˝). Installation dimensions for plug-in units according to IEC 60 297-3-101.

Protection category

IP 40 for non-vented version.

Supply includes

2 side panels
4 horizontal rails
4 threaded inserts
2 corner trims
Assembly parts

1 Equipped as an instrument case

2 Equipped as a rack-mount enclosure

Material/surface finish

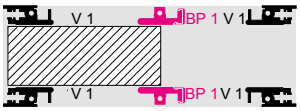
Side panels:	Extruded aluminium section, spray-finished in RAL 7035
Horizontal rail:	Extruded aluminium section, clear-chromated
Side trim panels:	Extruded aluminium section, spray-finished in RAL 7035

Note

Corner trims, mounting flanges and top/bottom covers have to be ordered separately.

Horizontal rails for additional installations have to be ordered separately, see page 130

Exemplary horizontal rail configuration

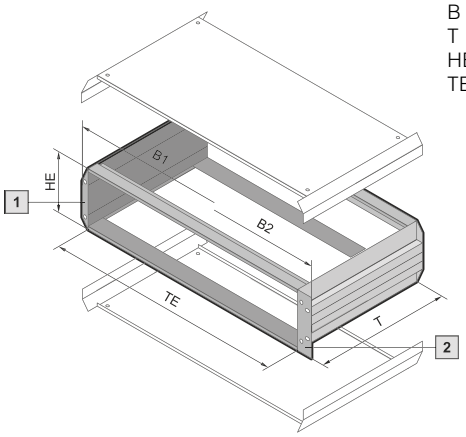


2 U

	Packs of	2 U						Page
Installation width (HP)		**42**	**42**	**63**	**63**	**84**	**84**	
Width (B1) mm		235.6	235.6	342.3	342.3	449.0	449.0	
Width (B2) mm		251.6	251.6	358.3	358.3	465.1	465.1	
Depth (T) mm		250.4	310.4	250.4	310.4	250.4	310.4	
Mod.No. VM basic case	1	**3982.000**	**3982.020**	**3982.290**	**3982.300**	**3982.010**	**3982.030**	
Also required								
Top covers - with vent holes - without vent holes	 1 1	 **3982.941** **3982.901**	 **3982.951** **3982.911**	 **3982.942** **3982.902**	 **3982.952** **3982.912**	 **3982.940** **3982.900**	 **3982.950** **3982.910**	 107 107
Bottom covers - with vent holes - without vent holes	 1 1	 **3982.741** **3982.701**	 **3982.751** **3982.711**	 **3982.742** **3982.702**	 **3982.752** **3982.712**	 **3982.740** **3982.700**	 **3982.750** **3982.710**	 107 107
Front corner trims for assembly as instrument case	2	**3981.300**	**3981.300**	**3981.300**	**3981.300**	**3981.300**	**3981.300**	109
Flanges for configuration as rack-mount system - without handle holes	2	**3981.200**	**3981.200**	**3981.200**	**3981.200**	**3981.200**	**3981.200**	108
Accessories								
Front/rear panels	see page 110 - 111							
Rear adjustable feet	4	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	109

Other customised solutions regarding dimensions and colouring are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HeiPac Vario-Module 2 U, EMC



B = Width
T = Depth
HE = U
TE = HP

EMC

Technical specifications

Optionally for use as an instrument case or rack-mount enclosure. External dimensions according to IEC 60 297-3 for installation in enclosures, 482.6 mm (19˝). Installation dimensions for plug-in units according to IEC 60 297-3-101.

Protection category

IP 40 for non-vented version.

Supply includes

2 side panels
4 horizontal rails
4 threaded inserts
2 corner trims
Assembly parts

1 Equipped as an instrument case

2 Equipped as a rack-mount enclosure

Material/surface finish

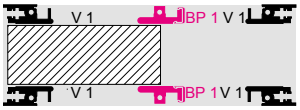
Side panels:	Extruded aluminium section, spray-finished in RAL 7035
Horizontal rail:	Extruded aluminium section, clear-chromated
Corner trims:	Extruded aluminium section, spray-finished in RAL 7035
Contact points:	conductive

Note

Corner trims, mounting flanges and top/bottom covers have to be ordered separately.

Horizontal rails for additional installations have to be ordered separately,
see pages 130

Exemplary horizontal rail configuration

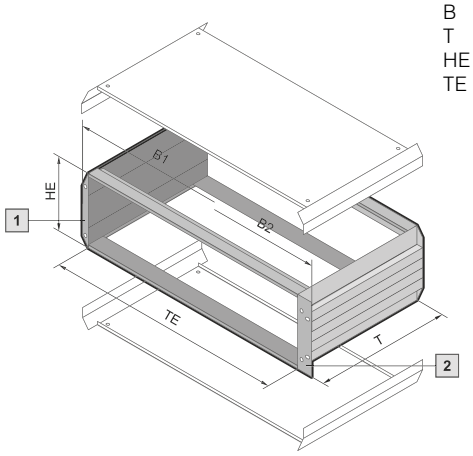


2 U

	Packs of	2 U						Page
Installation width (HP)		**42**	**42**	**63**	**63**	**84**	**84**	
Width (B1) mm		235.6	235.6	342.3	342.3	449.0	449.0	
Width (B2) mm		251.6	251.6	358.3	358.3	465.1	465.1	
Depth (T) mm		250.4	310.4	250.4	310.4	250.4	310.4	
Mod.No. VM basic case EMC	1	**3983.000**	**3983.020**	**3983.290**	**3983.300**	**3983.010**	**3983.030**	
Also required								
Top cover - with vent holes - without vent holes	1 1	**3981.941** **3981.901**	**3981.951** **3981.911**	**3981.942** **3981.902**	**3981.952** **3981.912**	**3981.940** **3981.900**	**3981.950** **3981.910**	107 107
Bottom covers - with vent holes - without vent holes	1 1	**3981.741** **3981.701**	**3981.751** **3981.711**	**3981.742** **3981.702**	**3981.752** **3981.712**	**3981.740** **3981.700**	**3981.750** **3981.710**	107 107
Corner trims for assembly as instrument case	2	**3981.300**	**3981.300**	**3981.300**	**3981.300**	**3981.300**	**3981.300**	109
Flanges for configuration as rack-mount enclosure - without handle holes	2	**3981.200**	**3981.200**	**3981.200**	**3981.200**	**3981.200**	**3981.200**	108
EMC installation								
EMC gaskets, horizontal - for upper/lower horizontal rail - between covers and horizontal rails	1 10	**3684.808** **3684.245**	**3684.808** **3684.245**	**3684.808** **3684.245**	**3684.808** **3684.245**	**3684.808** **3684.245**	**3684.808** **3684.245**	145 147
EMC gaskets, vertical	1	**3686.974**	**3686.974**	**3686.974**	**3686.974**	**3686.974**	**3686.974**	111
Front/rear panels EMC	see page 110 - 111							
Accessories								
Rear adjustable feet	4	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	109

Other customised solutions regarding dimensions and colouring are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HeiPac Vario-Module 3 U



B = Width
T = Depth
HE = U
TE = HP

Technical specifications

Optionally for use as an instrument case or rack-mount enclosure. External dimensions according to IEC 60 297-3 for installation in enclosures, 482.6 mm (19˝). Installation dimensions for plug-in units according to IEC 60 297-3-101.

Protection category

IP 40 for non-vented version.

Supply includes

2 side panels
4 horizontal rails
4 threaded inserts
2 corner trims
Assembly parts

1 Equipped as an instrument case

2 Equipped as a rack-mount enclosure

Material/Surface finish

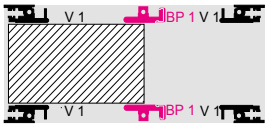
Side panels:	Extruded aluminium section, spray-finished in RAL 7035
Horizontal rail:	Extruded aluminium section, clear-chromated
Corner trims:	Extruded aluminium section, spray-finished in RAL 7035

Note

Corner trims, mounting flanges and top/bottom covers have to be ordered separately.

Horizontal rails for additional installations have to be ordered separately, see pages 130

Exemplary horizontal rail configuration



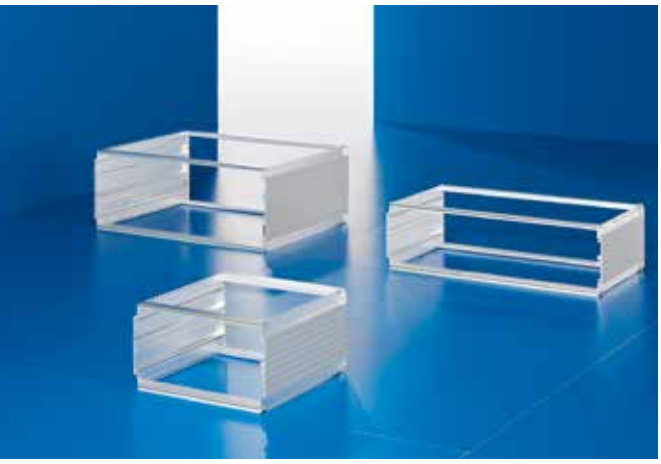
3 U

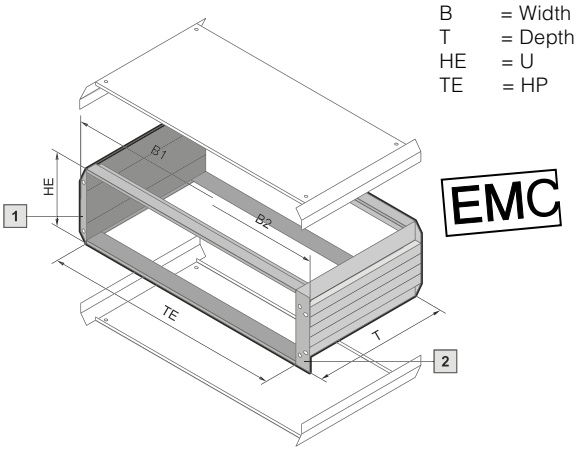
	Packs of	3 U							Page
Installation width (HP)		**42**	**42**	**63**	**63**	**84**	**84**	**84**	
Width (B1) mm		235.6	235.6	342.3	342.3	449.0	449.0	449.0	
Width (B2) mm		251.6	251.6	358.3	358.3	465.1	465.1	465.1	
Depth (T) mm		250.4	310.4	250.4	310.4	250.4	310.4	370.4	
Mod.No. VM basic case	1	**3982.040**	**3982.070**	**3982.050**	**3982.080**	**3982.060**	**3982.090**	**3982.100**	
Also required									
Top covers - with vent holes - without vent holes	 1 1	 **3982.941** **3982.901**	 **3982.951** **3982.911**	 **3982.942** **3982.902**	 **3982.952** **3982.912**	 **3982.940** **3982.900**	 **3982.950** **3982.910**	 **3982.960** **3982.920**	 107 107
Bottom covers - with vent holes - without vent holes	 1 1	 **3982.741** **3982.701**	 **3982.751** **3982.711**	 **3982.742** **3982.702**	 **3982.752** **3982.712**	 **3982.740** **3982.700**	 **3982.750** **3982.710**	 **3982.760** **3982.720**	 107 107
Front corner trims for assembly as instrument case	2	**3981.310**	**3981.310**	**3981.310**	**3981.310**	**3981.310**	**3981.310**	**3981.310**	109
Flanges for configuration as rack-mount system - without handle holes - with handle holes	 2 2	 **3981.210** **3981.260**	 **3981.210** **3981.260**	 **3981.210** **3981.260**	 **3981.210** **3981.260**	 **3981.210** **3981.260**	 **3981.210** **3981.260**	 **3981.210** **3981.260**	108
Accessories									
Front/rear panels	see page 110 - 111								
Carrying handles	2	**3981.350**	**3981.360**	**3981.350**	**3981.360**	**3981.350**	**3981.360**	**3981.370**	109
Front handles [1)]	2	**3636.010**	**3636.010**	**3636.010**	**3636.010**	**3636.010**	**3636.010**	**3636.010**	57
Rear adjustable feet	4	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	109

[1)] Only in conjunction with mounting flanges with handle holes.

Other customised solutions regarding dimensions and colouring are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HeiPac Vario-Module 3 U, EMC





Technical specifications

Optionally for use as an instrument case or rack-mount enclosure. External dimensions according to IEC 60 297-3 for installation in enclosures, 482.6 mm (19″). Installation dimensions for plug-in units according to IEC 60 297-3-101.

Protection category

IP 40 for non-vented version.

Supply includes

2 side panels
4 horizontal rails
4 threaded inserts
2 corner trims
Assembly parts

1 Equipped as an instrument case

2 Equipped as a rack-mount enclosure

Material/surface finish

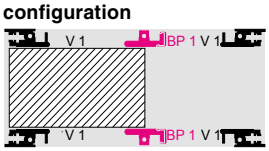
Side panels:	Extruded aluminium section, spray-finished in RAL 7035
Horizontal rail:	Extruded aluminium section, clear-chromated
Corner trims:	Extruded aluminium section, spray-finished in RAL 7035
Contact points:	conductive

Note

Corner trims, mounting flanges and top/bottom covers have to be ordered separately.

Horizontal rails for additional installations have to be ordered separately,
see pages 130

Exemplary horizontal rail configuration



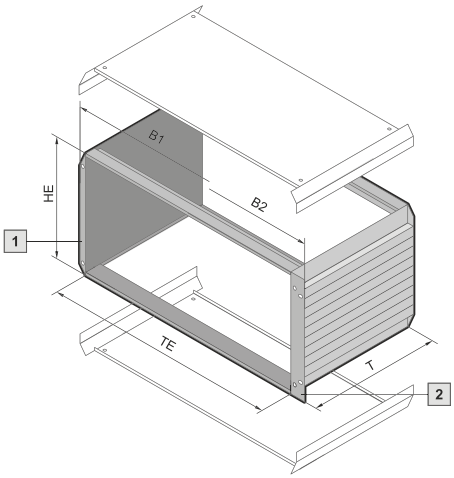
3 U

	Packs of	3 U							Page
Installation width (HP)		**42**	**42**	**63**	**63**	**84**	**84**	**84**	
Width (B1) mm		235.6	235.6	342.3	342.3	449.0	449.0	449.0	
Width (B2) mm		251.6	251.6	358.3	358.3	465.1	465.1	465.1	
Depth (T) mm		250.4	310.4	250.4	310.4	250.4	310.4	370.4	
Mod.No. VM basic case EMC	1	**3983.040**	**3983.070**	**3983.050**	**3983.080**	**3983.060**	**3983.090**	**3983.100**	
Also required									
Top covers - with vent holes - without vent holes	 1 1	 **3981.941** **3981.901**	 **3981.951** **3981.911**	 **3981.942** **3981.902**	 **3981.952** **3981.912**	 **3981.940** **3981.900**	 **3981.950** **3981.910**	 **3981.960** **3981.920**	 107 107
Bottom covers - with vent holes - without vent holes	 1 1	 **3981.741** **3981.701**	 **3981.751** **3981.711**	 **3981.742** **3981.702**	 **3981.752** **3981.712**	 **3981.740** **3981.700**	 **3981.750** **3981.710**	 **3981.760** **3981.720**	 107 107
Front corner trims for assembly as instrument case	2	**3981.310**	**3981.310**	**3981.310**	**3981.310**	**3981.310**	**3981.310**	**3981.310**	109
Flanges for configuration as rack-mount system - without handle holes - with handle holes	 2 2	 **3981.210** **3981.260**	 **3981.210** **3981.260**	 **3981.210** **3981.260**	 **3981.210** **3981.260**	 **3981.210** **3981.260**	 **3981.210** **3981.260**	 **3981.210** **3981.260**	108
EMC installation									
EMC gaskets, horizontal - for upper/lower horizontal rail - between covers and horizontal rails	 1 10	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 145 147
EMC gaskets, vertical	1	**3686.975**	**3686.975**	**3686.975**	**3686.975**	**3686.975**	**3686.975**	**3686.975**	111
Front/rear panels EMC	see page 110 - 111								
Accessories									
Carrying handles	2	**3981.350**	**3981.360**	**3981.350**	**3981.360**	**3981.350**	**3981.360**	**3981.370**	109
Front handles [1]	2	**3636.010**	**3636.010**	**3636.010**	**3636.010**	**3636.010**	**3636.010**	**3636.010**	57
Rear adjustable feet	4	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	109

[1] Only in conjunction with mounting flanges with handle holes.

Other customised solutions regarding dimensions and colouring are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HeiPac Vario-Module 4 U, 6 U, 7 U



B = Width
T = Depth
HE = U
TE = HP

Technical specifications

Optionally for use as an instrument case or rack-mount enclosure. External dimensions according to IEC 60 297-3 for installation in enclosures, 482.6 mm (19˝). Installation dimensions for plug-in units according to IEC 60 297-3-101.

Protection category

IP 40 for non-vented version.

Supply includes

2 side panels
4 horizontal rails
4 threaded inserts
2 corner trims
Assembly parts
2 side trims centre

1 Equipped as an instrument case

2 Equipped as a rack-mount enclosure

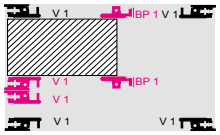
Material/Surface finish

Side panels:	Extruded aluminium section, spray-finished in RAL 7035
Horizontal rail:	Extruded aluminium section, clear-chromated
Corner trims:	Extruded aluminium section, spray-finished in RAL 7035
Side trims centre:	Extruded aluminium section, spray-finished in RAL 7035

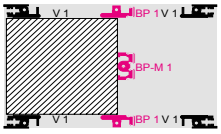
Note

Corner trims, mounting flanges and top/bottom covers have to be ordered separately.

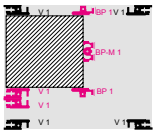
Exemplary horizontal rail configuration



4 U (3 + 1)



6 U



7 U (6 + 1)

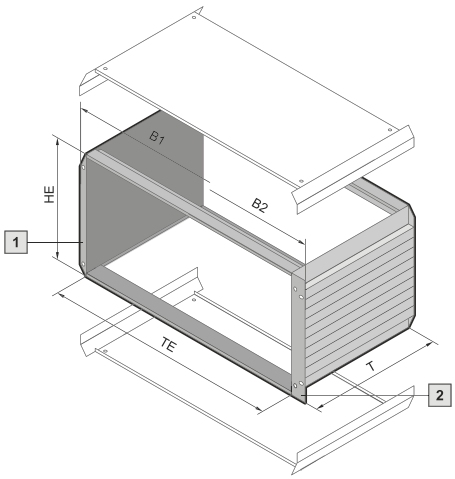
Horizontal rails for additional installations have to be ordered separately, see pages 130

	Packs of	4 U (3 + 1)			6 U			7 U		Page
Installation width (HP)		**84**	**84**	**84**	**84**	**84**	**84**	**84**	**84**	
Width (B1) mm		449.0	449.0	449.0	449.0	449.0	449.0	449.0	449.0	
Width (B2) mm		465.1	465.1	465.1	465.1	465.1	465.1	465.1	465.1	
Depth (T) mm		250.4	310.4	370.4	310.4	370.4	430.4	310.4	430.4	
Mod.No. VM basic case	1	**3982.110**	**3982.120**	**3982.130**	**3982.140**	**3982.150**	**3982.160**	**3982.170**	**3982.190**	
Also required										
Top covers - with vent holes - without vent holes	 1 1	 **3982.940** **3982.900**	 **3982.950** **3982.910**	 **3982.960** **3982.920**	 **3982.950** **3982.910**	 **3982.960** **3982.920**	 **3982.970** **3982.930**	 **3982.950** **3982.910**	 **3982.970** **3982.930**	 107 107
Bottom covers - with vent holes - without vent holes	 1 1	 **3982.740** **3982.700**	 **3982.750** **3982.710**	 **3982.760** **3982.720**	 **3982.750** **3982.710**	 **3982.760** **3982.720**	 **3982.770** **3982.730**	 **3982.750** **3982.710**	 **3982.770** **3982.730**	 107 107
Front corner trims for assembly as instrument case	2	**3981.320**	**3981.320**	**3981.320**	**3981.330**	**3981.330**	**3981.330**	**3981.340**	**3981.340**	109
Flanges for configuration as rack-mount system - without handle holes - with handle holes	 2 2	 **3981.220** **3981.270**	 **3981.220** **3981.270**	 **3981.220** **3981.270**	 **3981.230** **3981.280**	 **3981.230** **3981.280**	 **3981.230** **3981.280**	 **3981.240** **3981.290**	 **3981.240** **3981.290**	 108 108
Accessories										
Front/rear panels	see page 110 - 111									
Carrying handles	2	**3981.350**	**3981.360**	**3981.370**	**3981.360**	**3981.370**	**3981.380**	**3981.360**	**3981.380**	109
Front handles [1]	2	**3636.010**	**3636.010**	**3636.010**	**3666.010**	**3666.010**	**3666.010**	**3666.010**	**3666.010**	57
Rear adjustable feet	4	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	109

[1] Only in conjunction with mounting flanges with handle holes.

Other customised solutions regarding dimensions and colouring are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HeiPac Vario-Module 4 U, 6 U, 7 U, EMC



B = Width
T = Depth
HE = U
TE = HP

EMC

Technical specifications

Optionally for use as an instrument case or rack-mount enclosure. External dimensions according to IEC 60 297-3 for installation in enclosures, 482.6 mm (19″). Installation dimensions for plug-in units according to IEC 60 297-3-101.

Protection category

IP 40 for non-vented version.

Supply includes

2 side panels
4 horizontal rails
4 threaded inserts
2 corner trims
2 side trims centre
Assembly parts

1 Equipped as an instrument case

2 Equipped as a rack-mount enclosure

Material/surface finish

Side panels:	Extruded aluminium section, spray-finished in RAL 7035
Horizontal rail:	Extruded aluminium section, clear-chromated
Corner trims:	Extruded aluminium section, spray-finished in RAL 7035
Side trims centre:	Extruded aluminium section, spray-finished in RAL 7035
Contact points:	conductive

Note

Corner trims, mounting flanges and top/bottom covers have to be ordered separately.

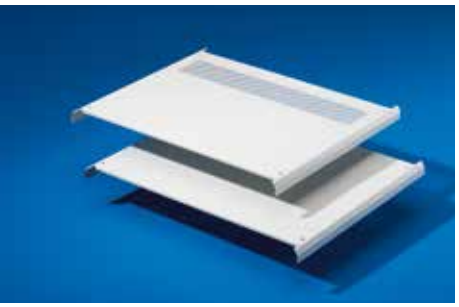
Horizontal rails for additional installations have to be ordered separately, see page 130
Exemplary horizontal rail configuration see page 105

	Packs of	4 U (3 + 1)			6 U			7 U		Page
Installation width (HP)		**84**	**84**	**84**	**84**	**84**	**84**	**84**	**84**	
Width (B1) mm		449,0	449,0	449,0	449,0	449,0	449,0	449,0	449,0	
Width (B2) mm		465,1	465,1	465,1	465,1	465,1	465,1	465,1	465,1	
Depth (T) mm		250,4	310,4	370,4	310,4	370,4	430,4	310,4	430,4	
Mod.No. VM basic case EMC	1	**3983.110**	**3983.120**	**3983.130**	**3983.140**	**3983.150**	**3983.160**	**3983.170**	**3983.190**	
Also required										
Top covers - with vent holes - without vent holes	 1 1	 **3981.940** **3981.900**	 **3981.950** **3981.910**	 **3981.960** **3981.920**	 **3981.950** **3981.910**	 **3981.960** **3981.920**	 **3981.970** **3981.930**	 **3981.950** **3981.910**	 **3981.970** **3981.930**	 107 107
Bottom covers - with vent holes - without vent holes	 1 1	 **3981.740** **3981.700**	 **3981.750** **3981.710**	 **3981.760** **3981.720**	 **3981.750** **3981.710**	 **3981.760** **3981.720**	 **3981.770** **3981.730**	 **3981.750** **3981.710**	 **3981.770** **3981.730**	 107 107
Front corner trims for assembly as instrument case	2	**3981.320**	**3981.320**	**3981.320**	**3981.330**	**3981.330**	**3981.330**	**3981.340**	**3981.340**	109
Flanges for configuration as rack-mount system - without handle holes - with handle holes	 2 2	 **3981.220** **3981.270**	 **3981.220** **3981.270**	 **3981.220** **3981.270**	 **3981.230** **3981.280**	 **3981.230** **3981.280**	 **3981.230** **3981.280**	 **3981.240** **3981.290**	 **3981.240** **3981.290**	 108 108
EMC installation										
EMC gaskets, horizontal - for upper/lower horizontal rail - between covers and horizontal rails	 1 10	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 **3684.808** **3684.245**	 145 147
EMC gaskets, vertical	1	**3686.976**	**3686.976**	**3686.976**	**3686.977**	**3686.977**	**3686.977**	**3686.978**	**3686.978**	111
Front/rear panels EMC	see page 110 - 111									
Accessories										
Carrying handles	2	**3981.350**	**3981.360**	**3981.370**	**3981.360**	**3981.370**	**3981.380**	**3981.360**	**3981.370**	109
Front handles [1]	2	**3636.010**	**3636.010**	**3636.010**	**3666.010**	**3666.010**	**3666.010**	**3666.010**	**3666.010**	57
Rear adjustable feet	4	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	**3901.000**	109

[1] Only in conjunction with mounting flanges with handle holes.

Other customised solutions regarding dimensions and colouring are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

Top covers



For HeiPac Vario-Module

Standard version - Material

Sheet steel
Spray-finished

Colour

RAL 7035

EMC version - Material

Sheet steel
spray-finished
Contact points: conductive

VM standard

HP	Depth mm	Order No.	
		with vent holes	without vent holes
42	250.4	**3982.941**	**3982.901**
	310.4	**3982.951**	**3982.911**
63	250.4	**3982.942**	**3982.902**
	310.4	**3982.952**	**3982.912**
84	250.4	**3982.940**	**3982.900**
	310.4	**3982.950**	**3982.910**
	370.4	**3982.960**	**3982.920**
	430.4	**3982.970**	**3982.930**

VM EMC

HP	Depth mm	Order No.	
		with vent holes	without vent holes
42	250.4	**3981.941**	**3981.901**
	310.4	**3981.951**	**3981.911**
63	250.4	**3981.942**	**3981.902**
	310.4	**3981.952**	**3981.912**
84	250.4	**3981.940**	**3981.900**
	310.4	**3981.950**	**3981.910**
	370.4	**3981.960**	**3981.920**
	430.4	**3981.970**	**3981.930**

Bottom covers

For HeiPac Vario-Module

Standard version - Material

Sheet steel
Spray-finished

Colour

RAL 7035

EMC version - Material

Sheet steel
spray-finished
Contact points: conductive

VM standard

HP	Depth mm	Order No.	
		with vent holes	without vent holes
42	250.4	**3982.741**	**3982.701**
	310.4	**3982.751**	**3982.711**
63	250.4	**3982.742**	**3982.702**
	310.4	**3982.752**	**3982.712**
84	250.4	**3982.740**	**3982.700**
	310.4	**3982.750**	**3982.710**
	370.4	**3982.760**	**3982.720**
	430.4	**3982.770**	**3982.730**

VM EMC

HP	Depth mm	Order No.	
		with vent holes	without vent holes
42	250.4	**3981.741**	**3981.701**
	310.4	**3981.751**	**3981.711**
63	250.4	**3981.742**	**3981.702**
	310.4	**3981.752**	**3981.712**
84	250.4	**3981.740**	**3981.700**
	310.4	**3981.750**	**3981.710**
	370.4	**3981.760**	**3981.720**
	430.4	**3981.770**	**3981.730**

RECOMMENDED ACCESSORIES HeiPac Vario-Module

Feet

With fold-out support stand.
Load capacity up to 20 kg

Material
Plastic

Colour
RAL 7035

Packs of	**Order No.**
2	**3919.000**

Mounting plate

For mounting heavy components

Material
Aluminium

Supply includes
Assembly parts

HP	Depth mm	Packs of	**Order No.**
42	250	1	**3982.370**
42	310	1	**9921.946**
42	370	1	**9921.947**
42	430	1	**9921.948**
63	250	1	**3982.380**
63	310	1	**9921.949**
63	370	1	**9921.950**
63	430	1	**9921.951**
84	250	1	**3982.390**
84	310	1	**9921.952**
84	370	1	**9921.953**
84	430	1	**9921.954**

Front flanges

Required when the HeiPac Vario-Module is to be used as a rack-mount enclosure.
The flanges have a channel to accommodate vertical EMC gaskets.

Material
Aluminium
Clear-chromated

U	Packs of	**Order No.**	
		without handle hole	with handle hole
2	2	**3981.200**	**-**
3	2	**3981.210**	**3981.260**
4	2	**3981.220**	**3981.270**
6	2	**3981.230**	**3981.280**
7	2	**3981.240**	**3981.290**

+ Accessories
Vertical EMC gasket
see page 146
Front handles for mounting on front flanges,
see page 81

Front corner trims

Required when the HeiPac Vario-Module is to be used as a instrument case.
The corner trims have a channel to accommodate vertical EMC gaskets.

Material

Aluminium
Spray-finished

Colour

RAL 7035

U	Packs of	**Order No.**
2	2	**3981.300**
3	2	**3981.310**
4	2	**3981.320**
6	2	**3981.330**
7	2	**3981.340**

+ Accessories

Vertical EMC gasket
see page 146

Carrying handles

For ergonomic transportation, even with stacked enclosures.
May also be used as a support stand.
Max. load capacity: 35 kg.

Material

Die-cast zinc and
Extruded aluminium section

Colour

RAL 7035

Note

Cannot be used with flanges

For enclosure depth mm	Packs of	**Order No.**
250.4	2	**3981.350**
310.4	2	**3981.360**
370.4	2	**3981.370**
430.4	2	**3981.380**

Rear feet

For mounting on the rear of the enclosure.
Dual function:

- Mechanical protection of the connection components
- Also act as a cable tidy during transportation

Material

PA
Self-extinguishing to UL 94-V0

Colour

RAL 7035

Packs of	**Order No.**
4	**3901.000**

RECOMMENDED ACCESSORIES HeiPac Vario-Module

Earthing set

For connecting the top and bottom covers to the side panels with PE conductors.

Supply includes

Conductor cable green/yellow, 1.5 mm², with washer for screw M4, flat-pin connector

Packs of	Order No.
1	**9916.676**

Front panels, hinged

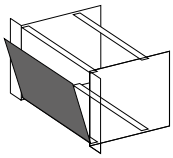
Material

2.5 mm Aluminium
Anodised

Supply includes

1 front panel
1 set of hinges
Assembly parts

U	HP	Order No.	
		vertically hinged	horizontally hinged
3	42	**3652.600**	**3652.500**
3	84	**3652.610**	**3652.510**
6	42	**3652.620**	**3652.520**
6	84	**3652.630**	**3652.530**



EMC front panels, hinged

Material

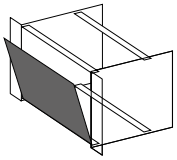
2.5 mm Aluminium
Clear-chromated

Supply includes

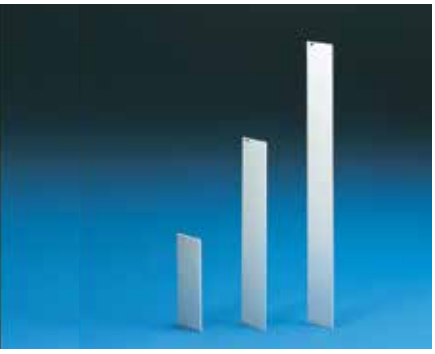
1 front panel
1 set of hinges
1 contact strip
1 gasket strip
1 vertical EMC gasket, version 1
Assembly parts

U	HP	Order No.
		horizontally hinged
3	84	**3684.298**
4	84	**3684.299**
6	84	**3684.300**
7	84	**3684.301**

EMC



Front panels as filler panel



Flat

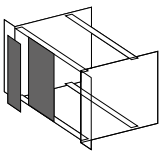
Material

2.5 mm Aluminium,
Natural-anodised

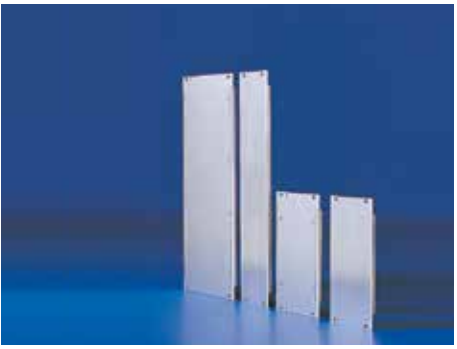
HP	Order No.				
	2 U H = 84.25	3 U H = 128.7	4 U H = 173.15	6 U H = 262.05	7 U H = 306.5
42	**3684.887**	**3684.904**	**3684.908**	**3684.925**	**3684.928**
63	**-**	**3684.906**	**3684.909**	**3684.926**	**3684.929**
84	**3684.888**	**3684.907**	**3684.910**	**3684.927**	**3684.930**

+ Also required

Collar screws and plastic collars, packs of 100 sets, order No. 3658.160
see page 202



EMC front panels as filler panels



U-shaped

Material

2.5 mm extruded aluminium section,
Clear-chromated

Supply includes

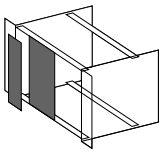
1 front panel, one-piece
(with 2 – 14 HP version)
or three-piece
(with > 14 HP version),
1 vertical EMC gasket, version 1
1 contact strip (three-piece only)
1 gasket strip (three-piece only)

EMC

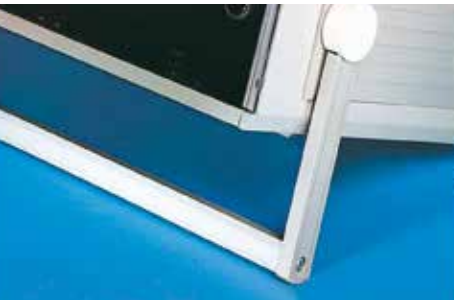
HP	Order No.				
	2 U H = 84.25	3 U H = 128.7	4 U H = 173.15	6 U H = 262.05	7 U H = 306.5
42	-	**3684.252**	**3684.255**	**3684.261**	**3684.264**
63	-	**3684.253**	**3684.256**	**3684.262**	**3684.265**
84	**3684.248**	**3684.254**	**3684.257**	**3684.263**	**3684.266**

+ Also required

Slotted centering screws
packs of 100, order no. 3687.050
see page 203
Cross-head centering screws
packs of 100, order no. 3687.051
see page 203



Support stand/carrying handle



To fit HeiPac Vario Module 3 U, 4 U and 6 U, adjustable on a 30° pitch pattern.

Material

Extruded aluminium section/die-cast

Colour

RAL 7035

Supply includes

Assembly parts

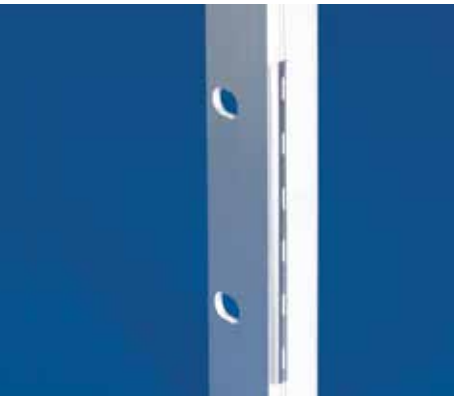
Note

Corner trim for support stands/carrying handles should be ordered separately.

For HeiPac Vario-Module HP	Packs of	**Order No.**
42	1	**3981.390**
63	1	**3981.400**
84	1	**3981.410**

Corner trim for support stand U	Packs of	**Order No.**
3	2	**3981.310**
4	2	**3981.500**
6	2	**3981.330**

EMC gaskets, vertical



To ensure EMC protection between the subracks side panel and the front/rear panels.
There are two versions available.

Suitable for mounting on:
- 482,6 mm (19″) flanges for subracks
- Corner trims, rear
- EMC contact strip
- U-channel front panels

Material

Stainless steel

German patent
No. 101 15 525 and
No. 198 46 627
US patent no. 6,500,012
US patent no. 7,044,753

EMC

Version 1: Segmented

U	**Order No.** Packs of 1	**Order No.** Packs of 10
1	**3686.973**	**3684.236**
2	**3686.974**	**3684.237**
3	**3686.975**	**3684.238**
4	**3686.976**	**3684.239**
6	**3686.977**	**3684.240**
7	**3686.978**	**3684.241**
9	**3686.979**	**3684.242**
10	**3686.980**	**3684.243**
11	**3686.981**	**3684.244**

Version 2: One-piece

U	**Order No.** Packs of 1	**Order No.** Packs of 10
2	**3688.610**	-
3	**3688.611**	**9921.942**
4	**3688.612**	-
5	**3688.613**	-
6	**3688.614**	**9921.943**
7	**3688.615**	-
8	**3688.634**	-
9	**3688.616**	**9921.944**
10	**3688.609**	-
11	**3688.633**	-
12	**3688.606**	-

HeiCase

Universal instrument case in a timeless design

Applications

The HeiCase is the HEITEC instrument case of sophisticated design that is suitable for 19" rack-mount systems as well as individual configuration. In combination with rollers and carrying handles the instrument case is particularly easy to transport.

Technical specifications

- Instrument case, complies with IEC 60 297-3
- Height: 1 – 12 HE
- Installation with: ½ 19˝ und 19˝
- Depth: 300 – 540 mm
- Protection category IP 42
- Extruded aluminium section
- Variable depth/height interior installation

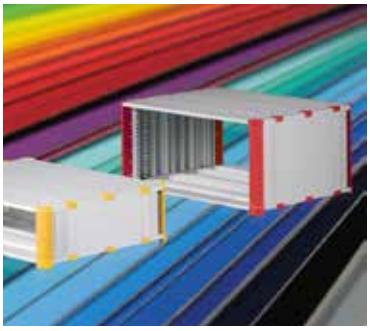
Benefits at a glance

- Outstanding stability
- Upgradeable to a tower version
- Standard in 3 colours
- Ergonomic handles, bottom- and door types
- For mobile and stationary applications

Flexible sizing through modular design

Wide range of accessories

Stable set up from aluminium profiles



Individual colouring

High flexibility following customer requests

The modular line of standard casings can be manufactured to a height of up to 30 U and a depth of up to 900 mm.

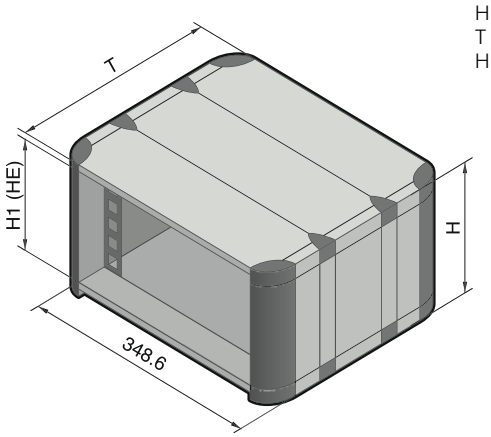
Those maxi-versions are suitable for applications of high packing density as well as a mobile alternative to cabinets. Thanks to their set up of individual, interconnected extruded aluminium sections even the large versions provide a high degree of stability and are scalable not only in height, but also in depth (up to 900mm), modular in segments of 120mm.

If necessary, they can be mounted on rollers for mobile applications and can be equipped with specific handles, thus providing mobility and making the enclosure flexibly applicable despite its large dimensions. The carrying handles were tested to a load of 100kg and are suitable for heavy load applications.

The design of the enclosure can be customised to match the customer's corporate design. Decorative elements (corner trims and plastic parts) and even the system enclosure of the maxi versions can be designed in your desired RAL-color if required.

Due to their solid structure the customised versions meet the requirements for robust instrument case and system enclosures with scalable interior and exterior installations. Through a variety of accessories they can be adapted to the respective requirements.

HeiCase ½ 19"



H = Height
T = Depth
HE = U

Technical specifications

Depth: 300 mm, 420mm, 540 mm
Installation width: 269,2 mm (½ 19˝)
Installation options: 269,2 mm (½ 19˝)-slide-in equipment to 60 297-3

Protection category

IP 42 for unvented version

Supply includes

2 side panels
2 covers
8 corner caps
8/12/16 cover caps
(300/420/540 mm depth)
4 19" mounting brackets
4 threaded inserts
2 plain inserts,
1 rear panel
Cases are supplied preassembled

Colour

RAL 7035 (pale grey)

Decorative colours and corner caps

RAL 5018 (turquoise)
RAL 5012 (pale blue)
RAL 7030 (stone grey)

Material/surface finish

Covers:	Extruded aluminium section/die-cast, spray-finished
Side panels:	Extruded aluminium section, spray-finished
Corner caps:	Plastic
(19˝) mounting bracket:	Extruded aluminium section, clear-chromated

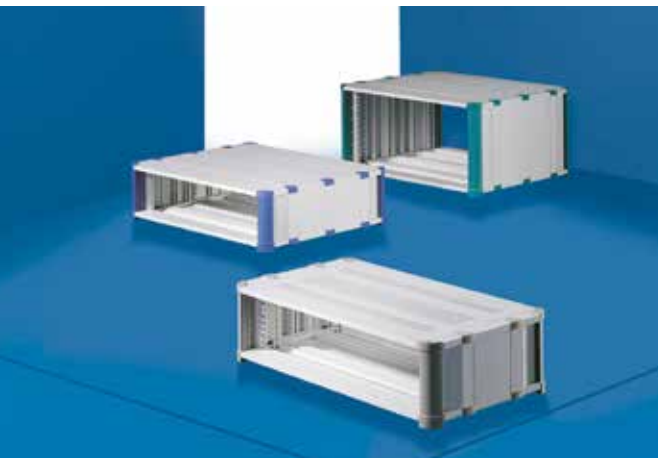
Property rights

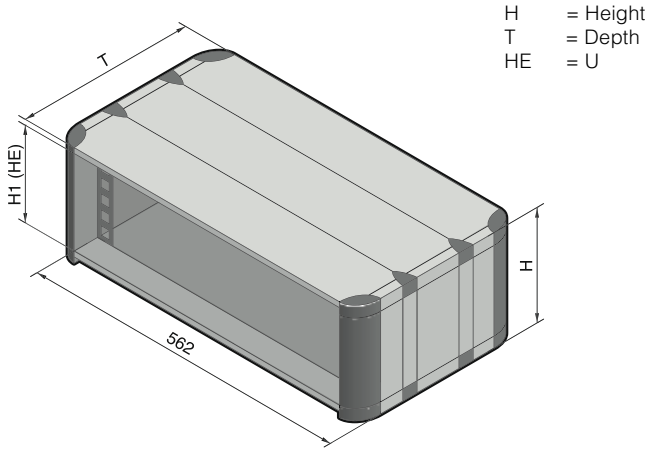
German registered design no. 96 09 457
UK reg. design no. 2064682
US design patents
Des. 402,640 and Des. 423,464
Japan. reg. designs no. 1045507 and 1045508

Enclosures for subrack width 269,2 mm (1/2 19")		Packs of	1 U		2 U		3 U			4 U		Page
Height (H) mm			77.5	77.5	121.9	121.9	166.4	166.4	166.4	210.8	210.8	
H1 mm			45.0	45.0	89.4	89.4	133.8	133.8	133.8	178.3	178.3	
Depth (T) mm			300.0	420.0	300.0	540.0	300.0	420.0	540.0	420.0	540.0	
Unvented												
Order No. RAL 5018		1	**3750.100**	**-**	**3750.200**	**-**	**3750.210**	**3750.300**	**-**	**3750.400**	**-**	
Order No. RAL 5012		1	**3750.102**	**-**	**3750.202**	**-**	**3750.212**	**3750.302**	**-**	**3750.402**	**-**	
Order No. RAL 7030		1	**3750.104**	**-**	**3750.204**	**-**	**3750.214**	**3750.304**	**-**	**3750.404**	**-**	
Vented												
Order No. RAL 5018		1	**-**	**3750.110**	**-**	**3750.220**	**-**	**3750.350**	**3750.360**	**-**	**3750.450**	
Order No. RAL 5012		1	**-**	**3750.112**	**-**	**3750.222**	**-**	**3750.352**	**3750.362**	**-**	**3750.452**	
Order No. RAL 7030		1	**-**	**3750.114**	**-**	**3750.224**	**-**	**3750.354**	**3750.364**	**-**	**3750.454**	
Weight (kg)	vented/		3.3	4.2	3.7	5.4	4.1	5.2	6.1	5.8	6.8	
	unvented		3.4	4.4	3.8	6.1	4.2	5.4	6.8	6.0	7.5	
Accessories												
Support stand/carrying handle		1	see page 120									
Carrying handles, horizontal		2	**3751.250**	**3751.260**	**3751.250**	**3751.270**	**3751.250**	**3751.260**	**3751.270**	**3751.260**	**3751.270**	118
Back panel screw-fastened		1	**-**	**-**	**-**	**-**	**9918.119**	**9918.119**	**9918.119**	**9918.120**	**9918.120**	121
Front door, vertically hinged		1	**-**	**-**	**-**	**-**	**3751.300**	**3751.300**	**3751.300**	**3751.310**	**3751.310**	119
Slide rails		2	**3751.500**	**3751.510**	**3751.500**	**3751.520**	**3751.500**	**3751.510**	**3751.520**	**3751.510**	**3751.520**	116
Mounting angles 19˝		2	**3751.650**	**3751.650**	**3751.660**	**3751.660**	**3751.670**	**3751.670**	**3751.670**	**3751.680**	**3751.680**	116
Threaded inserts with M4 thread		8	**3751.700**	**3751.700**	**3751.710**	**3751.710**	**3751.720**	**3751.720**	**3751.720**	**3751.730**	**3751.730**	116
End section		4	**-**	**-**	**-**	**-**	**3751.900**	**3751.900**	**3751.900**	**3751.910**	**3751.910**	118

Other customised solutions regarding dimensions (up to 30 U height and up to 900 mm depth) and colouring are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

HeiCase 19"





Technical specifications

Depth: 300 mm, 420mm, 540 mm
Installation width: 482,6 mm (19˝)
Installation options: 482,6 mm (19˝)-slide-in equipment to IEC 60 297-3

Protection category

IP 42 for unvented version

Supply includes

2 side panels
2 covers
8 corner caps
8/12/16 cover caps (300/420/540 mm depth)
4 19" mounting brackets
4 threaded inserts
2 plain inserts
Cases are supplied preassembled

Note

For rear installation, order back panel/door separately.

Colour

RAL 7035 (pale grey)

Decorative colours and corner caps

RAL 5018 (turquoise)
RAL 5012 (pale blue)
RAL 7030 (stone grey)

Material/surface finish

Covers:	Extruded aluminium section/die-cast, spray-finished
Side panels:	Extruded aluminium section, spray-finished
Corner caps:	Plastic
(19˝) mounting bracket:	Extruded aluminium section, clear-chromated

Property rights

German registered design no. 96 09 457
UK reg. design no. 2064682
US design patents
Des. 402,640 and Des. 423,464
Japan. reg. designs no. 1045507 and 1045508

Enclosures for subrack width 19"	Packs of	3 U		4 U		6 U			7 U		9 U		12 U	Page
Height (H) mm		166.4	166.4	210.8	210.8	299.7	299.7	299.7	344.2	344.2	433.1	433.1	566.5	
H1 mm		133.8	133.8	178.3	178.3	267.2	267.2	267.2	311.7	311.7	400.6	400.6	534.0	
Depth (T) mm		300.0	420.0	300.0	420.0	300.0	420.0	540.0	420.0	540.0	420.0	540.0	540.0	
Unvented														
Order No. RAL 5018	1	**3750.310**	**3750.320**	**3750.410**	**3750.420**	**3750.600**	**3750.610**	**3750.620**	**3750.700**	**3750.710**	**3750.900**	**3750.910**	**3750.000**	
Order No. RAL 5012	1	**3750.312**	**3750.322**	**3750.412**	**3750.422**	**3750.602**	**3750.612**	**3750.622**	**3750.702**	**3750.712**	**3750.902**	**3750.912**	**3750.002**	
Order No. RAL 7030	1	**3750.314**	**3750.324**	**3750.414**	**3750.424**	**3750.604**	**3750.614**	**3750.624**	**3750.704**	**3750.714**	**3750.904**	**3750.914**	**3750.004**	
Vented														
Order No. RAL 5018	1	**3750.330**	**3750.340**	**3750.430**	**3750.440**	**3750.630**	**3750.640**	**3750.650**	**3750.720**	**3750.730**	**3750.920**	**3750.930**	**3750.030**	
Order No. RAL 5012	1	**3750.332**	**3750.342**	**3750.432**	**3750.442**	**3750.632**	**3750.642**	**3750.652**	**3750.722**	**3750.732**	**3750.922**	**3750.932**	**3750.032**	
Order No. RAL 7030	1	**3750.334**	**3750.344**	**3750.434**	**3750.444**	**3750.634**	**3750.644**	**3750.654**	**3750.724**	**3750.734**	**3750.924**	**3750.934**	**3750.034**	
Weight (kg) vented/		5.3	6.9	5.7	7.5	6.5	8.5	10.8	9.1	11.5	10.1	12.9	15.0	
Weight (kg) unvented		5.4	7.1	7.2	7.7	6.6	8.7	12.2	9.3	12.9	10.3	14.3	16.4	
Accessories														
Support stand/carrying handle	1	see page 120												
Carrying handles, horizontal	2	**3751.250**	**3751.260**	**3751.250**	**3751.260**	**3751.250**	**3751.260**	**3751.270**	**3751.260**	**3751.270**	**3751.260**	**3751.270**	**3751.270**	118
Back panel screw-fastened	1	**3751.600**	**3751.600**	**3751.610**	**3751.610**	**3751.620**	**3751.620**	**3751.620**	**3751.630**	**3751.630**	**3751.530**	**3751.530**	**3751.540**	121
Rear door, vertically hinged	1	**3751.100**	**3751.100**	**3751.110**	**3751.110**	**3751.120**	**3751.120**	**3751.120**	**3751.130**	**3751.130**	**-**	**-**	**-**	121
Rear door for fan installation	1	**3751.150**	**3751.150**	**3751.160**	**3751.160**	**3751.170**	**3751.170**	**3751.170**	**3751.180**	**3751.180**	**-**	**-**	**-**	121
Front door, vertically hinged	1	**3751.320**	**3751.320**	**3751.330**	**3751.330**	**3751.340**	**3751.340**	**3751.340**	**3751.350**	**3751.350**	**-**	**-**	**-**	119
Slide rails	2	**3751.500**	**3751.510**	**3751.500**	**3751.510**	**3751.500**	**3751.510**	**3751.520**	**3751.510**	**3751.520**	**3751.510**	**3751.510**	**3751.520**	116
Mounting angles 19˝	2	**3751.670**	**3751.670**	**3751.680**	**3751.680**	**3751.690**	**3751.690**	**3751.690**	**3751.640**	**3751.640**	**3751.780**	**3751.780**	**3751.790**	116
Threaded inserts with M4 thread	8	**3751.720**	**3751.720**	**3751.730**	**3751.730**	**3751.740**	**3751.740**	**3751.740**	**3751.750**	**3751.750**	**3751.760**	**3751.760**	**3751.770**	116
End section	2	**3751.900**	**3751.900**	**3751.910**	**3751.910**	**3751.920**	**3751.920**	**3751.920**	**3751.930**	**3751.930**	**3751.820**	**3751.820**	**3751.830**	118

Other customised solutions regarding dimensions (up to 30 U height and up to 900 mm depth) and colouring are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

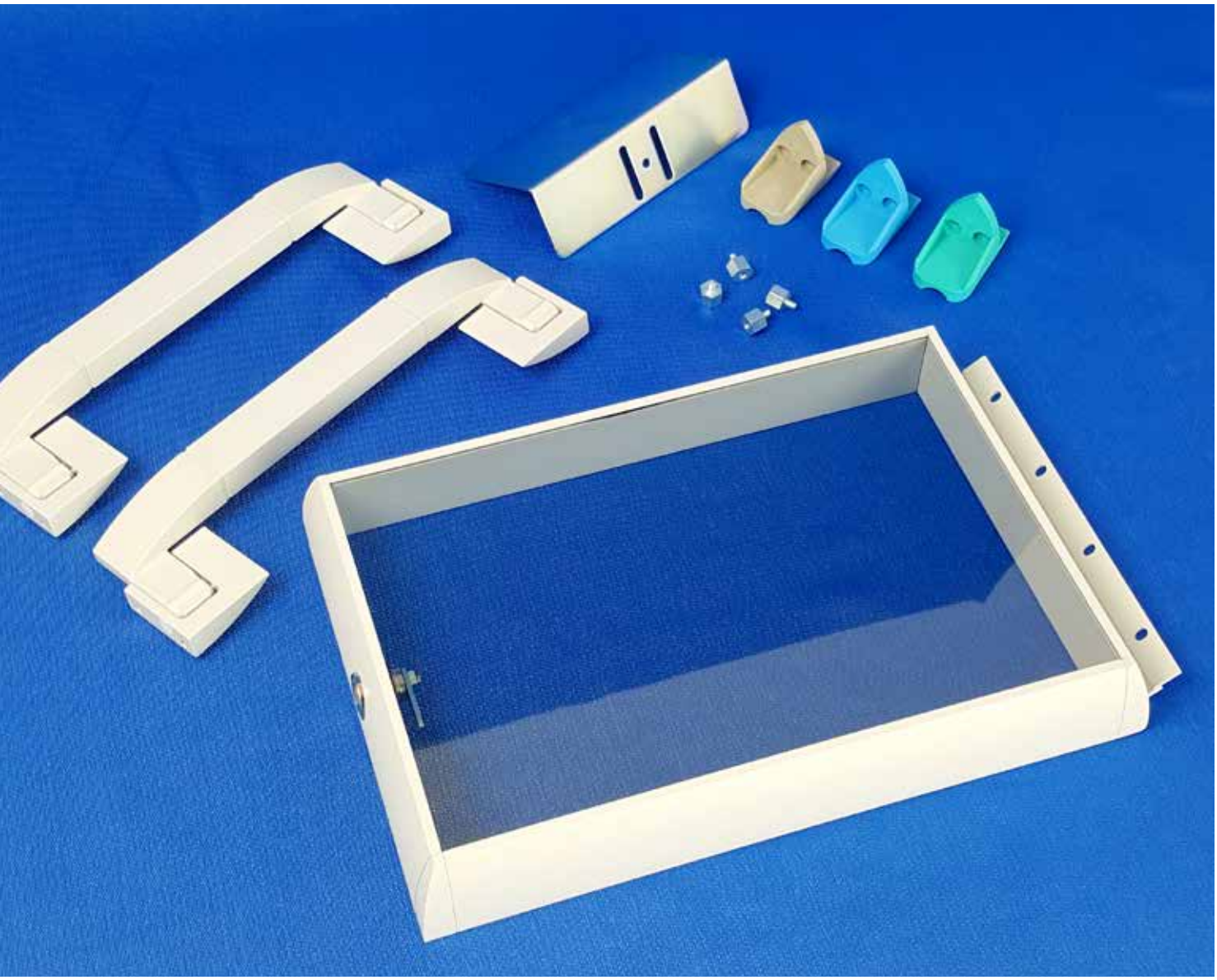
Accessories and services for HeiCase

In addition to the presented subrack-kits, we offer components for your individual configuration on the following pages

WE MEET YOUR INDIVIDUAL NEEDS!

You are looking for a product in the field of electronic packaging that is not in our catalogue? Please contact us! Due to our extensive range of services we can meet all your demands.
We will gladly submit a tailored quotation.

Phone: 09126 - 29 34 0
E-Mail: eps-quote@heitec.de



Mounting angles for 482,6 mm (19")

For front installation of subracks and blanking plates.

Material

Extruded aluminium section
Clear-chromated

Supply includes

Assembly parts

Note

1 pack of threaded inserts and 2 packs of mounting rails and spacers are required for depth-adjustable installation.

For enclosure height U	Packs of	Order No.
1	2	**3751.650**
2	2	**3751.660**
3	2	**3751.670**
4	2	**3751.680**
6	2	**3751.690**
7	2	**3751.640**
9	2	**3751.780**
12	2	**3751.790**

+ Also required

Threaded inserts, see page 116
Mounting rails, see page 117
Spacers, see page 117

Threaded inserts

With M4 thread for HeiCase

For the installation of mounting angles, slide rails, mounting kits, cable ducts etc. Simply slide into the channels in the side panels.

Material

Extruded aluminium section
Clear-chromated

For enclosure height U	Packs of	Order No.
1	8	**3751.700**
2	8	**3751.710**
3	8	**3751.720**
4	8	**3751.730**
6	8	**3751.740**
7	8	**3751.750**
9	8	**3751.760**
12	8	**3751.770**

Slide rails

To support heavy installed equipment.

Material

1,5 mm sheet steel,
Clear-chromated

Supply includes

Assembly parts

For enclosure depth mm	Packs of	Order No.
300	2	**3751.500**
420	2	**3751.510**
540	2	**3751.520**
660	2	**9919.472**

+ Also required

Threaded inserts, see page 116

Mounting rails

- For depth-variable installation of mounting angles
- For the installation of component shelves, static or pull-out

Material

Aluminium
Clear-chromated

Supply includes

Assembly parts

A Version for depth-variable mounting angles

1 Threaded inserts

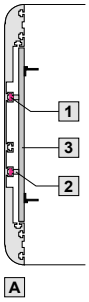
2 Short spacers

3 Mounting rails

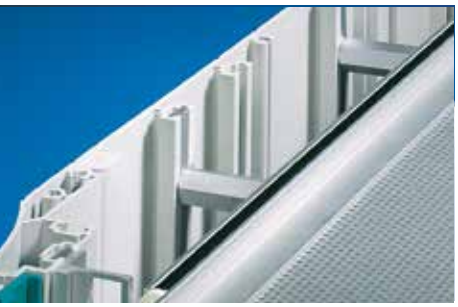
For enclosure depth mm	Packs of	**Order No.**
300	2	**3751.400**
420	2	**3751.410**
540	2	**3751.420**

+ Also required

Threaded inserts, see page 116
Spacers, see page 117



Spacers



For the attachment of mounting rails.

Design	Packs of	**Order No.**
Short for depth-variable mounting bracket	4	**3751.450**
long for mounting plate installation (width 409 mm)	4	**3751.460**

Earthing set

To meet electrical protective measures; fits all HeiCase enclosures.

Supply includes

Threaded insert, screw, green/yellow connection cable, serrated washer, nut

Packs of	**Order No.**
4	**3798.000**

Rear trim

To cover the sides to the left and right of the subrack when no rear door or rear panel is used.

Material

Extruded aluminium section
Spray-finished

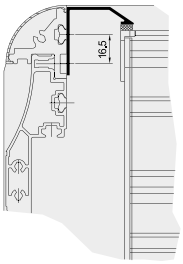
Colour

RAL 7035

Supply includes

Assembly parts

For enclosure height U	Packs of	**Order No.**
3	2	**3751.900**
4	2	**3751.910**
6	2	**3751.920**
7	2	**3751.930**
9	2	**3751.820**
12	2	**3751.830**



Carrying handles

Horizontal
For easy, secure transportation.

- May be retrofitted
- Load capacity 100 kg

Material

Side parts: Die-cast, spray-finished
Centre part: Extruded aluminium section spray-finished

Colour

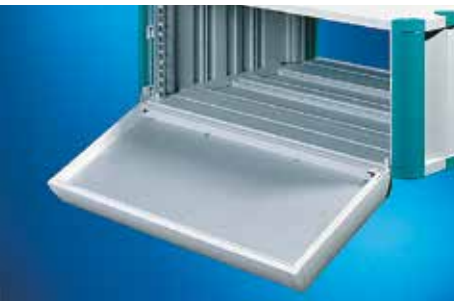
RAL 7035

Supply includes

Assembly parts

For enclosure depth mm	Packs of	**Order No.**
300	2	**3751.250**
420	2	**3751.260**
540	2	**3751.270**

Keyboard lid



Suitable for the installation of 19'' keyboards
- Horizontally hinged with security lock
- Removable cover plate

Material

Frame section: Extruded aluminium section/ die-cast, spray-finished
Base and cover plate: Aluminium, spray-finished

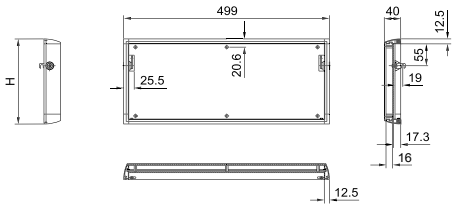
Colour

RAL 7035

Supply includes

Assembly parts

For enclosure width	Height (H) U	Packs of	**Order No.**
19''	4	1	**3751.800**
19''	6	1	**3751.810**



Front door with smoked acrylic, vertically hinged

For mechanical protection of built-in control components.
- Optionally hinged on the right or left
- With security lock

Material

Frame section: Extruded aluminium section, Spray-finished
Corner pieces: Die-cast aluminium, Spray-finished
Glazed pane: Smoked acrylic

Colour

RAL 7035

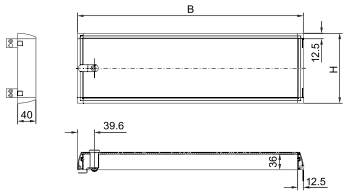
Supply includes

Assembly parts

Note

The figure shows the 6 U version; solutions smaller than 6 U feature a front door with only one security lock.

For enclosure width	W mm	Height (H) U	**Order No.**
½ 19''	289	3	**3751.300**
½ 19''	289	4	**3751.310**
19''	503	3	**3751.320**
19''	503	4	**3751.330**
19''	503	6	**3751.340**
19''	503	7	**3751.350**



Aluminium front door, vertically hinged

For mechanical protection of built-in control components.

- Optionally hinged on the right or left
- With security lock

Material

Frame section: Extruded aluminium section, spray-finished
Corner pieces: Die-cast aluminium, spray-finished
Aluminum plate

Colour

RAL 7035

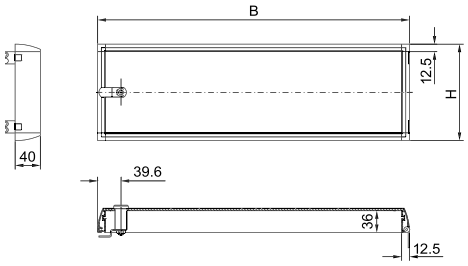
Supply includes

Assembly parts

Note

The figure shows the 6 U version; solutions smaller than 6 U feature a front door with only one security lock.

For enclosure width	W mm	Height (H) U	**Order No.**
19''	503	3	**3751.360**
19''	503	4	**3751.370**
19''	503	6	**3751.380**



Tower feet

For vertical siting of enclosures.
May be retrofitted.

Material

Plastic to UL 94-V0,
Self-extinguishing

Decorative colours

1 RAL 7030 (stone grey)

2 RAL 5018 (turquoise)

3 RAL 5012 (pale blue)

Supply includes

4 tower feet
Assembly parts

Decorative colour RAL	Packs of	**Order No.**
5018	1 set	**3751.850**
5012	1 set	**3751.852**
7030	1 set	**3751.854**

Support stand/carrying handles

- Support stand/carrying handle adjustable in 30° increments
- Suitable for retro-fitting to 2 – 7 U
- For ½ 19" and 19" enclosures
- Load capacity 30 kg

Material

Hinged part: Die-cast, spray finished in RAL 7035,
Centre part: Extruded aluminium section, spray finished in RAL 7035 with plastic coating

Decorative colour

1 RAL 7030 (stone grey)

2 RAL 5018 (turquoise)

3 RAL 5012 (pale blue)

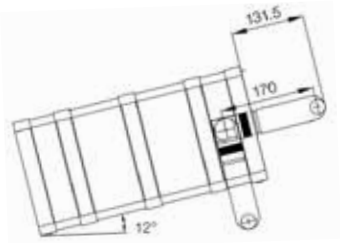
Supply includes

1 support stand/carrying handle
Assembly parts

NEW

For enclosure width	W mm	Colour RAL	**Order No.**
½ 19''	392	5018	**3751.200**
½ 19''	392	5012	**3751.202**
½ 19''	392	7030	**3751.204**
19''	605	5018	**3751.210**
19''	605	5012	**3751.212**
19''	605	7030	**3751.214**

W = total width handle
PU = 1 set



Back panel, screw-fastened

To close off the rear.

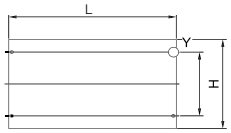
Material

Aluminium, 2 mm,
Natural-anodised

Supply includes

2 19″ mounting brackets
Assembly parts

Height(H) U	Packs of	Order No.	
		enclosure width L = ½19"	enclosure width L = 19"
3	1	**9918.119**	**3751.600**
4	1	**9918.120**	**3751.610**
6	1	**9918.121**	**3751.620**
7	1	**9918.122**	**3751.630**
9	1	**9918.123**	**3751.530**
12	1	**9918.125**	**3751.540**



Rear door, vertically hinged

To close off the rear.
- Hinged, with security lock
- Optionally hinged on the left or right

Material

Aluminium, 2,5 mm
Spray-finished

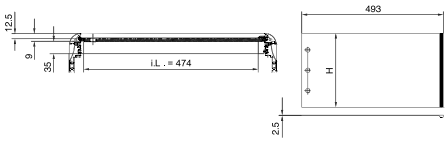
Colour

RAL 7035

Supply includes

Assembly parts

For enclosure width	Height (H) U	Packs of	Order No.
19''	3	1	**3751.100**
19''	4	1	**3751.110**
19''	6	1	**3751.120**
19''	7	1	**3751.130**



Rear door for fan installation

To close off the rear.
- With security lock
- For the installation of 120 mm fans
- Optionally hinged on the left or right
- For the installation of two fans

Material

Aluminium, 2,5 mm
Spray-finished

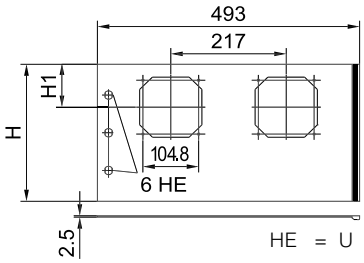
Colour

RAL 7035

Supply includes

Assembly parts

For enclosure width	Height (H) U	H1 mm	Order No.
19''	3	66.65	**3751.150**
19''	4	88.90	**3751.160**
19''	6	83.50	**3751.170**
19''	7	83.50	**3751.180**



APPLICATION EXAMPLE

Transportation

Flexible bench chassis for function testing systems in automotive industry

Compact and flexible system chassis are playing an increasingly important role in the automotive industry as a substitute for control cabinets. A HEITEC customer had this exact requirement for a car seat function testing system. In this case, it was essential to be able to fit the system without difficulty below the conveyor belts transporting the car seats.

Considering its dimensions, a standard control cabinet would have been out of the question for this application. The HEITEC HeiCase is an ideal substitute in such situations. Thanks to its flexible assembly options, made possible by the use of aluminum extruded cross-sections, the HeiCase can be precisely adapted to actual spatial conditions on-site. That makes it much more flexible than a standard control cabinet, and just as sturdy.

In addition, the system also had to be easy to transport, despite the many built-in items that add considerable weight. This was solved by using flexible transport rollers with a locking brake, which made it possible to transport the unit without difficulty even on uneven surfaces.

Besides producing the casing in the customer's corporate design colours, HEITEC also had to ensure sufficient protection against environmental contaminants such as dust, and so the HeiCase was supplied in protection class IP52.

The chassis also had to be easily protected against unauthorised access – but the customer did not want a normal key for the system. All of the chassis had to be lockable using the same tool. That would prevent the risk of mixing up keys and minimize the chance of losing them. The solution was a tool-based four-sided warded lock that provides a simple, yet effective locking option.

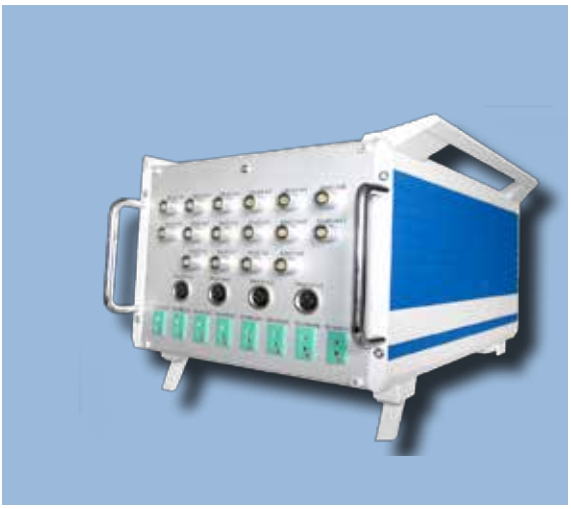
Technical Summary

- Customer-specifi c system chassis
- Transport rollers with locking brake
- L x W x H: 660 mm x 19” x 7U
- Design elements in RAL 5017
- Tool-based locking options (4-sided warded lock)

Customer Benefits

- Appealing, timeless exterior to suit corporate design requirements
- High level of protection against environmental influences such as dust
- Transport rollers with locking brake ensure easy transportation of the system chassis even with multiple builtin elements
- Small form factor saves space, enabling the unit to be installed even in compact locations
- Locking technology easy to use
- Cost-optimised chassis concept

Industrial control



Mobile data collection in an industrial environment

Mobile, Internet-supported data collection and the corresponding communications tools are now essential elements in the manufacturing processes of many industrial firms. That's why HEITEC developed a system solution for one of its customers that enabled it to gather complex measurement data for its in-house liquid filter system manufacturing processes.

High standards were set for both the electronics and the mechanical aspects. First, the system had to function reliably even when exposed to major temperature fluctuations and strong impacts and vibrations. It also had to be unaffected by splashing water, dust or grease. Maintenance had to be as simple as possible, with due consideration for the technical requirements.

The entire complex system was integrated into a HeiPac Vario-Modul measuring 310 mm x 42HP x 4U (L x W x H), a standard element in HEITEC's portfolio. The HeiPac Vario-Modul is cost-effective, with an excellent compact, stable, full-metal casing that proved to be ideally suited for this application. In accordance with customer specifications, the front and side panels were produced in the customer's corporate design and the side panels given new colours – no further adjustments to the standard product were needed. The front plate contains the connections for the four different measuring modules that are supplied internally with a voltage of 24V. The back contains a switchable combination module for power input and a covered, grounded socket to supply power to a laptop. There is also a USB port and an attachment for an external power supply for a laptop. A grounding terminal on the back also enables the entire system to be fully grounded.

The use of fans was avoided to protect the electronics, with their complicated wiring, against harmful external influences. To ensure proper heat regulation with high electromagnetic compatibility, the components were appropriately spaced on a full aluminum mounting plate to guarantee passive heat dissipation for the system. Standardised solutions were used for the hardware and software components where possible, to keep the cost of the entire system as low as possible.

Technical Summary

- Customer-specifi c system solution
- Standard HEITEC chassis with colours adapted to suit customer's corporate design (RAL5005)
- Internal power management (24V) for measurement components
- L x W x H: 310 mm x 42HP x 4U
- Power supply: 230V mains voltage
- Highly effective EMC protection
- Stable, compact, full-metal casing with integrated mounting plate (side panels and transverse sections made of aluminum extruded cross-section and corner frames of sturdy die-cast zinc)

Customer Benefits

- Plug & Play system solution
- Powerful system makes it easy to handle large data volumes
- Good tightness to protect against harmful external infl uences, such as dust and dirt
- High shock and vibration resistance
- Good accessibility despite elaborate wiring ensures ease of maintenance
- Optimised passive heat dissipation
- Recorded data can be read out easily via laptop using a USB connection
- Reasonably priced overall system

COMPONENTS AND ACCESSORIES

Besides complete subrack and system solutions HEITEC offers a wide range of individual components and accessories for setup, mounting and upgrade.

Our inside and outside sales staff will gladly help you to find the right selection of components and support you in compiling the optimum package to fulfill your individual preferences and requirements.

Side panels and flanges

→ Page 126

Horizontal rails

→ Page 132

Components for EMC installation

→ Page 145

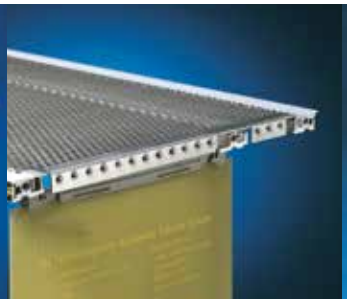
Extension kits

→ Page 150

Guide rails

→ Page 154

Covers



→ Page 161

Front panels, handles

→ Page 165

Cassettes

→ Page 182

Ventilation

→ Page 190

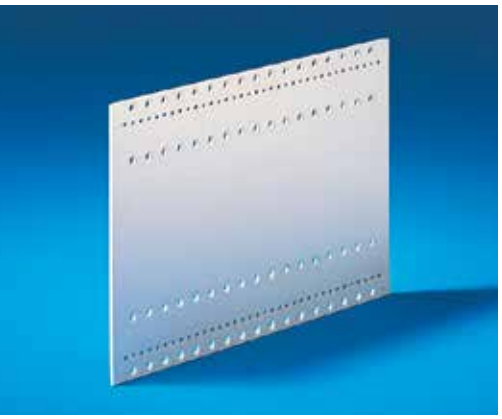
Power supplies

→ Page 194

Assembly parts

→ Page 202

Side panels for HeiPac Vario



Mounting holes and anti-twist half-shears on a 10 mm pitch pattern.

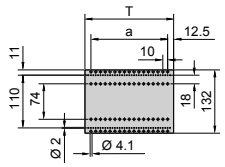
Material

2.5 mm Aluminium, Clear-chromated

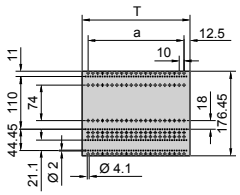
			Order No.								
U			**3**	**4 (3 + 1)**	**4 (3 + 2 x ½)**	**6**	**7 (6 + 1)**	**7 (6 + 2 x ½)**	**9**	**10**	**11**
D (T) mm	a [1] mm	Packs of									
175	150	1	**9901.021**	-	-	**9901.023**	-	-	-	-	-
185	160	1	**3684.511**	-	-	**3684.529**	-	-	-	-	-
225	200	1	**3684.512**	**3685.793**	**3685.890**	**3684.530**	**3685.896**	**3685.893**	**3685.797**	-	-
245	220	1	**3684.513**	**3685.850**	**3685.891**	**3684.531**	**3685.897**	**3685.894**	-	-	-
285	260	1	**3684.514**	**3684.523**	**3684.526**	**3684.532**	**3685.743**	**3685.895**	-	-	-
305	280	1	**3684.515**	**3685.794**	-	**3684.533**	-	-	**3685.798**	-	-
345	320	1	**3684.516**	**3684.524**	**3684.527**	**3684.534**	**3685.744**	**3685.745**	**3684.547**	-	-
365	340	1	**3684.517**	**3685.795**	-	**3684.535**	-	-	**3685.799**	-	-
405	380	1	**3684.518**	**3684.525**	**3684.528**	**3684.536**	**3684.541**	**3684.543**	**3684.548**	**3684.545**	-
425	400	1	**3684.519**	-	-	**3684.537**	-	-	-	-	-
465	440	1	**3684.520**	**3685.796**	**3685.892**	**3684.538**	**3684.542**	**3684.544**	**3684.549**	**3684.546**	**3684.552**
525	500	1	**3684.521**	**9906.727**	-	**3684.539**	**3685.898**	**3685.959**	**3684.550**	**3685.899**	**3684.553**
585	560	1	**3684.522**	**9906.914**	-	**3684.540**	-	-	**3684.551**	-	**3684.554**

[1] a = Distance between the first and last mounting hole.

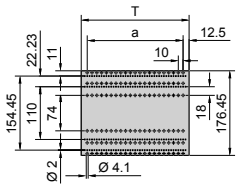
3 U



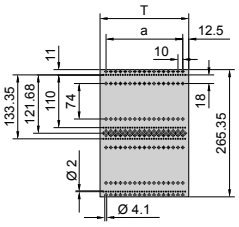
4 U (3 U + 1 U)



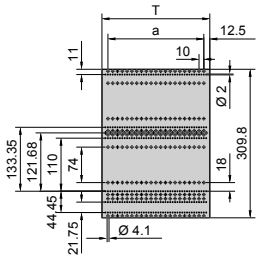
4 U (3 U + 2 x ½ U)



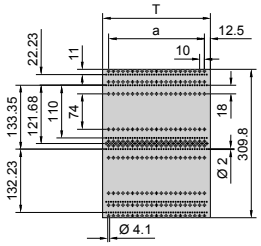
6 U



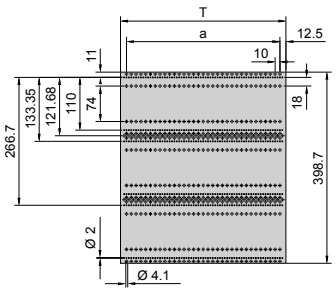
7 U (6 U + 1 U)



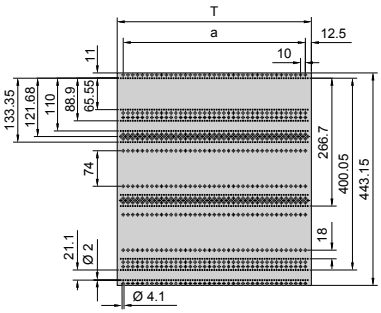
7 U (6 U + 2 x ½ U)



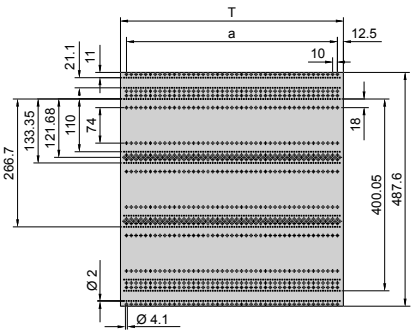
9 U



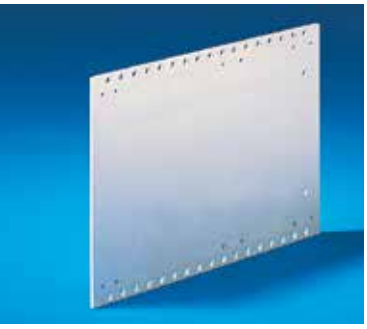
10 U



11 U



Side panels for HeiPac Vario ECO



Mounting holes on a 10 mm pitch pattern.

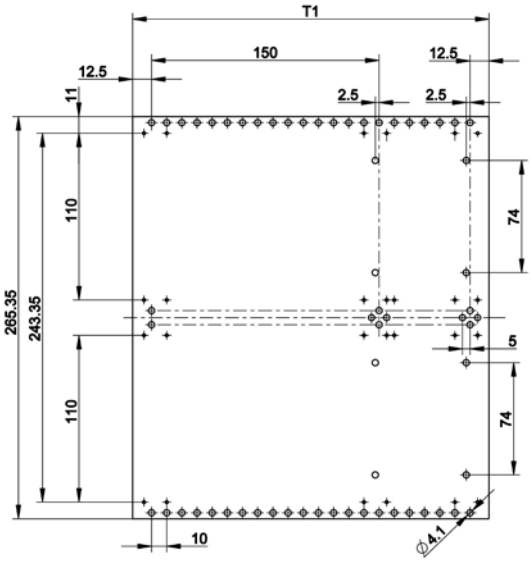
Material

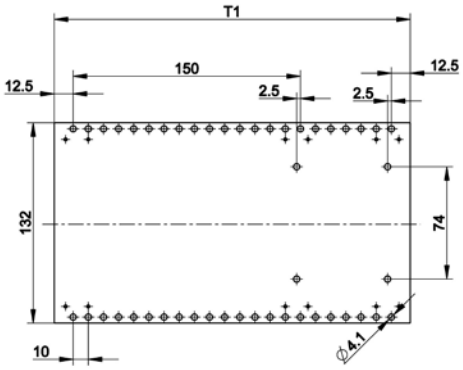
1.5 mm sheet steel
Zinc-plated

D (T) mm	Packs of	Max. board depth mm	Order No.	
			3 U	6 U
175	1	160	**3688.100**	**3688.102**
235	1	220	**3688.101**	**3688.103**

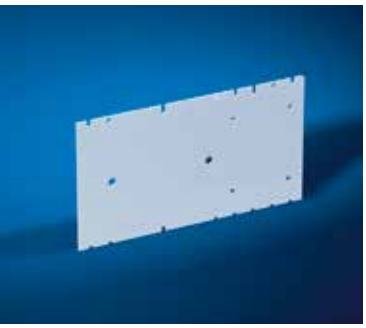
+ Accessories

Flanges for HeiPac ECO
see page 129





Side panels for HeiPac EASY



Mounting holes on a 60 mm pitch pattern as long holes
Drill holes for mounting telescopic slides

Material

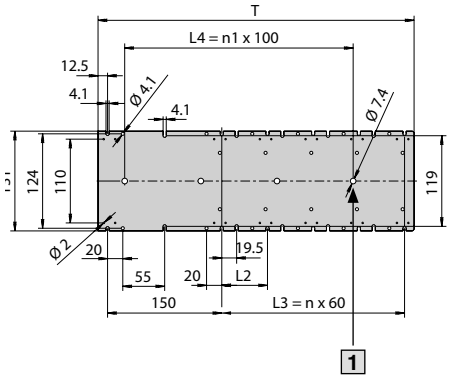
2 mm Aluminium
Non-corrosive

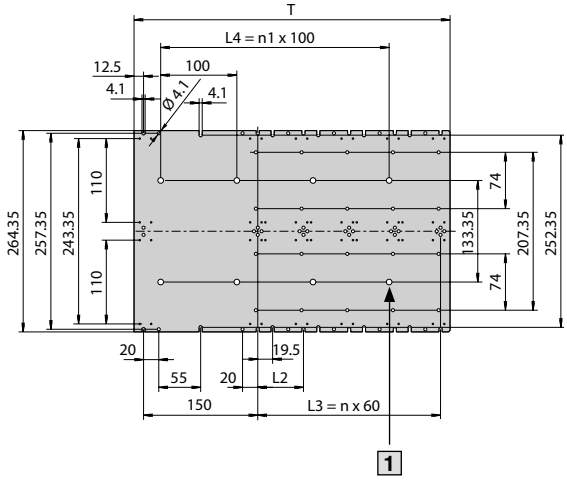
D (T) mm	L2	n	n1	Packs of	Max. board depth mm	Order No.	
						3 U	6 U
175	-	-	-	2	160	**3634.695**	**3634.720**
235	60	-	-	2	220	**3634.700**	**3634.725**
295	60	2	2	2	280	**3634.705**	**3634.730**
355	60	3	3	2	340	**3634.710**	**3634.735**
415	60	4	3	2	400	**3634.715**	**3634.740**

1 Mounting holes suitable for threaded insert PEM-FM4-1 for mounting telescopic slides

+ Accessories

Flanges for HeiPac EASY
see page 129





Flanges 19“ for HeiPac Vario

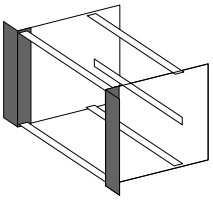
With integral channel to accommodate EMC gaskets.

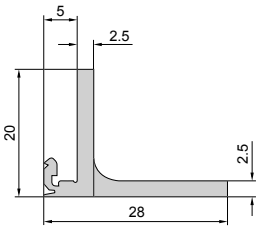
Material
Extruded aluminum section

Surface finish
Clear-chromated

U	Packs of	Order No.	
		with handle holes	without handle holes
2	1	-	**3684.614**
3	1	**3684.622**	**3684.615**
4	1	**3684.623**	**3684.616**
6	1	**3684.624**	**3684.617**
7	1	**3684.625**	**3684.618**
9	1	-	**3684.619**
10	1	-	**3684.620**
11	1	-	**3684.621**

+ Accessories
EMC gaskets, vertical
see page 146
Handles for subrack
see page 57





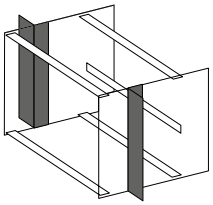
Flanges 19“ for HeiPac Vario, set-back

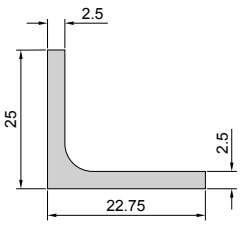
Material
Extruded aluminum section

Surface finish
Clear-chromated

U	Packs of	Order No.
3	1	**3684.626**
4	1	**3684.627**
6	1	**3684.628**
7	1	**3684.629**
9	1	**3684.630**
10	1	**3684.631**
11	1	**3684.632**

+ Also required
Assembly screws, nuts and washers
packs of 4 sets, Order No. 3687.015
see page 203





Flanges 19“ for HeiPac Vario, reinforced

NEW

Reinforced flange ensures a high level of stability even under extreme loads.

Material

Extruded aluminum section
3 mm material thickness

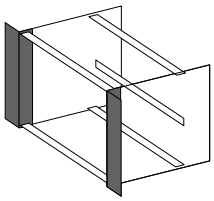
Surface finish

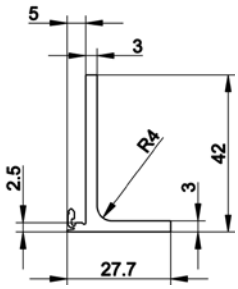
Clear-chromated

U	Packs of	Order No.	
		with handle holes	without handle holes
3	1	**9921.725**	**9914.268**
6	1	**9921.726**	**9921.721**

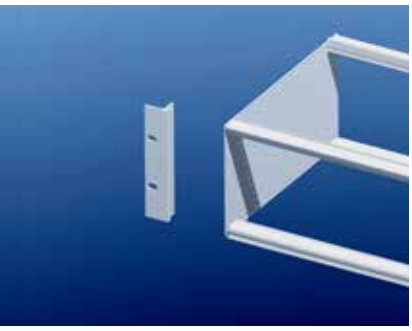
+ Accessories

Handles for subrack
see page 57





Flanges 19“ for HeiPac Vario ECO



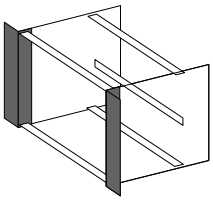
Material

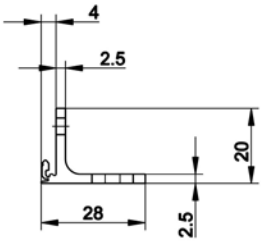
Extruded aluminum section

Surface finish

Clear-chromated

U	Packs of	Order No.
3	1	**3688.110**
6	1	**3688.111**





Flanges 19“ for HeiPac EASY

Integrated mounting holes for installation of handles

Material

Extruded aluminium section

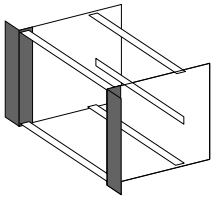
Surface finish

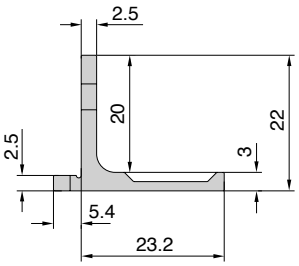
Pre-anodised

U	Packs of	Order No.
3	2	**3634.745**
6	2	**3634.750**

+ Accessories

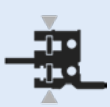
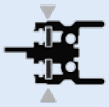
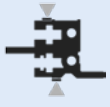
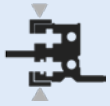
Handles for subrack
see page 57





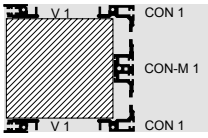
HORIZONTAL RAILS HeiPac Vario HeiPac Vario

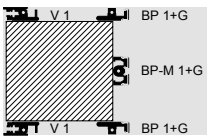
Overview horizontal rails HeiPac Vario

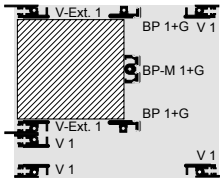
Main sections / Additional sections	**V 1** Front horizontal rail	**V 2** Front horizontal rail, with double screw fastening	**V 3** Double front horizontal rail	**V-Ext. 1** Front horizontal rail, with 10 mm extension, for extractor handle type IV or VII	**V-Ext. 2** Double front horizontal rail, with 10 mm extension	**V-Ext. 3** Front horizontal rail, with double screw fastening	**V-Ext. 4** Double front horizontal rail, with 10 mm extension	**BP 1** Rear horizontal rail	**BP 2** Rear horizontal rail, with double screw fastening
	Page 132	Page 132	Page 133	Page 133	Page 134	Page 134	Page 135	Page 135	Page 136
E Adaptor rail, rear centre, to acommodate guide rails Page 140	-	-	-	-	-	-	-	-	-
F Z rail for connector Page 144	-	-	-	-	-	-	-		
G Insulating strip [1] Page 145	-	-	-	-	-	-	-		
H Conductive strip [2] Page 145	-	-	-	-	-	-	-		
I Threaded insert Page 144								-	
J Identification strips Page 144									
K EMC gaskets, horizontal Page 145								-	-

For [1]insulated or [2]conductive attachment of backplanes.

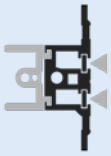
All system requirements may be covered with just a few basic types of horizontal rail. A cost-effective, easy-to-manage range.







Overview horizontal rails HeiPac Vario

Main sections / Additional sections	BP 3 Rear horizontal rail	BP 4 Rear horizontal rail	BP 5 Rear horizontal rail	BP-M 1 Rear horizontal rail, centre	BP-M 2 Rear horizontal rail, centre (also for Hei-Pac EASY)	CON 1 Rear horizontal rail, with integral Z rail	CON 2 Rear horizontal rail, with integral Z rail	CON-M 1 Rear horizontal rail, with integral Z rail (also for HeiPac EASY)
	Page 136	Page 137	Page 137	Page 138	Page 138	Page 139	Page 139	Page 140
E Adaptor rail, rear centre, to acommodate guide rails Page 140	-	-	-			-	-	
F Z rail for connector Page 144		-	-		-	-	-	-
G Insulating strip [1] Page 145		-	-		-	-	-	-
H Conductive strip [2] Page 145		-	-		-	-	-	-
I Threaded insert Page 144		-	-	-	-			
J Identification strips Page 144				-	-		-	-
K EMC gaskets, horizontal Page 145	–	-	-	-	-	-	-	-

For [1]insulated or [2]conductive attachment of backplanes.

Horizontal rail Vario V 1, front

To accommodate guide rails and for the attachment of front panels

- Front projection 2.5 mm corresponding to IEC 60 297-3-101
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole
- Horizontal rail 192 HP without machining on the end faces. Suitable for cutting to length

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
4 (left)	1	**3684.592**	-
4 (right)	1	**3684.955**	-
8 (left)	1	**3684.593**	-
8 (right)	1	**3684.956**	-
12	1	**3684.594**	-
16	1	**3684.595**	-
20	1	**3684.596**	-
21	1	**3685.985**	-
40	1	**3684.960**	-
42	1	**3684.560**	**9921.788**[3]
63	1	**3684.561**	-
84	1	**3684.562**	**9921.789**[3]
84	2	**3685.267**[1]	-
192	1	**3688.000**[2]	-

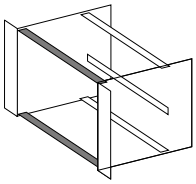
[1] Including 4 assembly screws
[2] Anodised
[3] with HP pattern printing

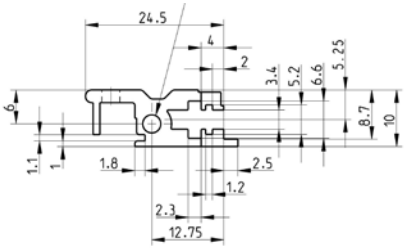
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144





Horizontal rail Vario V 2, front, with double screw fastening

To accommodate guide rails and for the attachment of front panels. The double screw fastening ensures a high level of stability even under extreme loads.

- Front projection 2.5 mm corresponding to IEC 60 297-3-101
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole
- Load test to DIN EN/IEC 61 587-1, requirement level SL1
- Shock and vibration tests undertaken as per IEC 61 373 (DIN EN 50 155), Category 1, Class B

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
84	1	**9908.721**	**9921.793**[1]

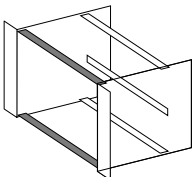
[1] with HP pattern printing

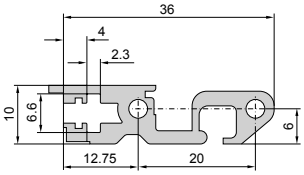
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

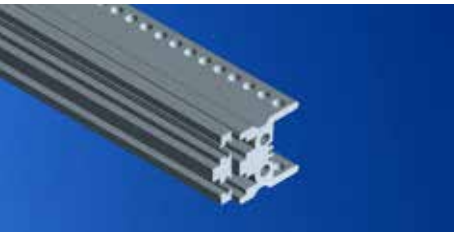
+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144





Horizontal rail Vario V 3, front



NEW

To accommodate guide rails and for the attachment of front panels. For subdivision i. e. 6 U in 2 x 3 U.

- Front projection 2.5 mm corresponding to IEC 60 297-3-101
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

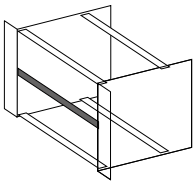
Clear-chromated

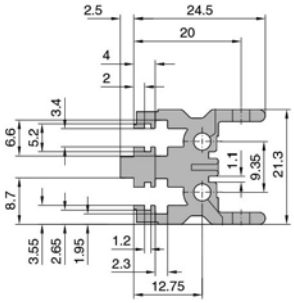
Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
84	1	**9904.745**	**9921.799**[1)]

1) with HP pattern printing

+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





Horizontal rail Vario V-Ext. 1, front, with 10 mm extension

For type IV, IVs and VII injector/extractor handle

To accommodate guide rails and for the attachment
of front panels.

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60 297-3-102
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
40	1	**3684.961**	**-**
42	1	**3684.565**	**9921.790**[3)]
63	1	**3684.566**	**-**
84	1	**3684.567**	**9921.791**[3)]
84	2	**3685.269**[1)]	-
192	1	**3688.001**[2)]	-

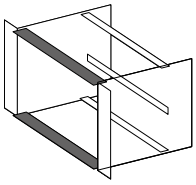
1) Including 4 assembly screws
2) Anodised
3) with HP pattern printing

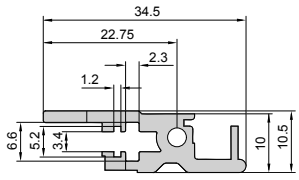
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

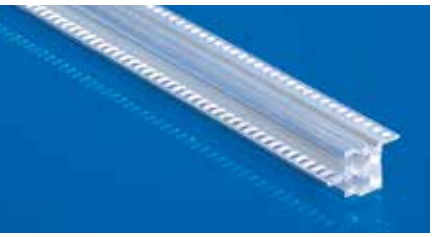
+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144





Horizontal rail Vario V-Ext. 2, with 10 mm extension and double screw fastening, front



For type IV, IVs and VII injector/extractor handle

To accommodate guide rails and for the attachment of front panels. Double screw fastening and an extra high profile section ensure unique stability evens under extreme loads.

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60 297-3-102
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

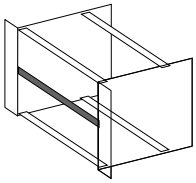
Usable width (HP)	Packs of	**Order No.**
84	1	**3687.724**

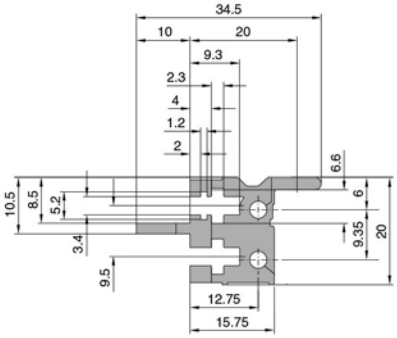
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144





Horizontal rail Vario V-Ext. 3, with 10 mm extension and double screw fastening, front

For type IV, IVs and VII injector/extractor handle

To accommodate guide rails and for the attachment of front panels. The double screw fastening ensures a high level of stability even under extreme loads.

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60 297-3-102
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
84	1	**9908.722**	**9921.795**[1)]

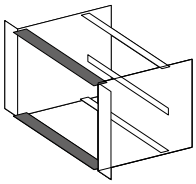
[1)] with HP pattern printing

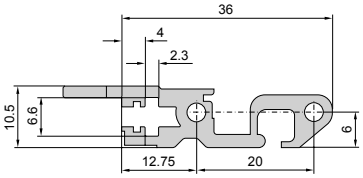
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

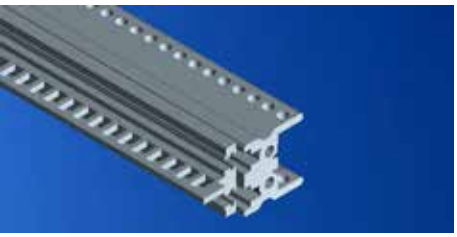
+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144





Horizontal rail Vario V-Ext. 4, with 10 mm extension and double screw fastening, front



NEW

For type IV, IVs and VII injector/extractor handle

For subdivision i. e. 6 U in 2 x 3 U. To accommodate guide rails and for the attachment of front panels

- Front projection 10 mm corresponding to IEEE 1101.10 and IEC 60 297-3-102
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

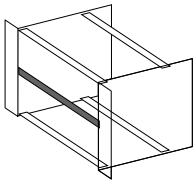
Usable width (HP)	Packs of	Order No.
84	1	**3688.704**

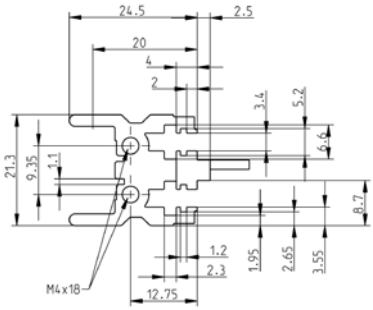
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144





Horizontal rail Vario BP 1, for backplane

To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips.

- Tapped holes M2.5 on a 1 HP pitch pattern for mounting backplanes and Z rails
- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- Applicable for top-mounting under covers
- Straight-through core hole
- Horizontal rail 192 HP without machining on the end faces. Suitable for cutting to length

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
21	1	**3685.991**
40	1	**3684.962**
42	1	**3684.570**
63	1	**3684.571**
84	1	**3684.572**
84	2	**3685.268**[1)]
192	1	**3688.002**[2)]

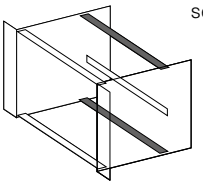
[1)] Including 4 assembly screws
[2)] Anodised

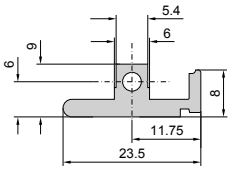
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

+ Accessories

Conductive strips
see page 145
Insulating strips
see page 145
Z rail
see page 144





Horizontal rail Vario BP 2, for backplane

To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips. The double screw fastening ensures a high level of stability even under extreme loads.

- HP pitch pattern of holes for the precise installation of guide rails
- M4 thread on end face
- For mounting backplanes/Z rails additional threaded inserts (9901.816) are reqiured
- Straight-through core hole

Material

Extruded aluminium section

Surface finish

Clear-chromated

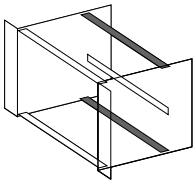
Usable width (HP)	Packs of	Order No.
84	1	**9908.723**

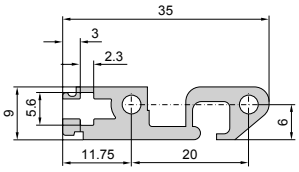
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

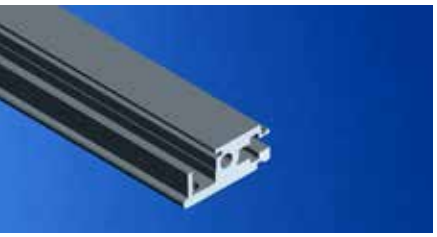
+ Accessories

Threaded inserts, packs of 1, order no. 9901.816
see page 144





Horizontal rail Vario BP 3, for backplane



To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips.

- HP pitch pattern of holes for the precise installation of guide rails
- Channel for slide-in covers
- Additional threaded inserts (3684.610) are reqiured for mounting backplanes/Z rails
- M4 thread on end face
- Straight-through core hole
- Not suitable for mounting under covers

Material

Extruded aluminium section

Surface finish

Clear-chromated

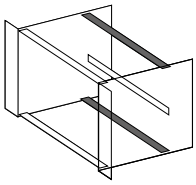
Usable width (HP)	Packs of	Order No.
84	1	**3688.104**

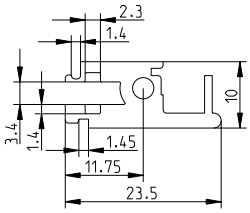
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

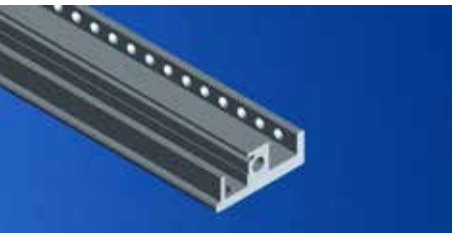
+ Accessories

Threaded inserts, packs of 1, order no. 3684.610
see page 144
Insulating strips
see page 145
Conductive strips
see page 145





Horizontal rail Vario BP 4, for conductive mounting of backplanes



To accommodate guide rails and for the conductive attachment of backplanes

- HP pitch pattern of holes for the precise installation of guide rails
- Tapped holes M2.5 on a HP pitch pattern
- Channel for slide-in covers
- M4 thread on end face
- Straight-through core hole
- Not suitable for mounting under covers
- For mounting slide-in covers
- Due to integrated contact area, insulating strips cannot be used

Material

Extruded aluminium section

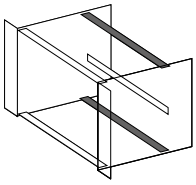
Surface finish

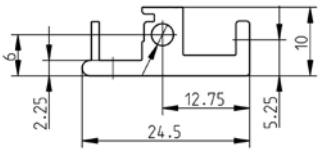
Clear-chromated

Usable width (HP)	Packs of	**Order No.**
84	1	**9920.069**

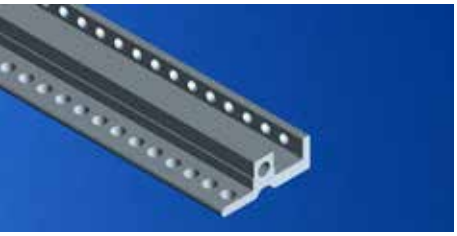
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





Horizontal rail Vario BP 5, for conductive mounting of backplanes



To accommodate guide rails and for the conductive mounting of backplanes

- Tapped holes M2.5 on a HP pitch pattern
- HP pitch pattern of holes for the precise installation of guide rails
- Due to integrated contact area, insulating strips cannot be used
- Applicable for top-mounting under covers
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

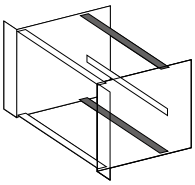
Surface finish

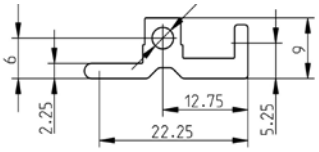
Clear-chromated

Usable width (HP)	Packs of	**Order No.**
84	1	**9912.522**

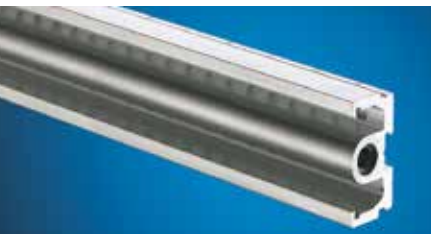
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





Horizontal rail Vario BP-M 1, for backplane, centre



When using 6 U PCBs or box-type plug-in units. Facility for the attachment of Z rails, insulating strips or conductive strips.

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole
- Horizontal rail 192 HP for cutting to the required length

Material

Extruded aluminium section

Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
40	1	**3684.963**
42	1	**3684.580**
63	1	**3684.581**
84	1	**3684.582**
84	1	**3685.270** [1]
168	1	**3684.579**
192	1	**3688.003** [2]

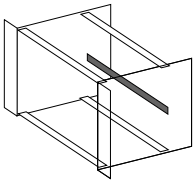
[1] Including 2 assembly screws
[2] Anodised

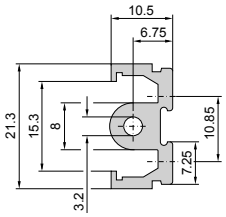
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202

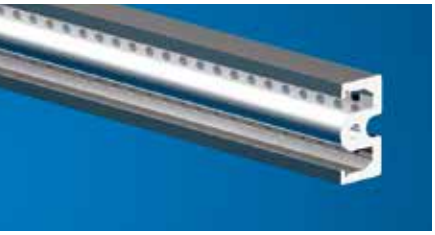
+ Accessories

Insulating strips, see page 145
Conductive strips, see page 145
Z rails, see page 144





Horizontal rail Vario BP-M 2, for backplane, centre



When using 6 U PCBs or box-type plug-in units. Facility for the attachment of Z rails or backplanes.

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole
- Due to integrated contact area, insulating strips cannot be used

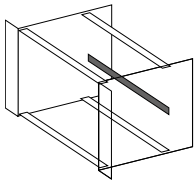
Material

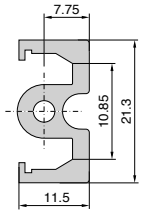
Extruded aluminium section

Surface finish

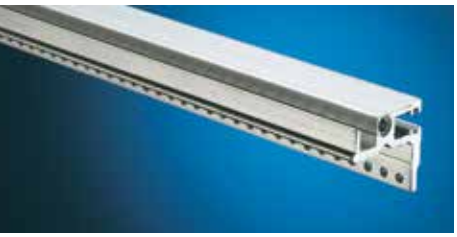
Clear-chromated

Usable width (HP)	Packs of	Order No.
84	1	**9912.523**





Horizontal rail Vario CON 1, with integral Z rail for connector



To accommodate guide rails. Integral Z rail for mounting connectors (CON) to IEC 60 603-2.

- HP pitch pattern of holes for the precise installation of guide rails
- Tapped holes M2.5 for connector mounting
- Applicable for top-mounting under covers
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

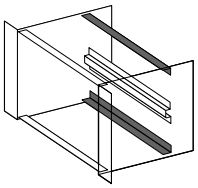
Surface finish

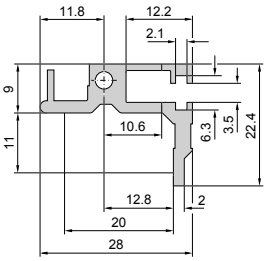
Clear-chromated

Usable width (HP)	Packs of	**Order No.**
42	1	**3686.191**
63	1	**3686.919**
84	1	**3686.159**

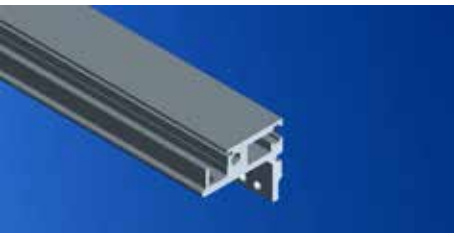
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





Horizontal rail Vario CON 2, with integral Z rail for connector



To accommodate guide rails. Integral Z rail for mounting connectors (CON) to DIN 41612

- HP pitch pattern of holes for the precise installation of guide rails
- 84 tapped holes M2.5 for connector mounting
- Not suitable for mounting under covers
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

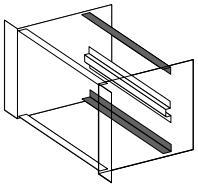
Surface finish

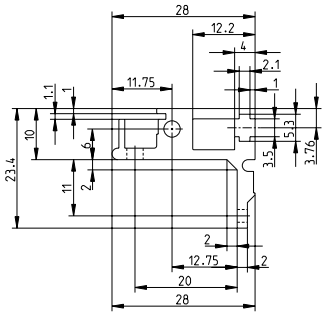
Clear-chromated

Usable width (HP)	Packs of	**Order No.**
84	1	**9901.991**

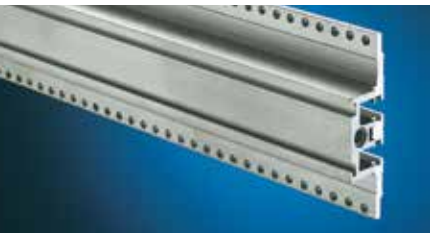
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





Horizontal rail Vario CON-M 1, with integral Z rail for connector, rear centre



When using 6 U PCBs or box-type plug-in units. Integral Z rail for mounting connectors (CON) to IEC 60 603-2

- Tapped holes M2.5
- M4 thread on end face
- Straight-through core hole

Material

Extruded aluminium section

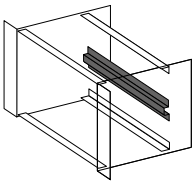
Surface finish

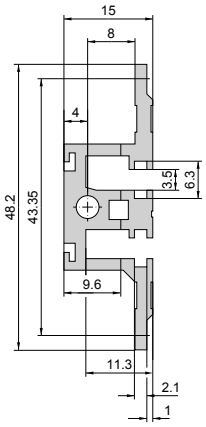
Clear-chromated

Usable width (HP)	Packs of	Order No.
42	1	**3687.600**
63	1	**3687.601**
84	1	**3687.602**
168	1	**3687.603**

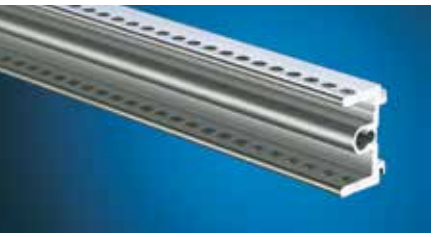
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





Adaptor rail, rear centre (E)



When subdividing 6 U into 2 x 3 U, the adaptor rail accommodates the guide rails when fastened to the centre horizontal rail.

- HP pitch pattern of holes for the precise installation of guide railsr
- M4 and M2.5 thread on the end face
- Applicable in combination with BP-M 1, BP-M 2 and EST-M 1
- Straight-through core hole
- Horizontal rail 192 HP without machining on the end faces. Suitable for cutting to length

Material

Extruded aluminium section

Surface finish

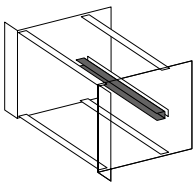
Clear-chromated

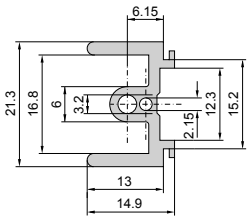
Usable width (HP)	Packs of	Order No.
12	1	**3684.587**
16	1	**3684.588**
20	1	**3684.589**
40	1	**3684.964**
42	1	**3684.590**
63	1	**3686.005**
84	1	**3684.591**
84	1	**3685.272**[1)]
168	1	**3684.584**
192	1	**3688.004**[2)]

[1)] Including 4 assembly screws
[2)] Anodised

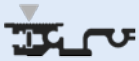
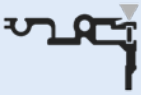
+ Also required

Assembly screws M4 x 12
Packs of 100, order no. 3654.300
see page 202





Overview horizontal rails HeiPac EASY

Main sections / Additional sections	**EASY V 1** Front horizontal rail, with double screw fastening	**EASY BP 1** Rear horizontal rail, with double screw fastening, for mounting backplanes	**EASY CON 1** Rear horizontal rail, with double screw fastening, with integral Z rail	**EASY H 1** Rear horizontal rail, with double screw fastening, for mounting rear panels
	Page 142	Page 142	Page 143	Page 143
E Adaptor rail, rear centre, to acommodate guide rails Page 140	-	-	-	-
F Z rail for connector Page 144	-	-	-	-
G Insulating strip [1] Page 145	-	-	-	-
H Conductive strip [2] Page 145	-	-	-	-
I Threaded insert Page 144		-		
J Identification strips Page 144	-	-	-	-
K EMC gaskets, horizontal Page 145	-	-	-	-

For [1]insulated or [2]conductive attachment of backplanes.

Horizontal rail EASY V 1, with double screw fastening, front

To accommodate guide rails and for the attachment of front panels

- Pre-assembled screws M 4x16 for fast mounting on the subrack side panel
- Front excess length 2.5 mm corresponding to IEC 60 297-3
- HP pitch pattern of holes for the precise installation of guide rails
- On request with double screw fastening to ensure a high stability
- M4 thread on end face
- Straight-through core hole for optional double screw fastening

Material

Extruded aluminium section

Surface finish

Non-corrosive

Supply includes

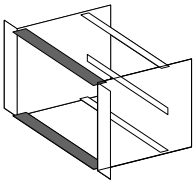
2 horizontal rails with pre-assembled threaded inserts and screws M4 x 16

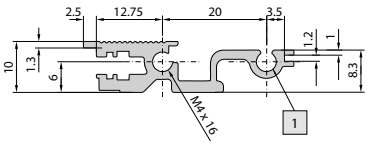
Usable width (HP)	Packs of	**Order No.** unprinted	**Order No.** printed
84	2	**3634.600**	**9921.803**[1)]

[1)] with HP pattern printing

+ Also required

Assembly screws M4 x 16 for double screw fastening, order no. 3634.430 (packs of 100)





1 Core hole M4

Horizontal rail EASY BP 1, with double screw fastening, for backplane

To accommodate guide rails and for the attachment of backplanes

- Pre-assembled screws M 4x16 for fast mounting on the subrack side panel
- Due to integrated contact area, insulating strips cannot be used
- Tapped holes M2.5 in 1 HP pitch pattern for mounting backplanes
- HP pitch pattern of holes for the precise installation of guide rails
- On request with double screw fastening to ensure a high stability
- M4 thread on end face
- Height of the profile allows cover extension
- Straight-through core hole for optional double screw fastening

Material

Extruded aluminium section

Surface finish

Non-corrosive

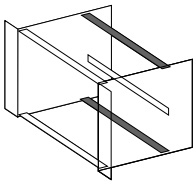
Supply includes

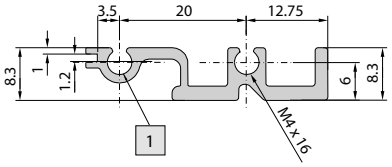
2 horizontal rails with pre-assembled threaded inserts and screws M4 x 16

Usable width (HP)	Packs of	**Order No.**
84	2	**3634.615**

+ Also required

Assembly screws M4 x 16 for double screw fastening, order no. 3634.430 (packs of 100)





1 Core hole M4

Horizontal rail EASY CON 1, with integral Z rail for connector, with double screw fastening

To accommodate guide rails, integral Z rail for the attachment of connectors (CON)

- Pre-assembled screws M 4x16 for fast mounting on the subrack side panel
- On request with double screw fastening to ensure a high stability
- HP pitch pattern of holes for precise mounting of guide rails
- M4 thread on end face
- Straight-through core hole for optional double screw fastening
- Height of the profile allows cover extension

Material

Extruded aluminium section

Surface finish

Non-corrosive

Supply includes

2 horizontal rails with pre-assembleds screws M4 x 16

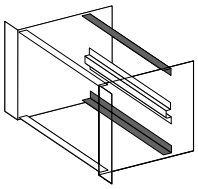
Usable width (HP)	Packs of	**Order No.**
84	2	**3634.620**

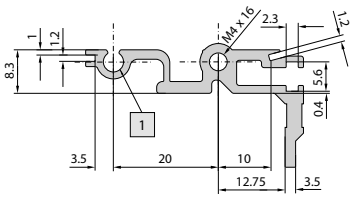
+ Also required

Threaded inserts, packs of 1, order no. 9901.816 see page 144

+ Also required

Assembly screws M4 x 16 for double screw fastening, order no. 3634.430 (packs of 100)





1 Core hole M4

Horizontal rail EASY H 1, with double screw fastening, for mounting rear panels

To accommodate rear front panels

- With channel for mounting top covers see page 164 Covers EASY version 2
- On request with double screw fastening to ensure a high stability
- Straight-through core hole for optional double screw fastening
- M4 thread on end face
- Pre-assembled screws M 4x16 for fast mounting on the subrack side panel

Material

Extruded aluminium section

Surface finish

Non-corrosive

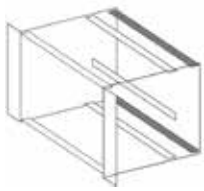
Supply includes

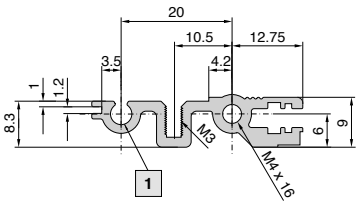
2 horizontal rails with threaded inserts and screws M4 x 16

Usable width (HP)	Packs of	**Order No.**
84	1	**3634.510**

+ Also required

Assembly screws M4 x 16 for double screw fastening, order no. 3634.430 (packs of 100)





1 Core hole M4

ACCESSORIES FOR HORIZONTAL RAILS

Z rail (F) for connector, IEC 60 603-2

With M2.5 threaded holes

Material

Extruded aluminium section

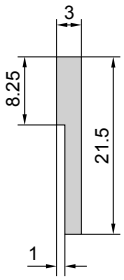
Surface finish

Clear-chromated

Usable width (HP)	Packs of	Order No.
4	1	**3684.597**
8	1	**3684.598**
20	1	**3684.599**
40	1	**3684.965**
42	1	**3684.600**
63	1	**3684.601**
84	1	**3684.602**
84	2	**3685.271**

+ Also required

Assembly screws M2.5 x 6,
Packs of 100, order no. 3654.340,
see page 202



Threaded insert (I)

With M2.5 threaded holes on an HP pitch pattern. For sliding into the horizontal rail. There are two threaded insert versions, which are distinguished by their height.

Material

Sheet steel, zinc-plated

Usable width (HP)	Packs of	Order No.	
		6 x 2 mm	5 x 2 mm
		for horizontal rails	
		Type V 1, V 2 V-Ext. 1 V-Ext. 2 V-Ext. 3 EST 1	Type EASY V 1 EASY EST 1 EASY BP 1 EASY H 1
3	1	**3684.603**	**-**
7	1	**3684.604**	**-**
12	1	**3684.605**	**-**
16	1	**3684.606**	**-**
20	1	**3684.607**	**-**
21	1	**3686.149**	**-**
40	1	**3684.966**	**-**
42	1	**3684.608**	**-**
63	1	**3684.609**	**-**
84	1	**3684.610**	**9901.816**

Identification strip (J)

To identify the slots on the subrack, self-adhesive.
The following versions are available:

4 mm wide:
- for front horizontal rails
- for rear horizontal rails

2 mm wide:
- for front horizontal rails (channel on front face)

For horizontal rail	Width mm	Label	Packs of	Order No.
Front	4	1 ... 83	1	**3687.575**
Rear	4	1 ... 167	1	**3687.577**
Front	4	83 ... 1	1	**3687.574**
Front	2	1 ... 84	1	**3687.576**

EMC gaskets (K) for front horizontal rails

For horizontal EMC protection. For snapfastening onto the front horizontal rails.

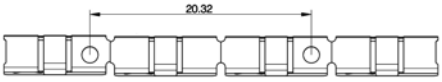
Material

Stainless steel

European patent no. 0 937 375 with validity for DE
US patent no. 6,137,052
Chinese patent no. ZL 97 1 98582.0

EMC

Usable width (HP)	Packs of	Order No.
For top/bottom horizontal rail		
40	1	**3684.974**
40	10	**9921.945**
84	1	**3684.808**
84	10	**3684.246**
For sub-division of 6 U into 2 x 3 U, between 2 horizontal rails		
84	1	**3685.789**
84	10	**3685.229**



Conductive strip (H)

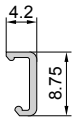
For conductive mounting of backplanes.

- 84 HP
- Slides onto the rear horizontal rail

Material

Aluminium

Usable width (HP)	Packs of	Order No.
84	1	**3684.612**
84	2	**3685.273**



Insulating strip (G)

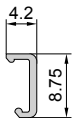
For insulated mounting of backplanes

- 21 HP
- Slides onto the rear horizontal rail

Material

Plastic, self-extinguishing to UL 94-V0

Usable width (HP)	Packs of	Order No.
21	1	**3684.611**
21	8	**3685.274**

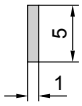


Punched strip

Material

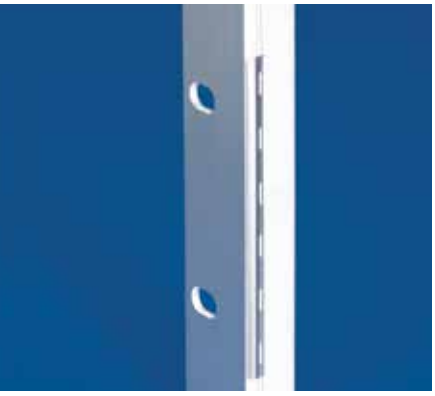
Aluminium

Usable width (HP)	Packs of	Order No.
84	2	**3685.275**



COMPONENTS FOR EMC INSTALLATION

EMC gaskets, vertical



To ensure EMC protection between the subrack side panel and the front/rear panels. There are two versions available.

Suitable for mounting on:

- 482.6 mm (19˝) fl anges for subracks
- Corner trims, rear
- EMC contact strip
- U-channel front panels
- Trim panels for HeiPac Vario-Module
- Flanges for HeiPac Vario-Module

Material

Stainless steel

German patent
no. 101 15 525 and
no. 198 46 627
US patent no. 6,500,012
US patent no. 7,044,753

EMC

Version 1: Segmented

U	**Order No.** Packs of 1	**Order No.** Packs of 10
1	**3686.973**	**3684.236**
2	**3686.974**	**3684.237**
3	**3686.975**	**3684.238**
4	**3686.976**	**3684.239**
6	**3686.977**	**3684.240**
7	**3686.978**	**3684.241**
9	**3686.979**	**3684.242**
10	**3686.980**	**3684.243**
11	**3686.981**	**3684.244**

Version 2: One-piece

U	**Order No.** Packs of 1	**Order No.** Packs of 10
2	**3688.610**	**-**
3	**3688.611**	**9921.942**
4	**3688.612**	**-**
5	**3688.613**	**-**
6	**3688.614**	**9921.943**
7	**3688.615**	**-**
8	**3688.634**	**-**
9	**3688.616**	**9921.944**
10	**3688.609**	**-**
11	**3688.633**	**-**
12	**3688.606**	**-**

EMC contact strip

To ensure EMC protection when horizontal rails are set-back.
Integral channel to accommodate EMC gaskets.

Material

Extruded aluminium section

Surface finish

Clear-chromated

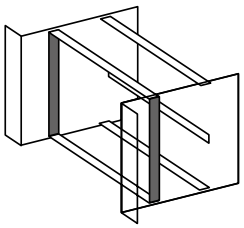
Note

2 sections are required for each subrack.

U	Packs of	**Order No.**
3	1	**3684.643**
6	1	**3684.644**
9	1	**3684.645**

+ Also required

EMC gaskets, vertical, see page 146
Assembly screws M3 x 6, packs of 100, order no. 3684.233, see page 202



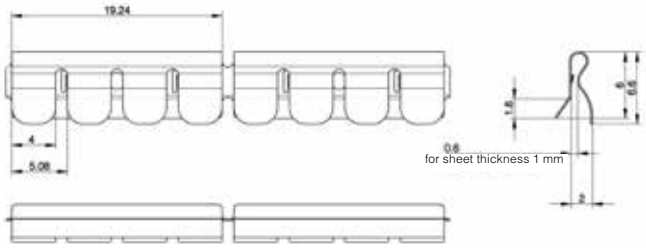
EMC gaskets for covers

For EMC shielding between the horizontal rails and covers.

Material
Stainless steel

HP	Packs of	Order No.
40	1	**3684.975**
84	1	**3684.807**
84	10	**3684.245**

EMC



EMC gaskets for front horizontal rails

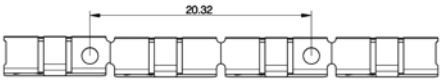
For horizontal EMC protection. For snapfastening onto the front horizontal rails.

Material
Stainless steel

European patent no. 0 937 375 with validity for DE
US patent no. 6,137,052
Chinese patent no. ZL 97 1 98582.0

Usable width (HP)	Packs of	Order No.
For top/bottom horizontal rail		
40	1	**3684.974**
40	10	**9921.945**
84	1	**3684.808**
84	10	**3684.246**
For sub-division of 6 U into 2 x 3 U, between 2 horizontal rails		
84	1	**3685.789**
84	10	**3685.229**

EMC



MOUNTING COVERS/COMPONENTS FOR EMC INSTALLATION

Mounting blocks for cover plates

For mounting covers, versions 1 – 4, on the subrack side panel.

Material

Die-cast zinc

Surface finish

Nickel-plated

Note

For EMC applications, mounting blocks must be fi tted across the entire subrack depth.
The table here shows the number of mounting blocks required to install 1 cover plate with EMC shielding.

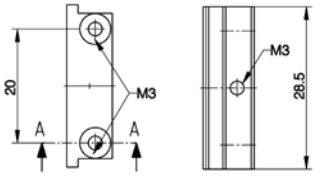
EMC

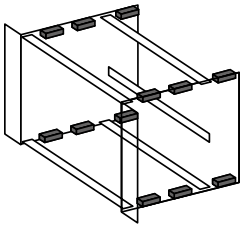
	Packs of	Order No.
Mounting blocks 28.5 mm long	10	**3684.234**

Number of mounting blocks for max. EMC protection	Cover plate depth mm
4	142
8	192
10	212
12	252
14	272
16	312
18	332
20	372
24	432
28	492
32	552

+ Also required

Assembly screws M3 x 6, packs of 100, order no. 3684.233, see page 202





Mounting clips for cover plates

For mounting covers on the sub-rack side panel

Compatible with cover plate versions 1-4 and the ECO and EASY versions, and with sheet metal blanks 0.8-1.0 mm thick. For EMC applications, mounting clips must be fitted across the full depth of the subrack.

Material

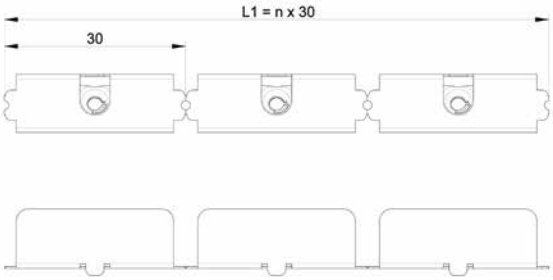
Stainless steel

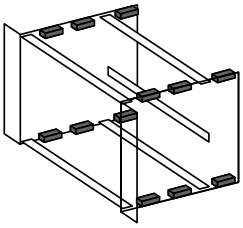
NEW

Length mm	n	Packs of	Order No.
30	1	1	**3688.109**
90	3	1	**9921.722**
120	4	1	**9921.883**
150	5	1	**9921.723**
180	6	1	**9921.884**
210	7	1	**9921.724**
240	8	1	**9921.885**

+ Also required

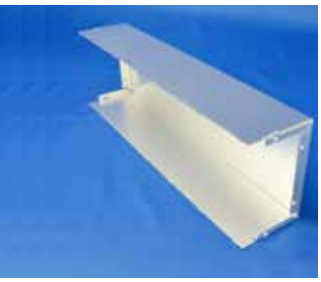
Assembly screws, order no. 9921.879

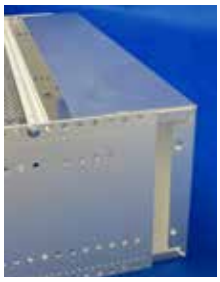




EMC

Back cover





NEW

For HeiPac Vario

Ensures cover for back of subrack

Material

Aluminium

Surface finish

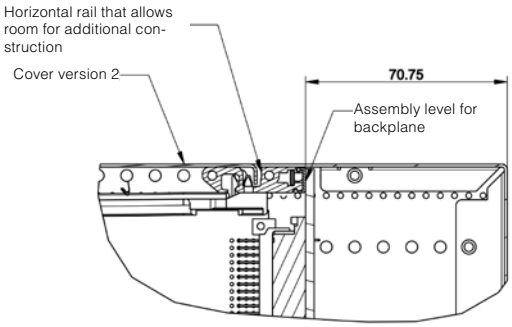
Clear-chromated

Note

The side panel depth required is obtained by taking the length of the plug-in units used, and adding 85 mm (refer to table).
A precondition is the use of a horizontal rail that allows room for additional construction.

U	Packs of	**Order No.**
3	1	**9921.685**
6	1	**9921.710**

PCB depth mm	Side panel depth mm
160	245
220	305
280	365



Vertical divider kit

For the combined installation of single and double Eurocards in 6 U and 9 U subracks.

Material
Aluminium, clear-chromated

Supply includes
2 front horizontal rails
1 adaptor rail
2 threaded inserts
1 vertical support (from 12 HP)
assembly parts

6 U (2 x 3 U)

HP 1 (2 x 3 U)	HP 2 (6 U)	Order No.
14	68	**3684.220**
21	61	**3684.221**
28	54	**3684.222**
40	42	**3684.223**
42	40	**3684.224**

9 U (1 x 6 U + 1 x 3 U)

HP (1 x 6 + 1 x 3 U)	HP (9 U)	Order No.
4	80	**3684.225**
8	76	**3684.226**
12	70	**3684.227**
16	66	**3684.228**
20	62	**3684.229**

+ Accessories
Front panel, see page 150
EMC gaskets, horizontal, see page 147

Vertical support

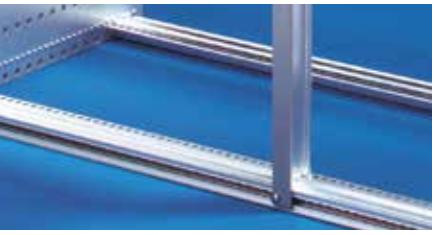
Required for the combined installation of single, double and triple Eurocards in one subrack.

Material
Aluminium, extruded

Surface finish
Clear-chromated

U	Packs of	Order No.
6	1	**3684.678**
9	1	**3684.679**

Front panel to conceal the vertical support of the vertical divider kit



To conceal the vertical support of the vertical divider kit.

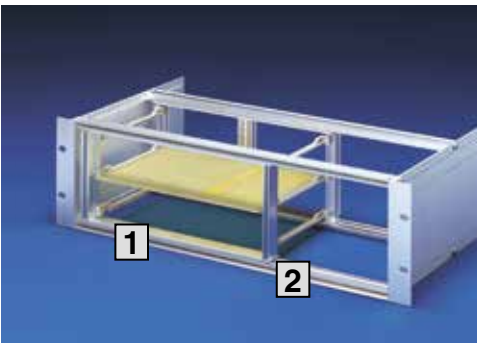
Material
Aluminium, extruded

Supply includes
Assembly parts

EMC version,
see page 179

U	HP	Packs of	Order No.
6	2	1	**3685.176**
9	2	1	**3685.286**

Horizontal mounting kit



Für den horizontalen Einbau von 6 HE/9 HE Leiterplatten in 3 HE/4 HE Baugruppenträgern

1 Horizontal installation space:
3 U subrack: 20 HP (5 slots)
4 U subrack: 28 HP (7 slots)

2 Vertical installation space:
(when installing double Eurocards)
31 HP (without trim frame))
28 HP (with trim frame)

Material
Aluminium, clear-chromated

Supply includes
2 horizontal rails, front
2 horizontal rails, rear
1 or 2 horizontal rails, rear, centre
2 threaded inserts
4 or 6 insulating strips
4 connecting parts
assembly parts

For backplane assembly
with standard horizontal rail, front

U horizontal	Order No.	
	for 3 U subrack	for 4 U subrack
6	**3684.206**	**3684.208**
9	**3684.207**	**3684.209**

For backplane assembly,
front horizontal rail with 10 mm extension

U horizontal	Order No.	
	for 3 U subrack	for 4 U subrack
6	**3684.210**	**3684.212**
9	**3684.211**	**3684.213**

+ Accessories
Trim frame,
see page 151

Trim frame for horizontal mounting kit

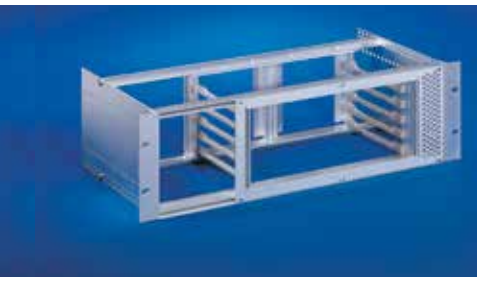
To conceal the front sections of the horizontal mounting kit.

Material
Aluminium, anodised

U horizontal	HP	Order No.	
		for 3 U subrack	for 4 U subrack
6	56	**3685.783**	**3685.785**
9	84	**3685.784**	**3685.786**

+ Also required
Collar screws and plastic collars,
packs of 100 sets, order no. 3658.160,
see page 202

Trim frame for horizontal mounting kit, vented



To conceal the front sections of the horizontal mounting kit.

Material
Aluminium

Surface finish
Anodised,
clear-chromated (EMC version)

Supply includes
EMC accessories
(with EMC version).

U horizontal	HP	Order No.	
		for 3 U subrack	for 4 U subrack
6	63	**3685.787**	**3685.788**

+ Also required
Collar screws and plastic collars,
packs of 100 sets, order no. 3658.160,
see page 202

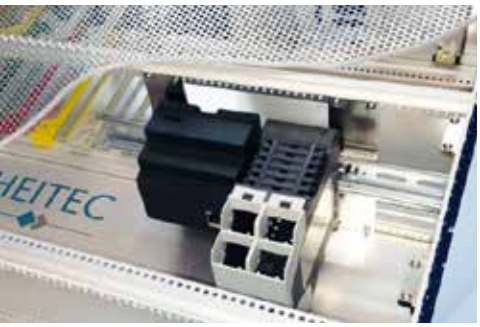
EMC version

U horizontal	HP	Order No.	
		for 3 U subrack	for 4 U subrack
6	63	**3685.291**	**3685.292**

+ Also required
Centering screws,
packs of 100, order no. 3687.050,
see page 203

TOP-HAT RAIL MOUNTING

Fixing for HeiPac top-hat rail version 1



NEW

Rail holder to mount a top-hat rail on the horizontal subrack rails

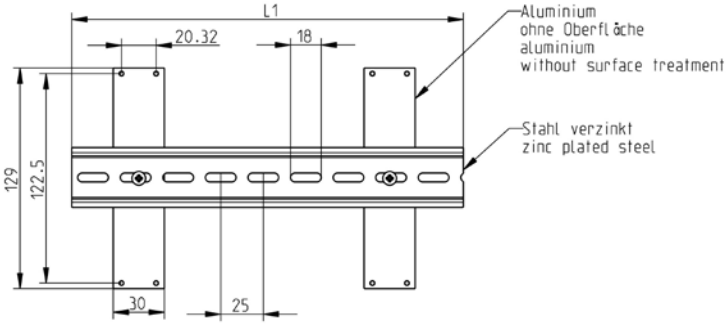
Material

Rail holder: Aluminium, not surface-coated
Top-hat rail: steel, zinc-plated

Supply includes

2 rail holders
1 top-hat rail, perforated
Assembly parts

Height	HS	L1	L2	Packs of	**Order No.**
3 U	35	100	7.5	1	**9918814**
3 U	35	200	7.5	1	**9918815**
3 U	35	300	7.5	1	**9918816**
3 U	35	400	7.5	1	**9918817**
3 U	35	100	15	1	**9918818**
3 U	35	200	15	1	**9918819**
3 U	35	300	15	1	**9918820**
3 U	35	400	15	1	**9918821**



Fixing for HeiPac top-hat rail version 2

NEW

Fixing bracket to mount a top-hat rail on the subrack side panel

Material

Fixing bracket: steel plate, zinc-plated

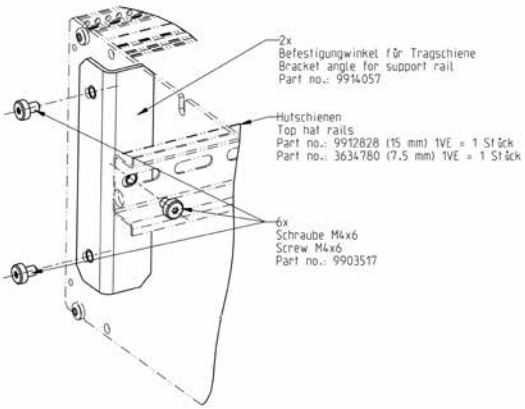
Supply includes

2 fixing brackets
Assembly parts

Packs of	**Order No.**
1 set	**3634.770**

+ Also required

Top-hat rail, packs of 1, see page 153



Top-hat rail adapter

NEW

Top-hat rail adapter to directly mount a component or device on a top-hat rail

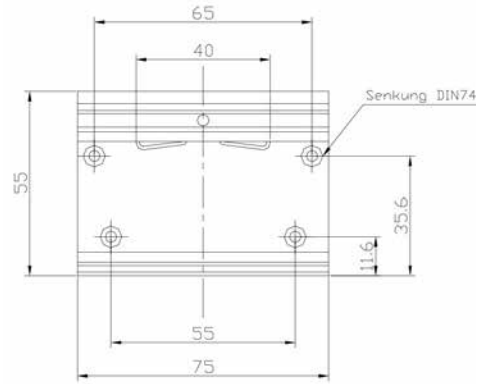
Material

Extruded aluminium section

Packs of	**Order No.**
1	**3687.739**

+ Also required

Assembly screws ,packs of 100
Order no. 3606.550
see page 202



Top-hat rail

NEW

Material

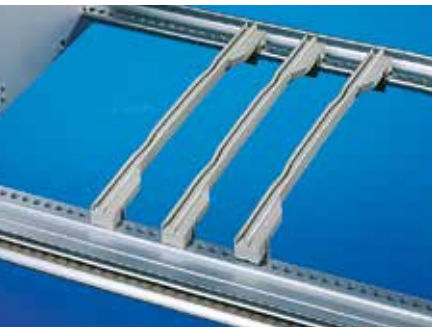
Steel

Surface finish

Zinc-plated

For Width	Dimensions mm	Packs of	**Order No.**
84 HP	35 x 7.5 x 425	1	**3634.780**
84 HP	35 x 15 x 425	1	**9912.828**

Guide rails, plastic



For 160, 220 and 280 mm PCBs up to 2 mm nominal thickness.

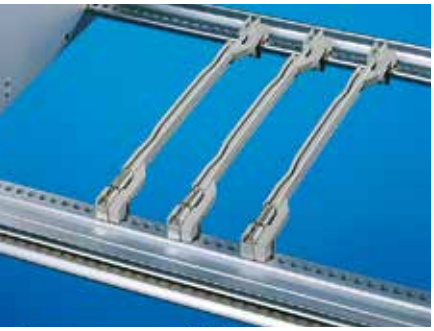
2 versions are available:
- Snap-in fastening and screw-fastening
- Snap-in fastening

Material
Polycarbonate
Base material to UL 94-V0

For PCB depth mm	Packs of	Order No. Snap-in fastening/ screw-fastening[1]	Order No. Snap-in fastening
100	1	-	**3688.005**
160	1	**3684.657**	**3684.654**
220	1	**3684.658**	**3684.655**
280	1	**3684.659**	**3684.656**

+ Also required
[1] Assembly screws
packs of 100, order no. 3654.360
see page 202

Guide rails for contact spring fitting, plastic



For 160, 220 and 280 mm PCBs up to 2 mm nominal thickness. By installing contact springs, an electrical connection can be made between the PCB and the assembly.

Material
Polycarbonate
Base material to UL 94-V0

For PCB depth mm	Packs of	Order No.
160	1	**3684.660**
220	1	**3684.661**
280	1	**3684.662**

+ Also required
Contact springs, order no. 3687.726
see page 154

Contact springs

For electrical connection between the PCB and the subrack, or to discharge static charges from the PCB.

Suitable for installation in “guide rails for contact spring fitting” and “end pieces for guide rails”.

Packs of	Order No.
10	**3687.726**

Guide rails, Aluminium

1

2

For high loads. Suitable for nominal PCB thicknesses of 1.6 mm. A distinction is made between guide rails for and without end pieces.
The guide rails without end pieces are screwfastened directly into the horizontal rail.

Material
Aluminium

For PCB depth mm	Packs of	Order No. 1 Without end piece[1]	Order No. 2 For end pieces
160	1	**3687.526**	**3684.663**
220	1	**3687.527**	**3684.664**
280	1	**3687.528**	**3684.665**
1000	1	**3684.666**	-

+ Also required
[1] Screw M2.5 x 6, packs of 100, order no. 3654.340,
see page 202
[1] Nut M2.5, packs of 100, order no. 3654.370,
see page 202
[1] Retaining cage M2.5, packs of 100, order no. 9901.417,
see page 202

End pieces for guide rails, aluminium

Mounting contact springs ensures an electrical connection between the PCB and the subrack.

Material

Polycarbonate
Base material UL 94-V1

	Packs of	Order No.
End piece, front	1	**3684.668**
End piece, rear	1	**3685.759**

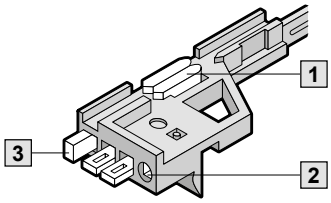
+ Also required

Contact springs, order no. 3687.726
see page 154

Keyable guide rails 4 HP, plastic

Guide rails 4 HP, keyable, to IEEE 1101.10.

- For 1.6 – 2.0 mm nominal thickness
- Chambers for the installation of keys
- Option of installing ESD contacts to discharge static charges
- Narrow design for maximum air flow
- Various colour variants to identify the slots:
  - Red for system slot
  - Green for power supply
  - Yellow and grey for board-type plug-in units



1 ESD contact for guide rails
2 ESD contact for front panel
3 Keys

Material

Polycarbonate
Base material to UL 94-V0

Note

Only for use in conjunction with type IV, IVs, VII injector/extractor handles.

For PCB depth mm	Packs of	Order No.			
		Grey	Red	Green	Yellow
160	10	**3685.257**	-	-	-
220	10	**3685.258**	-	-	-
280	10	**3685.259**	-	-	-
160	1	**3684.669**	**3686.063**	**3688.055**	**3689.089**
220	1	**3684.953**	**9902.240**	-	**3689.091**
280	1	**3684.954**	-	-	**3689.093**

+ Accessories

Keys, see page 159
ESD contact, see page 159
Extractor handles type IV, IVs, VII, see page 168 ff.

Keyable guide rails with ½ HP offset

Guide rails with ½ HP offset for use in telecom applications. This allows PCBs to be populated on both sides. Green guide rails with offset are prescribed in the CompactPCI specifi cation (PICMG 2.11) for the installation of power supply units.

- For 1.6 – 2.0 mm PCB thickness
- 4 HP x 160/220 mm
- Narrow design for maximum air flow
- Chambers for the installation of keys
- Option of installing ESD contacts to discharge static charges

Material

Polycarbonate
Base material to UL 94-V0

Note

Only suitable for use in conjunction with extractor handles type IV, IVs, VII with ½ HP offset.

For PCB depth mm	Packs of	Colour	Order No.
160	1	Grey	**3686.137**
	1	Yellow	**3689.090**
	1	Green	**3687.832**
220	1	Grey	**3686.136**
	1	Yellow	**3689.092**

+ Accessories

Keys
see page 159
ESD contact
see page 159
Extractor handles Type IVs, VII with ½ HP offset
see page 169

Keyable guide rails for rear I/O assemblies

Guide rails 4 HP, keyable to IEEE 1101.10 Prepared to accommodate a ground contact for assembly of a plug-type connection.

- For 1.6 – 2.0 mm nominal thickness
- For 80 mm deep PCBs
- Chambers for the installation of keys
- Option of installing ESD contacts to discharge static charges
- Narrow design for maximum air flow
- For CPCI or VME applications

Material

Polycarbonate
Base material to UL 94-V0

Note

- Only for use in conjunction with type IV, IVs, VII injector/extractor handles.
- Not suitable for horizontal rails with double screw-fastening

Colour	For PCB depth mm	Packs of	Order No. Guide rails	
			Top	Bottom
Grey	80	1	**3687.936**	**3687.937**
Yellow	80	1	**3689.097**	**3689.098**

+ Accessories

Keys
see page 159
ESD contact
see page 159
Extractor handles type IV, IVs, VII
see page 168 ff.

Ground contact

Ensures a plug-in ground connection. UL-approved.

Material

Die-cast zinc

Supply includes

Grounding bush and contact spring

Note

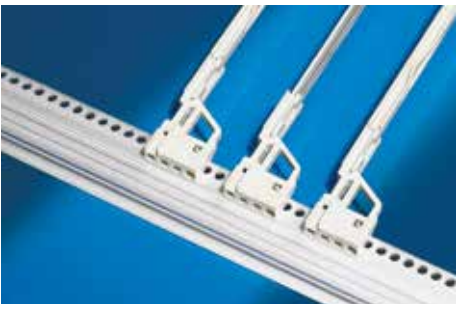
Only suitable for use in conjunction with keyable guide rails for I/O assemblies.

	Order No.	
	1 set	50 sets
Grounding bush and contact spring	**3689.036**	**3687.951**

+ Also required

Assembly screws 3.5 x 12 mm, packs of 50, order no. 3684.109,
see page 202

Keyable guide rails, aluminium, three-part



Keyable guide rails with aluminium centre part, for high mechanical loads.
Suitable for 1.6 – 2.0 mm PCB thickness.

The guide rails are compiled from the following individual components:

1 2 end pieces

2 1 aluminium centre part

3 Insulating centre part(s)

1 *End pieces*

For three-part guide rails
For 1.6 – 2.0 mm PCB thickness

Material
Polycarbonate
Base material to UL 94-V0

Note
A front and a rear end piece is required for each guide rail.

	Packs of	**Order No.**
	10 pairs	**3685.265**
Front end piece	1	**3685.790**
Rear end piece	1	**3684.670**

2 *Aluminium centre part*

For three-part guide rails
For 1.6 – 2.0 mm PCB thickness

Material
Aluminium, unplated

For PCB depth mm	**Order No.**	
	Packs of 1	Packs of 10
220	**3684.673**	**3685.260**
280	**3684.674**	**3685.261**
340	**3684.675**	**3685.262**
400	**3684.676**	**3685.263**
1000	**3684.672**	**-**

3 *Insulated centre part*

For three-part guide rails
The insulating centre part is pushed onto the aluminium centre piece.
Length: 60 mm

Material
Plastic, self-extinguishing to UL 94-V0

Packs of	**Order No.**
1	**3684.677**
10	**3685.264**

For PCB depth mm	Number of insulating strips required
220	2
280	3
340	4
400	5

Guide rails for 4.4˝ drive modules

Snap-fastening guide rails to accommodate PCBs and assemblies with a height of 4.4˝ (111.76 mm)

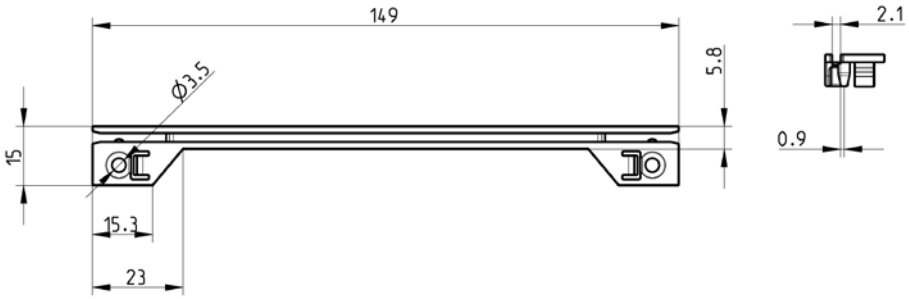
Material

Polycarbonate
Base material to UL 94-V0

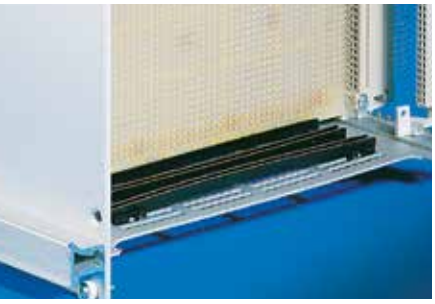
Colour

RAL 7032 (Grey)

For PCB depth mm	Packs of	Order No.
160	1	**9919.834**



Guide rails for box type plug-in units



For PCB thickness 1.6 mm.
For insertion into covers with vent slots (from 12 HP)
see page 184

Material

Noryl

For PCB depth mm	Packs of	Order No.
160	10	**3606.140**
220	10	**3606.200**

Air block panel for slots

To conceal unused slots and prevent unwanted airflow. The air block panel simply snaps into position on the guide rails.

Material

Polycarbonate
Self-extinguishing to UL 94-V0

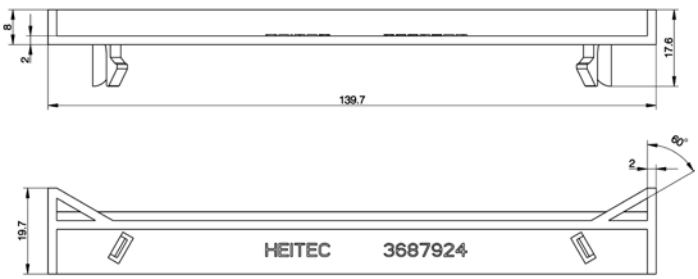
Colour

Blue

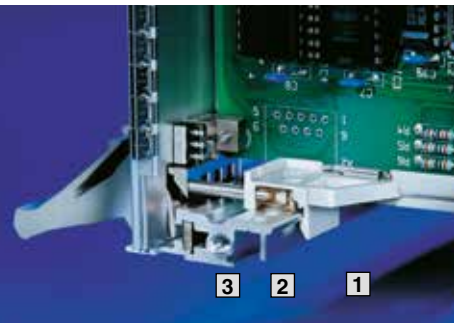
Note

Can only be used in conjunction with keyable guide rails 4 HP/160 mm
Not suitable for use in conjunction with guide rails with ½ HP offset.

For keyable guide rail mm	Packs of	Order No.
160	1	**3687.924**



ESD contacts



For installation in keyable guide rails

To discharge static charges

1 **ESD contact in the guide rail**
For permanent direct discharge from the PCB.

2 **ESD contact for front panel**
To discharge static charges in conjunction with the ESD pin. For insertion into the end piece of the guide rail.

3 **ESD pin**

4 **Keys**

Material

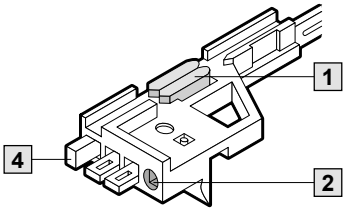
1 Stainless steel

2 Tin bronze, tin-plated

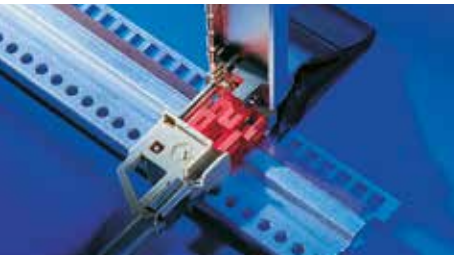
Note

Only for use in conjunction with extractor handle with ESD pin (type IV, IVs, VII), see page 168 ff.

ESD clip for	Packs of	Order No.
Guide rail	50	**3684.204**
Front panel	50	**3684.205**



Keys



Keys are used for coding of board-type plug-in units and prevent the use of assemblies in incorrect slots. The keys are inserted into the chambers of the keyable guide rails and the injector/extractor handles, types IV, IVs and VII (4 positions are possible). This produces 64 keying combinations per guide rail.
When keying the top and bottom guide rail, 4096 potential combinations are possible.

Standards

IEEE 1101.10, IEC 60 297-5-104

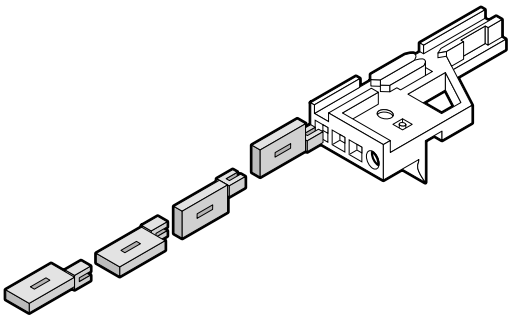
Material

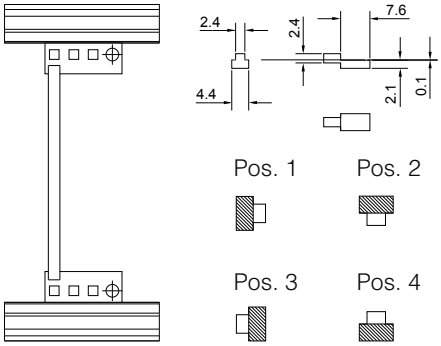
Plastic
PBTP
Base material to UL 94-V0

Colour	Packs of	Order No.
Grey	100	**3684.325**
Red	100	**3684.326**

+ Accessories

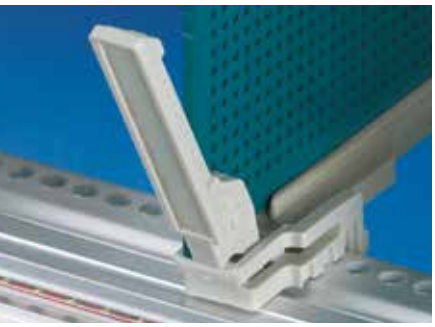
Keying tool
see page 160

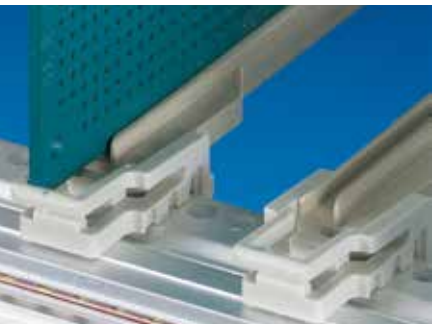




ACCESSORIES FOR KEYABLE GUIDE RAILS

PCB ejector/retainer





The two-piece PCB ejector is used for securing and extracting PCBs without front panels.
The base section may also be used separately for board retention only.

Material

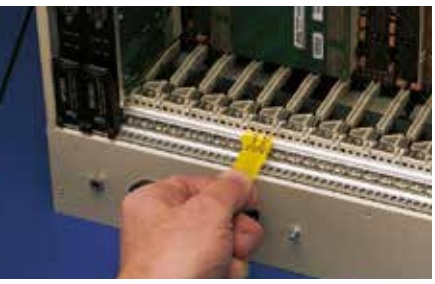
Polycarbonate
Base material to UL 94-V0

Note

Only suitable for guide rails 2 HP

	Packs of	Order No.
1 PCB ejector/ retainer	10	**3687.014**
2 PCB retainer	10	**3687.052**

Keying tool



For simple assembly of keys. Up to 3 coding keys may be fi tted simultaneously. An integral alignment pin makes positioning easier.

Material

Polycarbonate
Base material to UL 94-V0

Packs of	Order No.
1	**3687.956**

Covers version 1

For all HeiPac Vario subracks

To cover the overall-subrack depth
(EMC application) or as connector protection

- Flat design for top and bottom
- Optionally solid or perforated
- For mounting on the sub-rack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version.

Each set includes

2 cover plates
8 mounting blocks 28.5 mm
24 assembly screws

Individual unit includes

1 cover plate

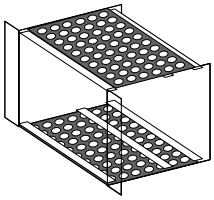
Note

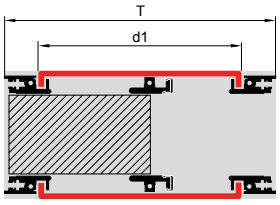
For EMC applications, additional mounting blocks must be fitted across the entire subrack depth.

			Order No.			
			Single piece [1]		Set	
HP	For side panel depth (T) mm	Cover depth (d1) mm	Perforated	Solid	Perforated	Solid
21	225	192	**3687.618**	**3687.620**	-	-
21	285	252	**3687.619**	**3687.621**	-	-
42	175	142	**3684.957**	**3687.626**	-	-
42	225	192	**3687.623**	**3687.627**	-	-
42	245	212	**3684.958**	**3687.628**	-	-
42	285	252	**3685.642**	**3687.629**	-	-
84	175	142	**3684.681**	**3684.680**	**3685.245**	**3685.250**
84	225	192	**3684.694**	**3684.683**	-	-
84	235	202	**3685.851**	**3685.813**	-	-
84	245	212	**3684.695**	**3684.684**	**3685.246**	**3685.251**
84	285	252	**3684.696**	**3684.685**	-	-
84	295	262	**3685.855**	**3685.814**	-	-
84	305	272	**3685.852**	**3684.686**	**3685.247**	**3685.252**
84	345	312	**3684.698**	**3684.687**	-	-
84	365	332	**3685.853**	**3684.688**	**3685.248**	**3685.253**
84	405	372	**3684.700**	**3684.689**	**3685.249**	**3685.254**
84	465	432	**3684.701**	**3684.691**	-	-
84	525	492	**3684.702**	**3684.692**	-	-
84	585	552	**3684.703**	**3684.693**	-	-

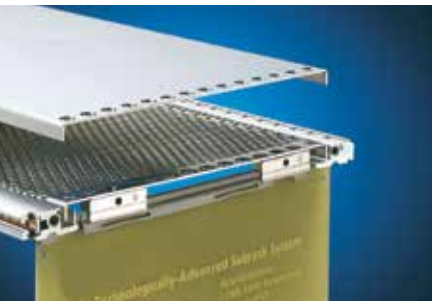
+ Also required

[1] Mounting blocks, see page 148
[1] EMC gaskets for cover plates, see page 147
[1] Assembly screws, packs of 100, order no. 3684.233, see page 202





Covers version 2



For all HeiPac Vario subracks

To cover the PCB depth

- Flat design for top and bottom
- Optionally solid or perforated
- For mounting on the subrack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version

Each set includes

2 cover plates
8 mounting blocks 28.5 mm
24 assembly screws

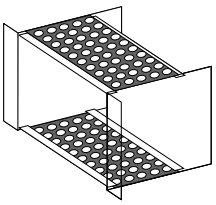
Individual unit includes:

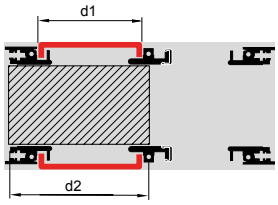
1 cover plates

			Order No.			
			Single piece [1]		Set	
HP	For PCB depth (d2) mm	Cover depth (d1) mm	Perforated	Solid	Perforated	Solid
21	160	142	**3687.630**	**3687.634**	-	-
21	220	202	**3687.631**	**3687.635**	-	-
42	160	142	**3684.957**	**3687.626**	-	-
42	220	202	**3687.633**	**3687.637**	-	-
42	280	262	**3687.638**	**3687.639**	-	-
84	160	142	**3684.681**	**3684.680**	**3685.245**	**3685.250**
84	220	202	**3685.851**	**3685.813**	-	-
84	280	262	**3685.855**	**3685.814**	-	-
84	340	322	**3685.856**	-	-	-
84	400	382	**3685.857**	-	-	-

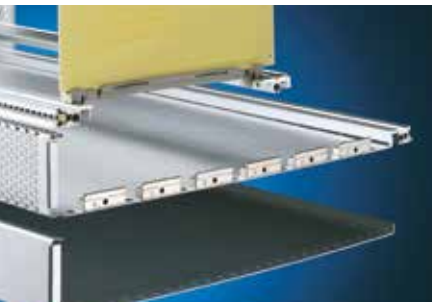
+ Also required

[1] Mounting blocks, see page 148
[1] Assembly screws, packs of 100, order no. 3684.233, see page 202





Covers version 3



For all HeiPac Vario subracks

To cover the overall subrack depth
(EMC application)

- Cover with 1 U edge fold (item 1), to conceal the 1 U area in the subrack
- A version 1 fl at cover (item 2) is additionally required
- Optionally perforated or solid on the front
- Suitable for subracks 4 U (3 + 1), 7 U (6 + 1)
- For mounting on the subrack side panel with the aid of mounting blocks

Material

1.0 mm aluminium, unplated, hole diameter
4 mm in perforated version.

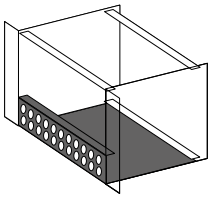
Note

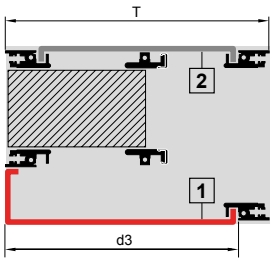
For EMC applications, mounting blocks must be fitted across the entire subrack depth.

			Order No.	
HP	For side panel depth (T) mm	Cover depth (d3) mm	Perforated	Solid
84	285	270	**3684.720**	**3684.714**
84	345	330	**3684.721**	**3684.715**
84	405	390	**3684.722**	**3684.716**
84	465	450	**3684.723**	**3684.717**
84	525	510	**3684.724**	**3684.718**
84	585	570	**3684.725**	**3684.719**

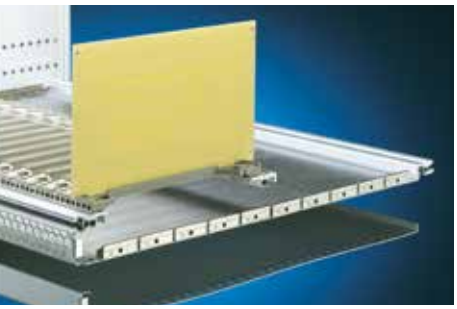
+ Also required

Mounting blocks, see page 148
EMC gaskets for covers, see page 147
Assembly screws, packs of 100, order no. 3684.233, see page 202
Cover, version 1, see page 161





Covers version 4



For all HeiPac Vario subracks

To cover the overall subrack depth
(EMC application)

- Cover top/bottom with ½ U edge fold to cover the ½ U section in the subrack
- Optionally perforated or solid on the front
- Suitable for subracks 4 U (3 + 2 x ½), 7 U (6 + 2 x ½)
- For mounting on the subrack side panel with the aid of mounting blocks.

Material

1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version.

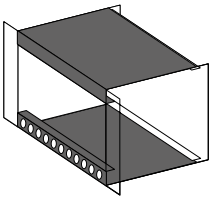
Note

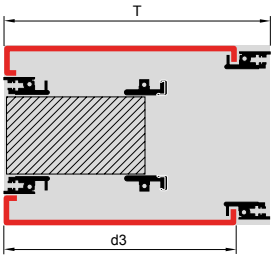
For EMC applications, mounting blocks must be fitted across the entire subrack depth.

			Order No.	
HP	For side panel depth (T) mm	Cover depth (d3) mm	Perforated	Solid
84	285	270	**3684.732**	**3684.726**
84	345	330	**3684.733**	**3684.727**
84	405	390	**3684.734**	**3684.728**
84	465	450	**3684.735**	**3684.729**
84	525	510	**3684.736**	**3684.730**
84	585	570	**3684.737**	**3684.731**

+ Also required

Mounting blocks, see page 148
EMC gaskets for covers, see page 147
Assembly screws, packs of 100, order no. 3684.233, see page 202





Covers version 5

For all HeiPac Vario subracks

To cover the overall subrack depth or PCB depth.
(EMC application)

Simple assembly:
- Side edge fold with half shears facilitates fast assembly (without mounting blocks) by simply snap-fastening
- Side notches for fi tting horizontal rails in 160, 220 or 280 mm depth
- Optionally solid or perforated

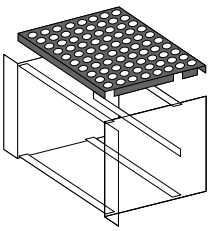
Material

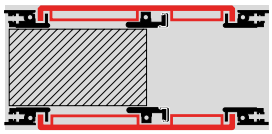
1.0 mm aluminium, unplated, hole diameter 4 mm in perforated version.

Supply includes

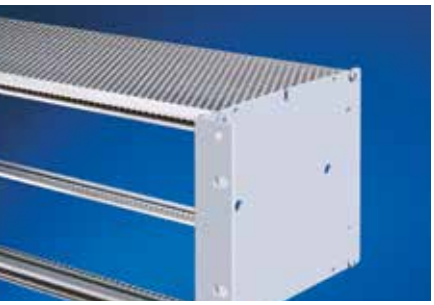
2 gaskets

			Order No.	
HP	Position of side notches for horizontal rails mm	For side panel depth mm	Perforated	Solid
21	160	175/185	**3687.624**	**-**
21	160/220	235	**3687.692**	**-**
42	160	175/185	**3687.625**	**-**
42	160/220	235	**3687.677**	**-**
42	160	245	**3687.640**	**-**
84	160	175/185	**3687.641**	**3687.647**
84	160	245	**3687.642**	**3687.648**
84	160/220	235	**3687.643**	**3687.649**
84	160/220	285	**3687.644**	**3687.650**
84	160/220	305	**3687.645**	**3687.651**
84	160/220/280	345	**3687.646**	**3687.652**





Covers for HeiPac EASY



- Perforated or solid
- Optionally with screwed fastening clips on the side panels for additional support

Material

Aluminium

Supply includes

2 cover plates

Cover plates

version 1 (slide- in)
The covers are simply slid into the front and rear horizontal rails for mounting backplanes/ connectors.

version 2 (slide-in/screw-in)
For mounting additional rear horizontal rails on the rear panels. The horizontal rails for back-plane/connector
assembly are top-mounted.
The covers are slid in the front horizontal rails and screwed in the rear horizontal rails for rear panel mounting.

Version 1

HP	For side panel depth mm	Order No.	
		Perforated	Solid
84	175	**3634.685**	**3634.675**
84	235	**3634.690**	**3634.680**

Version 2

HP	For side panel depth mm	Order No.	
		Perforated [1]	Solid [1]
84	175	**3634.650**	**3634.625**
84	235	**3634.655**	**3634.630**
84	295	**3634.660**	**3634.635**
84	355	**3634.665**	**3634.640**
84	415	**3634.670**	**3634.645**

+ Also required

[1] assembly screws, packs of 100
order no. 3684.233
see page 202

+ Accessories

Fastening clips

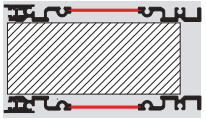
Fastening clips

Packs of	Order No.
50	**3634.450**

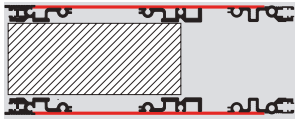
Assembly screws for fastening clips

Packs of	Order No.
100	**9921.879**

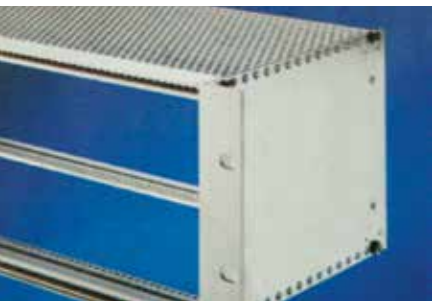
version 1

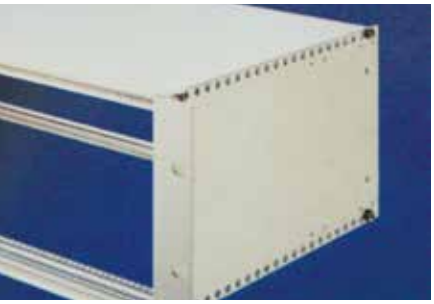


version 2



Covers for HeiPac Vario ECO





To cover the overall subrack depth
- Perforated or solid
- The covers are slid into the horizontal rails
- Optionally with screwed fastening clips for additional support

Material

Sheet steel

Surface finish

Zinc-plated

Supply includes

1 cover plate

HP	For side panel depth mm	Order No.	
		Perforated	Solid
84	175	**3688.105**	**3688.107**
84	235	**3688.106**	**3688.108**

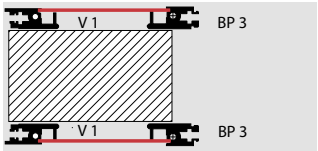
+ Accessories

Fastening clips

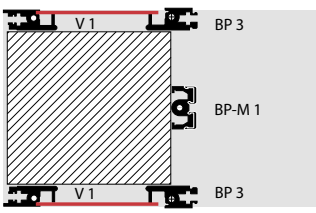
Packs of	Order No.
1	**3688.109**

Assembly screw

Packs of	Order No.
100	**9921.879**



1 for backplane



2 for backplane

Flat front panels with extractor handle

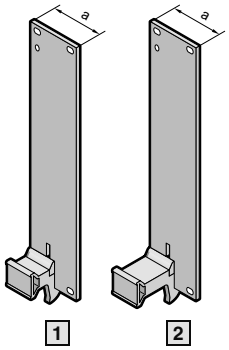
With type I or II extractor handle
Complete modular systems

Material

Front panel:	2,5 mm Aluminium anodised
Handle:	Plastic black

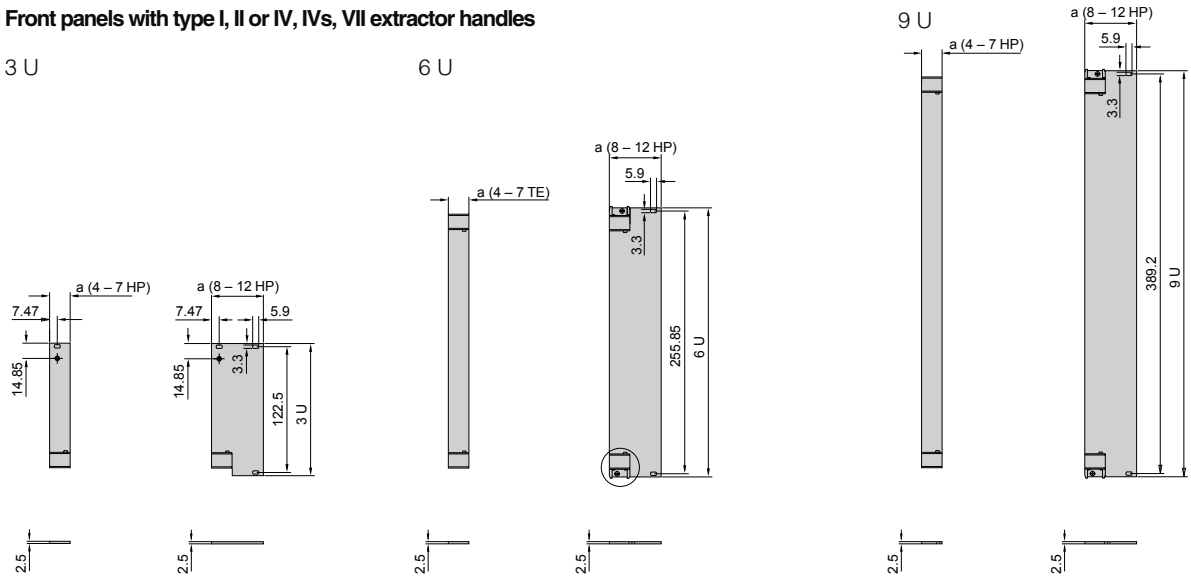
Supply includes

1 front panel
2 handles (1 with 3 U)
1 set of assembly parts
1 PCB holder (for 3 U)

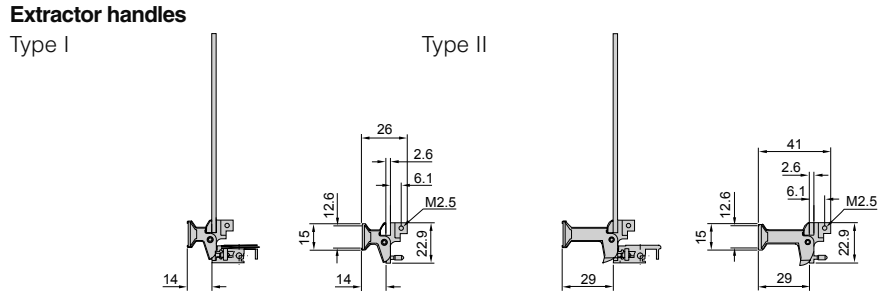


U	HP	a mm	Order No. 1 Type I.	Order No. 2 Type II
3	4	20.0	**3684.330**	**3684.358**
3	5	25.1	**3684.331**	**3684.359**
3	6	30.2	**3684.332**	**3684.360**
3	7	35.3	**3684.333**	**3684.361**
3	8	40.3	**3684.334**	**3684.362**
3	10	50.5	**3684.335**	**3684.363**
3	12	60.7	**3684.336**	**3684.364**
6	4	20.0	**3684.337**	**3684.365**
6	5	25.1	**3684.338**	**3684.366**
6	6	30.2	**3684.339**	**3684.367**
6	7	35.2	**3684.340**	**3684.368**
6	8	40.3	**3684.341**	**3684.369**
6	10	50.5	**3684.342**	**3684.370**
6	12	60.7	**3684.343**	**3684.371**
9	4	20.0	-	**3684.372**
9	8	40.3	-	**3684.373**

Front panels with type I, II or IV, IVs, VII extractor handles



Extractor handles



U-channel front panels with injector/extractor handle

With type I, II extractor handle or type IV injector/extractor handle
Complete modular systems

Material

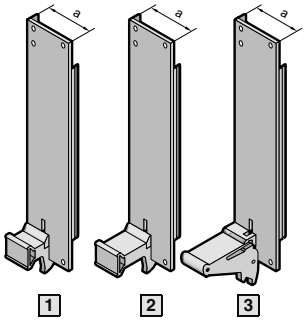
front panel:	extruded aluminium section clear-chromated
Handle:	plastic black

Supply includes

1 front panel
2 handles (1 with 3 U)
1 EMC gasket, vertical, version 1
1 set of assembly parts
1 PCB holder (for 3 U)

Detailed drawing
see page 168 ff.

EMC

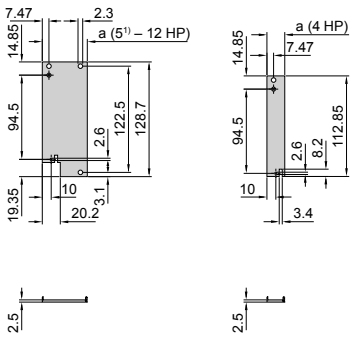


U	HP	a mm	Order No. 1 Type I.	2 Type II	3 Type IV[1]
3	4	20.0	**3684.344**	**3684.374**	**3684.413**
3	5	25.1	**3684.345**	**3684.375**	**3684.414**
3	6	30.2	**3684.346**	**3684.376**	**3684.415**
3	7	35.3	**3684.347**	**3684.377**	**3684.416**
3	8	40.3	**3684.348**	**3684.378**	**3684.417**
3	10	50.5	**3684.349**	**3684.379**	**3684.418**
3	12	60.7	**3684.350**	**3684.380**	**3684.419**
6	4	20.0	**3684.351**	**3684.381**	**3684.420**
6	5	25.1	**3684.352**	**3684.382**	**3684.421**
6	6	30.2	**3684.353**	**3684.383**	**3684.422**
6	7	35.2	**3684.354**	**3684.384**	**3684.423**
6	8	40.3	**3684.355**	**3684.385**	**3684.424**
6	10	50.5	**3684.356**	**3684.386**	**3684.425**
6	12	60.7	**3684.357**	**3684.387**	**3684.426**
9	4	20.0	**-**	**3684.388**	**3684.427**
9	5	25.1	**-**	**-**	**3684.428**
9	6	30.2	**-**	**-**	**3684.429**
9	7	35.3	**-**	**-**	**3684.430**
9	8	40.3	**-**	**3684.389**	**3684.431**
9	10	50.5	**-**	**-**	**3684.432**
9	12	60.7	**-**	**-**	**3684.433**

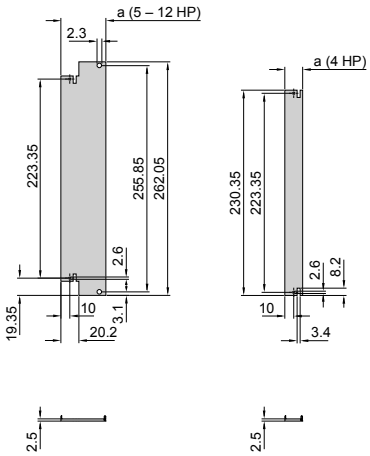
[1]Can only be inserted in conjunction with front horizontal rails, with 10 mm roof (Vario V-Ext. 1), see page 133

Front panels for type I, II, IV, IVs or VII handles

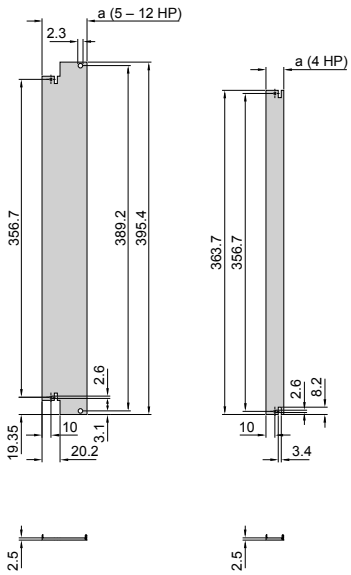
3 U



6 U

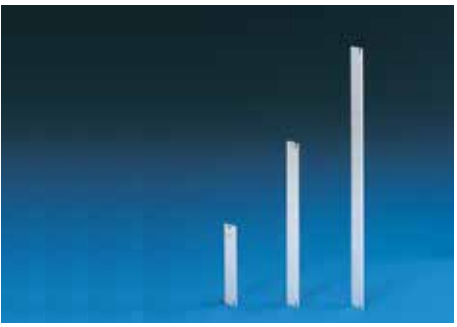


9 U



[1] 2.3 mm drilled hole not contained in versions 5 – 7 HP.

Flat front panels for handles

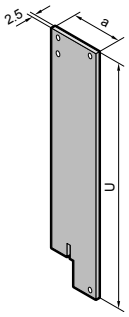


For type I, II extractor handle or type IV, IVs or VII injector/extractor handle

Material

2,5 mm Aluminium
Anodised

Detailed drawing front panel
see page 165

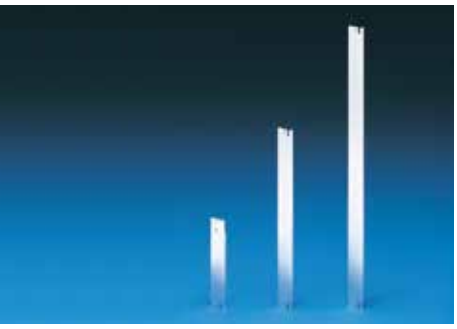


+ Also required

From front panel widths of 4 HP (at 3 U) and 8 HP (at 6 U):
Collar screws and plastic collars, packs of 100 sets,
order no. 3658.160, see page 202
For 3 U front panels:
PCB holder set, see page 177

HP	a mm	Order No.		
		3 U	6 U	9 U
4	20.0	**3685.500**	**3685.508**	**3685.516**
5	25.1	**3685.501**	**3685.509**	**3685.517**
6	30.2	**3685.502**	**3685.510**	**3685.518**
7	35.3	**3685.503**	**3685.511**	**3685.519**
8	40.3	**3685.504**	**3685.512**	**3685.520**
10	50.5	**3685.505**	**3685.513**	**3685.521**
12	60.7	**3685.506**	**3685.514**	**3685.522**

U-channel front panels for handles



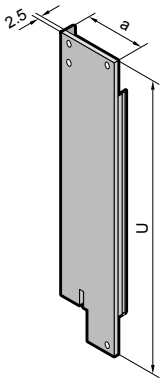
For type I, II extractor handle or type IV, IVs or VII injector/extractor handle

Material

2,5 mm extruded aluminium section
clear-chromated

Detailed drawing front panel
see page 166

EMC



+ Also required

From front panel width 4 HP (for 3 U) and 8 HP (for 6 U):
Slotted centering screws, packs of 100,
order no. 3687.050, see page 203
Posidrive centering screws, packs of 100,
order no. 3687.051, see page 203
EMC gaskets, see page 146
For 3 U front panels:
PCB holder set, see page 177

HP	a mm	Order No.		
		3 U	6 U	9 U
4	20.0	**3685.524**	**3685.532**	**3685.540**
5	25.1	**3685.525**	**3685.533**	**3685.541**
6	30.2	**3685.526**	**3685.534**	**3685.542**
7	35.3	**3685.527**	**3685.535**	**3685.543**
8	40.3	**3685.528**	**3685.536**	**3685.544**
10	50.5	**3685.529**	**3685.537**	**3685.545**
12	60.7	**3685.530**	**3685.538**	**3685.546**

Extractor handle type I and type II

- Suitable for flat front panels/U-channel front panels
- With removal function
- May be used in combination with horizontal rails with 10 mm extension.

Supply includes

Assembly parts

Note

With 3 U, only one extractor handle is required.

1 Type I extractor handle, 15 mm

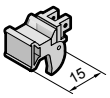
Colour	Packs of	Order No.
Grey	1	**3685.587**
Black	1	**3685.589**

2 Type II extractor handle, 30 mm

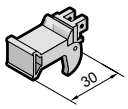
Colour	Packs of	Order No.
Grey	1	**3685.588**
Black	1	**3685.590**

+ Accessories

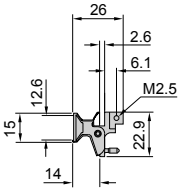
Identification strips for extractor handles,
see page 169



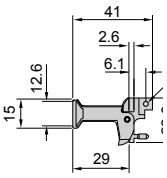
1



2

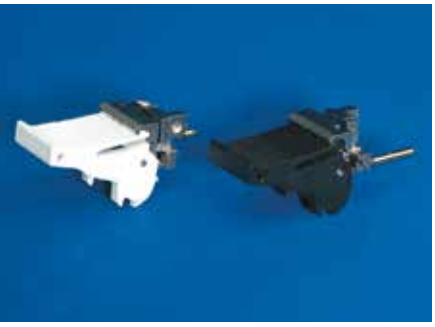


1



2

Injector/extractor handle type IV



Handles with micro-switch

For inserting and removing connectors with a large number of pins.

- Insertion/removal function
- Integral microswitch for "live insertion" applications
- Self-activation of the micro-switch during insertion/removal
- ESD pin to dissipate static charges before contacting the connectors and for precise positioning of the board type plug-in unit
- Keyable
- Integral PCB attachment
- Self-locking
- Bayable

Handle without micro-switch

Description see above.
Micro-switch may be retrofitted.

Supply includes

1 handle without or with micro-switch, assembly parts

Note

- Insertion only when used with front horizontal rails, with 10 mm extension see page 133 ff.
- With 3 U front panels, only one extractor handle is required

Handles with micro-switch

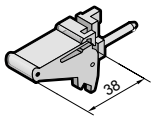
Colour	Installation	Packs of	Order No.
Grey	Top	1	**3686.905**
Grey	Bottom	1	**3686.904**
Black	Top	1	**3686.907**
Black	Bottom	1	**3686.906**

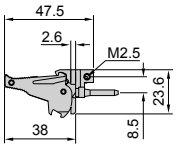
Handle without micro-switch

Colour	Installation	Packs of	Order No.
Grey	Top	1	**3686.901**
Grey	Bottom	1	**3686.900**
Black	Top	1	**3686.903**
Black	Bottom	1	**3686.902**

+ Accessories

Keys,
see page 159
Keyable guide rails,
see page 156
Micro-switches,
see page 171
Connector pin for baying,
see page 170





Injector/extractor handle type IV

8 HP, bayed
Suitable for two front panels 4 HP that must be connected to another mechanically.

Supply includes
2 bayed handles
fully assembled

Colour	Installation	Packs of	**Order No.**
Black	Bottom	1	**3686.908**
Black	Top	1	**3686.909**

+ Accessories
Connector pin for baying,
see page 170

Identification strips for extractor handles

For type I, II extractor handle and type IV injector/extractor handle
Width 4 HP

Packs of	**Order No.**
100	**3684.328**

Injector/extractor handle type IVs

With push-button
For inserting and removing connectors with a large number of pins. A metal insert ensures reliable functioning, even at forces of up to 815 N.

- Insertion/removal function
- Push-button for locking and unlocking the board type plug-in unit (cannot be extracted in the locked position)
- Optionally with ½ HP offset PCB attachment, e. g. for component mounting on both sides
- Optional integral micro-switch for “live insertion” applications
- ESD pin to dissipate static charges before contacting the connectors and for precise positioning of the board type plug-in unit
- according to IEEE 1101.1
- Keyable
- Integral PCB attachment
- Bayable

Material
Plastic/metal

Supply includes
Assembly parts

Note
- Insertion only when used with front horizontal rails, with 10 mm extension see page 133 ff.
- With 3 U front panels, only one extractor handle is required.

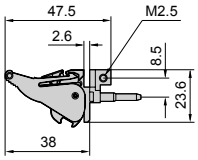
Handles without offset

Installation	Packs of	**Order No.**
Top	1	**3688.770**
Bottom	1	**3688.771**

Handles with ½ HP offset

Installation	Packs of	**Order No.**
Top	1	**3688.772**
Bottom	1	**3688.773**

+ Accessories
Keys,
see page 159
Keyable guide rails with 1/2 HP offset,
see page 156
Micro-switches,
see page 171
Connector pin for baying,
see page 170



Connection pin for injector/extractor handles

For injector/extractor handles, types IV, IVs and VII
The connection pin can be used to connect injector/extractor handles, types IV, IVs and VII.

Material
Steel

Packs of	Order No.
20	**3685.319**

Injector/extractor handle type VII

Plastic
For inserting and removing connectors with a large number of pins. This handle was specifically designed for use in telecom applications.

- Insertion/removal function
- Optionally with ½ HP offset PCB attachment, e. g. for component mounting on both sides
- Minimum front space requirements, due to foldup handle
- Optional integral micro-switch for “live insertion” applications
- ESD pin to dissipate static charges prior to making contact with the connectors and for precise positioning of the board type plug-in unit
- Keyable
- Large labelling area on the front

Material
Plastic

Supply includes
Assembly parts

Note
- Insertion only when used with front horizontal rails, with 10 mm extension see page 133 ff.

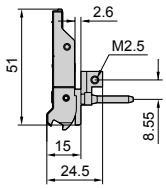
Handles without off set

Installation	Packs of	Order No.
Top	1	**3688.784**
Bottom	1	**3688.785**

Handles with ½ HP offs et

Installation	Packs of	Order No.
Top	1	**3688.780**
Bottom	1	**3688.781**

+ Accessories
Keys,
see page 159
Keyable guide rails with 1/2 HP offset,
see page 156
Micro-switches,
see page 171
Connector pin for baying,
see page 170



Injector/extractor handle type VII

Metal

For inserting and removing PCBs with a high connector pin-count (up to 815 N). This handle was specifically designed for use in telecom applications.

- Insertion/removal function
- Optionally with ½ HP offset PCB attachment, e. g. for component mounting on both sides
- Minimum front space requirements due to foldup handle
- Optional integral micro-switch for “live insertion” applications
- ESD pin to dissipate static charges prior to making contact with the connectors and for precise positioning of the board type plug-in unit
- Keyable
- Metal design for use in aggressive atmospheres

Material

Die-cast zinc

Supply includes

Assembly parts

Note

Insertion only when used with front horizontal rails, with 10 mm extension see page 133 ff.

Handles without off set

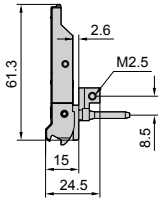
Installation	Packs of	Order No.
Top	1	**3688.790**
Bottom	1	**3688.791**

Handles with ½ HP offs et

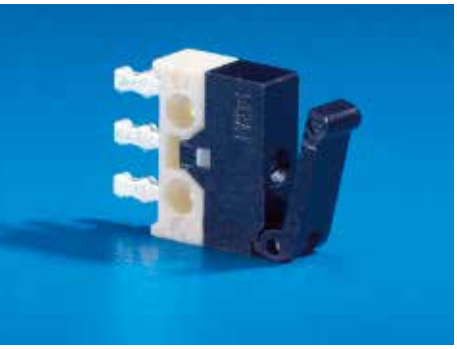
Installation	Packs of	Order No.
Top	1	**3688.786**
Bottom	1	**3688.787**

+ Accessories

Keys,
see page 159
Keyable guide rails with 1/2 HP offset,
see page 156
Micro-switches,
see page 171
Connector pin for baying,
see page 170



Micro-switch



For “live insertion” applications. Installation in injector/extractor handles, types IV, IVs and VII. May also be retrofitted.

Technical specifications

Switching load: 50 mA 30 V DC

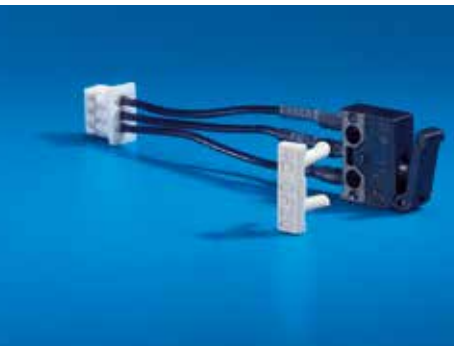
Service life:
At nominal load: 30.000
mechanical: 50.000

Packs of	Order No.
10	**3684.410**

+ Accessories

Micro-switch mounting clip,
see page 172

Micro-switch



With cable and connector

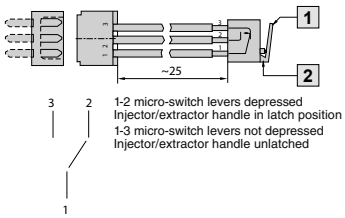
For “live insertion” applications. Installation in injector/extractor handles, types IV, IVs and VII.

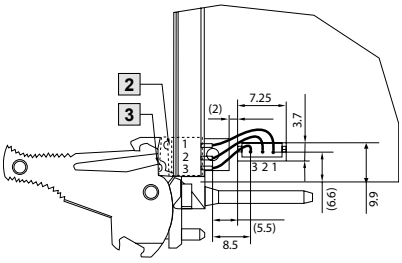
Supply includes

Micro-switch, connector type Molex 51021-0300,
mounting clips, 3 cables,
25 mm x #32 AWG,
fully assembled

Packs of	Order No.
1 set	**3686.536**

1 Lever not depressed
2 Lever hinge
3 Lever contact point





Micro-switch mounting clip

For mounting micro-switches in handles

Packs of	Order No.
10	**3684.411**

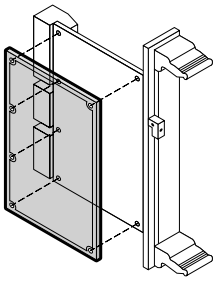
Plastic covers for PCBs

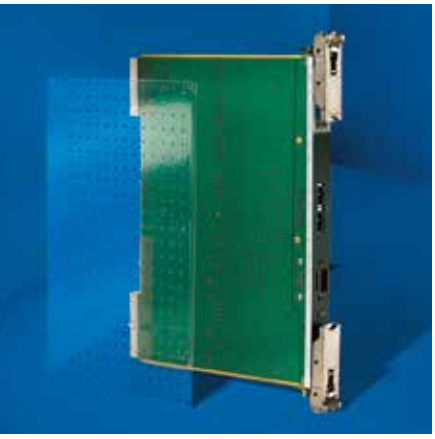
For mechanical protection of the component side and of the EMC gaskets.
Attachment holes as per CPCI or VME-specifications.
Optionally available as perforated or solid version.

Material

0,5 mm plastic, transparent, anti-static UL 94-V0, maximum temperature up to 65°C

[1] 0,5 mm plastic, black, anti-static UL 94-V0, maximum temperature up to 120°C



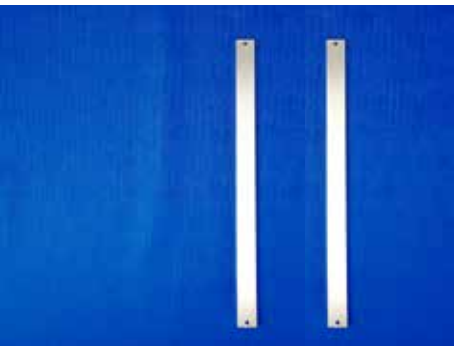


For PCBs	Packs of	Order No.			
		for CPCI			for VME
		Perforated	Solid	Solid	Solid
3 U x 160 mm	1	**3687.932**	**3686.572**	**3685.966**	**3685.626**
	5	**-**	**-**	**-**	**3685.279**
3 U x 220 mm	1	**-**	**-**	**-**	**3685.805**
	5	**-**	**-**	**-**	**3685.266**
6 U x 80 mm	1	**3687.933**	**3686.573**	**3686.037**	**3686.146**
6 U x 160 mm	1	**3687.934**	**3686.574**	**3685.967**	**3685.627**
	1	**9905.574[1]**	**9905.990[1]**	**-**	**-**
	5	**-**	**-**	**-**	**3685.280**
6 U x 220 mm	1	**-**	**-**	**-**	**3685.824**
	5	**-**	**-**	**-**	**3685.000**

+ Also required

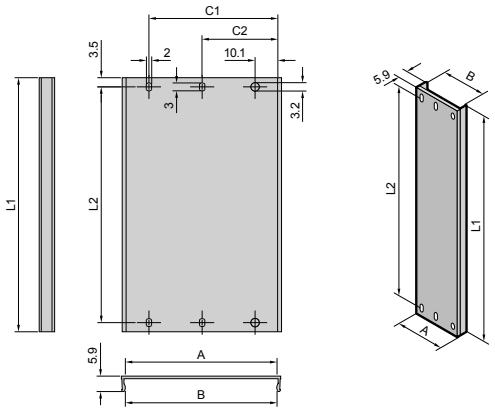
Required for mounting the perforated CPCI covers:
Mounting clips, Packs of = 100
order no. 3687.955

Front panels for type III extractor handle



Material
1,0 mm extruded aluminium section

Surface finish
Untreated



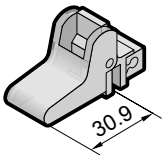
HP	A mm	B mm	C1 mm	C2 mm	Order No.		
					3 U	6 U	9 U
4	15.20	12.20	-	-	**3685.548**	**3685.555**	**-**
5	20.22	17.20	-	-	**3685.549**	**3685.556**	**3685.562**
6	25.28	22.28	-	22.68	**3685.550**	**3685.557**	**3685.563**
7	30.36	27.36	-	25.22	**3685.551**	**3685.558**	**3685.564**
8	40.52	37.52	-	30.30	**3685.552**	**3685.559**	**3685.566**
10	50.68	47.68	40.46	25.22	**3685.553**	**3685.560**	**3685.567**
12	60.84	57.84	50.62	30.30	**3685.554**	**3685.561**	**3685.568**
L1 mm					97.00	230.35	363.70
L2 mm					90.00	223.35	356.70

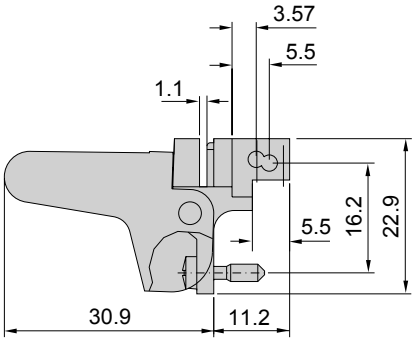
Type III extractor handle

Material
Fibreglass-reinforced polycarbonate
Base section nickel-plated ABS

Colour
Grey

HP	Packs of	Order No.
3	1	**3685.591**
4	1	**3685.592**



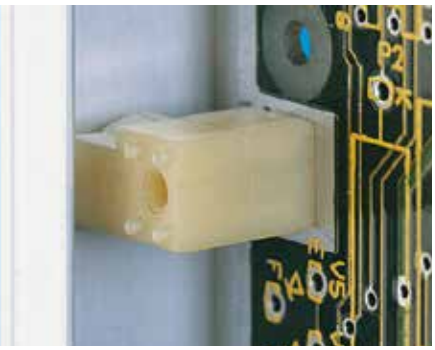


Covers for panel end spaces for type III extractor handle

Material
Fibreglass-reinforced polycarbonate

HP	Width mm	Packs of	Order No.
1	5	1	**3687.529**
2	10.08	1	**3687.530**
4	20.24	1	**3687.531**

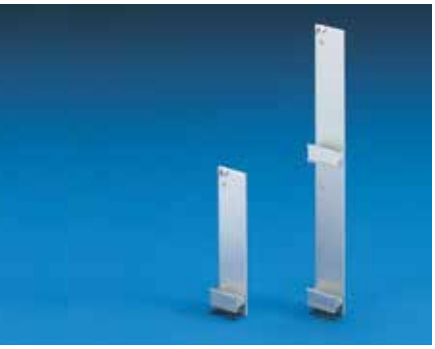
Universal holder for front panel support



Material
Plastic

HP	Packs of	Order No.
4	1	**3687.545**

Flat front panels with type V handle and PCB holder



Complete modular systems

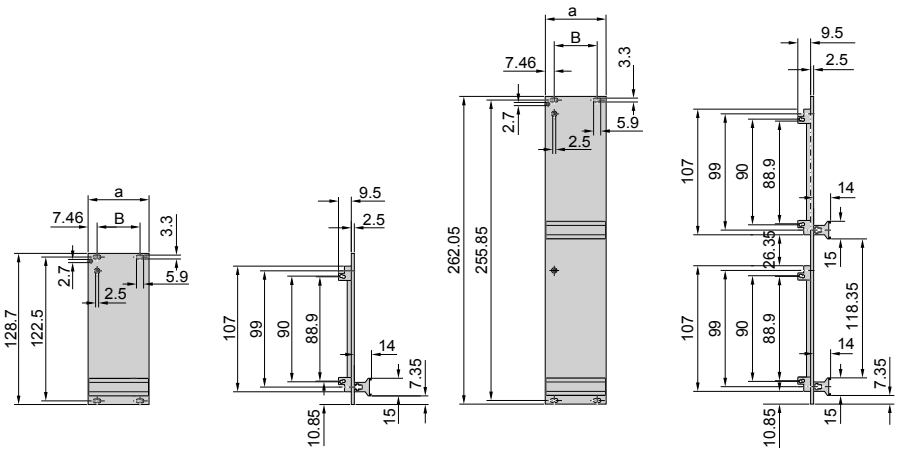
Material

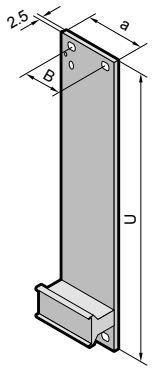
Frontplatte:	2,5 mm Aluminium natural-anodised
Handle:	Aluminium natural-anodised
PCB holder:	Polycarbonate

Supply includes
1 front panel
1 handle (2 with 6 U)
1 PCB holder (2 with 6 U)
Assembly parts

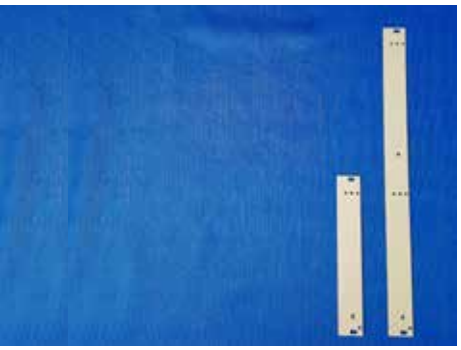
HP	a mm	B mm	Order No. 3 U H = 128.7	Order No. 6 U H = 262.05
3	14.9-		**3652.000**	**3652.200**
4	20.0	-	**3652.010**	**3652.210**
5	25.1	-	**3652.020**	**3652.220**
6	30.1	-	**3652.030**	**3652.230**
7	35.2	-	**3652.040**	**3652.240**
8	40.3	-	**3652.050**	**3652.250**
10	50.5	35.6	**3652.060**	**3652.260**
12	60.6	45.7	**3652.070**	**3652.270**
14	70.8	55.9	**3652.080**	**-**

+ Accessories
Identification strips for handles,
see page 177



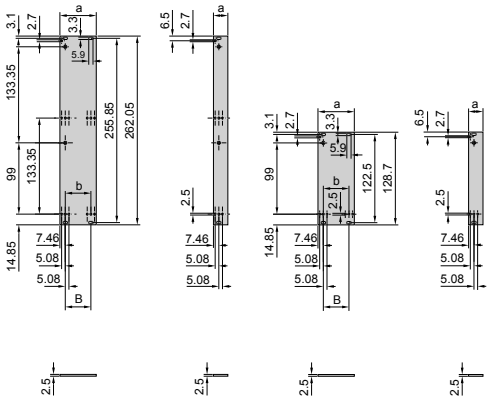


Flat front panels for type V and VI handle



Material

2,5 mm Aluminium, anodised



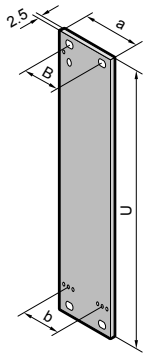
HP	a mm	B mm	b mm	Packs of	Order No.	
					3 U	6 U
3	14.9	-	-	1	**3685.569**	**3685.578**
4	20.0	-	-	1	**3685.570**	**3685.579**
5	25.1	-	-	1	**3685.571**	**3685.580**
6	30.2	-	15.2	1	**3685.572**	**3685.581**
7	35.2	-	20.3	1	**3685.573**	**3685.582**
8	40.3	-	25.4	1	**3685.574**	**3685.583**
10	50.5	35.6	35.6	1	**3685.575**	**3685.584**
12	60.6	45.7	45.7	1	**3685.576**	**3685.585**
14	70.8	55.9	55.9	1	**3685.577**	**3685.586**

+ Also required

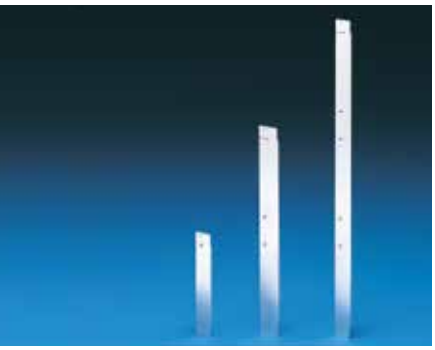
Collar screws and plastic collars,
packs of 100 sets, order no. 3658.160,
see page 202

+ Accessories

Handles type V
see page 176
Handles type VI
see page 177



U-channel front panels for type V and VI handle



Material
2,5 mm Aluminium, clear-chromated

Supply includes
1 vertical EMC gasket, version 1.

EMC

HP	a mm	B mm	Packs of	Order No.	
				3 U	6 U
4	20.0	-	1	**3687.655**	**3687.660**
6	30.2	-	1	**3687.656**	**3687.661**
8	40.3	-	1	**3687.657**	**3687.662**
10	50.5	35.6	1	**3687.658**	**3687.663**
12	60.6	45.7	1	**3687.659**	**3687.664**

+ Also required
Slotted centering screws,
packs of 100, order no. 3687.050,
see page 203
Cross-head centering screws,
packs of 100, order no. 3687.051
see page 203

+ Accessories
Handles type V
see page 176
Handles type VI
see page 177

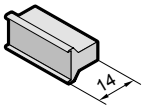
Detailed drawing,
see page 175

Type V handle, plastic

Material
Plastic

HP	Colour	Packs of	Order No.
3	Grey	1	**3685.490**
4	Grey	1	**3685.491**
8	Grey	1	**3685.492**
12	Grey	1	**3685.493**
20	Grey	1	**3685.494**
3	Black	1	**3685.495**
4	Black	1	**3685.496**
8	Black	1	**3685.497**
12	Black	1	**3685.498**
20	Black	1	**3685.499**

+ Also required
Mounting kit,
packs of 1 set, order no. 3687.519
see page 202

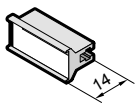


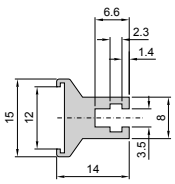
Type V handle, aluminium

Material
Aluminium, anodised

HP	Order No.	HP	Order No.
3	**3685.595**	12	**3685.602**
4	**3685.596**	14	**3685.603**
5	**3685.597**	21	**3685.761**
6	**3685.598**	28	**3685.762**
7	**3685.599**	42	**3685.763**
8	**3685.600**	1 m	**3685.604**
10	**3685.601**		

+ Also required
Mounting kit
packs of 1 set, order no. 3687.146
(from 6 HP 2 packs required)
see page 203





Identification strips for type V handle, aluminium

For individual labelling of the handles

Material

0,5 mm Aluminium, anodised

HP	Packs of	**Order No.**
3	1	**3685.746**
4	1	**3685.747**
5	1	**3685.748**
6	1	**3685.749**
7	1	**3685.750**
8	1	**3685.751**
10	1	**3685.752**
12	1	**3685.753**
14	1	**3685.754**
21	1	**3685.755**
28	1	**3685.756**
42	1	**3685.757**
1 m	1	**3685.758**
0.5 m	5	**3606.300**

Type VI handle

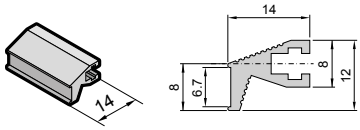
Material

Aluminium, anodised.

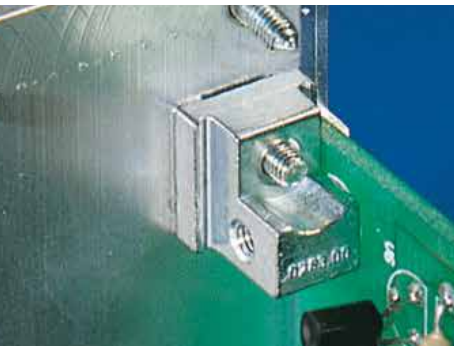
HP	**Order No.**	HP	**Order No.**
3	**3685.605**	12	**3685.612**
4	**3685.606**	14	**3685.613**
5	**3685.607**	21	**3685.614**
6	**3685.608**	28	**3685.615**
7	**3685.609**	42	**3685.616**
8	**3685.610**	84	**3685.617**
10	**3685.611**	1 m	**3685.618**

+ Zusätzlich wird benötigt

Mounting kit
packs of 1 set, order no. 3687.146
(from 6 HP 2 packs required)
see page 203



PCB holder kit



For attaching the PCB to front panels with handle types I, II, IV, IVs, VII.

Material

Die-cast

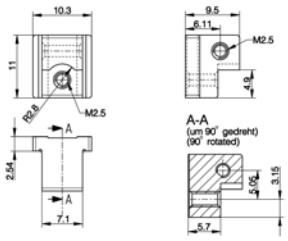
Note

Only required at the top with 3 U front panels

Packs of	**Order No.**
10	**3685.198**

+ Also required

For attaching the PCB to the PCB holder:
Pan-head screws
packs of 100, order no. 3654.320
see page 202
For attaching the front panel to the PCB holder:
Oval csk-screws
packs of 100, order no. 3685.282
see page 203



PCB holder for front panels

For attaching PCBs to front panels (handle type V, VI).

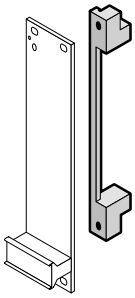
Material

Noryl

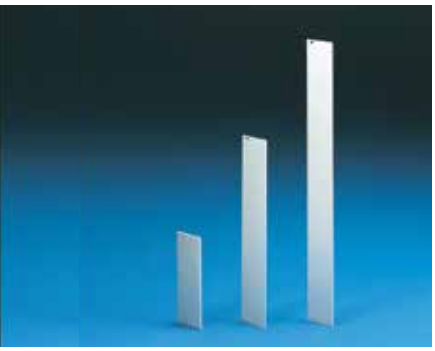
Supply includes

Assembly parts

Packs of	Order No.
10	**3606.330**



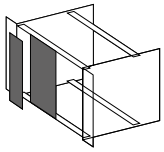
Front panels as filler panel

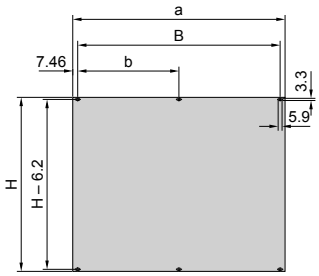


Flat

Material

2,5 mm Aluminium, natural-anodised



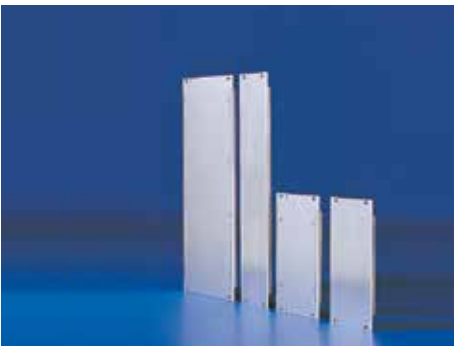


+ Also required

Collar screws and plastic collars, packs of 100 sets, order no. 3658.160, see page 202

HP	a mm	B mm	b mm	Order No.						
				1 U H = 39.8	2 U H = 84.25	3 U H = 128.7	4 U H = 173.15	6 U H = 262.05	7 U H = 306.5	9 U H = 395.4
2	9.8	-	-	-	-	**3684.889**	-	**3684.911**	-	**3684.738**
3	14.9	-	-	-	-	**3684.890**	-	**3684.912**	-	-
4	20.0	-	-	-	-	**3684.891**	-	**3684.913**	-	**3684.739**
5	25.1	-	-	-	-	**3684.892**	-	**3684.914**	-	-
6	30.2	-	-	-	-	**3684.893**	-	**3684.915**	-	-
7	35.2	-	-	-	-	**3684.894**	-	**3684.916**	-	-
8	40.3	-	-	-	-	**3684.895**	-	**3684.917**	-	**3684.740**
10	50.5	35.6	-	-	-	**3684.896**	-	**3684.918**	-	-
12	60.6	45.7	-	-	-	**3684.897**	-	**3684.919**	-	**3684.741**
14	70.8	55.9	-	-	-	**3684.898**	-	**3684.920**	-	-
20	101.3	86.4	-	-	-	**3684.899**	-	**3684.921**	-	-
21	106.4	91.4	-	-	**3685.350**	**3684.900**	-	**3684.922**	-	-
24	121.7	106.7	-	-	**3685.429**	-	-	-	-	-
27	136.8	121.9	-	-	-	**3684.901**	-	**3684.923**	-	-
28	141.9	127.0	-	-	-	**3684.902**	-	**3684.924**	-	-
40	202.9	188.0	-	-	-	**3684.903**	-	**3684.976**	-	**3684.977**
42	213.0	198.1	-	**3684.885**	**3684.887**	**3684.904**	**3684.908**	**3684.925**	**3684.928**	**3684.742**
60	304.5	289.6	-	-	-	**3684.905**	-	-	-	-
63	319.7	304.8	152.4	-	-	**3684.906**	**3684.909**	**3684.926**	**3684.929**	-
84	426.4	411.5	203.2	**3684.886**	**3684.888**	**3684.907**	**3684.910**	**3684.927**	**3684.930**	**3684.743**
85	431.5	431.5	203.2	-	-	**3684.744**	**3684.745**	**3684.746**	**3684.747**	**3684.748**

U-channel front panels as filler panels



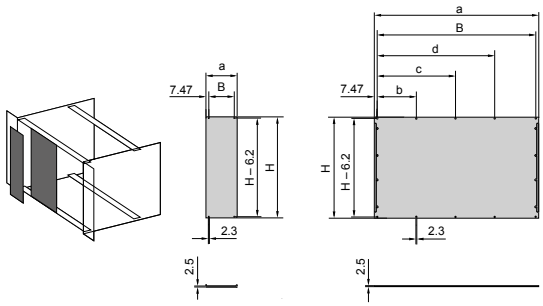
Material

2,5 mm extruded aluminium section
Clear-chromated

Supply includes

1 front panel, one-piece
(with 2 – 14 HP version) or three-piece
(with > 14 HP version)
1 vertical EMC gasket, version 1
1 contact strip (three-piece only)
1 gasket strip (three-piece only)

EMC



+ Also required

Slotted centering screws
packs of 100, order no. 3687.050
see page 203
Cross-head centering screws
packs of 100, order no. 3687.051
see page 203

HP	a mm	B mm	b mm	c mm	d mm	Order No.						
						1 U H = 39.8	2 U H = 84.25	3 U H = 128.7	4 U H = 173.15	6 U H = 262.05	7 U H = 306.5	9 U H = 395.4
2	9.8	-	-	-	-	-	-	**3685.177**	-	**3685.185**	-	**3685.193**
3	14.9	-	-	-	-	-	-	**3686.138**	-	**3686.139**	-	**3686.140**
4	20.0	-	-	-	-	-	-	**3685.178**	-	**3685.186**	-	**3685.194**
5	25.1	-	-	-	-	-	-	**3685.179**	-	**3685.187**	-	-
6	30.1	-	-	-	-	-	-	**3685.180**	-	**3685.188**	-	-
7	35.2	-	-	-	-	-	-	**3685.181**	-	**3685.189**	-	-
8	40.3	25.4	-	-	-	-	-	**3685.182**	-	**3685.190**	-	**3685.195**
10	50.5	35.6	-	-	-	-	-	**3685.183**	-	**3685.191**	-	-
12	60.6	45.7	-	-	-	-	-	**3685.184**	-	**3685.192**	-	**3685.196**
14	70.8	55.9	-	-	-	-	-	**3684.249**	-	**3684.258**	-	**3684.278**
16	80.9	66.0	-	-	-	-	-	**3685.348**	-	**3685.349**	-	-
20	101.3	86.4	-	-	-	-	-	**3684.250**	-	**3684.259**	-	**3684.279**
21	106.4	91.4	-	-	-	-	-	**3684.272**	-	**3684.275**	-	-
28	141.9	127.0	61.0	-	-	-	-	**3684.251**	-	**3684.260**	-	-
40	202.9	188.0	91.5	-	-	-	-	**3684.273**	-	**3684.276**	-	**3684.280**
42	213.0	198.1	96.5	-	-	-	-	**3684.252**	**3684.255**	**3684.261**	**3684.264**	**3684.267**
60	304.5	289.6	96.5	193.0	-	-	-	**3684.274**	-	**3684.277**	-	-
63	319.7	304.8	101.6	203.2	-	-	-	**3684.253**	**3684.256**	**3684.262**	**3684.265**	**3684.268**
84	426.4	411.5	101.6	203.2	304.8	**3684.247**	**3684.248**	**3684.254**	**3684.257**	**3684.263**	**3684.266**	**3684.269**

Front panels, hinged

Material
2.5 mm Aluminium
anodised

Supply includes
1 set of hinges
Assembly parts.

U	HP	Order No.	
		vertically hinged	horizontally hinged
3	42[1)]	**3652.600**	**3652.500**
3	84[1)]	**3652.610**	**3652.510**
3	85	**-**	**3684.291**
4	85	**-**	**3684.292**
6	42[1)]	**3652.620**	**3652.520**
6	84[1)]	**3652.630**	**3652.530**
6	85	**-**	**3684.293**
7	85	**-**	**3684.294**
9	85	**-**	**3684.295**

+ Also required
[1)] With rear mounting of 42 HP and 84 HP front panels, additonal trim sections must be attached at the rear of the subrack.
Rear trim sections, see page 57

EMC front panels, hinged

Material
2.5 mm Aluminium
Clear-chromated

Supply includes
1 front panel
1 set of hinges
1 contact strip
1 gasket strip
1 vertical EMC gasket, version 1
Assembly parts

U	HP	Order No.
		horizontally hinged
3	84	**3684.298**
4	84	**3684.299**
6	84	**3684.300**
7	84	**3684.301**
9	84	**3684.302**

EMC

Door cut-out trim for subracks installed indoors

Material
Aluminium

Width	Packs of	Order No.
½ 19"	2	**3634.060**
19"	2	**3634.070**

Mezzanine front panels

Extruded aluminium section
For PCI mezzanine cards (PMC)
Conforms to IEEE 1386

Material/surface finish
Extruded aluminium section
clear-chromated

Packs of	Order No.
1	**3688.658**

+ Accessories
EMC seals
see page 181
Assembly screws M2.5 x 6,
packs of 100, order no. 3654.340,
see page 202

Mezzanine front panels

Die-cast zinc
For PCI mezzanine cards (PMC)
Conforms to IEEE 1386

Material
Die-cast zinc

Packs of	Order No.
1	**3688.659**

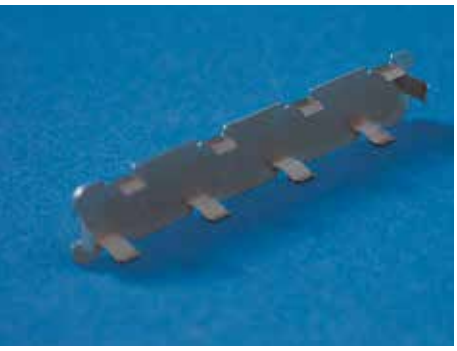
+ Accessories
EMC seals
see page 181
Assembly screws M2.5 x 6
packs of 100, order no. 3654.340
see page 202

Support spacers for mezzanine cards

10 mm, for mounting mezzanine cards

Packs of	Order No.
1	**3688.663**

Covers for mezzanine cut-outs



To conceal unused mezzanine cut-outs. The covers are simply clipped into the cut-outs.

Material
Stainless steel

Packs of	Order No.
1	**3688.660**

EMC seals for mezzanine front panels

For inserting into the all-round channel of the mezzanine front panels.

Material/surface finish
Sealing ring made of conductive carbon filled silicon, sealing gasket made from stainless steel

Design	Packs of	Order No.
Sealing ring	1	**3688.661**
Sealing gasket	1	**3688.662**

BOX-TYPE PLUG-IN UNITS

HeiPac box-type plug-in units – type I

Technical specifications

Installation depth: 160 and 220 mm
Height: 3 U and 6 U to IEC 60 297-3
Rear panel to accommodate single connectors

Material

Front panel: 2.5 mm aluminium, pure anodised
Real panel: 2 mm aluminium, untreated
Side panel profile: extruded aluminium profile, pure anodised
Handle: aluminium, pure anodised
PCB holder: plastic

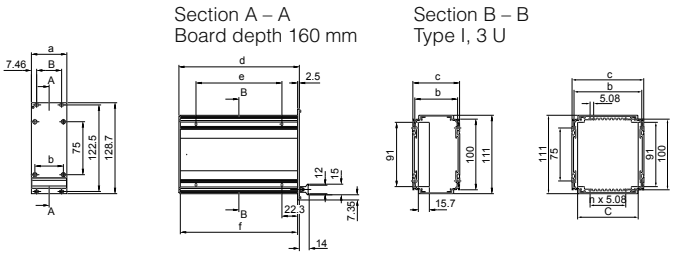
Available on request

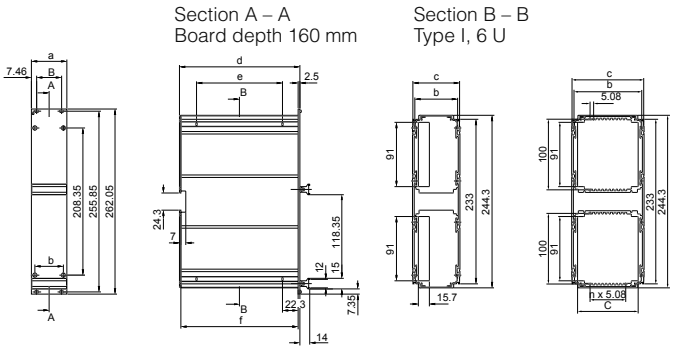
- box-type plug-in units in special sizes or printed
- EMC box-type plug-in units with EMC front panels

+ Accessories

Covers
see page 184
Guide rails
see page 158
Individual components
see page 184

HP	a mm	B mm	b mm	c mm	C mm	d mm	e mm	f mm	Order No. 3 U	Order No. 3 U	Order No. 6 U
Board depth 160 mm											
6	32.2	-	20.3	27.5	-	171.5	122	167	**3653.000**	**-**	**-**
8	40.3	-	30.5	36.0	-	171.5	122	167	**-**	**3653.010**	**-**
10	50.5	35.6	40.6	46.2	-	171.5	122	167	**-**	**3653.020**	**3653.100**
12	60.6	45.7	50.8	56.4	-	171.5	122	167	**-**	**3653.030**	**3653.110**
14	70.8	55.9	60.9	66.5	-	171.5	122	167	**-**	**3653.040**	**3653.120**
21	106.3	91.4	96.4	102.0	86.3	171.5	122	167	**-**	**3653.050**	**3653.130**
28	141.9	127.0	132.0	137.6	121.8	171.5	122	167	**-**	**3653.060**	**3653.140**
42	213.1	198.1	203.2	208.8	193.0	171.5	122	167	**-**	**3653.070**	**3653.150**
Board depth 220 mm											
10	50.5	35.6	40.6	46.2	-	231.5	182	227	**-**	**3653.200**	**3653.300**
12	60.6	45.7	50.8	56.4	-	231.5	182	227	**-**	**3653.210**	**3653.310**
14	70.8	55.9	60.9	66.5	-	231.5	182	227	**-**	**3653.220**	**3653.320**
21	106.3	91.4	96.4	102.0	86.3	231.5	182	227	**-**	**3653.230**	**3653.330**
28	141.9	127.0	132.0	137.6	121.8	231.5	182	227	**-**	**3653.240**	**3653.340**
42	213.1	198.1	203.2	208.8	193.0	231.5	182	227	**-**	**3653.250**	**3653.350**
Supply includes											
Front panel									1	1	1
Handle									1	1	2
Side panel									1	2	2
Cover plate incl. re ar panel									1	-	-
Rear panel									-	1	2
PCB holder									2	2	2
Assembly parts (set)									1	1	1





PCB holder for box-type plug-in units

For fastening PCBs in box-type plug-in units.

Material

PBTP,
Basic material to UL 94-V0

Supply includes

Assembly parts

Packs of	Order No.
2	**3606.321**

Guide rails for drive chassis

For routing drive chassis in the subrack.

Material

Aluminium

Supply includes

Press-fit pin

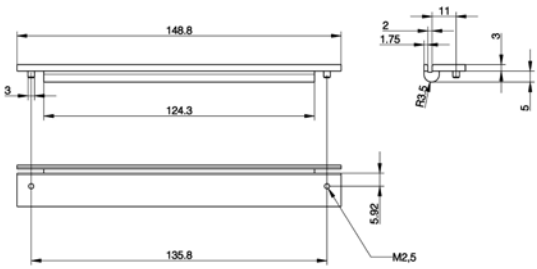
Note

Two guide rails are required for each drive chassis.
Guide rails 4.4″ for plastic drives, see page 158

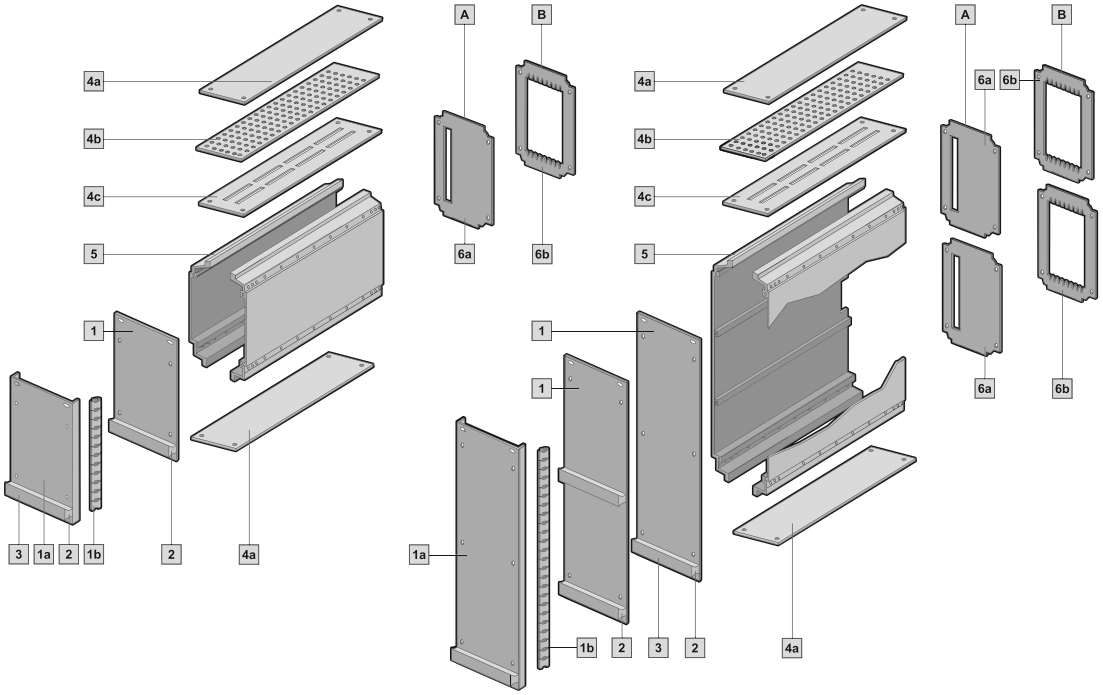
For installation depth mm	Packs of	Order No.
160	1	**3686.989**

+ Also required

Assembly screws
packs of 100, order no. 3654.340
see page 202



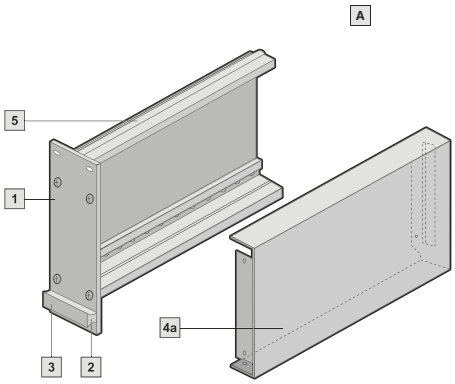
HeiPac box-type plug-in units – individual components

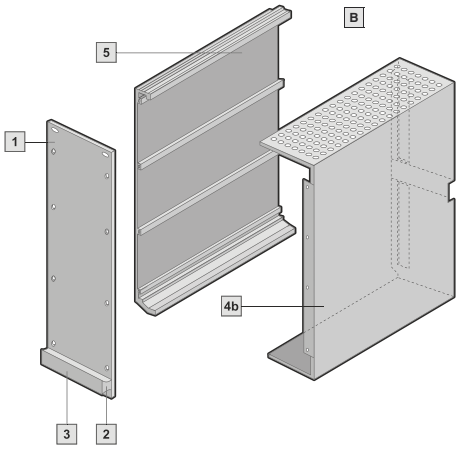


HeiPac box-type plug-in units, types I and II in 3 U and 6 U, individual components

Box-type plug-in units, individual components		A Type I	B Type II	Packs of	8 HP	10 HP	12 HP	14 HP	21 HP	28 HP	42 HP	Page
Type I for one connector/type II for several connectors												
Front panels of 2.5 mm aluminium, anodised surface finish												
1	for 3 U	•	•	1	**3685.769**	**3685.629**	**3685.630**	**3685.631**	**3685.636**	**3685.637**	**3685.638**	-
	for 6 U (for 1 handle)	•	•	1	**3685.767**	**3685.633**	**3685.634**	**3685.635**	**3685.639**	**3685.640**	**3685.641**	-
	for 6 U (for 2 handles)	•	•	1	-	**3687.520**	**3687.521**	**3687.522**	**3687.523**	**3687.524**	**3687.525**	-
EMC front panels of 2.5 mm aluminium, surface finish clear-chromated (only for use in conjunction with 10 HP box-type plug-in unit)												
1a	for 3 U/10 HP box-type plug-in units	•	•	1	-	-	**3687.587**	-	-	-	-	-
	for 6 U/10 HP box-type plug-in units	•	•	1	-	-	**3687.588**	-	-	-	-	-
EMC gaskets, vertical, for front panels												
1b	for 3 U	•	•	1	-	-	**3686.975**	-	-	-	-	146
	for 6 U	•	•	1	-	-	**3686.977**	-	-	-	-	146
Handle type V												
2	of aluminium, anodised surface finish	•	•	1	**3685.600**	**3685.601**	**3685.602**	**3685.603**	**3685.761**	**3685.762**	**3685.763**	176
	of plastic	•	•	1	**3685.492**	-	**3685.493**	-	**3685.494**	-	-	176
Identification strips												
3	of 0.5 mm aluminium, anodised surface finish	•	•	1	**3685.751**	**3685.752**	**3685.753**	**3685.754**	**3685.755**	**3685.756**	**3685.757**	177
Covers 4a 4b of 1 mm aluminium, untreated 4c of 1.2 mm sheet steel, painted, RAL 9006 (with vent slots)												
4a	unvented, for board depth 160 mm	•	•	1	**3687.555**	**3685.689**	**3685.690**	**3685.691**	**3685.692**	**3685.693**	**3685.694**	-
	unvented, for board depth 220 mm	•	•	1	**3687.562**	**3685.701**	**3685.702**	**3685.703**	**3685.704**	**3685.705**	**3685.706**	-
4b	vented, for board depth 160 mm slide-in	•	•	1	**3687.585**	**3685.683**	**3685.684**	**3685.685**	**3685.686**	**3685.687**	**3685.688**	-
	vented, for board depth 220 mm slide-in	•	•	1	-	**3685.695**	**3685.696**	**3685.697**	**3685.698**	**3685.699**	**3685.700**	-
4c	vent slots for guide rails, for board depth 160 mm	•	•	1	-	**3687.556**	**3687.557**	**3687.558**	**3687.559**	**3687.560**	**3687.561**	-
	vent slots for guide rails, for board depth 220 mm	•	•	1	-	**3687.563**	**3687.564**	**3687.565**	**3687.566**	**3687.567**	**3687.568**	-
Side panel of extruded aluminium section, anodised surface finish												
5	3 U, for board depth 160 mm	•	•	1	**3685.645**							-
	6 U, for board depth 160 mm	•	•	1	**3685.648**							-
	3 U, for board depth 220 mm	•	•	1	**3685.646**							-
	6 U, for board depth 220 mm	•	•	1	**3685.649**							-
Rear panel 6a of 2.0 mm aluminium, untreated 6b of 1.2 mm sheet steel, spray-finished												
6a	for 1 connector	•	-	1	**3687.536**	**3685.707**	**3685.708**	**3685.709**	**3685.710**	**3685.711**	**3685.712**	-
6b	for several connectors	-	•	1	-	-	-	-	**3687.537**	**3687.538**	**3687.539**	-
Assembly parts for box-type plug-in units, see page 202												

HeiPac box-type plug-in units – individual components





HeiPac box-type plug-in units, types V and VI in 3 U and 6 U, in dividual components

Type V with cover (unvented)/type VI with cover (vented)

	Box-type plug-in units, individual components	A Type I	B Type II	Packs of	6 HP	7 HP	8 HP	10 HP	12 HP	14 HP	Page
	Front panels of 2.5 mm aluminium, anodised surface finish										
1	for 3 U	•	•	1	**3685.768**	**3685.628**	**3685.769**	**3685.629**	**3685.630**	**3685.631**	-
	for 6 U	•	•	1	**3685.766**	**3685.632**	**3685.767**	**3685.633**	**3685.634**	**3685.635**	-
	Handle type V										
2	of aluminium, anodised surface finish	•	•	1	**3685.598**	**3685.599**	**3685.600**	**3685.601**	**3685.602**	**3685.603**	176
	of plastic	•	•	1	**-**	**-**	**3685.492**	**-**	**3685.493**	**-**	176
	Identification strips for 3 U										
3	of 0.5 mm aluminium, anodised surface finish	•	•	1	**3685.749**	**3685.750**	**3685.751**	**3685.752**	**3685.753**	**3685.754**	177
	Cover 4a 4b of 1 mm aluminium, clear-chromated surface finish										
4a	unvented, 3 U, for board depth 160 mm	•	-	1	**3685.774**	**3685.658**	**3685.776**	**3685.659**	**3685.660**	**3685.661**	-
	unvented, 3 U, for board depth 220 mm	•	-	1	**3685.775**	**3685.674**	**3685.777**	**3685.675**	**3685.676**	**3685.677**	-
	unvented, 6 U, for board depth 160 mm	•	-	1	**3685.717**	**3685.662**	**3685.764**	**3685.663**	**3685.664**	**3685.665**	-
	unvented, 6 U, for board depth 220 mm	•	-	1	**3685.718**	**3685.678**	**3685.765**	**3685.679**	**3685.680**	**3685.681**	-
4b	vented, 3 U, for board depth 160 mm	-	•	1	**3685.770**	**3685.650**	**3685.772**	**3685.651**	**3685.652**	**3685.653**	-
	vented, 3 U, for board depth 220 mm	-	•	1	**3685.771**	**3685.666**	**3685.773**	**3685.667**	**3685.668**	**3685.669**	-
	vented, 6 U, for board depth 160 mm	-	•	1	**3685.713**	**3685.654**	**3685.715**	**3685.655**	**3685.656**	**3685.657**	-
	vented, 6 U, for board depth 220 mm	-	•	1	**3685.714**	**3685.670**	**3685.716**	**3685.671**	**3685.672**	**3685.673**	-
	Side panel of extruded aluminium section, anodised surface finish										
5	3 U, for board depth 160 mm	•	•	1	**3685.645**						-
	6 U, for board depth 160 mm	•	•	1	**3685.648**						-
	3 U, for board depth 220 mm	•	•	1	**3685.646**						-
	6 U, for board depth 220 mm	•	•	1	**3685.649**						-

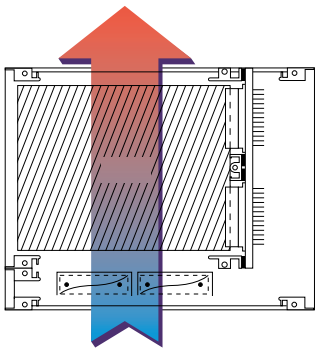
Assembly parts for box-type plug-in unit types I, II, V, VI

Description	for installation of:	Packs of	**Order. No.**	-
Assembly kit for box-type plug-in unit I/II, 3 U	Box-type plug-in units, type I/II, 3 U	1 set	**3687.589**	-
Assembly kit for box-type plug-in unit I/II, 6 U	Box-type plug-in units, type I/II, 6 U	1 set	**3687.590**	-
Assembly kit for box-type plug-in unit type V/VI	Box-type plug-in units, type V/VI	1 set	**3685.294**	-
Assembly kit for box-type plug-in unit with EMC front panel	Box-type plug-in unit with EMC front panel	1 set	**3687.591**	-
Assembly kit for plastic handles	Plastic handles on box-type plug-in units	1 set	**3687.519**	202

Guide rails for box-type plug-in units, see page 158

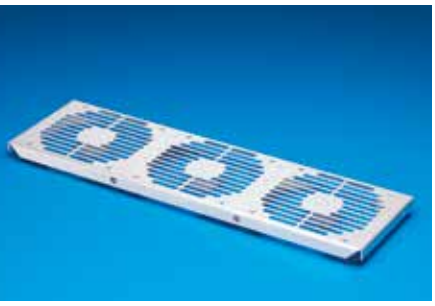
For more screws, see page 202

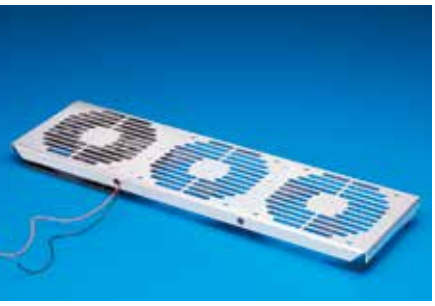
Vertical cooling from bottom to top



- Air flow via normal convection or forced cooling devices in the enclosure or housing outside of the subrack
- Vertical forced air flow, supported by fans installed at the bottom of the subrack (1 U)

Fan mounting plate





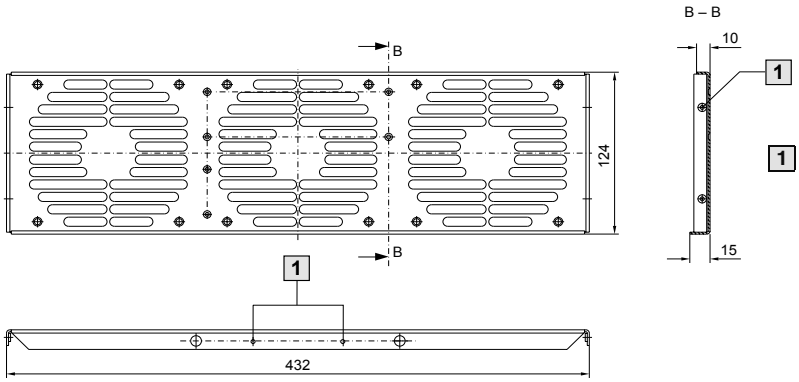
For the installation of 120 mm fans and filter modules in 4 U and 7 U subracks.
For mounting on the subrack side panels.

Material
1.5 mm aluminium, anodised

U	For PCB depth mm	No. of fan mounting plates required	HP	**Order No.**
1	160	1	84	**3684.317**
	220	1		
	280	2		
	340	2		
	400	3		

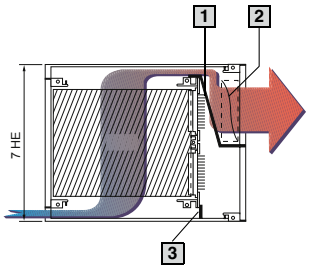
+ Also required
1 terminal block is required for each subrack.

Packs of	**Order No.**
1	**3686.805**



1 M3 Pem Nut

Diagonal cooling from front to back



Diagonal air flow from front to back allows individual cooling of PCBs in vertical installation position. An air baffle and air partition ensure controlled air flow.

1 Air baffle, see page 187

2 Fan (mounted on the rear panel), see page 190

3 Air partition,, see page 187

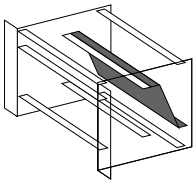
Air baffle

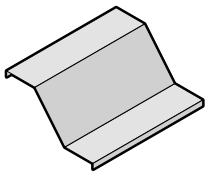
For controlled air flow in 7 U subracks. For mounting on sub-rack side panels with the aid of mounting blocks.

Material
1 mm Aluminium

Supply includes
Assembly parts

Subrack depth mm	Order No.
285	**3685.302**
345	**3685.303**
405	**3684.320**
465	**3684.321**
525	**3684.322**





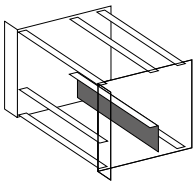
Air partition

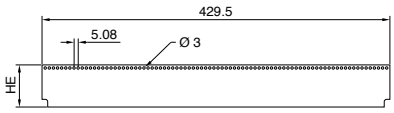
For controlled air flow in the sub-rack. The partitions are mounted on the horizontal rails together with the backplanes.

Material
Epoxy

Height U	Order No.
½	**3684.870**
1	**3684.871**
3	**3684.872**

+ Also required
Fastening screws and washers
packs of 100, order no. 3684.019
see page 202



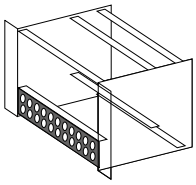


Front/rear panels for ventilation

Non-EMC version

Material
2.5 mm Aluminium

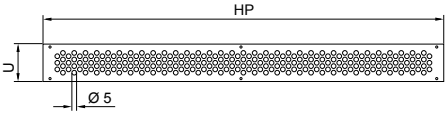
Surface finish
Anodised



Non-EMC version

U	HP	Packs of	Order No.
1	84	1	**3684.812**
2	84	1	**3684.813**
3	84	1	**3684.814**

+ Also required
Screws and collars, packs of 100 sets,
Order no. 3658.160
see page 202



EMC version

Material
2.5 mm Aluminium

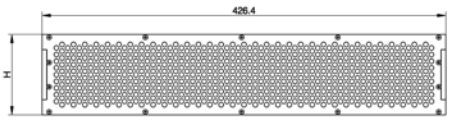
Surface finish
Clear-chromated

Supply includes
1 front panel
1 contact strip
1 gasket strip
1 vertical EMC gasket
Assembly parts

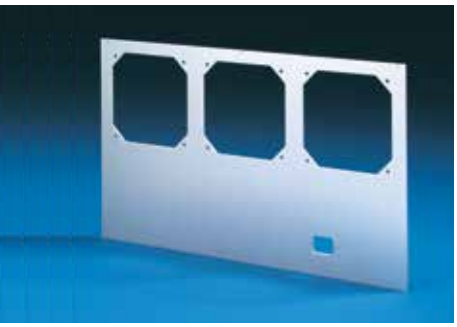
EMC version

U	HP	Packs of	Order No.
1	84	1	**3684.281**
2	84	1	**3684.282**
3	84	1	**3684.283**

+ Also required
Centering screws
see page 203



Rear panels for fan installation



Non-EMC version

Material
2.5 mm Aluminium

Surface finish
Anodised

Non-EMC version

U	HP	For fans mm	Packs of	**Order No.**
3	85	80	1	**3684.839**
4	85	80	1	**3684.840**
6	85	120	1	**3684.841**
7	85	120	1	**3684.842**

+ Also required
Screws and collars
packs of 100 sets, order no. 3658.160
see page 202

EMC version

Material
2.5 mm Aluminium

Surface finish
Clear-chromated

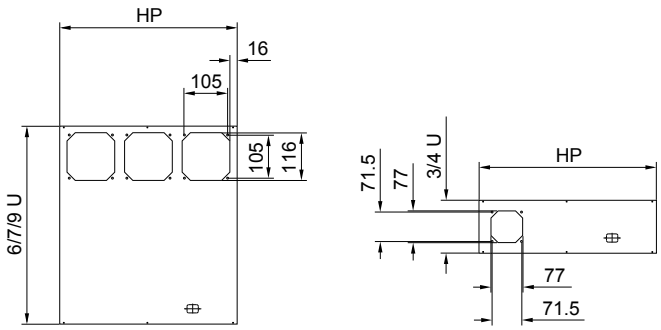
Supply includes
1 rear panel
1 contact strip
1 gasket strip
1 vertical EMC gasket
assembly parts

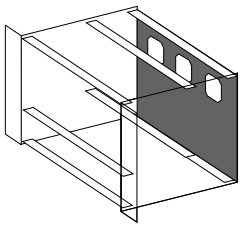
EMC version

U	HP	For fans mm	Packs of	**Order No.**
3	84	80	1	**3684.284**
4	84	80	1	**3684.285**
6	84	120	1	**3684.286**
7	84	120	1	**3684.287**

+ Also required
Centering screws
see page 203

+ Accessories
Fans
see page 190





Rear panels, horizontally hinged for fan installation

Non-EMC version

Material
2.5 mm Aluminium

Surface finish
Anodised

Supply includes
1 rear panel
1 set of hinges
assembly parts

Non-EMC version

U	HP	For fans mm	Packs of	**Order No.**
3	85	80	1	**3684.304**
4	85	80	1	**3684.305**
6	85	120	1	**3684.306**
7	85	120	1	**3684.307**

+ Also required
Screws and collars
packs of 100 sets, order no. 3658.160
see page 202

EMC version

Material
2.5 mm Aluminium

Surface finish
Clear-chromated

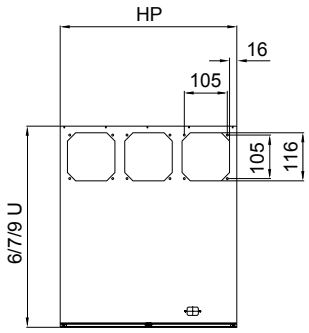
Supply includes
1 rear panel
1 contact strip
1 gasket strip
1 vertical EMC gasket
1 set of hinges
assembly parts

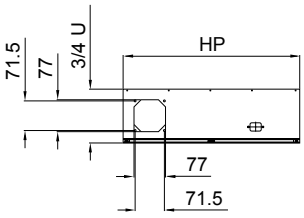
EMC version

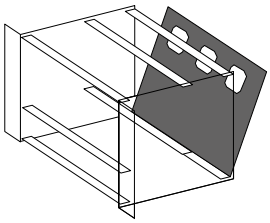
U	HP	For fans mm	Packs of	**Order No.**
3	84	80	1	**3684.311**
4	84	80	1	**3684.312**
6	84	120	1	**3684.313**
7	84	120	1	**3684.314**

+ Also required
Centering screws
see page 203

+ Accessories
Fans
see page 190







AC fans

For subracks and microcomputer systems

Supply includes

1 fan without connection cable

+ Also required

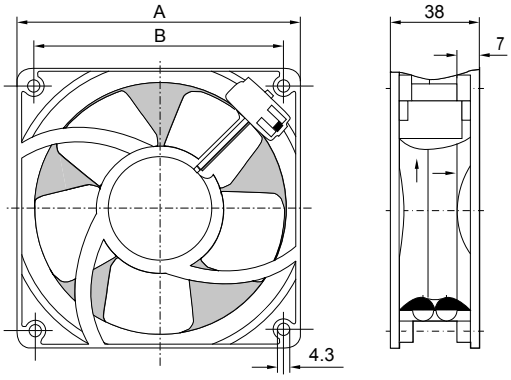
Assembly screws
packs of 1 set, order no. 3685.197
see page 203

AC fans

Dimensions			Bearing	Rated voltage V/Hz	Power Watts	Noise level dB(A)	Tempera-ture range °C	Volume flow m^3/h	**Order No.**
Fan mm	A mm	B mm							
80	79.5	71.5	Ball bearing	115/60	11.0	42	-40 bis +95	57	**3686.645**
80	79.5	71.5	Ball bearing	230/50	12.0	37	-40 bis +90	48	**3686.646**
120	119.0	104.8	Ball bearing	115/60	18.0	51	-40 bis +90	180	**3686.643**
120	119.0	104.8	Ball bearing	230/50	19.0	47	-40 bis +85	160	**3686.644**

Connection cable

Cable length mm	Packs of	**Order No.**
610	1	**3686.658**
1000	1	**3686.659**



DC fans

Optionally available with temperature-dependent speed control via additional temperature sensor.

Supply includes

1 fan with
connection cable (310 mm)

+ Also required

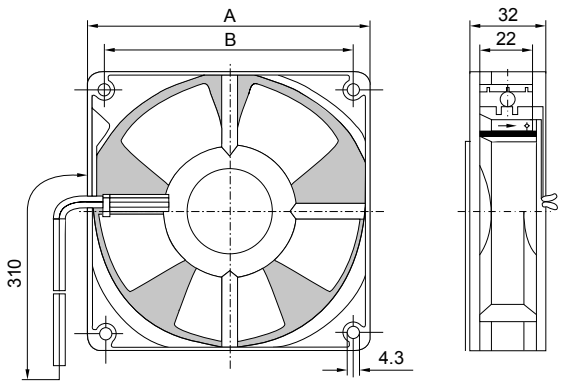
Assembly screws
packs of 1 set, order no. 3685.197
see page 203
Temperature sensor for DC fans with speed control
see page 192

DC fan with speed control and alarm signal

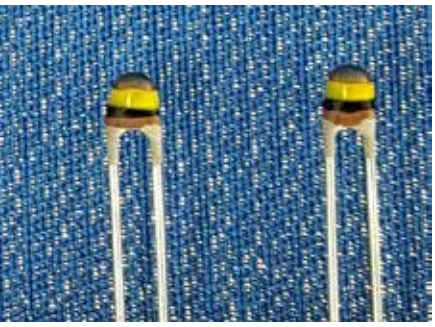
Dimensions			Bearing	Rated voltage V (DC)	Voltage range Volt	Power Watt	Noise level dB(A)	Tempera-ture range °C	Volume flow m^3/h	**Order No.**
Fan mm	A mm	B mm								
80	79.5	71.5	Ball bearing	12	8,0 - 14,0	2,2	34	-20 bis +65	48	**3686.649**
80	79.5	71.5	Ball bearing	24	21,6 - 26,4	2,4	36	-20 bis +65	54	**3686.650**
120	119.0	104.8	Ball bearing	12	8,0 - 13,2	5,5	45	-20 bis +65	170	**3686.647**
120	119.0	104.8	Ball bearing	24	21,0 - 27,0	5,4	45	-20 bis +65	170	**3686.648**

DC fan without speed control and without alarm signal

Dimensions			Bearing	Rated voltage V (DC)	Voltage range Volt	Power Watt	Noise level dB(A)	Tempera-ture range °C	Volume flow m^3/h	**Order No.**
Fan mm	A mm	B mm								
80	80.0	71.5	Ball bearing	12	6,0 - 15,0	1,8	34	-20 bis +75	48	**3687.612**
80	80.0	71.5	Ball bearing	24	12,0 - 28,0	2,1	34	-20 bis +75	48	**3687.613**
120	119.0	104.8	Ball bearing	12	6,0 - 15,0	2,6	39	-20 bis +75	140	**3687.614**
120	119.0	104.8	Ball bearing	24	12,0 - 28,0	2,6	39	-20 bis +75	140	**3687.615**

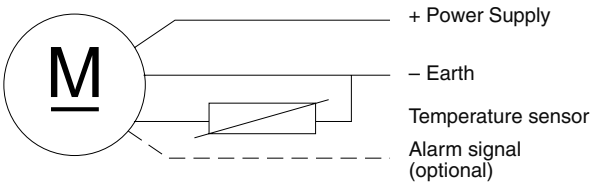


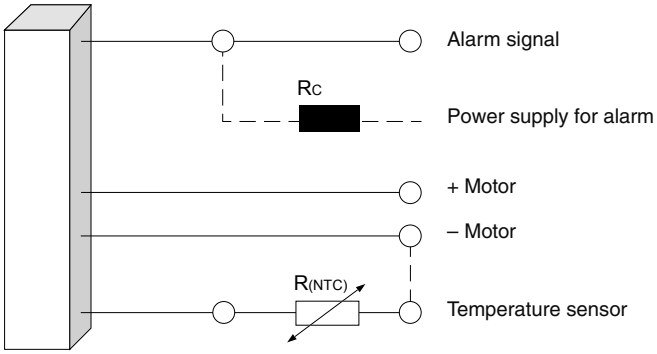
Temperature sensor



For DC fans 12/24 V with speed control

Voltage	Packs of	**Order No.**
12 V/24 V (DC)	1	**3686.657**





Finger guard

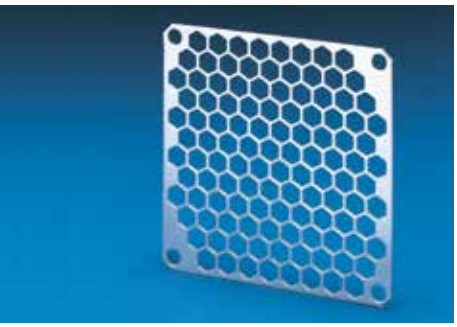
For AC fans and DC fans

Material
Polyamide
Self-extinguishing to UL 94-V0

Colour
Black

For fans mm	Packs of	**Order No.**
80	1	**3686.656**
120	1	**3686.655**

EMC shielding plate

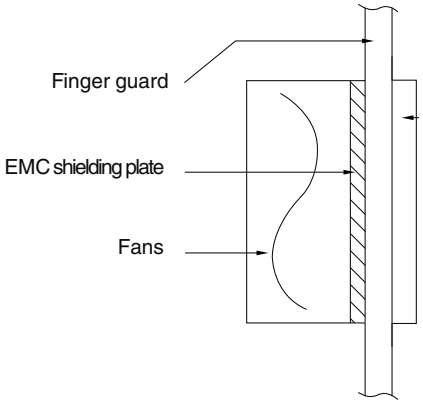


For AC fans and DC fans

Material

1 mm aluminium
Clear-chromated

For fans mm	Packs of	**Order No.**
80	1	**3686.359**
120	1	**3686.329**



Air block panel for unused slots

To conceal unused slots and prevent unwanted airflow. The air block panel simply snaps into position on the guide rails.

Material

Polycarbonate
Self-extinguishing to UL 94-V0

Colour

Blue

Note

Not suitable for use in conjunction with guide rails with ½ HP offset.

For keyable guide rail mm	Packs of	**Order No.**
160	1	**3687.924**

POWER SUPPLIES

Maximum performance with efficient power supply

HEITEC offers an extensive range of power supply units in various designs:
The range includes 482.6 mm (19″) compatible, Open Frame and PS/2 variants to supply DC voltage to controllers, systems and plant in many different areas.

- Open Frame (VME)
- 3 U, 6 U (VME), plug-in
- 3 U, 6 U (CPCI), plug-in
- PS/2 (AT/ATX)
- UPS

Open Frame (VME)

E.g. 400 Watt
Order no. see page 196

Applications

Power supplies for VMEbus systems

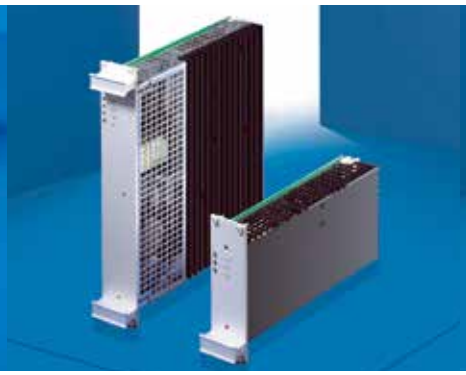
Technical specifications

- 400 Watt
- Open frame version
- For installing on mounting base or rear panel
- Built-in fans
- Wide-range input
- Aluminium case
- 3 outputs

Benefits at a glance

- Small size with high power output
- All-purpose model
- Approvals: EN 60 950, UL 1950, IEC 950 and CSA 22.2 No. 234
- Compact design

3 U, 6 U, plug-in (VME)



E.g. 130, 160, 270 Watt
Order no. see page 197

Applications

Plug-in power supply for VMEbus systems with integrated VMEbus signalling

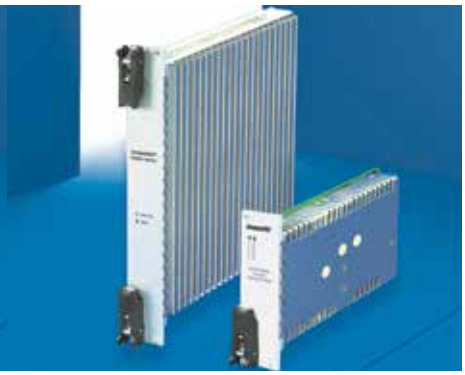
Technical specifications

- 130, 160, 270 Watt
- 482.6 mm (19″) rack-mount unit to IEC 60 297-3
- Installation depth 160 mm
- Mounted by guide rails
- Connection via connectors H15, IEC 60 603-2
- 3 outputs

Benefits at a glance

- 482.6 mm (19″) compatible
- Easily exchangeable
- Approvals: EN 60 950, VDE 0805 and IEC 950

3 U, 6 U, plug-in (CPCI)



Z.B. 250, 350 Watt
Order no. see page 198

Applications

Plug-in power supply for CompactPCI systems

Technical specifications

- 250, 350 Watt
- 482.6 mm (19″) rack-mount unit to IEC 60 297-3
- Installation depth 160 mm
- Mounted by guide rails
- Connection via connectors type Positronic, 47-pole PICMG 2.9
- 4 outputs

Benefits at a glance

- 482.6 mm (19″) compatible
- Easily exchangeable
- Approvals: EN 60 950 A1-A4, CSA 22.2, UL 1950, CE
- Conforms to PICMG specification

PS/2 (AT/ATX)

E.g. 250, 300, 400 Watt
Order no. see page 199

Applications

Power supply unit for ATX- and CPCI systems

Technical specifications

- 250, 300, 400 Watt
- Open frame version
- For installing on mounting base or rear panel
- Built-in fan
- Sheet steel case
- PFC active/passive

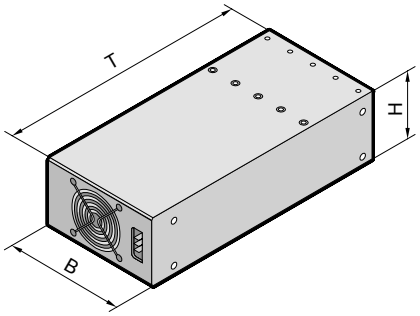
Benefits at a glance

- All-purpose model
- Approvals: CSA

Redundant

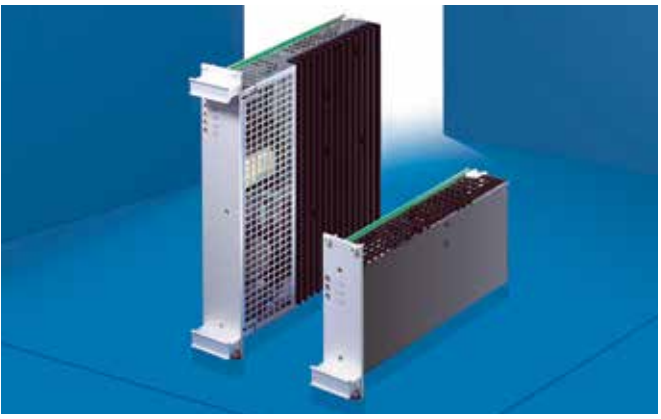
E.g. 2 x 300 Watt
Redundant power supply units on request

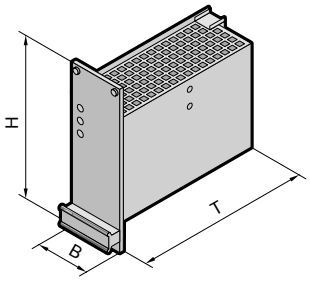
HeiPac power supplies – Open Frame



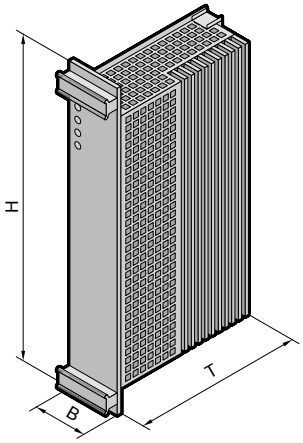
	400 W		
Height (H) mm	63.0		
Width (B) mm	126.5		
Depth (T) mm	279.0		
Order No.	**3686.629**		
Output sizes			
Output	1	2	3
Output voltage	5 V	+ 12 V	- 12 V
Output current	85 A	8 A	
Maximum power output	400 W		
Setting range of output voltage	2.5 V - 5.7 V (85 A)	5 - 16 V	
Load compensation (load variation 0 - 100 %)	< 0.5 %		
Line regulation ($U_{e\,min.}$ - $U_{e\,max.}$)	< 25 mV	< 60 mV	
Base load	-		
Infeed compensation (Sense)	0,5 V	-	
Residual ripple (max.)	1 %	2 %	
Temperature coefficient	0.03 % / °C		
Overvoltage protection	yes		
Overload protection[1)]	Thermal current limiting		
Overload protection, thermal	-		
Overload protection, electronic	-		
Input variables			
Mains voltage U_e	90 - 264 V AC		
Mains frequency	47 - 63 Hz		
Power factor	> 0.95		
Startup current limitation	< 50 A		
Efficiency (typ.)	75 %		

HeiPac power supplies for VME, plug-in





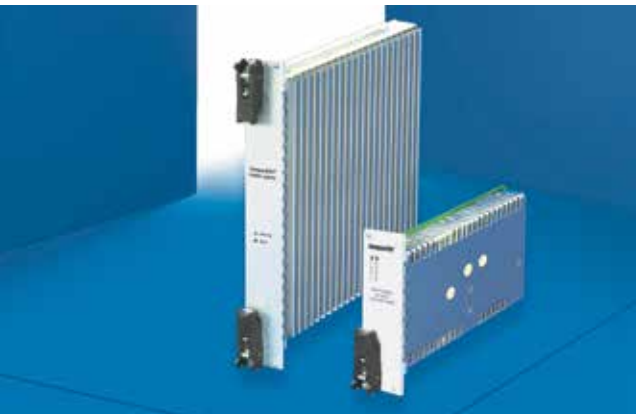
1

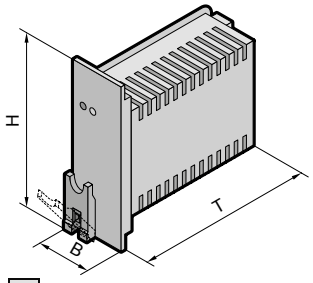


2

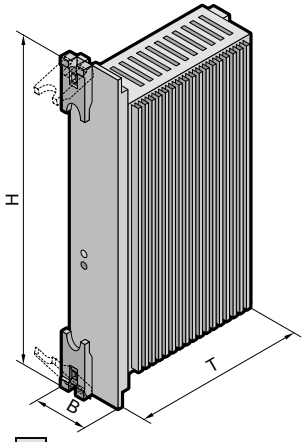
	1			2		
Height (H)	3 U			6 U		
Width (B)	10 HP			8 HP		12 HP
Depth (T) mm	170.0			170.0		170.0
Order No. power supply	**3686.469**			**3686.471**		**3685.306**
Order No. front panel	**3685.304**			**3686.472**		**3685.307**
Output sizes						
Output	1	2	3	1	2	3
Output voltage	5 V	+ 12 V	- 12 V	5 V	+ 12 V	- 12 V
Output current 3 U, 10 HP/6 U, 8 HP	14 A	5 A	2 A	20 A	5 A	2 A
Output current 3 U, 12 HP/6 U, 12 HP	-	-	-	35 A	6 A	2 A
Maximum power output	130 W			160 W (8 HP), 270 W (12 HP)		
Setting range of output voltage	± 5 %	-		± 5 %	-	
Load compensation (load variation 0 - 100 %)	< 0.1 %	< 1 %		< 0.1 %	< 1 %	
Line regulation ($U_{e\,min.}$ - $U_{e\,max.}$)	< 0.2 %			< 0.2 %		
Base load	-					
Compensation time	< 1 ms at I_a 20 - 80 %					
Infeed compensation (Sense)	± 0.25 V	-		± 0.25 V	-	
Residual ripple (max.)	< 35 mV		< 20 mV	< 45 mVss	< 30 mVss	< 15 mVss
Interference voltage	50 mVss typ. (bandwidth 20 MHz)			< 80 mVss typ. (sum of all interference parts)		
Temperature coefficient	0.025 % / K					
Overvoltage protection (automatically recovery)	125 % ± 5 %	125 % ± 10 %		125 % ± 5 %	120 % ± 10 %	
Overload protection	typ. 110 % $I_{a\,rated}$, U/I characteristic curve acting on all outputs, outputs short circuit-resistant					
Overtemperature protection	Cuts out if the internal temperature is too high, cuts in again with hysteresis					
AC-Fail, SYSRESET	TTL signals with 48 mA drive current, active low					
ON delay	< 0.5 s			< 0.5 s		
Ramp-up time	≤ 50 ms			≤ 50 ms		
Input variables						
Mains voltage U_e	AC 187 - 264 V, 50/60 Hz with automatic changeover to AC 99 - 138 V			AC 187 - 264 V, 50/60 Hz with automatic changeover to AC 99 - 138 V		
Mains frequency	50 - 60 Hz					
Efficiency (typ.)	80 %					
Startup current limitation	< 10 As typ. - in cold state < 15 As typ. - in warm state			< 25 As typ. - in cold state < 35 As typ. - in warm state		
Fuse	4 AT			8 AT		

HeiPac power supplies for CPCI, plug-in





1



2

	1						2			
Height (H)	3 U						6 U			
Width (B)	8 HP						8 HP			
Depth (T) mm	170.0						170.0			
Order No. **AC power supply**			**3688.695**				**3688.528**			
Stromversorgung DC **DC power supply**										
Output sizes										
Output			U_1	U_2	U_3	U_4	U_1	U_2	U_3	U_4
Output voltage			5 V	3,3 V	12 V	-12 V	5 V	3,3 V	12 V	-12 V
Output current			33 A	33 A	6 A	1 A	40 A	40 A	9 A	1 A
Outpu current U_1 and U_2			55 A max.				80 A max.			
Maximum power output			250 W				350 W			
Base load (only U_1)			5 %	-			5 %			
Load compensation (dyn.)	< 3 % at 25 % load variation (1 A/µs) 1 % after 300 µs									
Line regulation	< ± 1 % (90s - 264 V AC)						< ± 1 % (90 -264 V AC) U_1, U_2, U_3			
Infeed compensation (Sense)			0.25 V	0.25 V	0.25 V	-	0.25 V	0.25 V	0.25 V	-
Residual ripple (PARD)	50 mVss oder 1 % (bandwidth 20 MHz)									
Temperature coefficient	< ± 0.02 % / K (0° - 50 °C) after 20 min. start-up time									
Overvoltage protection	125 % ± 10 %, reset by switching on again									
Overload protection	Current limiting of all outputs, automatic return at normal load									
Overtemperature protection	At overtemperature switches off all outputs, automatic return at normal temperature									
Input variables										
Mains voltage or DC input	90 - 264 V AC, 47 - 63 Hz, 3.6 A max.						90 - 264 V AC, 47 - 63 Hz, 7 A			
Power Factor	0.99 bei AC 115 V, full load									
Starting current	15 As (115 V AC) cold start, 30 As (230 V AC) cold start									
Fuse	4 A, 250 V AC						10 A, 250 V AC			
Signals and control cables										
Power Fail (Pin 42)	In the event of a mains failure > 4 ms before output voltages exit control range. Power fail also triggered by failure or under-voltage of V1 or V2 (3 U) or any output (6 U)									
DEG (Pin 38)	In case of overtemperature						-			
Remote Enable	Use logic „0“ (TTL level)									
Remote inhibit	Use logic „1“ (TTL level)									
LED displays, two-colour	Green: “Power ON” and output voltages present Red: Error									

AT/ATX power supply

For ATX
- PS/2 model
- Built-in fan
- Short circuit-protected
- CSA-approved
- On/off switch
- PFC active/passive
- W x H x D = 86 x 150 x 140 mm
- 47 – 63 Hz

Supply includes
Connection cable

Design	Power	Packs of	**Order No.**
AT	300 W	1	**3688.118**
ATX	400 W	1	**9916.222**

Technical specifications

3688.118	**9916.222**
300 W max. / 230 V AC	400 W max. / 90 - 240 V AC
5.0 V / 30.0 A	3.3 V / 20.0 A
- 5.0 V / 0.5 A	5.0 V / 20.0 A
12.0 V / 12.0 A	- 5.0 V / 0.3 A
- 12.0 V / 0.5 A	12.0 V / 32 A
PFC passive	- 12.0 V / 32 A
	+ 5 VSB / 2.5 A
	3.3 V u. 5 V plus max. 150 W
	3.3 V, 5 V & 12 V plus max. 385 W
	PFC active

ATX power supply 1 U

For ATX
- 2 built-in fans
- Short circuit-protected
- On/off switch
- PFC active
- W x H x D = 85 x 40 x 230 mm

Supply includes
Connection cable

Design	Packs of	**Order No.**
ATX	1	**3688.130**

Technical specifications

3688.130
250 W max. / 90 - 264 V AC
47 - 63 Hz
3.3 V / 16.0 A
5.0 V / 18.0 A
- 5.0 V / 0.3 A
12 V / 18 A
- 12 V / 0,8 A
+ 5 VSB / 2.5 A
+ 3.3 V u. 5 V plus max. 120 W

Front panel

For ATX power supply
Front panel with cut-outs for mounting the ATX power supply units in the subrack.

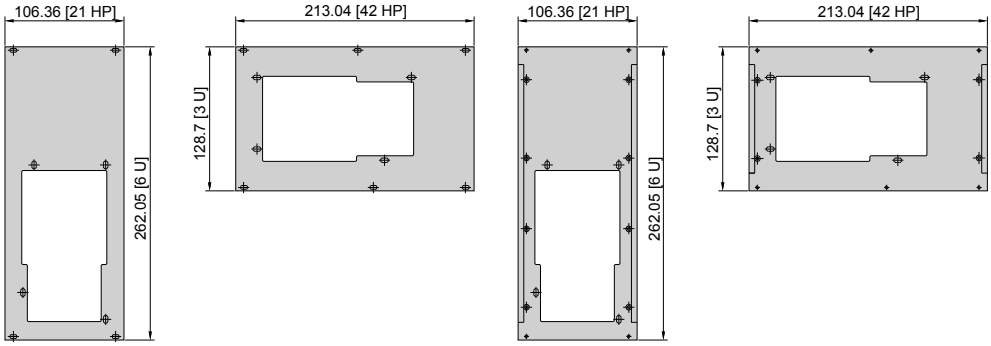
Material

Aluminium
Clear-chromated

Supply includes

Assembly parts
EMC gaskets (with EMC version)

U	HP	**Order No.**	
		EMC	Non-EMC
3	42	**3685.331**	**3685.328**
6	21	**3685.332**	**3685.329**



Mounting base for power supplies

For ATX
- Attaches to the subrack side panel

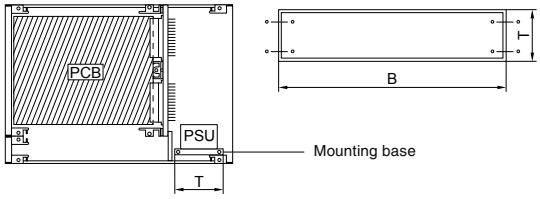
Material

2 mm Aluminium
Clear-chromated

Supply includes

Assembly parts

Width (B) mm	Depth (T) mm	**Order No.**
431.8	100	**3684.323**
431.8	130	**3684.324**



Female connector type M24/8

IEC 60 603-2
- Female connector for plug-in CPCI power supplies
- Quality level 2 to IEC 60 603-2 (DIN 41 612)
- Optional 20 A high current contacts for straight conductor connection either crimp or solder
- Volume resistance max. 1.5 mΩ
- Max. rated current: 40 A

Supply includes

5 connection sockets (crimping or solderring method)

Type of connection	Packs of	**Order No.**
Soldering	1 set	**3687.665**
Crimping	1 set	**3687.666**

+ Also required

For mounting in the subrack, a Z rail is required
see page 144

Assembly parts

For the attachment of	Description	Dimensions	Order No.	Packs of
Front panels to unit side panels	Oval csk-screw ISO 7047-4.8-Z-A2K	M3 x 8	**3606.550**	100
Rear panels to box-type plug-in units	Panhead screw ISO 7045-4.8-Z-A2K	M3 x 8	**3606.560**	100
PCB holders (plastic) to front panels, top	Oval csk-screw ISO 7047-4.8-Z-A2K	M2.5 x 10	**3606.610**	100
- Horizontal rails to side panels - Divider panels to horizontal rails - Horizontal rails to vertical supports	Panhead self-locking screw similar to DIN ISO 7045-8.8-Z-A2K	M4 x 12	**3654.300**	100
Front/rear horizontal rails for side panels (HeiPac EASY)	Drill screw, T20, self-locking	M4 x 16	**3634.430**	100
Centre horizontal rails for side panels (HeiPac EASY)	Fastening screw, T20, self-locking	M4 x 12	**3634.435**	100
- PCBs to PCB holders (die-cast for 3 U), top - PCBs to extractor handles with 6 U	Panhead posidrive screw ISO 7045-4.8-Z-A2K	M2.5 x 8	**3654.320**	100
- PCB holder (plastic) to type V/VI handles, bottom - PCBs to PCB holders (plastic) - Backplanes to threaded inserts	Panhead posidrive screw ISO 7045-4.8-Z-A2K	M2.5 x 10	**3654.330**	100
- Connectors to Z rails - Z rails to horizontal rails - Type V/VI handles to partial front panels, bottom right for 5 HP - Aluminium guide rails to horizontal rails - Mezzanine front panels	Panhead posidrive screw ISO 7045-4.8-Z-A2K	M2.5 x 6	**3654.340**	100
Aluminium guide rails to horizontal rails (fastening of square nuts)	Retaining cage	M2.5	**9901.417**	100
Handle type V (plastic) to front panels and box-type plug-in units	Mounting kit for type V handle (plastic): Cover black Cover grey Hex nut Screw Screw Square nut DIN 562-04-A2K	 M2.5 M2.5 x 16 M2.5 x 12 M2.5	**3687.519**	1 set
Connectors to PCBs	Panhead posidrive screw ISO 7045-4.8-Z-A2K	M2.5 x 12	**3654.350**	100
Guide rails (plastic) to horizontal rails	Screw for plastic WN 1413	M2.2 x 6	**3654.360**	100
- Flat front panels to handles type V, VI - Aluminium guide rails to horizontal rails	Square nut DIN 562-A2K	M2.5	**3654.370**	100
- Flat front panels to horizontal rails - Trim frame to conceal the front sections of the horizontal mounting kit	Captive screws (cheese-head) and plastic collars	M2.5 x 11	**3658.160**	100 sets
Flat front panels	Plastic collars		**3687.021**	100
PCB to type III handle	Screw for plastic WN 1412	3.0 x 8	**3658.190**	100
- PCBs to PCB holders (plastic) - PCB holders to front panels, top	Hex nut ISO 4032-8	M2.5	**3658.210**	100
- Backplanes to threaded inserts - Air partitions to horizontal rails	Mounting kit for backplanes: Panhead posidrive screw ISO 7045-4.8-Z-A2K Washer PE, natural DIN 125	 M2.5 x 6 2.7	**3684.019**	100
- Covers to mounting blocks - EMC contact strips	Flat csk-screw ISO 7046-1-4.8-Z-A2K	M3 x 6	**3684.233**	100
Covers to side panels (Heipac Vario)	Mounting block		**3684.234**	10
Type V/VI handle to front panels	Bracket		**3684.435**	100
Ground contact to keyable guide rails	Fastening screw for ground contact	3.5 x 12	**3684.109**	50
Female connector to PCB attachment	Pop rivet DIN 7340-B-CuZn	2.5 x 0,3 x 10	**3684.482**	100

Assembly parts

For the attachment of	Description	Dimensions	Order No.	Packs of
Fans to fan mounting plate	Mounting kit for fans: Flat csk-screw ISO 7046-1-4.8-Z-A2K Hex nut ISO 4032-8 Serrated washer DIN 6798-A-Fst-A2K	 M4 x 12 M4 4.3	**3685.197**	1 set
Covers to side panels	Mounting kit for covers: Mounting block Flat csk-screw ISO 7046-1-4.8-Z-A2K	 M3 x 6	**3685.256**	24 sets
PCB holders (die-cast) to front panels, top	Oval csk-screw DIN ISO 7047-4.8-Z-A2K	M2.5 x 8	**3685.282**	100
- Covers box-type plug-in units type I/II - Contact/spring sections for 3-part front panels	Flat csk-screw ISO 7046-1-4.8-Z-A2K	M2.5 x 5	**3685.289**	100
- Handles on front panels for box type plug-in units - Front panels to hinge strip	Flat csk-screw ISO 7046-1-4.8-Z-A2K	M2.5 x 6	**3685.290**	100
Holder (horizontal assembly kit) to horizontal rail	Flat csk-screw similar to DIN ISO 7046-1-4.8-Z-A2K	M2.5 x 5	**3686.916**	100
Holder (horizontal assembly kit) to horizontal rail	Flat csk-screw similar to DIN ISO 7046-1-4.8-Z-A2K	M2.5 x 8	**3686.917**	100
Contact and spring sections on 3-part front panels without countersink	Panhead posidrive screw DIN ISO 7046-4.8-Z-A2K	M2.5 x 5	**3686.924**	100
Set back flanges to side panels	Mounting kit for set back flanges: Panhead self-locking screw similar to DIN ISO 7045-8.8-Z-A2K Hex nut ISO 4032-8 Washer	 M4 x 8 M4 4.3	**3687.015**	4 sets
Fastening the threaded inserts in horizontal rails	Grub screw ISO 7434-14H	M2.5 x 8	**3687.020**	100
- EMC front panels to horizontal rails - EMC trim frame to conceal the front sections of the horizontal mounting kit	Centering screw, slotted	M2.5 x 11	**3687.050**	100
EMC front panels to horizontal rails	Centering screw, posidrive	M2.5 x 11	**3687.051**	100
EMC front panels to horizontal rails	Centering screw, hex screws	M2.5 x 11	**3688.709**	100
Subracks into racks	Panhead screw, posidrive ISO ISO7045-M6x16-4.8-Z-A2K Washer plastic M6	M6 x 16	**2089.000**	100
Subracks into racks	Panhead screw, Torx drive ISO 14583 M6x16-4.8-A2K Washer plastic M6	M6 x 16	**7094.600**	100
Subracks at the profiles of racks	Cage nut M6 0,8-2,0 with electrical contact	M6	**2094.200**	50
Subracks at the profiles of racks	Cage nut M6 0,8-2,0 without electrical contact	M6	**2092.200**	50
Front panels and rear panels to horizontal rails	Collar screw, cheese-head, slotted	M2.5 x 11	**3685.097**	100
Type V/VI handles (aluminium) to front panels	Mounting kit for type V/VI handles: Panhead posidrive screw ISO 7045-4.8-Z-A2K Bracket Square nut DIN 562-11H-A2K	 M2.5 x 6 M2.5	**3687.146**	1 set

INDUSTRIAL PC

Standard solutions and individual assembly –
from plain enclosure to fully integrated industrial PC

We offer a multitude of Industrial PCs – be it a 19˝ rack-mount system or solutions for direct installation on mounting plates.

The cases for Industrial PCs shown in this chapter only represent a small sample of HEITEC's wide range of services in this sector. HEITEC offers the solution for Industrial PCs, tailored to your needs, whether it is a non-standard enclosure format or fully integrated Industrial PC system including mother-board, hard disk and input-/output boards.
Please contact us!

ATX HeiPac, aluminium

The top-of-the-range model with outstanding maintenance-friendliness: The inner housing can be pulled out like a drawer.

ATX 4 U, stainless steel

Lockable front plate to prevent unau-thorised access.

ATX with front adaptors

19˝ version for mounting in the enclosure

AT/ATX (Vario) Economy with frontdoor

Easy de-mounting of disk drive module for external assembly.

OVERVIEW HEITEC INDUSTRIAL PC

ATX HeiPac

4 U, aluminium
Order no. see page 208

Applications

- 19″ cabinets and enclosures
- Industrial PCs for ATX-, Mini-ATX or Micro ATX boards
- Office- and industrial sector

Technical Specifications

- Enclosure of aluminium, clear-chromated
- Removable inner housing
- Fully assembled and pre-wired
- Including fan and PSU
- EMC prepared
- Electronics for automatic restart following a mains failure

Benefits at a glance

Top-of-the-range aluminium model for installation of an Industrial PC in ATX format. Advantage: outstanding maintenance friendliness. The inner housing can be pulled out like a drawer and thus enables optimum access to all components.

ATX

4 U, stainless steel
Order no. see page 209

Applications

- 19″ cabinets and enclosures
- Server enclosures
- Industrial PCs for ATX-, Mini-ATX or Micro ATX boards
- Office- and industrial sector

Technical Specifications

- Enclosure of stainless steel, zinc-plated
- Suitable for mounting on slide rails
- Fully assembled and pre-wired
- Including fan and PSU
- EMC prepared
- Lockable front plate

Benefits at a glance

The neutral design of this system offers a multitude of application areas in the office- or industrial sector. The lockable front plate prevents unauthorised access.

ATX Economy with front door

4 U, stainless steel
Order no. see page 210

Applications

- 19″ cabinets and enclosures
- Industrial PCs for ATX-, Mini-ATX or Micro ATX boards
- Industrial sector

Technical Specifications

- Enclosure of stainless steel, zinc-plated
- Hinged, lockable front door
- Suitable for mounting on telescopic slides
- EMC prepared
- Fully assembled and pre-wired
- Including fan and PSU

Benefits at a glance

This solid construction of stainless steel is suitable for extreme industrial environments with high requirements concerning ruggedness and safety.
Two versions: ATX Economy, fully assembled and pre-wired or AT/ATX Vario Economy as basic case for individual assembly – for example AT- or ATX applications.

Modular System AT/ATX (Vario) Economy

4 U, stainless steel
Order no. see page 211

Applications

- 19″ cabinets and enclosures
- Industrial PCs for ATX-, Mini-ATX or Micro ATX boards or AT-/Baby-AT boards
- Industrial sector

Technical Specifications

- Enclosure of stainless steel, zinc-plated
- Hinged, lockable front door
- Suitable for mounting on telescopic slides
- EMC prepared
- Fully assembled and pre-wired including fan and PSU
- Individually upgradeable

Benefits at a glance

The modular principle of AT/ATX Vario Economy allows various installations for individual requirements. The basic case may be fitted for both AT- and ATX applications with the appropriate selection of rear panels, power supply units and front panels. For self- assembly or on request fully assembled and pre-wired.

ATX with front adaptors

4 U
Order no. see page 212

Applications

- 19″ cabinets and enclosures
- Industrial PCs for ATX-, Mini-ATX or Micro ATX boards
- Industrial sector

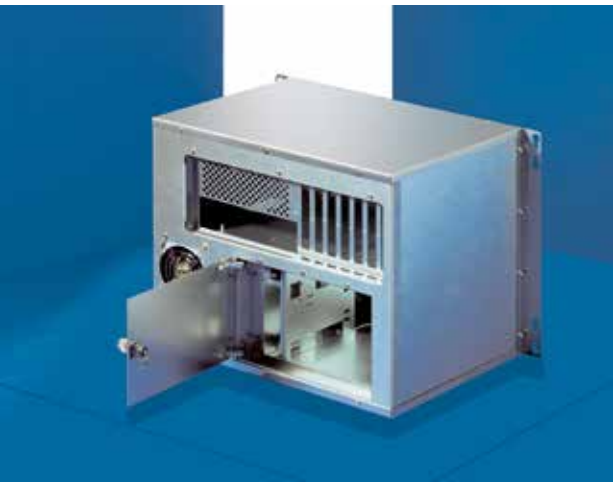
Technical Specifications

- Enclosure of stainless steel, zinc-plated
- For installation in 19″ cabinets
- Suitable for mounting on telescopic slides or on slide rails
- EMC prepared
- Fully assembled and pre-wired
- Including fan and PSU

Benefits at a glance

Flexibility in all application sectors: for example little space, a required connection to other systems or for front access of I/O connections. The 19″ version is suitable for installation in cabinets.

ATX with front adaptors for wall-mounting



Width x Height: 380 x 330 mm
Order no. see page 213

Applications

- 19″ cabinets and enclosures
- Installation on mounting plates
- Industrial PCs for ATX-, Mini-ATX or Micro ATX boards
- Industrial sector

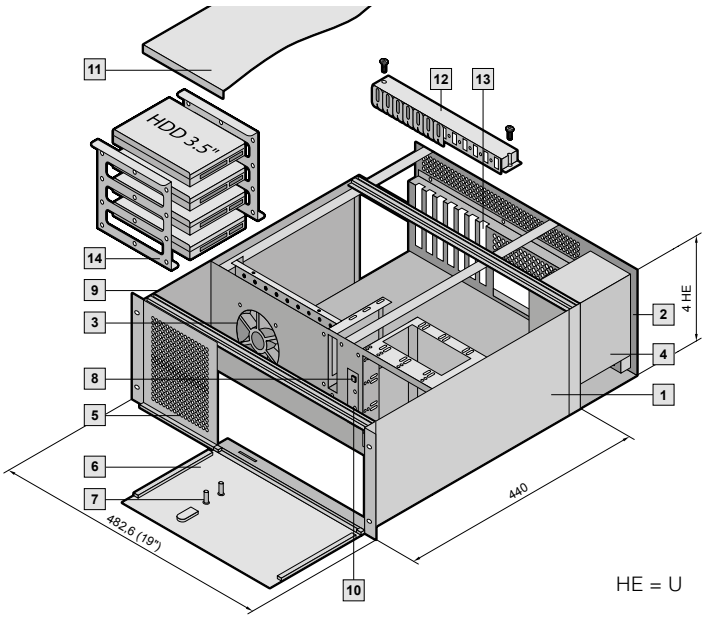
Technical Specifications

- Enclosure of stainless steel, zinc-plated
- For installation on mounting plates
- Suitable for mounting on telescopic slides or on slide rails
- Fully assembled and pre-wired
- Including fan and PSU

Benefits at a glance

Flexibility in all application sectors: for example little space, a required connection to other systems or for front access of I/O-connections. Flanges on the rear panel for installation on mounting plates.

ATX HeiPac 4 U, Aluminium



Technical specifications

482.6 mm (19") rack-mount system for the installation of ATX/Mini-ATX or Micro-ATX boards and 3 x 5 ¼" and 1 x 3 ½" drives.
Width: 482.6 mm (19")
Height 4 U (177.0 mm)
Total depth: 440 mm
EMC prepared

Material/surface

Side panels, front panels: Aluminium, clear-chromated
Covers: 1.0 mm aluminium, clear-chromated
PC internal cassette: Sheet steel, zinc-plated, passivated

Standards

Complies with IEC 60 297-3 and ATX-specification 2.01

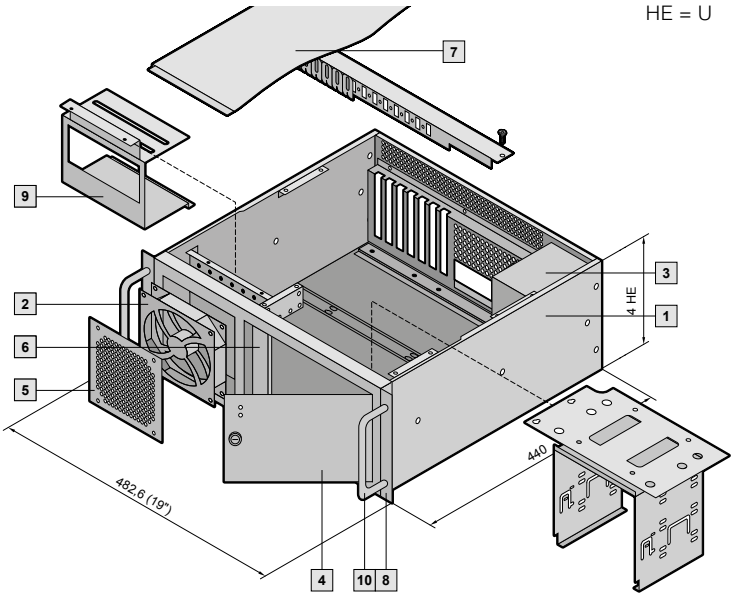
Supply includes

- 1 Rack-mount system 4 U including drive holder
- 2 PC cassette
- 3 1 x 120 mm fan with filter
- 4 ATX power pack 350 W
- 5 Front door, horizontally hinged
- 6 Front door, horizontally hinged, lockable
- 7 LED displays
- 8 Reset button
- 9 EMC gaskets, all round
- 10 ON/OFF switch with electronics for automatic restart following a mains failure (activation/deactivation of the electronics via jumper)
- 11 Cover

	Packs of		Page
U		**4**	
Width mm		482,6 (19")	
Height mm		177.0	
Depth mm		440.0	
Model No. basic system fully assembled	1	**3659.000**	
Accessories			
12 Card retainer	7	**3659.010**	215
Mounting bar for card retainer	1	**3659.090**	215
13 Unused slot cover	5	**3659.030**	214
Cover for 5¼" drive space	1	**3659.050**	214
14 Drive support	1 set	**3659.060**	215

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

ATX 4 U, sheet steel



Technical specifications

482.6 mm (19‘‘) rack-mount system for the installation of ATX/Mini-ATX or Micro-ATX boards and 3 x 5 ¼‘‘ and 1 x 3 ½‘‘ drives.
Width: 482.6 mm (19˝)
Height 4 U (177.0 mm)
Side panels: 174.0 mm
Total depth: 442.5 mm
Suitable for mounting on slide rails.

Material/surface

Case, covers, front panels: 1.2 mm sheet steel, spray finished in RAL 7035, unpainted contact points

Standards

Complies with IEC 60 297-3 and ATX-specification 2.01

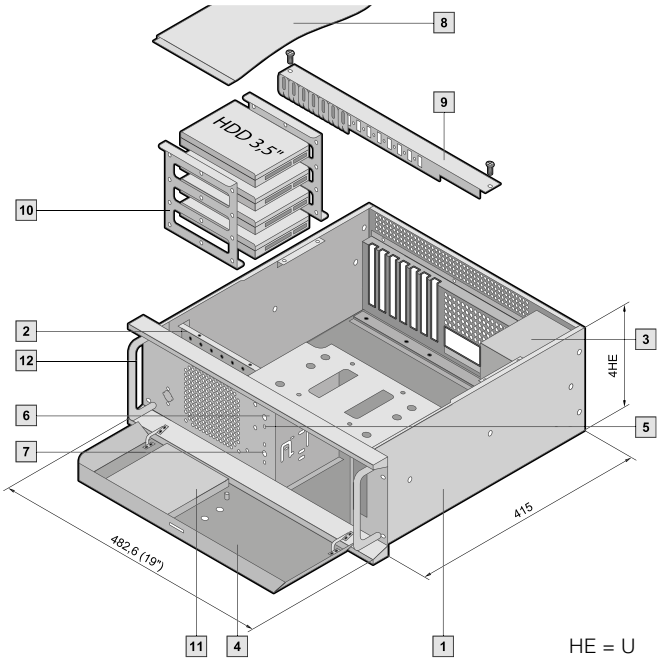
Supply includes

1. Rack-mount system 4 U including drive holder
2. 1 x 120 mm fan and filter mat, exchangeable from the front
3. ATX power pack 350 W
4. Front door, vertically hinged, lockable
5. Front panel with ventilation holes and filter mat
6. LED displays, speakers Reset switch, on/off switch
7. Cover
8. Two 19"flanges
9. Drive holder for 4 x 3½" hard drives

	Packs of		Page
U		**4**	
Width mm		482,6 (19")	
Height of flanges/side panels mm		177.0/174.0	
Depth mm		442.5/440.0	
Model No. basic system fully assembled	1	**3659.900**	
Accessories			
Card retainer	7	**3659.010**	215
Mounting bar for card retainer	1	**3659.090**	215
Unused slot cover	5	**3659.030**	214
Cover for 5¼" drive space	1	**3659.110**	214
Cover for 3½" drive space"	1	**3659.410**	214
Telescopic slides for 600 mm enclosure depth	1 set	**3659.180**	214
Telescopic slides for 800 mm enclosure depth	1 set	**3659.190**	214
10 Front handles for ATX 4 U	2	**3659.240**	215

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

ATX Economy with front door, 4 U, sheet steel



Technical specifications

482.6 mm (19‘‘) rack-mount system for the installation of ATX/Mini-ATX or Micro-ATX boards and 3 x 5 ¼‘‘ and 1 x 3 ½‘‘ drives.
Width: 482.6 mm (19˝)
Height 4 U (177.0 mm)
Total depth: 430 mm
EMC prepared

Material/surface

Case, cover: 1.2 mm sheet steel, zinc plated, passivated front door 1.2 mm, sheet steel spray finished in RAL9035, unpainted contact points

Standards

Complies with IEC 60 297-3 and ATX-specification 2.01

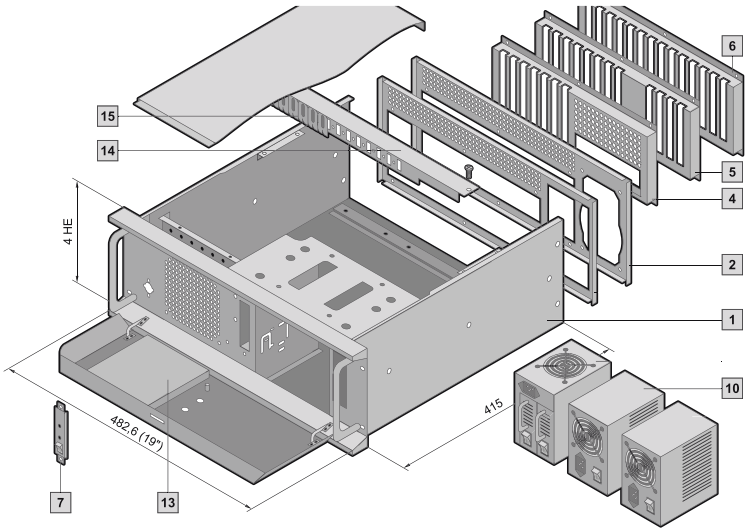
Supply includes

1. Rack-mount system 4 U including drive holder
2. 1 x 120 mm fan with filter mat
3. ATX power pack 350 W
4. Front door, horizontally, hinged, lockable
5. LED displays, speakers
6. Reset button
7. On/off switch
8. Cover

	Packs of		Page
U		**4**	
Width mm		482.6 (19")	
Height mm		177.0/174.0	
Depth mm		430.0/415.0	
Model No. basic system fully assembled	1	**3659.100**	
Accessories			
Card retainer	7	**3659.010**	215
Mounting bar for card retainer	1	**3659.090**	215
Unused slot cover	5	**3659.030**	214
Cover for 5¼" drive space	1	**3659.110**	214
Cover for 3½" drive space	1	**3659.410**	214
10 Drive holder	1 set	**3659.230**	214
11 Spare filter mat	1	**3659.120**	-
Telescopic slides for 600 mm enclosure depth	1 set	**3659.180**	214
Telescopic slides for 800 mm enclosure depth	1 set	**3659.190**	214
12 Front handles for ATX 4 U	2	**3659.240**	215

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

Modular system AT/ATX Vario Economy with front door, 4 U, sheet steel



HE = U

The modular principle of AT/ATX Vario Economy allows installation to accommodate individual requirements. The basic case may be fitted for both AT and ATX applications with the appropriate selection of rear panels, power packs and front trim panels. For self-assembly, or on request fully assembled and wired.

Technical specifications

482.6 mm (19") rack-mount system for the installation of ATX/Mini-ATX. Micro-ATX or Baby AT boards and 3 x 5¼" and 1 x 3½" drives.
Width: 482.6 mm (19")
Height: 4 U (177.0/174.0 mm)
Total depth: 430 mm

Note

Rear panel, front trim panel and power pack should be ordered separately (for self-assembly).

Material/surface finish

Case, cover: 1.2 mm sheet steel, zinc-plated, passivated
Front door: 1.2 mm sheet steel, spray-finished in RAL 7035, unpainted contact points

Standards

Complies with IEC 60 297-3 and ATX specification 2.01

Special designs available on request

Basic enclosure supply includes

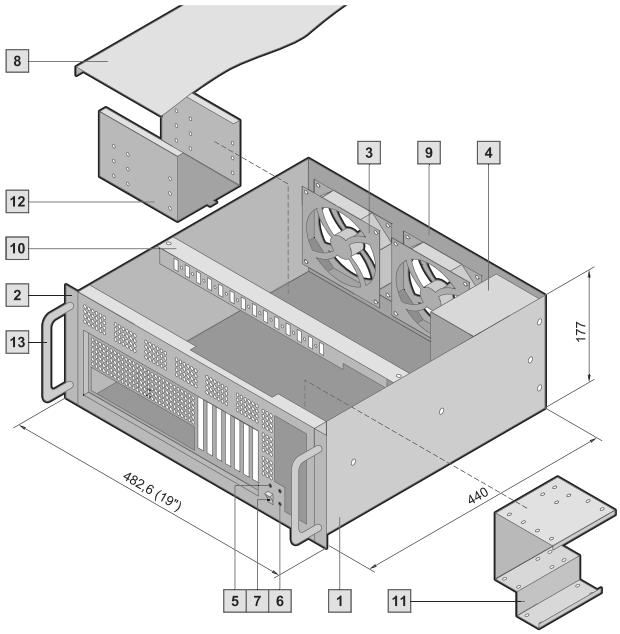
1 Case 4 U, 430 mm deep including assembly parts, covers, drive holder, fan, horizontally hinged front door, and air filter.

	Packs of							Page
U		**4**						
		Installation for AT/ATX power pack (PS/2)			Installation for redundant power pack (PS/2)			
		ATX	AT 8 + 4 slot	AT 14 slot	ATX	AT 8 + 4 slot	AT 14 slot	
Model No. basic enclosure fitted	1	**3659.400**						
Installation, rear								
2 Rear panel for AT/ATX power pack	1	**3659.290**	**3659.290**	**3659.290**	-	-	-	216
4 Slotted rear panel for ATX 7 slots	1	**3659.320**	-	-	**3659.320**	-	-	217
5 Slotted rear panel 8 + 4 slots for AT	1	-	**3659.330**	-	-	**3659.330**	-	217
6 Slotted rear panel 14 slots for AT	1	-	-	**3659.340**	-	-	**3659.340**	217
Installation, front								
7 Front trim panel ATX with 2 x LED, reset switch	1	**3659.350**	-	-	**3659.350**	-	-	214
Power packs								
10 ATX power pack 350 W FSP350-70PFL	1	**9921.966**	-	-	-	-	-	
Fan 12 V DC, 60 mm, for the rear panel	2	**3659.250**	**3659.250**	**3659.250**	**3659.250**	**3659.250**	**3659.250**	216
13 Spare filter mat	1	**3659.120**	**3659.120**	**3659.120**	**3659.120**	**3659.120**	**3659.120**	-
Accessories								
14 Mounting bar for card retainer	1	**3659.090**	**3659.090**	**3659.090**	**3659.090**	**3659.090**	**3659.090**	215
15 Card retainer	7	**3659.010**	**3659.010**	**3659.010**	**3659.010**	**3659.010**	**3659.010**	215

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

ATX WITH FRONT ADAPTORS

ATX with front connections for 482.6 mm (19˝) installation, 4 U



Technical specifications

482.6 mm (19˝) rack-mount system for the installation of ATX/Mini-ATX or Micro-ATX boards and 1 x 5¼˝ and 1 x 3½˝ drives.
Width: 482.6 mm (19˝)
Height: 4 U
Flanges: 177.0 mm
Side panels: 174.0 mm
Total depth: 442.5 mm
Connections for I/Os, front
EMC prepared. Suitable for mounting on slide rails

Material/surface finish

Case, covers: 1.2 mm sheet steel, spray-finished in RAL 7035, unpainted contact point

Supply includes

- 1 Rack-mount system 4 U including drive holder
- 2 19" flanges
- 3 2 x 120 mm fans
- 4 ATX power pack 350 W
- 5 LED displays
- 6 Reset button
- 7 On/off switch
- 8 Cover
- 9 Rear panel with cutout and connection for power pack
- 10 Mounting bar for card retainer
- 11 Drive holder for 1 x 5¼" and 1 x 3½"
- 12 Drive holder for 3 x 3½" and hard drives

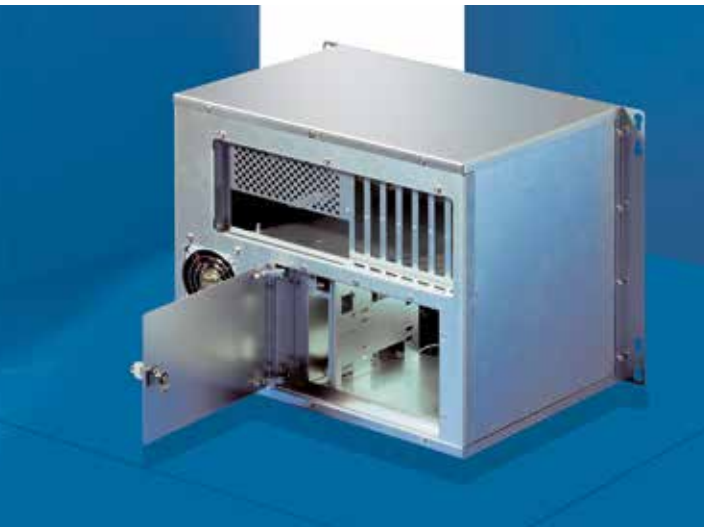
Standards

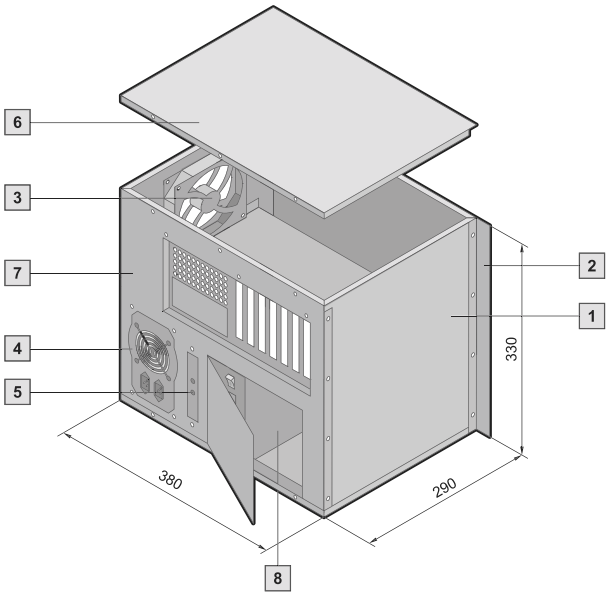
Complies with IEC 60 297-3 and ATX specifcation 2.01

	Packs of		Page
U		**4**	
Width mm		482.6 (19")	
Height of flanges/side panels mm		177.0/174.0	
Depth mm		442.5/440.0	
Model No. basic system fully assembled	1	**3659.700**	
Accessories			
Card retainer	7	**3659.010**	215
Unused slot cover	5	**3659.030**	214
Cover for 5¼˝ drive space	1	**3659.110**	214
Cover for 3½˝ drive space	1	**3659.410**	214
Telescopic slides for 600 mm enclosure depth	1 set	**3659.180**	214
Telescopic slides for 800 mm enclosure depth	1 set	**3659.190**	214
13 Front handles for ATX 4 U	2	**3659.240**	215

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

ATX with front adaptors for wall-mounting





Technical specifications

System for the installation of ATX/Mini-ATX or Micro-ATX boards and 3 x 5¼″ and 1 x 3½″ drives, vertical.
Height: 330 mm
Total depth: 292.5 mm
Connections for I/Os, front
EMC prepared.
Suitable for mounting
Suitable for mounting on mounting plates

Material/surface finish

Case, covers: 1.2 mm sheet steel, zinc-plated, passivated, unpainted, unpainted contact points

Supply includes

1. Rack-mount system including drive holder
2. Flanges for wall mounting
3. 1 x 120 mm fan
4. ATX power 350 W
5. LED displays
6. Cover
7. Front panel
8. Drive holder for 1 x 5¼" and 1 x 3½"

Standards

Complies with IEC 60 297-3 and ATX specifcation 2.01

	Packs of		Page
Width mm		380.0	
Height mm		330.0	
Depth mm		292.5/290.0	
Model No. basic system fully assembled	1	**3659.710**	
Accessories			
Unused slot cover	5	**3659.030**	214
Cover for 5¼″ drive space	1	**3659.110**	214
Cover for 3½″ drive space	1	**3659.410**	214

Other customised subrack solutions are available upon request. Please get in contact with one of our sales representatives for further assistance: Tel. +49 9126 - 29 34 0

Unused slot cover

Screw-on cover to conceal slot cut-outs which are not required.

Material

Sheet steel
Clear-chromated

Supply includes

Assembly parts

Packs of	Order No.
5	**3659.030**

Cover for drives

To conceal the 3½″ or 5¼″ drive slots.

Material

Sheet steel
Zinc-plated, spray-finished in RAL 7035

Supply includes

Assembly parts

Design	Packs of	Order No.
3½"	1	**3659.410**
5¼"	1	**3659.110**

For ATX HeiPac

Design	Packs of	Order No.
5¼"	1	**3659.050**

Telescopic slides

Facilitate optimum accessibility to the units, even when built-in.
For up to a maximum enclosure width of 426 mm.

Load capacity

30 kg

Material

Sheet steel

Supply includes

1 set = 2 telescopic slides
Installation kit
Assembly parts

For enclosure depth mm	Max. extension mm	Order No.
600	511.2	**3659.180**
800	596.4	**3659.190**

! Note

Only applicable in connection with L-shaped 19″ profiles

Front handles

The handles are fitted onto the 482.6 mm (19˝) flanges. They allow easy withdrawal of the cases from the enclosure.

Material

Sheet steel
Plated

Supply includes

Assembly parts

For enclosure height (U)	Packs of	**Order No.**
1	2	**3659.540**
2	2	**3659.020**
4	2	**3659.240**

Drive holder

The drive holder will accommodate a maximum of 4 additional 3½˝ hard disks. They are mounted inside the enclosure behind the fan.

Material

Sheet steel
Zinc-plated

Supply includes

Assembly parts

For system	Packs of	**Order No.**
ATX Economy	1 set	**3659.230**
ATX HeiPac	1 set	**3659.060**

Card retainer

For secure attachment and stabilisation of slot cards up to 327 mm depth. The card retainers are height-adjustable so that even cards of different heights may be securely attached.
A mounting bar is needed to fit the card retainer (already included with ATX HeiPac).

Material

Card retainer: Plastic
Mounting bar: Sheet steel, zinc-plated

Supply includes

7 Card retainer 41 mm
3 Card retainer 28.3 mm
1 Extension long 86.2 mm
1 Extension short 56.8 mm

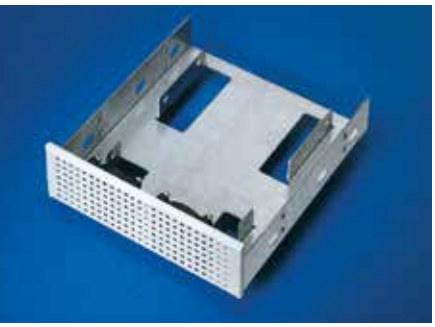
Card retainer

Packs of	**Order No.**
1 set	**3659.010**

Mounting bar

Packs of	**Order No.**
1	**3659.090**

Adaptor



For the installation of 3½″ hard disks or floppies in 5¼″ installation slots.

Material

Sheet steel, zinc-plated
Front panel: Spray-finished in RAL 7035

Supply includes

Assembly parts

Design	Packs of	**Order No.**
for 3½" hard disk	1	**3659.270**
for 3½" floppy	1	**3659.280**

DC fan for rear panel

Fan 12 V DC, 60 mm, for mounting on the rear panel. Including two 4-pole connectors with terminal.

Supply includes

2 fans with connection cable
Including assembly parts.

Packs of	**Order No.**
2	**3659.250**

Rear panels

For the installation of AT/ATX Economy. Optionally with cut-out for AT/ATX power pack or redundant power pack.

Material

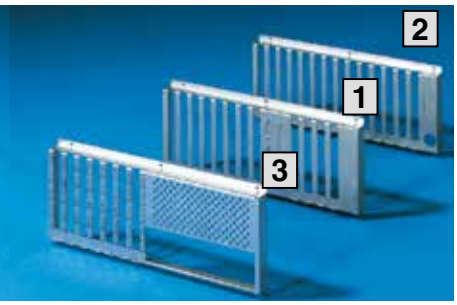
Sheet steel
Zinc-plated

Supply includes

Assembly parts

Design	Packs of	**Order No.**
for AT/ATX PS2 and redundant power supply	1	**3659.290**

Slotted rear panels



For the installation of AT/ATX Economy. Mounted on the rear panels. Optionally for AT (8 + 4 or 14 slots) or ATX (7 slots).

Material

Sheet steel
Zinc-plated

Supply includes

Assembly parts

Design	Packs of	**Order No.**
1 AT 4 + 8 Slot	1	**3659.330**
2 AT 14 Slot	1	**3659.340**
3 ATX 7 Slot	1	**3659.320**

Front trim panels

For the installation of AT/ATX Economy. Mounted in the front of the enclosure.

Optionally for:
- ATX (2 x LED, reset button)

Design	Packs of	**Order No.**
ATX	1	**3659.350**

HEITEC SYSTEM PLATFORMS
Standardised components
for individual application possibilities

SYSTEM PLATFORMS

HEITEC supplies complete plug & play solutions for several application possibilities at a high level – up to Level 5. The systems are based on standardised components which may be individually combined, depending on requirements.

They are supplied completely with power supply, backplane, measures for EMC and ESD protection, as well as climate control; fully assembled, pre-wired and tested.

MicroTCA, AdvancedMC

→ Page 222

CompactPCI

→ Page 230

CompactPCI Serial

→ Page 242

VME/VME64x

→ Page 244

Backplanes

→ Page 252

MPS Monitoring

→ Page 255

OVERVIEW MicroTCA / TCA

MicroTCA – compact package, wide range of applications

As an amendment to the AdvancedTCA standard, the MicroTCA specification mTCA.x was created as a compact version for a variety of applications. MicroTCA offers standardised modularity, compact design and a high scalability and bandwidth.

Additionally, the consistent platform strategy reduces the time to market. Whenever ultra fast data transmission or data storage is required, MicroTCA systems are the first choice. This is true not only for telecom applications but also for industrial control systems or medical engineering.

HEITEC ELECTRONIC PACKAGING SYSTEMS offers the “complete know-how” for professional Electronic Packaging – for MicroTCA-, CPCI-, VME- and customer specific applications.

Our range of services comprises complete “plug & play”- systems including backplanes, power supply and effective cooling units.

xTCA™ AdvancedMC™

MicroTCA development system VP1 single/double

3/5 U, 12 slots
Order no. see page 222

Applications

MicroTCA specification is designed as an amendment to the ATCA standard as a lower-cost compact version for the low-end sector. The main features are a compact design, high scalability, modularity and considerably reduced system costs.
MicroTCA development systems are suited for design of hardand software or for testing AMC modules.

Technical specifications

- 19˝ rack-mount system 3 or 5 U, 200 mm deep
- For installing single (3 U) or double (5 U) AMC modules
- 12 x AMC slots (8 x full, 4 x compact)
- 2 x MCH slots
- 2 x Power slots
- Integrated power adapter
- Fan unit for cooling up to 40W/slot
- Backplane 14 slots
- Support brackets

Benefits at a glance

- Conforms to PICMG MicroTCA.0 R1.0 and AMC.0 R2.0
- Integrated fan unit
- Integrated power adapter
- Fully wired and tested

MicroTCA rack-mount system VP1 single/double

2/4 U, 12 slots
Order no. see page 222

Applications

MicroTCA specification is designed as an amendment to the ATCA standard as a lower-cost compact version for the low-end sector. The main features are a compact design, high scalability, modularity and considerably reduced system costs.
The rack-mount systems are suited for applications in the low-end telecommunication or industrial sectors.

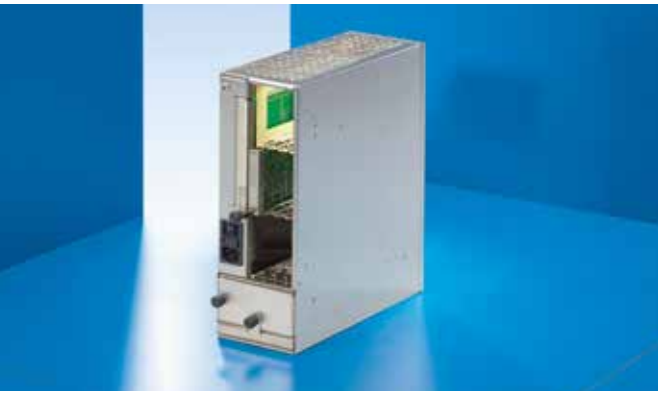
Technical specifications

- 19˝ rack-mount system 2 (+10 mm) or 4 U, 200 mm deep
- For installing single (2 U) or double (4 U) AMC modules
- 12 x AMC slots (8 x full, 4 x compact)
- 2 x MCH slots
- 2 x Power slots
- Backplane 14 slots

Benefits at a glance

- Conforms to PICMG MicroTCA.0 R1.0 and AMC.0 R2.0
- Fully wired and tested

CubeTCA



7 slots
See page 224

Applications

Based on the MTCA specification the compact CubeTCA offers a wide range of application fields in the industrial sector. The CubeTCA can either be assembled directly on the mouting plate or integrated within the target system.

Technical specifications

- Frame 109 x 307 x 286 mm
- 7 slots – 6 x AMC, 1 x MCH
- Removable cooling unit with two axial-flow fans and filter
- AC/DC power supply, 350 W
- Optional brackets for assembly on mounting plates
- Optional adapter for cap rail installation

Benefits at a glance

- Conforms to MicroTCA.0 R1.0
- Compact design
- Assembly on mounting plate or in the target system
- Plug-in fan unit
- 7 slots
- Fully assembled, wired and tested

PicoTCA

2 U, 13 slots
Order no. see page 223

Applications

Based on the MTCA specification, PicoTCA is a modular ready-torun system, which carries up to 12 AMCs and 1 MCH. Due to the robust construction, the 19" rack can be used both in the telecommunication and in the industrial sector.

Technical specifications

- 19˝ rack-mount system, 2 U, 250 mm deep
- Supports 12 AMCs (full-size, compact) and 1 MCH
- Cooling via 2 stand-alone cooling units with removable air filter
- EMC version
- AC/DC power supply: 450 W
- Backplane and AMC-connector in con:card+ quality from HARTING
- Integrated JTAG-connector for debug and test
- Support up to 12.5 Gb/s

Benefits at a glance

- Conforms to PIGMG MicroTCA.0 R1.0
- Ready-to-run system of minimum space
- For installation in 300 mm deep enclosures
- Support up to 12.5 Gb/s
- Removable air filter
- Robust industrial model guarantees shock and vibration protection
- Compliant to NEBS
- Fully assembled, wired and tested

MicroTCA DEVELOPMENT SYSTEMS / RACK-MOUNT SYSTEMS

MicroTCA – compact package, wide range of applications

MicroTCA development systems for hardware and software development or testing of AMC modules

Technical specifications

- Complies with PICMG Micro-TCA.0 R1.0 and AMC.0 R1.0
- 482.6 mm (19˝) development systems in 3 and 5 U, 200 mm deep for installing Single or Double AdvancedMC modules
- Integral fan unit for cooling up to 40 W/slot
- Including backplane, 14 slots
- Fully wired and tested

MicroTCA rack-mounted system for applications in thelow-end telecommunications and industry sectors.

Technical specifications

- Complies with PICMG Micro-TCA.0 R1.0 and AMC.0 R1.0
- 482.6 mm (19˝) rack-mount systems in 2 and 4 U, 200 mm deep for installing Single or Double AdvancedMC modules
- Including backplane, 14 slots (complies with MTCA.0 R1.0)
- Fully wired and tested
- Order climate control units separately

Material

Rack-mount systems of sheet steel, zinc-plated, sprayfinished

Supply includes

1 482.6 mm (19˝) system, 200 mm deep,
1 backplane

For additional development system:
1 fan unit
2 support brackets

Note

Power Module
has to be ordered separately,,
see page 225.
For 4 or 5 U systems you may optionally order a 6 HP divider rail in order to cover the free space above the power module.

MicroTCA development systems

µTCA system	U	AMC-Slots	MCH-Slots	Power-Slots	Order No.
VP 1 single	3	12 (8 x full, 4 x compact)	2	2	**3666.006**
VP 1 double	5	12 (8 x full, 4 x compact)	2	2	**3666.007**

Power modules available on request.

MicroTCA rack-mount systems

µTCA system	U	AMC-Slots	MCH-Slots	Power-Slots	Order No.
VP 1 single	2 (+10 mm)	12 (8 x full, 4 x compact)	2	2	**9911.758**
VP 1 double	4	12 (8 x full, 4 x compact)	2	2	**9911.760**

PicoTCA, 19", 2 U

The PicoTCA is a modular 19˝ chassis in 2 U design supporting up to 12 AMCs (fullsize, compact) and an MCH (fullsize). The chassis is designed such that communication protocols compliant with AMC.1 type 4 (PCIe and Advanced Switching), AMC.2 type 4, AMC.2 E2 (GbE) and AMC.3 (SAS/SATA) can all be handled. For SAS and SATA/AMC boards, a point-to-point connection is realised via the backplane, so that each slot is able to communicate directly with its neighbouring slots via ports 2 and 3. In the initial version, an MCH (Micro- TCA Carrier Hub) is supported via the backplane. Customer-specific designs and backplanes can be supplied upon request.

Benefits at a glance

- Conforms to PICMG Micro-TCA.0 R1.0
- Extremely compact readyto-run system
- Chassis depth of 250 mm for installation in 300 mm deep enclosures
- Includes AC/DC power supply
- Support for up to 12.5 Gb/s
- Support for different AMC form factors
- Exchangeable air filters
- High EMC shielding
- Robust industrial design
- Fully assembled, wired and tested. Ready to run

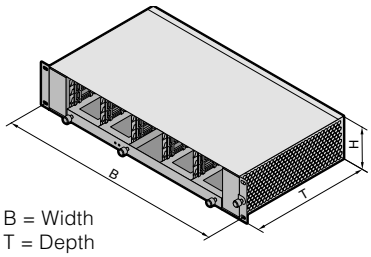
Technical specifications

- 19˝, 2 U, 250 mm deep
- AC/DC power supply, max. 450 W:
  - Input voltage: min. 90 V AC – max. 264 V AC with PFC
  - Input frequency: min. 47 Hz – max. 63 Hz
  - Output: 3.3 V DC/max. 3 A, 12 V DC/max. 38 A
- Cooling via 2 independent fan trays
- Backplane and AMC connectors in con:card+ quality from HARTING
- Integrated JTAG connector for debug and test
- Supports 12 AMCs (full-size, compact) compliant with AMC.1 type 4 E2S and AMC.2 type 4 E2S, as well as 1 MCH
- Weight: 5.9 kg
- Operating temperature: 0°C to +45°C
- Storage temperature: –40°C to +85°C

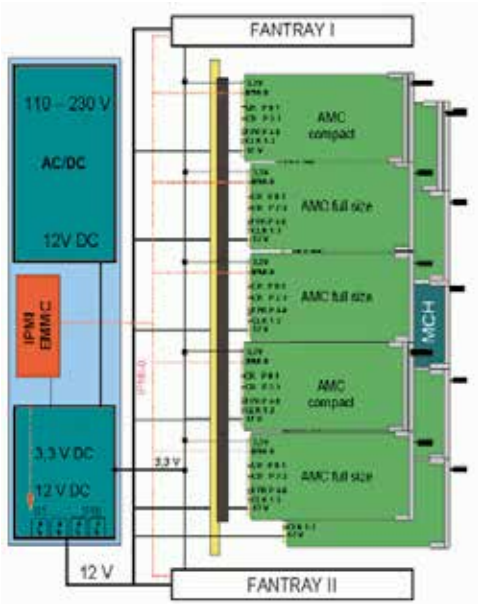
Supply includes

1 rack-mount system 482.6 mm (19˝), 2 U, 250 mm deep,
2 fan tray modules with air filters,
1 power supply,
1 backplane,
1 power management board

	Packs of	2 U
Width (W)		19"
Height (H) mm		87
Depth (D) mm		250
Order No.	1	**9911.803**



B = Width
T = Depth
H = Height



CubeTCA

Due to the compact dimensions the cubeTCA platform offers a huge variety of applications in the industrial sector. Assembly on mounting plate or in the target system by using integrated key holes or adapters for assembly directly on support rails.

Benefits at a glance

- Conforms to MicroTCA.0 R1.0
- Compact design
- Assembly on mounting plate or in the target system
- 7 slots for 6 x AMC, 1 x MCH
- Plug-in fan unit with 2 axial flow fans and filter
- Integrated AC/DC power supply
- Fully assembled, wired and tested

Technical specifications

- 6 front slots
- Backplane 6 slots inclusive
- Removable cooling unit
- AC/DC power supply: 350 W

Material

Stainless steel

Supply includes

1 system

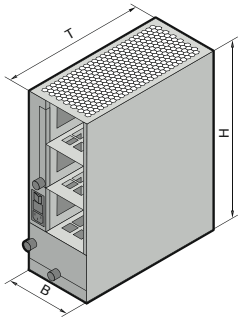
Note

Available on request

+ Accessories

Brackets for assembly on mounting plates
Top hat rails for installation on support rails

B = Width
T = Depth
H = Height



Technical details

Installation space

For 6 AMC, 1 x MCH

Cooling unit and filter,

Removable

Accessories on request

Top hat rails

For installation on support rails.

Brackets

For rear or lateral assembly on mounting plates.

Power Module PM

The PM is a 355 W MicroTCA PowerModule in Advanced Mezzanine Card (AMC) form factor, single/full-size compliant to MTCA.0 specification. The Power Module comprises an Enhanced Module Management Controller (EMMC) that communicates with the Carrier Manager via Intelligent Platform Management Bus (IPMB).

Technical specifications

- Power supply for MicroTCA Carrier Hub (MCH) AdvancedMCs and Cooling Units (CU)
- Operates via IPMI with a MicroTCA Carrier Hub (MCH)
- Power monitoring of each channel
- 16 x 12 volt channels for Payload Power
- 16 x 3.3 Volt channels for Management Power
- EMC- filter, transient protection, input current lock-out

Description	**Order No.**
PM 355W/-48V	**3666.008**

Technical Details

- 355 W
- – 48 VDC Input
- 12 VDC Output
- 3.3 VDC Output

AdvancedMC – FACE PLATES

AMC Face Plate Kits

These are used as face plates for AMC cards and ATCA carriers, or as filler panels in MicroTCA systems.

- Installation in µTCA systems or AMC carriers
- Conforms to AMC.0 R2.0
- Height: Single & Double
- Widths: Compact, Mid-Size, Full-Size
- Simple handling when locking and unlocking (no screws)
- Hot swap-compatible injector/extractor handles
- Customer-specific face plates available with a short lead time
- Upgradable with filler sheets and air baffle plates
- Double to Single conversion module (accessory)

Material

Face plate made from aluminium, (stainless steel available on request)
Holder for light pipe and PCB, die-cast zinc
Light pipe, polycarbonate
Handle, die-cast zinc, spray-finished
EMC seal, foam with metal fabric (UL 94 - V0)

Supply includes

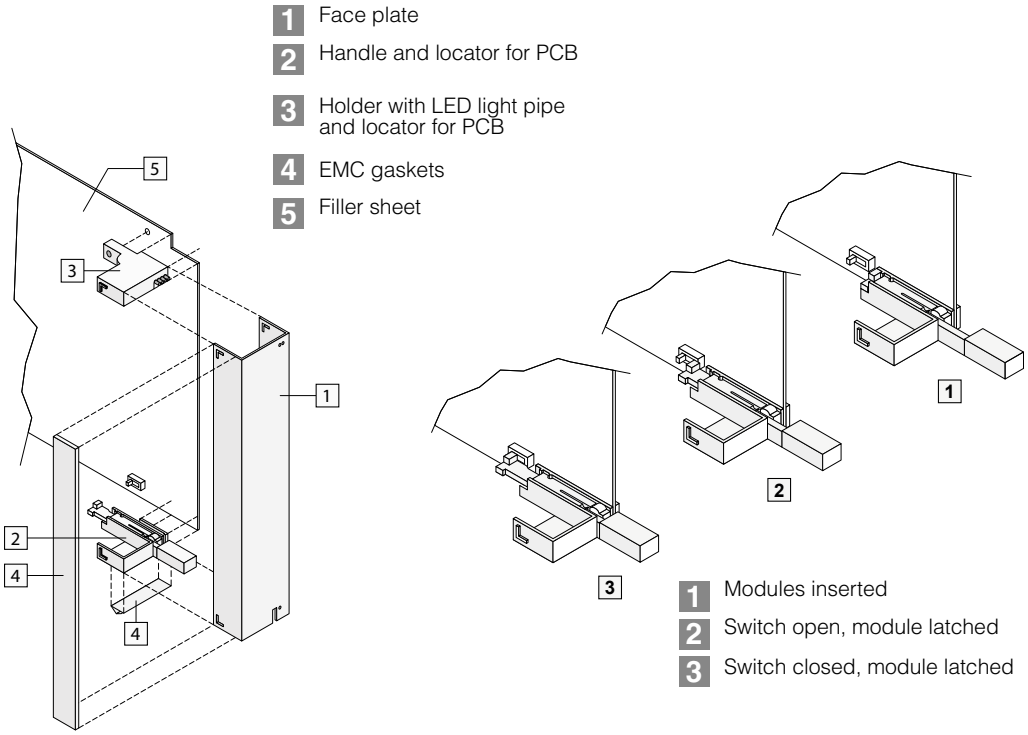
1 U-channel face plate,
1 holder to accommodate a light pipe and PCB,
1 handle for microswitch,
1 light pipe (for 2 LEDs),
1 EMC gasket, left side and bottom

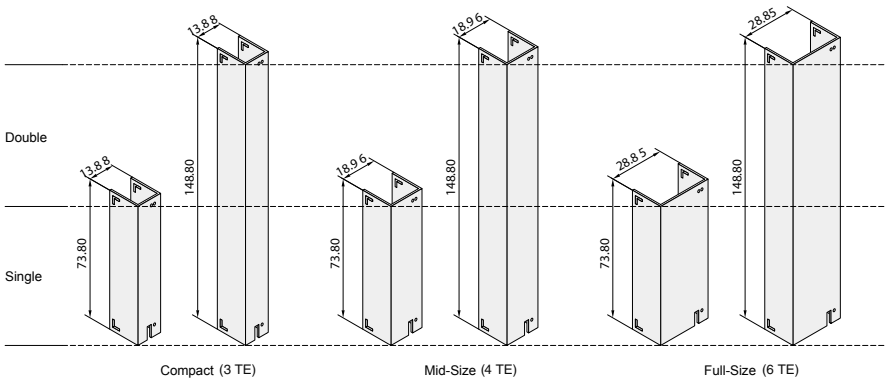
Design (H x W)	Packs of	Order No.
Single x Comptact	1	**9911.885**
Single x Mid-Size	1	**9911.889**
Single x Full-Size	1	**9911.886**
Double x Compact	1	**9911.887**
Double x Mid-Size	1	**9911.890**
Double x Full-Size	1	**9911.888**

Face plates with 4 LEDs in aluminium and stainless steel available on request (to AMC.0 Spec. R1.0)

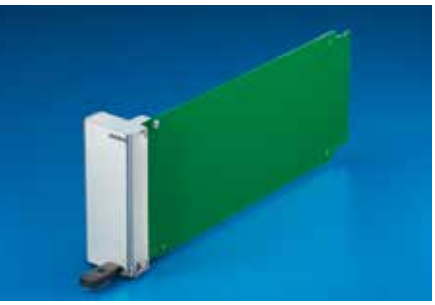
+ Accessories

AMC filler sheets, air baffle plates, conversion module, see page 227





AMC filler sheets



Filler sheets are mounted on the AMC face plates and are used to route the airflow in ATCA carriers and MicroTCA systems.

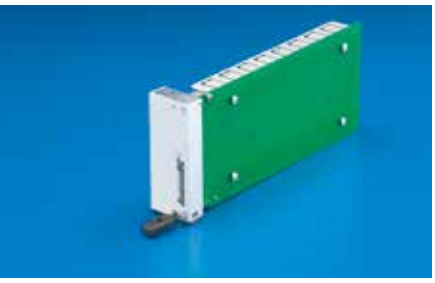
They may additionally be equipped with air baffle plates to create suitable air resistance in an empty slot.

Material

Epoxy

Design	Packs of	**Order No.**
Single	1	**9911.570**
Double	1	**9911.571**

Air baffle plates



AMC slots must be populated with an empty card in order to ensure adequate air resistance. The air resistance should be adapted to the requirements of the overall system by the user. In all cases, it should be sufficiently high to ensure that the air is forced to flow over active cards into adjacent slots and does not flow unhindered through empty slots. The air baffle plate is used to adjust the air resistance. Up to 2 air baffle plates may be mounted on one filler sheet. Adjustable air resistance from 80 – 50 % thanks to removable membranes.

Material

Stainless steel

Supply includes

1 baffle plate
Assembly parts

Design	Packs of	**Order No.**
Compact	1	**9911.891**
Mid-Size	1	**9911.892**
Full-Size	1	**9911.893**

Conversion module

The conversion module allows 1 x Double to be converted into 1 x Single slot. Option of installing Compact or Full-Size modules.

Material

Stainless steel, partially spray-finished

Supply includes

1 conversion module

Design	Packs of	**Order No.**
Compact	1	**9907.699**
Full-Size	1	**9911.220**

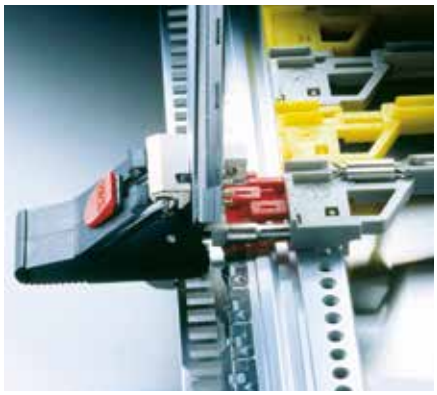
RACK-MOUNT SYSTEMS FOR CompactPCI, CompactPCI SERIAL, VMEbus

CompactPCI® CompactPCI® Serial VMEbus Technology™

RACK-MOUNT SYSTEMS FOR CompactPCI, CompactPCI SERIAL, VMEbus

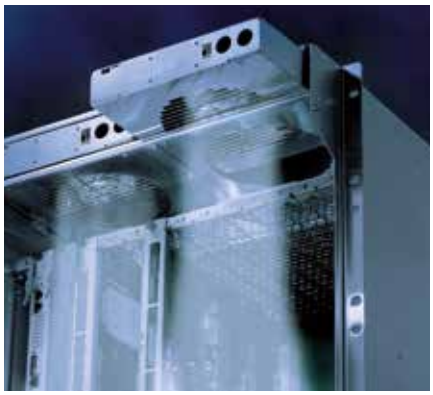
EMC Features

All components have a conductive surface: stainless steel EMC gaskets connect to the individual components. EMC front panels with EMC gaskets ensure proper contacting.



ESD Protection

ESD pin and ESD Clip in the guide rail deflect electrostatic charging before contacting the plug in unit. ESD Clip in the PCB guide rail provides permanent and direct deflection via the PCB.



Ventilation

Small card guides and horizontal rails ensure maximum air flow. Individual ventilation concepts provide welldirected air ducting and ideal heat dissipation - optionally from bottom to top or from front to rear. Powerful HeiCool fan ensures optimum climate control. 1 U, hot swap compatible, 204 m3 /h including speed control and fault alarm signal.

Systems for CompactPCI

Systems for CompactPCI Serial

Systems for VME/VME64x

BENEFITS AT A GLANCE

- Systems for setup of industrial computer systems according to CompactPCI specification and VME bus
- Robust mechanics
- Individual configuration on request
- Completely assembled, pre-wired and tested including backplane and power supply
- Individual cooling concepts
- Conforms to IEC 60 297-3 and IEEE 1101.1/10/11 and Compact PCI spec. rev.1.0 (PICMG)

OVERVIEW RACK-MOUNT SYSTEMS FOR CompactPCI

CPCI-Systems Slim-Box Vario

1, 2, 3, 4 U/2, 4, 6, 8 slots
Order no. on request

Applications

Configuration of 19" industrial computer systems according to CompactPCI specification for
- Telecommunication
- Industrial Automation

Technical specifications

- 482.6 mm (19˝) rack-mount system for horizontal mounting of front boards or rear I/O boards
- 1 U, 2 U, 3 U, 4 U, 300 mm deep
- Standard cooling from left to right side
- Sheet steel, spray-finished (black)
- Preconfigured system including backplane and fan unit
- Completely assembled, pre-wired and tested
- Installation of CPCI-boards according to CompactPCI spec. 2.0 Rev. 3.0

Benefits at a glance

- Horizontal installation of Eurocards/Double Eurocards
- Maximum installation with minimum space requirement
- 2/4/6/8 front slots for 160 mm and back slots for 80 mm boards
- Hot-swap compatible power supplies , optionally AC or DC
- EMC and ESD protection
- Completely assembled, pre-wired and tested
- Integrated cooling from left to right
- Modular assembly for individual configuration
- Corresponds to CompactPCI spec. 2.0 rev. 3.0, IEC 60 297-3-101, - 102, - 103

HeiPac CPCI-Systems

3 U, 5 slots/4U, 7 slots horizontal
Order no. see page 232

Applications

Configuration of 19˝ industrial computer systems according to CompactPCI specification for
- Telecommunication
- Industrial Automation

Technical specifications

- 482.6 mm (19") rack-mount system for horizontal mounting of double Eurocards
- 3 U, 4 U, 405 mm deep
- Aluminium coated
- Including backplane, power supply and fan unit on the rear panel
- Completely assembled, pre-wired and tested
- Horizontal installation space for double Eurocards: 5 and 7 slots
- Installation of CPCI boards according to CompactPCI spec. 2.0 rev. 3.0

Benefits at a glance

- Horizontal installation of double Eurocards
- EMC and ESD protection
- Completely assembled, pre-wired and tested
- Well-directed air ducting from front to rear by fans in the rear panel
- Keyable guide rails
- Corresponds to CompactPCI spec. 2.0 rev. 3.0, IEC 60 297-3-101, - 102, - 103

HeiPac CPCI-Systems

7 U, 8 slots
Order no. see page 234

Applications

Configuration of 19˝ industrial computer systems according to CompactPCI specification for
- Telecommunication
- Industrial Automation

Technical specifications

- 482.6 mm (19˝) rack-mount system for vertical mounting of double Eurocards
- 7 U, 405 mm deep
- Aluminium coated
- Including backplane, power supply and fan unit on the rear panel
- Completely assembled, pre-wired and tested
- Installation space for boards: 8 slots
- Installation of CPCI boards according to CompactPCI spec. 2.0 rev. 3.0

Benefits at a glance

- Vertical installation of double Eurocards
- EMC and ESD protection
- Completely assembled, pre-wired and tested
- Well-directed air flow from front to rear by DC fans on the rear panel
- Keyable guide rails
- Conforms to CompactPCI spec. 2.0 rev. 3.0, IEC 60 297-3-101, - 102, - 103

HeiPac CPCI-Systems

4 U/7 U, 8 slots
Order no. see page 233

Applications

Configuration of 19˝ industrial computer systems according to CompactPCI specification for
- Telecommunication
- Industrial Automation

Technical specifications

- 482.6 mm (19˝) rack-mount system for vertical mounting of Eurocards/double Eurocards
- 4 U and 7 U, 405 mm deep
- Aluminium coated
- Including backplane and power supply
- Fan unit with 3 DC fans
- Completely assembled, pre-wired and tested
- Installation space for Eurocards/double Eurocards: 8 slots
- Installation of CPCI boards according to CompactPCI spec. 2.0 rev. 3.0

Benefits at a glance

- Vertical installation of Eurocards/double Eurocards
- EMC and ESD protection
- Completely assembled, pre-wired and tested
- Fan unit provides directed air flow from bottom to top
- Keyable guide rails
- Conforms to CompactPCI spec. 2.0 rev. 3.0, IEC 60 297-3-101, - 102, - 103

HeiPac CPCI-Systems

9 U, 8 slots with HeiCool and Rear I/O
Order no. see page 235

Applications

Configuration of 19˝ industrial computer systems according to CompactPCI specification for
- Telecommunication
- Industrial Automation

Technical specifications

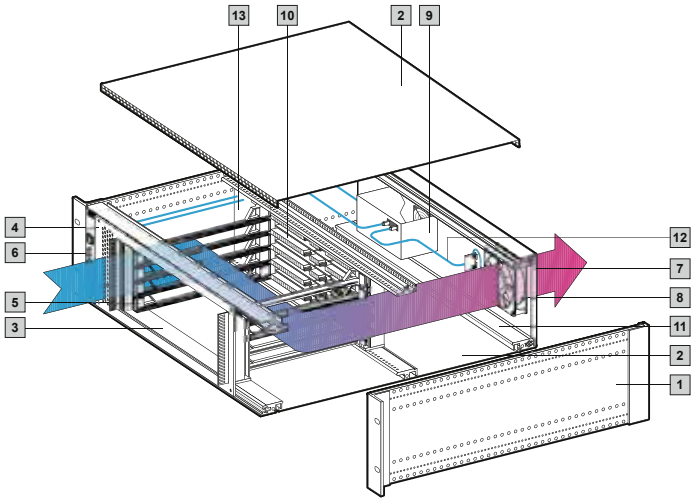
- 482.6 mm (19˝) rack-mount system for vertical mounting of double Eurocards
- 9 U, 290.5 mm deep, on the rear side for I/O modules
- Aluminium coated
- Including backplane, power supply and 2 radial fans HeiCool (204 m3/h)
- Completely assembled, pre-wired and tested
- Installation space for boards: 8 slots
- Installation of CPCI boards according to CompactPCI spec. 2.0 rev. 3.0

Benefits at a glance

- Vertical installation of double Eurocards
- EMC and ESD protection
- Completely assembled, pre-wired and tested
- Well-directed air flow from front to rear
- Rear I/O
- Keyable guide rails
- Effective ventilation by 2 radial fans HeiCool (204 m3/h)
- Conforms to CompactPCI spec. 2.0 rev. 3.0, IEC 60 297-3-101, - 102, - 103

RACK-MOUNT SYSTEMS FOR CompactPCI

HeiPac 3 U, 5 slots/4 U, 7 slots horizontal



Technical specifications

Subrack, 405 mm deep, for installation in 482.6 mm (19″) enclosures or cases. Prepared to accommodate CPCI boards and drives.
Includes MPS Monitoring (see pages 255 ff.)
Complies with IEC 60 297-3-101, -102, -103.
Fully assembled, pre-wired and tested.

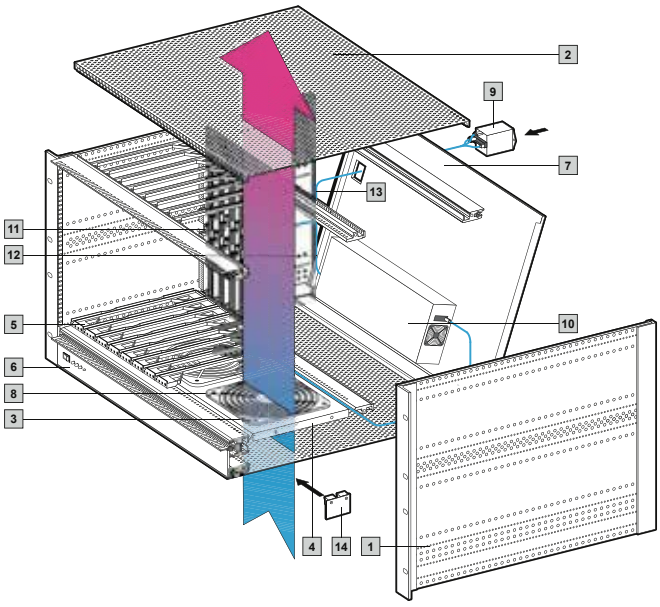
Illustration

MPS system 3 U for CPCI

U			**3**	**4**	Page
Side panel depth mm			405	405	
Wiring space (depth in mm)			210	210	
For PCB			6 U x 160 mm	6 U x 160 mm	
MPS system Model No.			**9910.944**	**9910.945**	
Mechanical supply includes					
Description		Material	Qty.		
1	HeiPac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/stainless steel	1	1	-
2	Top and bottom covers, solid	Aluminium	2	2	161
13	Air partition	Aluminium	1	1	187
	EMC shielding plate for fan	Aluminium, clear-chromated	1	1	193
3	Horizontal mounting kit	Aluminium, clear-chromated	1	1	151
4	Trim frame for horizontal mounting kit	2.5 mm aluminium, clear-chromated	1	1	151
5	Plastic guide rails, keyable	Polycarbonate UL 94-V0	8	12	155
	Plastic guide rails, keyable, red	Polycarbonate	2	2	155
6	EMC front panel 3 U/5 HP for MPS monitoring	2.5 mm aluminium, clear-chromated	1	-	-
	EMC front panel 4 U/5 HP for MPS monitoring	2.5 mm aluminium, clear-chromated	-	1	-
7	EMC rear panel 3 U/84 HP with fan and connector cut-out	2.5 mm aluminium, clear-chromated	1	-	-
	EMC rear panel 4 U/84 HP with fan and connector cut-out	2.5 mm aluminium, clear-chromated	-	1	-
Electrical/electronic supply includes					
Description		Technical specifications			
8	DC fan	12 V DC, 48 m³/h, per fan (UL, CSA, VDE) optionally speed-controlled	1	1	191
9	Power supply unit ATX, PS/2	300 W	1	1	-
10	CPCI backplane	6.5 U, 5 Slot	1	-	238
	CPCI backplane	6.5 U, 7 Slot	-	1	238
	LED display module for MPS monitoring	for 3.3 V, +5 V, ±12 V, fan failure	1	1	-
11	Fan module	-	1	1	-
12	DC cable harness	-	•	•	-
	Controller module	with interface for RS-232 and CMC-TC	1	1	-
	Fan module for AC fan	-	•	•	-

• Included with the supply.

HeiPac 4 U/7 U, 8 slots



Technical specifications

Subrack, 405 mm deep, for installation in 482.6 mm (19˝) enclosures or cases. Prepared to accommodate CPCI boards and drives.
Includes MPS Monitoring (see pages 255 ff.)
Complies with IEC 60 297-3-101, -102, -103.
Fully assembled, pre-wired and tested.

Illustration

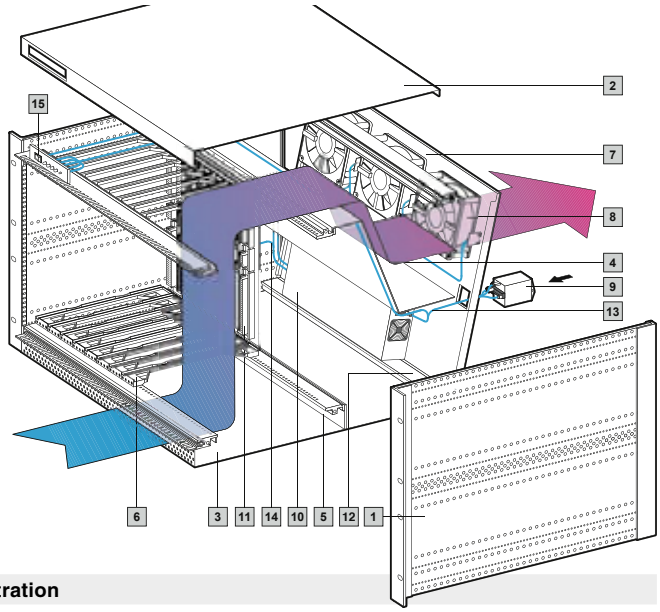
MPS system 7 U for CPCI

U			**4 (3 + 1)**	**7 (6 + 1)**	Page
Side panel depth mm			405	405	
Wiring space (depth in mm)			210	210	
For PCB			3 U x 160 mm	6 U x 160 mm	
MPS system Model No. for CPCI			**9910.946**	**9910.948**	
Mechanical supply includes					
Description		Material	Qty.		
1	HeiPac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/stainless steel	1	1	-
2	Top and bottom covers, vented	Aluminium	2	2	161
3	Finger guard	Polyamide	3	3	193
4	Fan mounting plate	1 mm aluminium, anodised	1	1	186
5	Plastic guide rails, keyable	Polycarbonate UL 94-V0	14	14	155
	Plastic guide rails, keyable, red	Polycarbonate	2	2	155
6	EMC front panel 1 U/84 HP for MPS monitoring	2.5 mm aluminium, clear-chromated	1	1	-
	EMC rear panel 4 U/84 HP, horizontally hinged with connector cut-out	2.5 mm aluminium, clear-chromated	1	-	-
7	EMC rear panel 7 U/84 HP, horizontally hinged with connector cut-out	2.5 mm aluminium, clear-chromated	-	1	-
Electrical/electronic supply includes					
Description		Technical specifications			
8	DC fan	24 V DC, 140 m³/h, per fan (VDE, UL, CSA) optionally speed-controlled	3	3	191
9	IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	1	257
10	Open frame power supply	400 W	-	1	-
	Power supply unit ATX PS/2	300 W	1	-	-
	CPCI backplane	3.5 U, 8 Slot	1	-	238
11	CPCI backplane	6.5 U, 8 Slot	-	1	238
	LED display module for MPS monitoring	for 3.3 V, +5 V, ±12 V, fan failure	1	1	-
12	DC cable harness	-	•	•	-
13	AC cable harness	-	-	•	-
14	Fan module for DC fan	-	1	1	-
	Controller module	with interface for RS-232 and CMC-TC	1	1	-

• Included with the supply.

RACK-MOUNT SYSTEMS FOR CompactPCI

HeiPac 7 U, 8 slots



Illustration

MPS system 7 U for CPCI

Technical specifications

Subrack, 405 mm deep, for installation in 482.6 mm (19˝) enclosures or cases. Prepared to accommodate CPCI boards and drives.
Includes MPS Monitoring (see pages 255 ff.)
Complies with IEC 60 297-3-101, -102, -103.
Fully assembled, pre-wired and tested.

U			**7 (6 + 2 x ½)**	Page
Side panel depth mm			405	
Wiring space (depth in mm)			210	
For PCB			6 U x 160 mm	
MPS system Model No.			**9910.947**	
Mechanical supply includes				
Description		Material	Qty.	
1	HeiPac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/stainless steel	1	-
2	Cover with ½ U edge fold and cut-outs for LED/switches	Aluminium	1	163
3	Bottom cover with ½ U edge fold, ventilated at the front	Aluminium	1	163
	EMC shielding plate for fan	Aluminium, clear-chromated	3	193
4	Air baffle	Aluminium	1	187
5	Air block panel ½ U	Epoxy	1	187
6	Plastic guide rails, keyable	Polycarbonate UL 94-V0	14	155
	Plastic guide rails, keyable, red	Polycarbonate	2	155
7	EMC rear panel 7 U, horizontally hinged with connector cut-out	2.5 mm aluminium, clear-chromated	1	-
Electrical/electronic supply includes				
Description		Technical specifications		
8	DC fan	12 V DC, 140 m³/h, per fan (VDE, UL, CSA) optionally speed-controlled	3	191
9	IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	257
10	Open frame power supply	400 W	1	-
11	CPCI backplane	3.5 U, 8 Slot	1	238
12	Fan module for DC fan	-	1	-
13	AC cable harness	-	•	-
14	DC cable harness	-	•	-
15	LED display module for MPS monitoring	for 3.3 V, +5 V, ±12 V, fan failure	1	-
	Controller module	with interface for RS-232 and CMC-TC	1	-

• Included with the supply.

HeiPac 9 U, 8 slots, with HeiCool radial fan

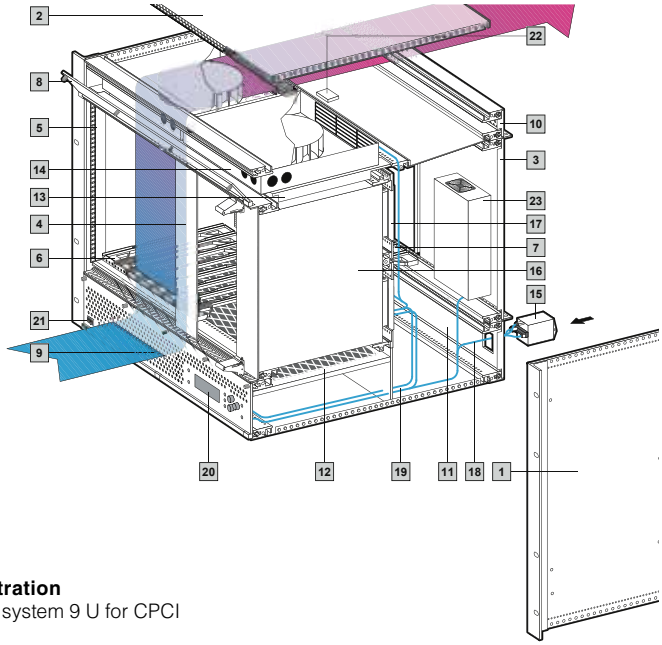


Illustration
MPS system 9 U for CPCI

Technical specifications

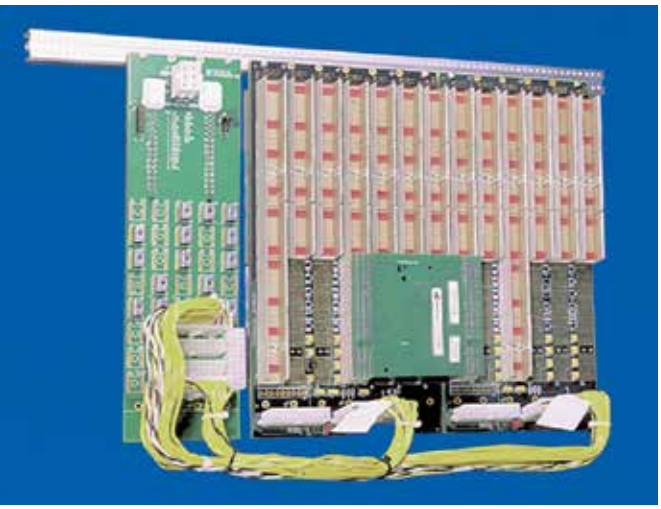
Subrack, 290.5 mm deep, for installation in 482.6 mm (19˝) enclosures or cases. Prepared to accommodate CPCI boards and drives.
Includes MPS monitoring (see pages 255 ff.)
Complies with IEC 60 297-3-101, -102, -103.
Fully assembled, pre-wired and tested.

U			**9 (6 + 2 x 1½)**	Page
Side panel depth mm			290.5	
Wiring space (depth in mm)			85.5	
For PCB			6 U x 160 mm	
MPS system Model No.			**9909.483**	
Mechanical supply includes				
Description		Material	Qty.	
1	HeiPac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/stainless steel	1	-
2	Top and bottom covers	Aluminium	2	162
3	EMC rear panel 6 U/28 HP + 8 HP	2.5 mm aluminium, clear-chromated	1	-
4	EMC front panel	2.5 mm aluminium, clear-chromated	1	179
5	EMC contact strip	Aluminium, clear-chromated	1	146
6	Plastic guide rails, keyable	Polycarbonate UL 94-V0	14	155
	Plastic guide rails, keyable, red	Polycarbonate	2	155
7	Guide rails for I/O transition modules	Polycarbonate UL 94-V0	16	156
	Guide rails, keyable, green, for power supply	Polycarbonate	2	155
8	Front panel 1½ U/84 HP, horizontally hinged	2.5 mm aluminium, clear-chromated	1	-
9	Front panel 1½ U/84 HP, vented, horizontally hinged, for MPS monitoring	2.5 mm aluminium, clear-chromated	1	-
10	EMC rear panel 1½ U/84 HP, vented	2.5 mm aluminium, clear-chromated	1	-
11	EMC rear panel 1½ U/84 HP with connector cut-out	2.5 mm aluminium, clear-chromated	-	-
12	Filter mat 84 HP, 160 mm, for slide-in attachment	-	1	-
13	Mounting plate for HeiCool	1 mm sheet steel, zinc-plated, passivated	1	-
Electrical/electronic supply includes				
Description		Technical specifications		
14	HeiCool DC fan, individually removable including fault alarm signal, speed control	24 V DC, 204 m3/h, 48 W	2	-
15	IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	191
16	Power supply, plug-in, 6 U/8 HP	350 W	1	257
	CPCI backplane	6,5 U, 8 Slot	1	238
17	CPCI backplane for power supply	-	1	-
18	AC cable harness	-	•	-
19	DC cable harness	-	•	-
20	Display module	for 3.3 V, +5 V, ±12 V, fan failure	1	-
21	Mains switch	-	1	-
22	Monitoring module for HeiCool	-	1	-
23	Power supply for HeiCool	-	1	-
	Controller module	with interface for RS-232 and CMC-TC	1	-

• Included with the supply.

CompactPCI – BACKPLANES, TECHNICAL SPECIFICATIONS

Backplanes, technical specifications



HEITEC offers an extensive range of powerful backplanes for CompactPCI.

- Modular construction facilitates expansion up to a maximum of 21 slots
- Connection between segments via CPCI or H.110 bridge modules
- Power input via ATX-compatible connectors or screw terminal
- Additional 2 x 3 Mate-N-Lock connector for 48 V with H.110 backplane
- Optional development of customer-specific Monolithic backplanes
- 8 layer multi-layer
- System slot on right (left upon request), spray-finished

Modular assembly

The backplanes in 32 or 64-bit versions allow the configuration of CPCI systems from 2 to 21 slots. This is possible due to the modular design of the backplanes and connection of the individual segments via CPCI or H.110 bridge modules. Each backplane segment contains between 2 and 8 slots and operates in stand-alone mode in conjunction with a CPU board and a power supply unit.

For assembling larger systems, several segments may be joined together via PCI bridge modules fitted at the rear. In such cases, only one of the segments will run in the system slot with a CPU board. The remaining segments will have a subordinate status without CPU boards. However, the first slot on the right of the backplane is available for a standard 32 or 64 bit CompactPCI host CPU.

Technical specifications

CPU slot

A single 3 U or 6 U CPU board with 32 or 64 bits is required for each system. The system slot on the right-hand side ensures that 2-slot or wider system boards do not conceal other slots, thus rendering them unusable.

Available slots

Each backplane contains two to eight 3 U or 6 U slots (32 or 64 bit).

Data transfer rate

132/264 MBytes for 32/64 bit version
+5 V, 33 MHz PCI bus interface
264/512 MBytes for 32/64 bit version
+3.3 V, 66 MHz (max. 5 slots) PCI bus interface

PCI bridges

Single backplanes do not require bridges. For each additional backplane, however, a bridge fitted at the rear is required.

Power supply

Voltage supply via one or more ATX connectors

Control connector

Each backplane has a control connector where +3.3, +5, ±12 V voltages may be picked off, e.g. for the connection of power LEDs

I/O-Module für J3 – J5

I/O modules can be connected at the rear of each slot.

Standards

- PCI 2.1 (PCI specification)
- PICMG 2.0 (CompactPCI spec.)
- PICMG 2.1 (hot swap spec.)
- IEEE 1101.1, mechanics
- IEEE 1101.10, mechanics
- IEEE 1101.11, mechanics

32-bit pin assignment

P2 connector[9)]

PIN	Z[6)]	A	B	C	D	E	F
22	GND	GA4[5)]	GA3[5)]	GA2[5)]	GA1[5)]	GA0[5)]	GND
21	GND	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	BP(I/O)	GND
20	GND	**BP(I/O)**	**BP(I/O)**	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
19	GND	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	BP(I/O)	GND
18	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND
17	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND
16	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND
15	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND
14	GND	BP(I/O)	BP(I/O)	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
13	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	GND
12	GND	BP(I/O)	BP(I/O)	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
11	GND	BP(I/O)	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	GND
10	GND	BP(I/O)	BP(I/O)	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
9	GND	BP(I/O)	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	GND
8	GND	BP(I/O)	BP(I/O)	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
7	GND	BP(I/O)	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	GND
6	GND	BP(I/O)	BP(I/O)	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
5	GND	BP(I/O)	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	GND
4	GND	**BP(I/O)**	**BP(I/O)**	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
3	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND
2	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND
1	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND

P1 connector[9)]

PIN	Z[6)]	A	B	C	D	E	F
25	GND	5 V	REQ64#	ENUM#	3.3 V	5 V	GND
24	GND	AD (1)	5 V	V(I/O)[3)]	AD(O)	ACK64#	GND
23	GND	3.3 V	AD (4)	AD (3)	5 V	AD (2)	GND
22	GND	AD (7)	GND	3.3 V	AD (6)	AD (5)	GND
21	GND	3.3 V	AD (9)	AD (8)	M66EN[3)]	C/BE(0)#	GND
20	GND	AD (12)	GND	V(I/O)[3)]	AD (11)	AD (10)	GND
19	GND	3.3 V	AD (15)	AD (14)	GND	AD (13)	GND
18	GND	SERR#	GND	3.3 V	PAR	C/BE(1)#	GND
17	GND	3.3 V	SDONE	SBQ#	GND	PERR#	GND
16	GND	DEVSEL	GND	V(I/O)[1)3)]	STOP#	LOCK#	GND
15	GND	3.3 V	FRAME#	IRDY	GND[2)]	TRDY#	GND
12 - 14			KEY AREA				GND
11	GND	AD (18)	AD (17)	AD (16)	GND	C/BE(2)#	GND
10	GND	AD (21)	GND	3.3 V	AD (20)	AD (19)	GND
9	GND	C/BE(3)#	IDSEL	AD (23)	GND	AD (22)	GND
8	GND	AD (26)	GND	V(I/O)[3)]	AD (25)	AD (24)	GND
7	GND	AD (30)	AD (29)	AD (28)	GND	AD (27)	GND
6	GND	REQ#	GND	3.3 V	CLK	AD (31)	GND
5	GND	BRSVP1A5	BRSVP1B5	RST#	GND	GNT#	GND
4	GND	BRSVP1A4	GND	V(I/O)[3)]	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC#	5 V	INTD#	GND
2	GND	TCK	5 V	TMS	TDO	TDI	GND
1	GND	5 V	- 12 V	TRST#	+ 12 V	5 V	GND

32-bit and 64-bit backplane – Technical specifications:
The CPCI specifications define both 32-bit and 64-bit versions. Both versions may be implemented on a 3 U daughterboard. However, the 32-bit version allows the complete P2/J2 connector to be used for user-defined I/O signals (slots 2 – 8). Slot 1 (system slot) uses separate P2/J2 pins for functions such as clock, arbitration, (grant/requests) and other system functions. These pins are printed in bold in the table. In 32-bit systems the P2/J2 connection may optionally be populated at the rear with 16 mm long pins and a transfer frame. Signals can be picked off or I/O boards connected at the rear.

64-bit CompactPCI pin assignments – Technical specifications:
With the 64-bit CompactPCI, both P1 and P2 connectors are fully assigned with signals. User-defined I/O signal pins are not available. I/O signals are only available with 6 U boards on connectors P3, P4 and P5.

64-bit pin assignment

P2 connector[9)]

PIN	Z[7)]	A	B	C	D	E	F
22	GND	GA4[6)]	GA3[6)]	GA2[6)]	GA1[6)]	GA0[6)]	GND
21	GND	**CLK6**	GND	RSV	RSV	RSV	GND
20	GND	**CLK5**	**GND**	RSV	GND[8)]	RSV	GND
19	GND	**GND**	GND[8)]	RSV	RSV	RSV	GND
18	GND	BRSVP2A18	BRSVP2B18	BRSVP2C18	GND[8)]	BRSVP2E18	GND
17	GND	BRSVP2A17	GND[8)]	PRST#	**REQ6#**	**GNT6#**	GND
16	GND	BRSVP2A16	BRSVP2B16	DEG#	GND	BRSVP2E16	GND
15	GND	BRSVP2A15	GND	FAL#	**REQ5#**	**GNT5#**	GND
14	GND	AD (35)	AD (34)	AD (33)	GND	AD (32)	GND
13	GND	AD (38)	GND	V(I/O)[3)]	AD (37)	AD (36)	GND
12	GND	AD (42)	AD (41)	AD (40)	GND	AD (39)	GND
11	GND	AD (45)	GND	V(I/O)[3)]	AD (44)	AD (43)	GND
10	GND	AD (49)	AD (48)	AD (47)	GND	AD (46)	GND
9	GND	AD (52)	GND	V(I/O)[3)]	AD (51)	AD (50)	GND
8	GND	AD (56)	AD (55)	AD (54)	GND	AD (53)	GND
7	GND	AD (59)	GND	V(I/O)[3)]	AD (58)	AD (57)	GND
6	GND	AD (63)	AD (62)	AD (61)	GND	AD (60)	GND
5	GND	C/BE(5)#	GND	V(I/O)[3)]	C/BE(4)#	PAR64	GND
4	GND	V(I/O)[3)]	BRSVP2B4	C/BE(7)#	-	C/BE(6)#	GND
3[3)]	GND	**CLK4**	GND	**GNT3#**	-	**GNT4#**	GND
2[3)]	GND	**CLK2**	**CLK3**	**SYSEN#[4)]**	-	**REQ3#**	GND
1[3)]	GND	**CLK1**	GND	**REQ1#**	-	**REQ2#**	GND

P1 connector[9)]

PIN	Z[7)]	A	B	C	D	E	F
25	GND	5 V	REQ64#	ENUM#	3.3 V	5 V	GND
24	GND	AD (1)	5 V	V(I/O)[3)]	AD(O)	ACK64#	GND
23	GND	3.3 V	AD (4)	AD (3)	5 V	AD (2)	GND
22	GND	AD (7)	GND	3.3 V	AD (6)	AD (5)	GND
21	GND	3.3 V	AD (9)	AD (8)	M66EN[4)5)]	C/BE(0)#	GND
20	GND	AD (12)	GND	V(I/O)[3)]	AD (11)	AD (10)	GND
19	GND	3.3 V	AD (15)	AD (14)	GND	AD (13)	GND
18	GND	SERR#	GND	3.3 V	PAR	C/BE(1)#	GND
17	GND	3.3 V	SDONE	SBQ#	GND	PERR#	GND
16	GND	DEVSEL#	GND	V(I/O)[1)3)]	STOP#	LOCK#	GND
15	GND	3.3 V	FRAME#	IRDY#	GND[2)3)]	TRDY#	GND
12 - 14				KEY AREA			
11	GND	AD (18)	AD (17)	AD (16)	GND	C/BE(2)#	GND
10	GND	AD (21)	GND	3.3 V	AD (20)	AD (19)	GND
9	GND	C/BE(3)#	IDSEL	AD (23)	GND	AD (22)	GND
8	GND	AD (26)	GND	V(I/O)	AD (25)	AD (24)	GND
7	GND	AD (30)	AD (29)	AD (28)	GND	AD (27)	GND
6	GND	REQ#	GND	3.3 V	CLK	AD (31)	GND
5	GND	BRSVA5	BRSVB 5	RST#	GND	GNT#	GND
4	GND	BRSVA4	GND	V(I/O)	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC	5 V	INTD#	GND
2	GND	TCK	5 V	TMS	TDO	TDI	GND
1	GND	5 V	- 12 V	TRST#	+ 12 V	5 V	GND

The signals printed in bold are only assigned in the system s lot
1) "Early mate" pin 2) "Late mate" pin 3) +3.3 V or 5 V 4) Earthed with system slot 5) GND for 33 MHz backplane, bussed in 66 MHz systems
6) Each slot may have its own address code (see CPCI specifications) 7) Not for daughtercards 8) Not for CPCI cards after version 1.0
9) All HEITEC standard CPCI backplanes are designed for 64-bit applications on the layout side. With 32-bit versions, the P2/J2 connectors are populated on request.

Backplanes 3 U

Material

Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes

Backplane, fully populated

Backplanes 3 U for low profile bridge

Slot	Design	Model No.	
		32 Bit	64 Bit
2	S	**3689.300**	**3689.307**
3	SE	**3689.301**	**3689.308**
4	SBME	**3689.302**	**3689.309**
5	SBME	**3689.303**	**3689.310**
6	SBME	**3689.304**	**3689.311**
7	SBE	**3689.305**	**3689.312**
8	S	**3689.306**	**3689.313**

S = Stand alone
B = Beginning segment
M = Middle segment
E = Ending segment

Number of layers	8, 10 (for 3 U)
Layer structure	2 GND Layer
PCB thickness	3.2 mm
Data transfer rate	132/264 MBytes/32, 64 Bit
Power inlets	3 U: Via screws and busbars
Control connector	+3,3 V, +5 V, +12 V, -12 V
VI/O (3 U)	Adjustable to +5 V or +3.3 V
CPU slot	on right (left upon request)
Standards	PCI 2.1 (PCI Spec.) PICMG 2.0 (CompactPCI) PICMG 2.1 (hot swap) IEEE 1101.1/10/11
Installation height	3 U
Distance between slots	4 HP
Connectors	J1, J2 32 or 64 bit No rear I/O
Operating temperature range	0° - 70°C
Relative humidity	90 %, non-condensing
Geographic addressing	64-bit versions

Backplanes 6 U

Material

Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes

Backplane, fully populated

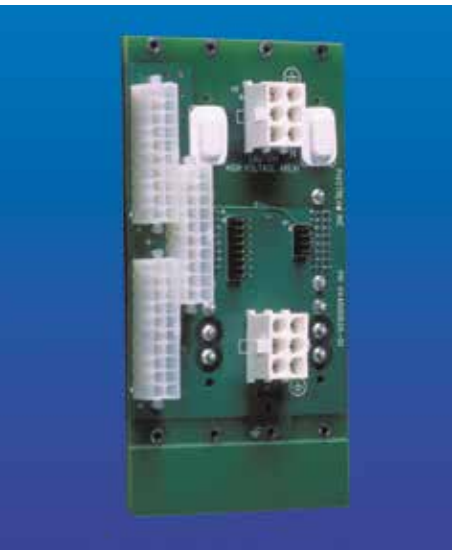
Backplanes 6 U for low profile bridge

Slot	Design	Model No.	
		32 Bit	64 Bit
2	S	**3689.314**	**3689.321**
3	SE	**3689.315**	**3689.322**
4	SBME	**3689.316**	**3689.323**
5	SBME	**3689.317**	**3689.324**
6	SBME	**3689.318**	**3689.325**
7	SBE	**3689.319**	**3689.326**
8	S	**3689.320**	**3689.327**

S = Stand alone
B = Beginning segment
M = Middle segment
E = Ending segment

Number of layers	8, 10 (for 6 U)
Layer structure	2 GND Layer
PCB thickness	3.2 mm
Data transfer rate	132/264 MBytes/32, 64 Bit
Power inlets	6 U: Via screws and busbars
Control connector	+3,3 V, +5 V, +12 V, -12 V
VI/O (6 U)	Adjustable to +5 V or +3.3 V
CPU slot	on right (left upon request)
Standards	PCI 2.1 (PCI Spec.) PICMG 2.0 (CompactPCI) PICMG 2.1 (hot swap) IEEE 1101.1/10/11
Installation height	6 U
Distance between slots	4 HP
Connectors	J1, J2 32 or 64 bit J3, J4, J5 for rear I/O (64 bit only)
Operating temperature range	0° - 70°C
Relative humidity	90 %, non-condensing
Geographic addressing	64-bit versions

Power supply board 3 U/3.5 U



- Board 3U/3,5 U, 8 HP, 16 HP, 24 HP
- For use in conjunction with HEITEC CPCI back planes
- Accomodation of 1/2/3 power supplies up to 250 W each
- AC/DC connection is made via two 2 x 3-pole connectors
- Outgoing voltages to supply one or more CPCI backplanes are available at ATX-compatible connectors
- Complies with PICMG 2.0, PICMG 2.11

Technical specifications

Accommodation of 1/2/3 CPCI power supplies of up to 250 W.
The second power supply unit may be used for redundancy (with power distribution) or, via parallel connection, to increase the current.
Input voltages:

- AC input via 2 x 3-pole AMP Mate-N-Lock (AMP # 350732-1), connector J12
- Connected via pin 45, 46, 47, type Positronic
- Maximum current load per pin is 25 A, matching counter-connector for cable harness AMP # 350715
- DC input via 2 x 3-pole AMP Mate-N-Lock (AMP # 350732-1), connector J5 connected via pin 46, 47, type Positronic
- Maximum current load per pin is 25 A, matching counter-connector for cable harness AMP # 350715

Output voltage:

- Three 20-pole ATX-compatible connectors for ATX cable harness (connection of power supply board to CPCI backplane)

Material

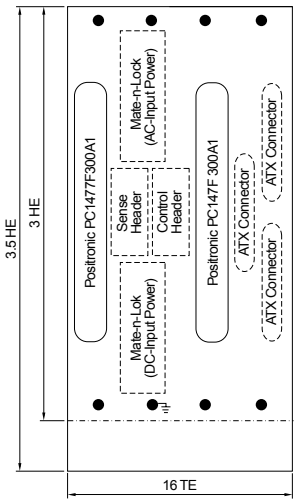
Fibreglass epoxy to IEC 60 249 (FR4)

Supply includes

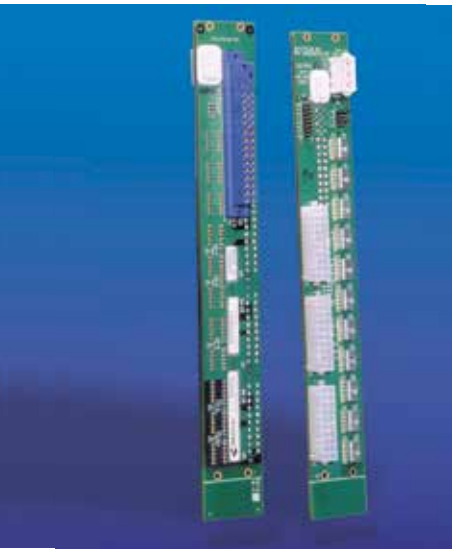
Board, fully populated

Description	HP	Model No.
3 U for 1 x plug-in power supply with Positronic connector, 47-pin	8	**9905.105**
3 U Board for 3 x plug-in power supply with Positronic connector, 47-pin	24	**9904.131**
3,5 U Board for 2 x plug-in power supply with Positronic connector, 47-pin	16	**3688.603**
ATX (12 ") cable harness		**9810.337**
ATX (16 ") cable harness		**3686.570**
ATX (19 ") cable harness		**9810.338**

HE = U
TE = HP



Power supply board 6 U/6.5 U, 8 HP



- Board 6 U/6.5 U, (0.5 U removable) 8 HP
- For use in conjunction with HEITEC CPCI backplanes 3.5 U, 6.5 U, H.110
- Accommodation of a power supply with up to 500 W
- AC/DC connection is made via 3-pole connectors
- Outgoing voltages to supply one or more CPCI backplanes are available at 3 ATX-compatible connectors or at special power terminals
- Complies with PICMG 2.0, PICMG 2.11

Technical specifications

Accommodation of a 6 U CPCI power supply of up to 500 W.
Input voltages:

- AC input via 3-pole AMP Mate-N-Lock connector max. current capacity per pin 25 A
- DC input via 3-pole AMP Mate-N-Lock connector Max. current capacity per pin 25 A Output voltage:
- Three 20-pole ATX-compatible connectors for ATX cable harness (connection of power supply board to CPCI backplane) and/or special power terminals

Material

Fibreglass epoxy to IEC 60 249 (FR4)

Supply includes

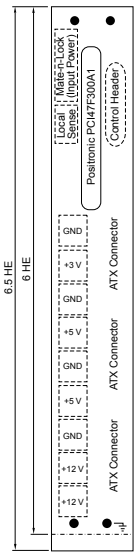
Board, fully populated

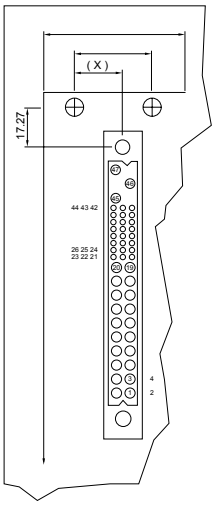
Note

Plug-type power supplies,
see page 198

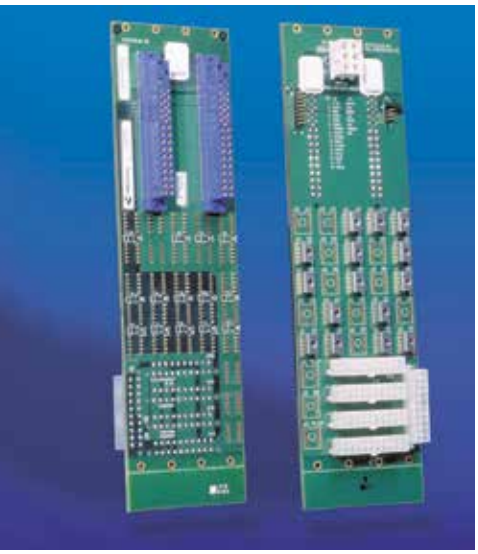
Description	Model No.
Board for 1 x plug-in power supply with Positronic connector, 47-pin	**3688.607**
ATX (12 ") cable harness	**9810.337**
ATX (16 ") cable harness	**3686.570**
ATX (20 ") cable harness	**9810.338**

HE = U





Power supply board 6 U/6.5 U, 16 HP



- Board 6 U/6.5 U, (0.5 U removable) 16 HP
- For use in conjunction with HEITEC CPCI backplanes 3.5 U and 6.5 U
- Accommodation of two power supplies with up to 500 W
- AC/DC connection is made via two 2 x 3-pole connectors
- Outgoing voltages to supply one or more CPCI backplanes are available at 5 ATX-compatible connectors or at special power terminals
- Complies with PICMG 2.0, PICMG 2.11

Technical specifications

Accommodation of 2 x 6 U CPCI power supplies of up to 500 W
Input voltages:
- AC input via 2 x 3-pole AMP Mate-N-Lock connector Max. current capacity per pin 25 A
- DC input via 2 x 3-pole AMP Mate-N-Lock connector Max. current capacity per pin 25 A

Output voltage:
- Five 20-pole ATX-compatible connectors for ATX cable harness (connection of power supply board to CPCI backplane)

Material

Fibreglass epoxy to IEC 60 249 (FR4)

Supply includes

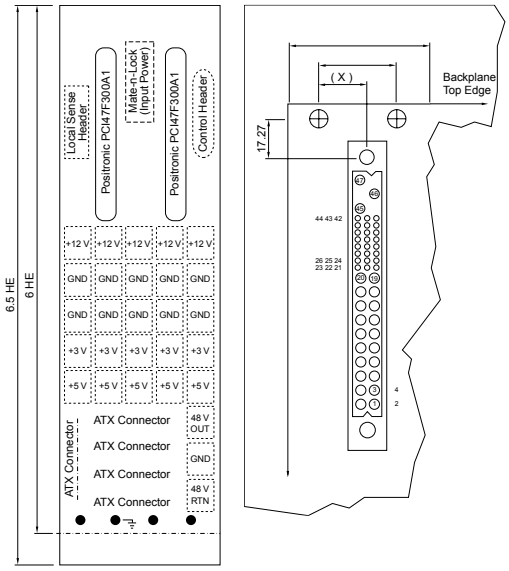
Board, fully populated

Note

Plug-in power supplies,
see page 198

Description	Model No.
Board for 2 x plug-in power supplies with Positronic connector, 47-pin	**3688.608**
ATX (12 ") cable harness	**9810.337**
ATX (16 ") cable harness	**3686.570**
ATX (20 ") cable harness	**9810.338**

HE = U



Power supply board 9U Monolithic with power supply connector

Material

Fiberglass epoxy to IEC 60 249 (FR4)

Supply includes

Board, fully populated

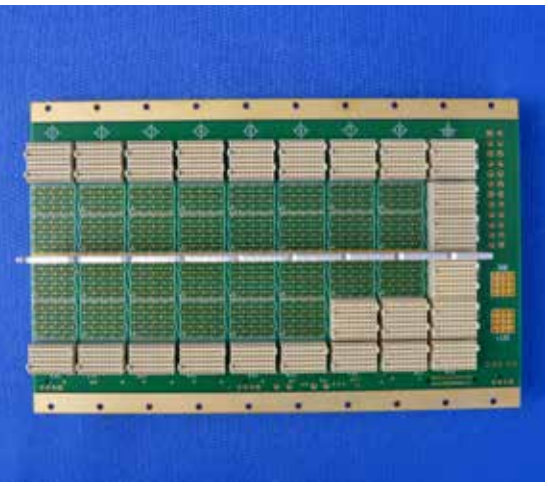
S = Stand alone
B = Beginning segment
M = Middle segment
E = Ending segment

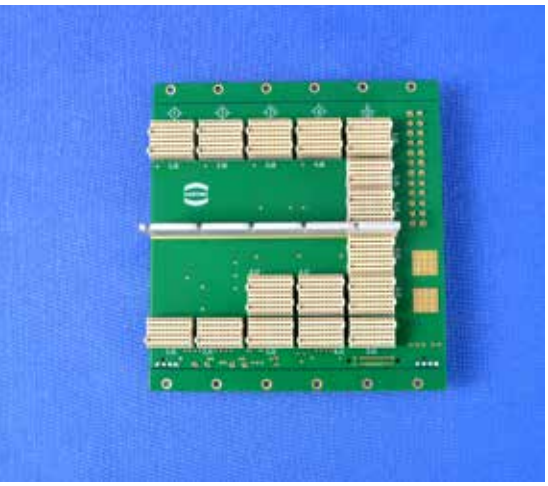
Slot	Posit ronic connector,47 Pin	ATX	Model No.
2[1)]	1	0	**3689.329**
4	2	1	**3689.330**
6	3	1	**3689.331**
8	4	1	**3689.332**

Systemslot on right 64 Bit with Rear I/O, V I/O: +5.0 V. H. 110 not connected with systemslot.
[1)] without H.110

OVERVIEW RACK-MOUNT SYSTEMS FOR CompactPCI SERIAL

CPCI-S





The CompactPCI serial specification is the logical extension of the CompactPCI standard.
This new standard replaces the existing CompactPCI parallel signals with rapid serial data links. The central supply voltage has also been raised to 12 V DC.
The mechanical specification of the CompactPCI serial standard completely matches that of the CompactPCI standard, with the exception of new backplane plug connectors. This means the dimensions for the plug-in cards, backplanes and even the front panels remain unchanged. The new standard makes it possible to produce backplanes with up to nine slots (one system and eight peripheral slots) and full-mesh Ethernet.
Upon request, HEITEC can also offer platforms with hybrid backplanes in accordance with the CompactPCI-Plus IO standard, to help customers make a step-by-step transition. CompactPCI system cards and CompactPCI serial periphery cards can be used in this connection.

Our range of services comprises complete plug & play systems including backplanes, power supply and effective cooling units.
The following subracks represent just a small selection of the available portfolio.

CompactPCI® Serial

HeiPac VM-A CPCI-S

NEW

9 SLOT CompactPCI® SERIAL platform for 3 U modules

Packs of	Order no.
1	9919.605

Technical Summary

- Desktop/system case 310 mm deep
- Side panels of extruded aluminum profile painted in RAL 7035
- 4 U case with 3 U card cage and feet
- Incl. power supply and pluggable fan drawer
- Codable card guides
- 9-slot CompactPCI® serial backplane as per PICMG CPCI-S.0 R2.0
- Ethernet Full Mesh topology
- Alternatively, Ethernet Single Star option
- 2 Fat Pipes PCIexpress
- CompactPCI® serial system slot on the right
- Alternative system slot possible on the left, rear transition module slots upon request
- Cooling with up to 3 fans in fan drawer – integrated cooling from bottom to top
- ATX 400W Power supply 100-240V
- Corresponds to IEC 60297-3-101, 102, 103 and IEEE 1101.1/10/11
- Completely mounted, prewired and tested
- EMC version
- Individual interior design and variable position of the backplane possible
- Simple handling via side grips

Customer Benefits

- Modular components allow flexible adaptation and customization
- System slot on the right enables use of an 8 HP CPU module without giving up one of the CompactPCI® serial slots
- Efficient cooling system via up to three fans in the fan drawer
- Variably deployable as desktop and rack-mount case
- Wide range of accessories
- Chassis with visual appeal ¬– adaptable to suit individual color preferences

OVERVIEW RACK-MOUNT SYSTEMS FOR CompactPCI SERIAL

HeiPac Vario-A CPCI-S

NEW

5 SLOT CompactPCI® SERIAL platform FOR 3 U modules

Technical Summary

- Subrack 250 mm deep
- 4 U subrack with 3 U card cage
- Clear-chromated aluminum
- Incl. power supply and axial fan – cooling from bottom to top
- Codable card guides
- 5-slot CompactPCI® serial backplane as per PICMG CPCI-S.0 R2.0
- Ethernet in Single Star topology
- Alternatively, Ethernet Full Mesh option
- 2 Fat Pipes PCIexpress
- CompactPCI® serial system slot on the right
- Alternative system slot possible on the left, RTM upon request
- Scalable: project-related up to 8 slot CompactPCI® serial or hybrid backplane can be integrated
- Optional fanless usage (convection cooling)
- ATX power supply 100-240VAC with 204 W at 12 V
- Scalable: project-specific power supply, solutions with up to 2 plug-in redundant CompactPCI® serial power supplies possible
- Corresponds to IEC 60297-3-101, 102, 103 and IEEE 1101.1/10/11
- Completely mounted, prewired and tested
- EMC version

Packs of	Order no.
1	**9919.911**

Customer Benefits

- Very cost-effective platform solution
- System slot on the right enables use of an 8 HP CPU module without giving up one of the CompactPCI® serial slots
- Variable number of slots – other backplanes can also be integrated at modest cost depending on the project, even for low unit quantities
- Efficient cooling system – fanless usage also possible depending on application
- Fast and easy assembly
- Modular components allow flexible adaptation and customization

HeiPac Vario VM-R CPCI-S

NEW

5 SLOT CompactPCI® SERIAL platform for 3 U modules

Technical Summary

- Desktop/system case 250 mm deep
- Side panels of extruded aluminum profile painted in RAL 7035
- 4 U case with 3 U card cage
- Incl. power supply and two radial fans
- Codable card guides
- 5-slot CompactPCI® serial backplane as per PICMG CPCI-S.0 R2.0
- Ethernet in Star topology – alternatively, Ethernet Full Mesh option
- 2 Fat Pipes PCIexpress
- CompactPCI® serial system slot on the right
- Alternative system slot possible on the left, RTM upon request
- Scalable: project-related up to 8 slot CompactPCI® serial or hybrid backplane can be integrated
- ATX power supply 100-240VAC with 204 W at 12 V
- Scalable: project-specific power supply, solutions with up to 2 plug-in redundant CompactPCI® serial power supplies possible
- Corresponds to IEC 60297-3-101, 102, 103 and IEEE 1101.1/10/11
- Completely mounted, prewired and tested
- EMC version

Packs of	Order no.
1	**9919.912**

Customer Benefits

- Modular components allow flexible adaptation and customization
- System slot on the right enables use of an 8 HP CPU module without giving up one of the CompactPCI® serial slots
- Variable number of slots – other backplanes can also be integrated at modest cost depending on the project, even for low unit quantities
- Efficient cooling system from the lower front to upper rear using two radial fans
- Modular components allow flexible adaptation and customization
- Wide range of accessories
- Chassis with visual appeal – adaptable to suit individual color preferences

OVERVIEW RACK-MOUNT SYSTEMS FOR VMEbus

Slim-box Vario VME64x Systems

2 U, 4 U
Order no. on request

Applications

Configuration of 19″ industrial computer systems according to VME specification for
- Process Control
- Traffic Management System
- Image Processing
- Industrial Automation

Technical specifications

- 482.6 mm (19″) rack-mount system for horizontal mounting of front boards and rear I/O cards
- 1 U, 2 U, 3 U, 4 U, 300 mm deep
- Standard cooling from left to right side
- Sheet steel, spray-finished (black)
- Preconfigured systems including back-plane and fan
- Completely assembled, pre-wired and tested
- Installation of VME64x boards accor-ding to VME specification

Benefits at a glance

- Horizontal installation of Eurocards/ double Eurocards
- Maximum installation with minimum space requirement
- 2/4/6/8 slots for 160 mm front and 80 mm rear boards
- Hot swap compatible power supply, AC or DC optionally
- EMC and ESD protection
- Completely assembled, pre-wired and tested
- Integrated cooling from left to right side
- Modular assembly ensures individual configuration
- Conforms to IEC 60 297-3-101,-102,-103

HeiPac VME/VME64x Systems

3 U, 5 slots/ 4 U, 7 slots horizontal
Order no. see page 246

Applications

Configuration of 19″ industrial computer systems according to VME specification for
- Process Control
- Traffic Management System
- Image Processing
- Industrial Automation

Technical specifications

- 482.6 mm (19″) rack-mount system for horizontal mounting of double Eurocards
- 3 U, 4 U, 405 mm deep
- Aluminium, clear-chromated
- Including backplane, power supply and rear fan
- Completely assembled, pre-wired and tested
- Horizontal installation space for double Eurocards: 5 and 7 slots
- Installation of VME- or VME64x boards according to VME specification

Benefits at a glance

- Horizontal installation of double Euro-cards
- EMC and ESD protection
- Completely assembled, pre-wired and tested
- Well-directed air ducting from front to rear via fans in the rear panel
- Keyable guide rails
- Conforms to IEC 60 297-3-101,-102,-103

HeiPac VME/VME64x Systems

4 U/ 7 U, 12 slots
Order no. see page 247

Applications

Configuration of 19″ industrial computer systems according to VME specification for
- Process Control
- Traffic Management System
- Image Processing
- Industrial Automation

Technical specifications

- 482.6 mm (19″) rack-mount system for vertical mounting of Eurocards/double Eurocards
- 4 U and 7 U, 405 mm deep
- Aluminium, clear-chromated
- Including backplane and power supply
- Fan unit with 3 DC fans
- Completely assembled, pre-wired and tested
- Installation space for double Euro-cards: 12 slots
- Installation of VME- or VME64x boards according to VME specification

Benefits at a glance

- Vertical installation of double Eurocards
- EMC and ESD protection
- Completely assembled, pre-wired and tested
- Fan module ensures well-directed air flow from bottom to top
- Keyable guide rails
- Conforms to IEC 60 297-3-101,-102,-103

HeiPac VME/VME64x Systems

7 U, 12 slots
Order no. see page 248

Applications

Configuration of 19˝ industrial computer systems according to VME specification for
- Process Control
- Traffic Management System
- Image Processing
- Industrial Automation

Technical specifications

- 482.6 mm (19˝) rack-mount system for vertical mounting of double Eurocards
- 7 U, 405 mm deep
- Aluminium, clear-chromated
- Including backplane, power supply and rear fan
- Completely assembled, pre-wired and tested
- Installation space for Eurocards/double Eurocards: 12 slots
- Installation of VME- or VME64x boards according to VME specification

Benefits at a glance

- Vertical installation of double Eurocards
- EMC and ESD protection
- Completely assembled, pre-wired and tested
- Well-directed air flow from front to rear
- Keyable guide rails
- Corresponds to IEC 60 297-3-101,-102, -103

HeiPac VME/VME64x Systems

9 U, 12 slots with RiCool and Rear I/O
Order no. see page 249

Applications

Configuration of 19˝ industrial computer systems according to VME specification for
- Process Control
- Traffic Management System
- Image Processing
- Industrial Automation

Technical specifications

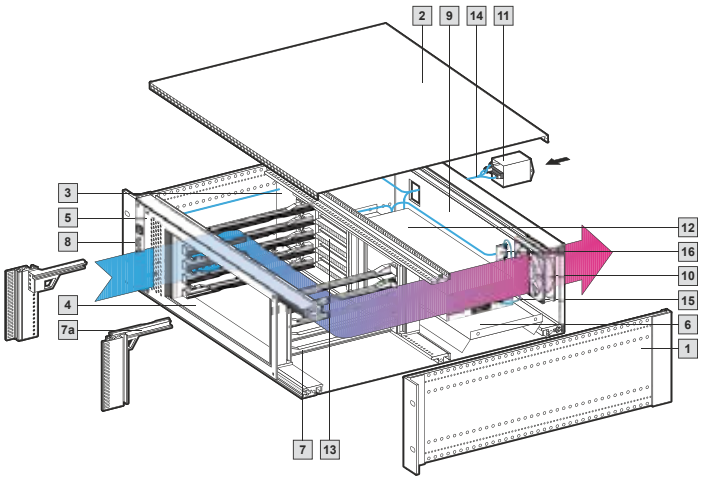
- 482.6 mm (19˝) rack-mount system for vertical mounting of double Eurocards
- 9 U, 290.5 mm deep, on the rear side for I/O modules
- Aluminium, clear-chromated
- Including backplane, power supply and 2 radial fans HeiCool (204 m3/h)
- Completely assembled, pre-wired and tested
- Installation space for Eurocards/doub-len Eurocards: 12 slots
- Installation of VME- or VME64x boards according to VME specification

Benefits at a glance

- Vertical installation of double Eurocards
- EMC and ESD protection
- Completely assembled, pre-wired and tested
- Well-directed air flow from front to rear
- Rear I/O transition modules
- Keyable guide rails
- Effective ventilation by 2 radial fans HeiCool (204 m3/h)
- Conforms to IEC 60 297-3-101,-102,-103

RACK-MOUNT SYSTEMS FOR VME/VME64x

HeiPac 3 U, 5 slots/4 U, 7 slots horizontal



Technical specifications

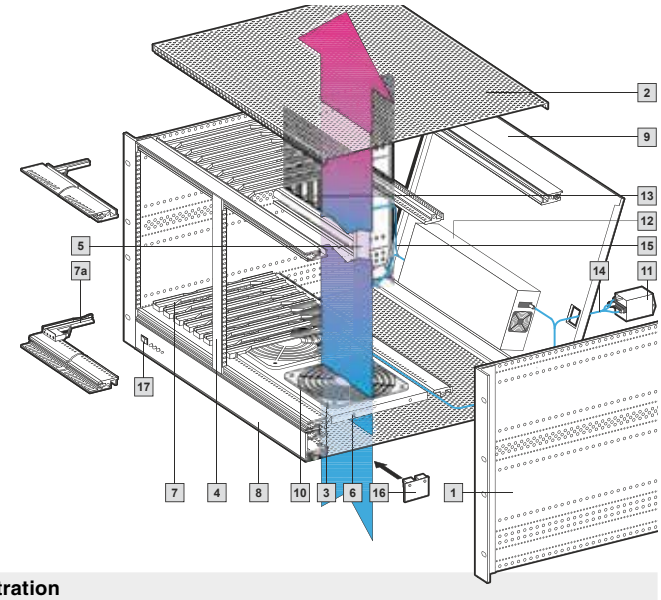
Subrack, 405 mm deep, for installation in 482.6 mm (19″) enclosures or cases. Prepared to accommodate VMEbus boards and drives.
Includes MPS monitoring (see pages 255 ff.)
Complies with IEC 60 297-3-101,-102, -103,
Fully assembled, pre-wired and tested.

Illustration

MPS system 3 U

	U		3	3	4	4	Page
	Side panel depth mm		405	405	405	405	
	Wiring space (depth in mm)		210	210	210	210	
	For PCB		6 U x 160 mm	6 U x 160 mm	6 U x 160 mm	6 U x 160 mm	
	MPS system Model no. for VME		**9910.949**	**-**	**9910.954**	**-**	
	MPS system Model no. for VMe64x		**-**	**9910.950**	**-**	**9910.955**	
	Mechanical supply includes						
	Description	Material	Qty.				
1	HeiPac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/ stainless steel	1	1	1	1	-
2	Top and bottom covers, solid	Aluminium	2	2	2	2	161
3	Air partition	Aluminium	1	1	1	1	187
4	Horizontal mounting kit	Aluminium, clear-chromated	1	1	1	1	151
5	Trim frame for horizontal mounting kit	2.5 mm aluminium, clear-chromated	1	1	1	1	151
6	Mounting base for power supply unit	2 mm aluminium, anodised	1	1	1	1	201
	EMC shielding plate for fan	Aluminium, clear-chromated	1	1	1	1	193
7	Guide rails	Polycarbonate UL 94-V0	10	-	14	-	154
7a	Plastic guide rails, keyable	Polycarbonate UL 94-V0	-	10	-	14	155
8	EMC front panel 3 U or 4 U/5 HP, with MPS monitoring	2.5 mm aluminium, clear-chromated	1	1	1	1	-
9	EMC rear panel 3 U/84 HP with fan and connector cut-out	2.5 mm aluminium, clear-chromated	1	1	-	-	-
	EMC rear panel 4 U/84 HP with fan and connector cut-out	2.5 mm aluminium, clear-chromated	-	-	1	1	-
	Electrical/electronic supply includes						
	Description	Technical specifications					
10	DC fan	12 V DC, 48 m³/h per fan (UL, CSA, VDE) optionally speed-controlled	1	1	1	1	191
11	IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	1	1	1	257
12	Switch mode power supply unit	250 W	1	1	1	1	-
13	VME backplane	J1, 5 slots, IN-board, passive, ADC	1	-	-	-	254
	VME64x backplane	J1/J2, 5 slots (without P0)	-	1	-	-	252
	VME backplane	J1, 7 slots, IN-board, passive, ADC	-	-	1	-	254
	VME64x backplane	J1/J2, 7 slots	-	-	-	1	252
	LED display module for MPS monitoring	for +5 V, ±12 V, fan failure	1	1	1	1	-
14	AC cable harness	-	●	●	●	●	-
15	DC cable harness	-	●	●	●	●	-
16	Fan module for DC fan	-	1	1	1	1	-
	Controller module	with interface for RS-232 and CMC-TC	1	1	1	1	-

HeiPac 4 HE/7 HE, 12 Slot



Technical specifications

Subrack, 405 mm deep, for installation in 482.6 mm (19˝) enclosures or cases. Prepared to accommodate VMEbus boards and drives.
Includes MPS Monitoring (see pages 255 ff.)
Complies with IEC 60 297-3-101,-102, -103,
Fully assembled, pre-wired and tested.

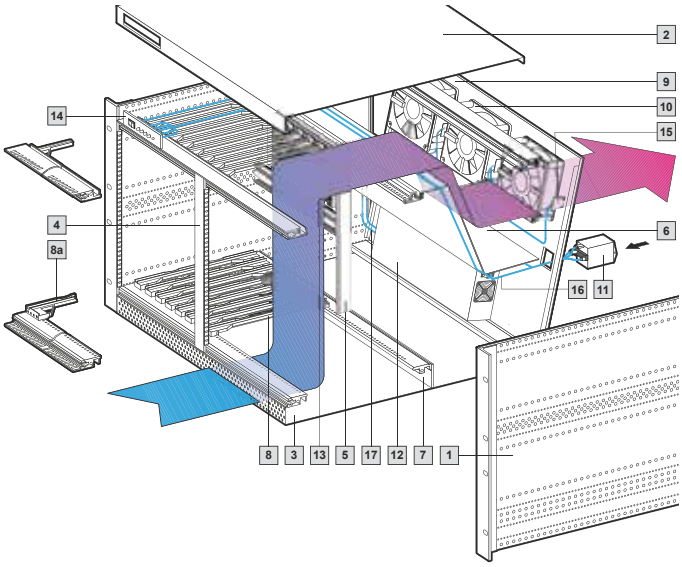
Illustration

MPS system 7 U

U			**4 (3 + 1)**	**7 (6 + 1)**	**7 (6 + 1)**	Page
Side panel depth mm			405	405	405	
Wiring space (depth in mm)			210	210	210	
For PCB			3 U x 160 mm	3 U/6 U x 160 mm		
MPS system Model No. for VME			**9909.484**	**9910.956**	**-**	
MPS system Model No. for VME64x			**-**	**-**	**9910.957**	
Mechanical supply includes						
Description		Material	Qty.			
1	HeiPac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/stainless steel	1	1	1	-
2	Top and bottom covers, vented	Aluminium	2	2	2	161
3	Finger guard	Polyamid	3	3	3	192
4	EMC front panel, 6 U/4 HP (with 7 U)	Aluminium, clear-chromated	-	1	-	-
5	Support, vertical (with 7 U)	Aluminium, clear-chromated	-	1	-	150
6	Fan mounting plate	1 mm aluminium, anodised	1	1	1	186
7	Guide rails	Polycarbonate UL 94-V0	24	24	-	154
7a	Plastic guide rails, keyable	Polycarbonate UL 94-V0	-	-	24	155
8	EMC front panel 1 U/84 HP for switches/LED	2.5 mm aluminium, clear-chromated	1	1	1	-
	Rear panel 4 U/84 HP, horizontally hinged with connector cut-out	2.5 mm aluminium, clear-chromated	1	-	-	-
9	EMC rear panel 7 U/84 HP, horizontally hinged with connector cut-out	2.5 mm aluminium, clear-chromated	-	1	1	-
Electrical/electronic supply includes						
Description		Technical specifications				
10	DC fan	12 V DC, 140 m³/h per fan (VDE, UL, CSA) optionally speed-controlled	3	3	3	191
11	IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	1	1	257
12	Switch mode power supply unit	400 W	1	1	1	196
13	VME backplane	J1, 12 slots, IN-board, passive, ADC	1	1	-	254
	VME64x backplane	J1/J2, 12 slots	-	-	1	252
17	LED display module for MPS monitoring	for (3.3 V), +5 V, ±12 V, fan failure	1	1	1	-
14	AC cable harness	-	●	●	●	-
15	DC cable harness	-	●	●	●	-
16	Fan module for DC fan	-	1	1	1	-
	Controller module	with interface for RS-232 and CMC-TC	1	1	1	-

RACK-MOUNT SYSTEMS FOR VME/VME64x

HeiPac 7 U, 12 slots

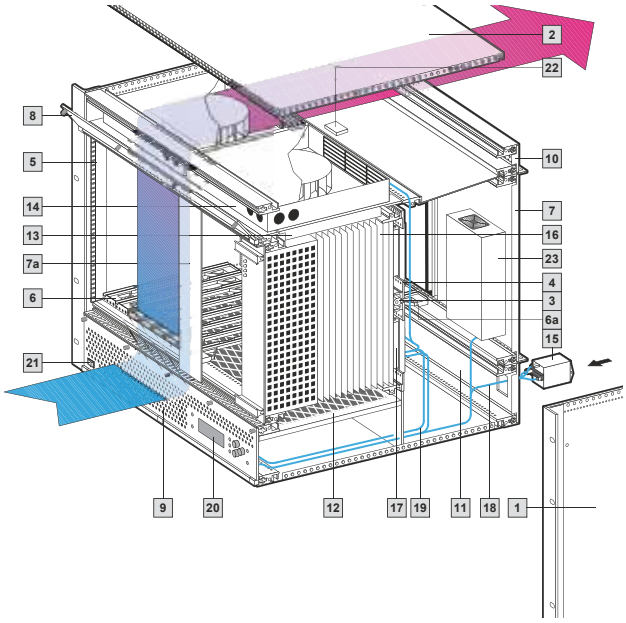


Technical specifications

Subrack, 405 mm deep, for installation in 482.6 mm (19˝) enclosures or cases. Prepared to accommodate VMEbus boards and drives.
Includes MPS Monitoring (see pages 255 ff.)
Complies with IEC 60 297-3-101,-102, -103,
Fully assembled, pre-wired and tested.

U			**7 (6+ 2 x ½)**	**7 (6 + 2 x ½)**	Page
	Side panel depth mm		405	405	
	Wiring space (depth in mm)		210	210	
	For PCB		6 U x 160 mm	6 U x 160 mm	
	MPS system Model No. for VME		**9910.958**	**-**	
	MPS system Model No. for VME64x		**-**	**9910.959**	
	Mechanical supply includes				
	Description	Material	Qty.		
1	HeiPac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/ stainless steel	1	1	-
2	Cover with ½ U edge fold and cut-outs for switches/LEDs	Aluminium	1	1	163
3	Bottom cover with ½ U edge fold, ventilated at the front	Aluminium	1	1	163
4	EMC front panel 6 U/4 HP	2.5 mm aluminium, clear-chromated	1	-	-
	EMC shielding plate for fan	Aluminium, clear-chromated	3	3	193
5	Vertical support	Aluminium, clear-chromated	1	-	150
6	Air baffle	1 mm aluminium, anodised	1	1	187
7	Air block panel, ½ U	Epoxyd	1	1	187
8	Guide rails	Polycarbonate UL 94-V0	24	-	154
8a	Plastic guide rails, keyable	Polycarbonate UL 94-V0	-	24	155
9	EMC rear panel, horizontally hinged, 7 U, with fan and connector cut-out	2.5 mm aluminium, clear-chromated	1	1	-
	Electrical/electronic supply includes				
	Description	Technical specifications			
10	DC fan	12 V DC, 140 m³/h per fan, (UL, CSA, VDE) optional speed control	3	3	191
11	IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	1	257
12	Switch mode power supply unit	400 W	1	1	196
13	VME backplane	J1, 12 slots, IN-board passive, ADC	1	-	254
	VME64x backplane	J1/J2, 12 slots (without P0)	-	1	252
14	LED display module for MPS monitoring	for (3.3 V), +5 V, ±12 V, fan failure	1	1	-
15	Fan module for DC fan	-	1	1	-
16	AC cable harness	-	●	●	-
17	DC cable harness	-	●	●	-
	Controller module	with interface for RS-232 and CMC-TC	1	1	-

HeiPac 9 U, 12 slots, with HeiCool radial fan



Technical specifications

Subrack, 290.5 mm deep, for installation in 482.6 mm (19˝) enclosures or cases. Prepared to accommodate VMEbus boards and drives.
Includes MPS Monitoring (see pages 255 ff.)
Complies with IEC 60 297-3-101,-102, -103,
Fully assembled, pre-wired and tested.

U			**9 (6 + 2 x 1½)**	Page
Side panel depth mm			290.5	
Wiring space (depth in mm)			85.5	
For PCB			6 U x 160 mm	
MPS system Model No. for VME64x			**9910.960**	
Mechanical supply includes				
Description		Material	Qty.	
1	HeiPac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/stainless steel	1	-
2	Top and bottom covers, solid	1 mm Aluminium	2	161
3	Centre horizontal rail 12 HP	1 mm aluminium, clear-chromated	1	-
4	Z rail 12 HP	Aluminium, clear-chromatedt	4	-
5	EMC contact strip	Aluminium, clear-chromated	2	146
6	Plastic guide rails, keyable	Polycarbonate UL 94-V0	24	155
	Guide rails, keyable, green, for power supply	Polycarbonate UL 94-V0	2	155
6a	Guide rails for I/O transition modules	Polycarbonate UL 94-V0	24	-
7	EMC rear panel 6 U/36 HP	2.5 mm aluminium, clear-chromated	1	-
7a	EMC front panel	2.5 mm aluminium, clear-chromated	1	-
8	Front panel 1½ U/84 HP, horizontally hinged	2.5 mm aluminium, clear-chromated	1	-
9	Front panel 1½ U/84 HP, vented, horizontally hinged, for MPS monitoring	2.5 mm aluminium, clear-chromated	1	-
10	EMC rear panel 1½ U/84 HP, vented	2.5 mm aluminium, clear-chromated	1	-
11	EMC rear panel, 11/2 U/84 HP, with connector cut-out	2.5 mm aluminium, clear-chromated	1	-
12	Filter mat 160 mm, 84 HP, for slide-in attachment	-	1	-
13	Mounting plate for HeiCool	1 mm sheet steel, zinc-plated, passivated	1	-
Electrical/electronic supply includes				
Description		Technical specifications		
14	HeiCool DC fan, individually removable. Including fault alarm signal, speed control	24 V DC, 204 m³/h, 48 W	2	-
15	IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	257
16	Power supply, plug-in, 6 U/12 HP	270 W	1	197
	Backplane VME64x, without P0	J1/J2, 12 slots	1	252
17	Female connector for power supply unit	H15	2	-
18	AC cable harness	-	•	-
19	DC cable harness	-	•	-
20	Display module	for +5 V, ±12 V, fan failure	1	-
21	Mains switch	-	1	-
22	Monitoring module for HeiCool and backplane	-	2	-
23	Power supply for HeiCool	-	1	
	Controller module	-	1	
	Temperature module	-	1	

Technical specifications

General technical specifications VMEbus

The VMEbus, based on standard IEEE 1014 and IEC 821, has become established worldwide as an industry standard.
The VME64 is a new addition to the VME family to ANSI/VITA 1-1994 and supports 64-bit data traffic. The VME64x extends the VME family to ANSI/VITA 1.1-1997 and is available with the optional 133-pole 2 mm connector J0. 160-pole connectors are used with VME64x. This system remains backward compatible, so that assemblies with 96-pole connectors to IEC 60 603-2 may still be used. All HEITEC VMEbus boards are of a HIGH SPEED DESIGN. Minimal reflections are achieved, due to even surge impedance of the signal track.
The consistent shielding of every signal track ensures minimum coupling and hence guarantees interference-free operation even when extended to 64 bit mode with the 2e protocol (160 Mbit/s).

Daisy-chain circuit

With the daisy-chain circuit, a distinction is made between manual daisy-chaining and automatic daisy-chaining. Automatic daisychaining renders the connection of jumpers superfluous, and users are saved the time-consuming task of insertion and extraction. What is more, possible misconnections are avoided. Automatic daisychaining can be achieved in two ways. HEITEC VME backplanes are generally supplied with automatic daisy-chaining.

Termination

In order to avoid malfunctions on signal tracks that may arise as a result of reflections on the exposed track end, these must be terminated with the VMEbus. Termination may be either ON-/IN-board (on the backplane) or OFF-board (external). With regard to the type of termination, a distinction is made between passive and active termination. The benefit of active termination lies in the lower closed-circuit current consumption. Passive termination is distinguished by superior frequency response and a broader temperature range.

Pin assignment J1 and J2

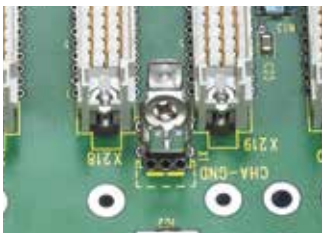
Pin assignment for J1 connector VME64x					
		Pin assignment for J1 connector VME			
Pin no.	Z	A	B	C	D
1	MPR	D00	BBSY	D08	VPC
2	GND	D01	BCLR	D09	GND
3	MCLK	D02	ACFAIL	D10	+ V1
4	GND	D03	BG0IN	D11	+ V2
5	MSD	D04	BG0OUT	D12	RsvU
6	GND	D05	BG1IN	D13	- V1
7	MMD	D06	BG1OUT	D14	- V2
8	GND	D07	BG2IN	D15	RsvU
9	MCTL	GND	BG2OUT	GND	GAP
10	GND	SYSCLK	BG3IN	SYSFAIL	GAO
11	RTRY1	GND	BG3OUT	BERR	GA1
12	GND	DS1	BR0	SYSRESET	+3.3 V
13	RsvBus	DS0	BR1	LWORD	GA2
14	GND	WRITE	BR2	AM5	+3.3 V
15	RsvBus	GND	BR3	A23	GA3
16	GND	DTACK	AM0	A22	+3.3 V
17	RsvBus	GND	AM1	A21	GA4
18	GND	AS	AM2	A20	+3.3 V
19	RsvBus	GND	AM3	A19	RsvBus
20	GND	IACK	GND	A18	+3.3 V
21	RsvBus	IACKIN	SERCLK (1)	A17	RsvBus
22	GND	IACKOUT	SERDAT (1)	A16	+3.3 V
23	RsvBus	AM4	GND	A15	RsvBus
24	GND	A07	IRQ7	A14	+3.3 V
25	RsvBus	A06	IRQ6	A13	RsvBus
26	GND	A05	IRQ5	A12	+3.3 V
27	RsvBus	A04	IRQ4	A11	LI/I
28	GND	A03	IRQ3	A10	+3.3 V
29	SBB	A02	IRQ2	A09	LI/O
30	GND	A01	IRQ1	A08	+3.3 V
31	SBA	-12 V	+5 V STDBT	+12 V	GND
32	GND	+5 V	+5 V	+5 V	VPC

Pin assignment for J2 connector VME64x					
		Pin assignment for J2 connector VME			
Pin no.	Z	A	B	C	D
1	UD	User def.	+5 V	User def.	UD
2	GND	User def.	GND	User def.	UD
3	UD	User def.	Retry	User def.	UD
4	GND	User def.	A24	User def.	UD
5	UD	User def.	A25	User def.	UD
6	GND	User def.	A26	User def.	UD
7	UD	User def.	A27	User def.	UD
8	GND	User def.	A28	User def.	UD
9	UD	User def.	A29	User def.	UD
10	GND	User def.	A30	User def.	UD
11	UD	User def.	A31	User def.	UD
12	GND	User def.	GND	User def.	UD
13	UD	User def.	+5 V	User def.	UD
14	GND	User def.	D16	User def.	UD
15	UD	User def.	D17	User def.	UD
16	GND	User def.	D18	User def.	UD
17	UD	User def.	D19	User def.	UD
18	GND	User def.	D20	User def.	UD
19	UD	User def.	D21	User def.	UD
20	GND	User def.	D22	User def.	UD
21	UD	User def.	D23	User def.	UD
22	GND	User def.	GND	User def.	UD
23	UD	User def.	D24	User def.	UD
24	GND	User def.	D25	User def.	UD
25	UD	User def.	D26	User def.	UD
26	GND	User def.	D27	User def.	UD
27	UD	User def.	D28	User def.	UD
28	GND	User def.	D29	User def.	UD
29	UD	User def.	D30	User def.	UD
30	GND	User def.	D31	User def.	UD
31	UD	User def.	GND	User def.	UD
32	GND	User def.	+5 V	User def.	UD

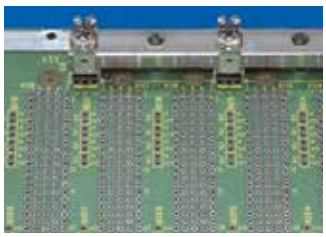
Technical specifications

Automatic daisy-chaining J1 and J1/J2
Via the use of connectors with integral mechanical switches, the contact is automatically opened when the daughterboard is inserted, and closed again when it is extracted.

Automatic daisy-chaining VME64x
The second option for automatic daisy-chaining is achieved here by an “or” logic integrated onto the backplane. If the daughterboard is extracted, the logic closes the daisy-chain.



Chassis GND connection
An electrically conductive chassis GND surface is attached to the subracks in the mounting section of the backplane. This facilitates EMC-sealed mounting of the backplane on the subracks. With VME64x, RF linking of the subracks and system earth is achieved via capacitors (10nF, 200 V at each slot). Static charges are discharged via a resistor (≥ 1 MΩ). A combined connection component (screw M4 and Faston 2.8 or 6.3 x 0.8 mm) is provided for connection of the enclosure earth.



Power connections
Infeed of the main operating voltage +5 V/+3.3 V and GND is provided via busbars with M6 screw terminal. The auxiliary operating voltages are supplied via double Fastons with additional M4 screw thread. Optimum supply of the daughterboards and hence problem-free operation is ensured, thanks to the arrangement of the infeed modules on the backplane.

Utility connector
The special signals to the power pack and to external LEDs are routed on a separate connector on the backplanes.
A 7-pole, a 10-pole or a 14-pole connector with 2.54 mm spacing is provided, depending on the backplane type.

Pin assignment, 10/14 Pins

GND	1	2	GND Sense (5 V)
+5 V	3	4	+5 V Sense
ACFAIL-	5	6	ACFAIL-
SYSFAIL-	7	8	SYSFAIL-
SYSRESET-	9	10	SYSRESET-
+3.3 V	11	12	+3.3 V Sense
GND	13	14	GND Sense (3.3 V)

J1, J1/J2: 10 pins, VME64x: 14 pins

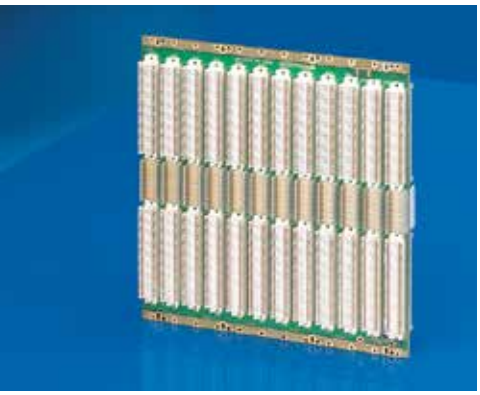
Geographical address pin assignments (VME64x)

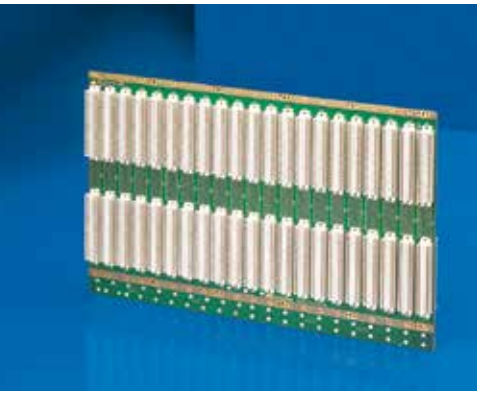
Slot no.	GAP Pin J1-D9	GA4 Pin J1-D17	GA3 Pin J1-D15	GA2 Pin J1-D13	GA1 Pin J1-D11	GA0 Pin J1-D10
1	Open	Open	Open	Open	Open	GND
2	Open	Open	Open	Open	GND	Open
3	GND	Open	Open	Open	GND	GND
4	Open	Open	Open	GND	Open	Open
5	GND	Open	Open	GND	Open	GND
6	GND	Open	Open	GND	GND	Open
7	Open	Open	Open	GND	GND	GND
8	Open	Open	GND	Open	Open	Open
9	GND	Open	GND	Open	Open	GND
10	GND	Open	GND	Open	GND	Open
11	Open	Open	GND	Open	GND	GND
12	GND	Open	GND	GND	Open	Open
13	Open	Open	GND	GND	Open	GND
14	Open	Open	GND	GND	GND	Open
15	GND	Open	GND	GND	GND	GND
16	Open	GND	Open	Open	Open	Open
17	GND	GND	Open	Open	Open	GND
18	GND	GND	Open	Open	GND	Open
19	Open	GND	Open	Open	GND	GND
20	GND	GND	Open	GND	Open	Open
21	Open	GND	Open	GND	Open	GND

Pin assignments J0

Pin no.	Z	A	B	C	D	E	F
1 - 19	GND	User Defined	User Defined	User Defined	User Defined	User Defined	GND

Backplanes VME64x





Technical specifications

Number of layers	10
Layer structure	Optimised for optimum RF performance. Outer layers designed as shielding surface.
PCB thickness	4.5 mm ± 10 %
Ohmic resistance of the signal tracks	< 1 Ohm
Surge impedance Z of the signal tracks	55 Ohm
Basic power consumption, terminated at both ends	Active: < 200 mA Passive: < 2 A
Power supply: - Busbar with M6 screw terminal - M4 screw terminal and FASTON 6.3 x 0.8 mm - < 5 slots	+5 V, +3.3 V and 0 V ±12 V, +5 V STBY, ±V1, ±V2 and case FASTON 6.3 x 0.8 mm
Current carrying capacity of busbar	max. 200 A
Current carrying capacity of a combined double flat-pin connector/screw terminal	25 A
Current carrying capacity of a FASTON flat connector	10 A
Current carrying capacity of the assembly, per slot	+3.3 V 12.5 A +5 V 9.0 A +12 V 1.5 A -12 V 1.5 A +5 V STDBY 1.5 A +48 V (38 - 75 V) 3.0 A
Termination ON-/IN-board	6 U: active, 6.5 U: active (passive/changeover)
Installation height	6 U/6.5 U
Distance between slots	4 HP
Connectors	Press-fit technique quality class 2, 400 connection cycles 160 pins compatible with C96 P0 spacing 2 mm, 95/133 pins
Operating temperature range	Active termination 0° . . . +70°C Passive termination –40° . . . +85°C
Relative humidity	90%, non-condensing

VME64x 6 U

Slot	Dimensions		Model No.	
	Height mm	Width mm	without P0 connector	with P0 connector
2	261.7	39.5	**9912.423**	**9912.410**
3	261.7	59.5	**9912.424**	**9912.411**
4	261.7	80	**9912.425**	**9912.362**
5	261.7	100	**3687.608**	**3687.609**
6	261.7	120.5	**9912.426**	**9912.412**
7	261.7	141	**3687.610**	**3687.611**
8	261.7	161.5	**9912.427**	**9912.413**
9	261.7	181.5	**9904.930**	**9904.932**
10	261.7	202	**9904.931**	**9904.933**
11	261.7	222.5	**9912.428**	**9912.414**

Slot	Dimensions		Model No.	
	Height mm	Width mm	without P0 connector	with P0 connector
12	261.7	242.5	**3686.634**	**3686.473**
13	261.7	263	**9912.429**	**9912.415**
14	261.7	283	**9912.430**	**9912.416**
15	261.7	303.5	**9912.431**	**9912.417**
16	261.7	324	**9912.432**	**9912.418**
17	261.7	344	**9912.433**	**9912.419**
18	261.7	364.5	**9912.434**	**9912.420**
19	261.7	385	**9912.435**	**9912.421**
20	261.7	405	**9912.436**	**9912.422**
21	261.7	425.5	**3686.635**	**3686.474**

VME64x 6.5 U

Slot	Dimensions		Model No.	
	Height mm	Width mm	without P0 connector	with P0 connector
5	283.7	100	**9910.012**	**9910.007**
7	283.7	141	**9910.013**	**9910.008**
9	283.7	181.5	**9910.014**	**9910.009**
10	283.7	202	**9904.928**	**9904.929**
12	283.7	242.5	**9910.015**	**9910.010**
21	283.7	425.5	**9910.016**	**9910.011**

Material

Fibreglass epoxy to IEC 60 249 (type FR4)

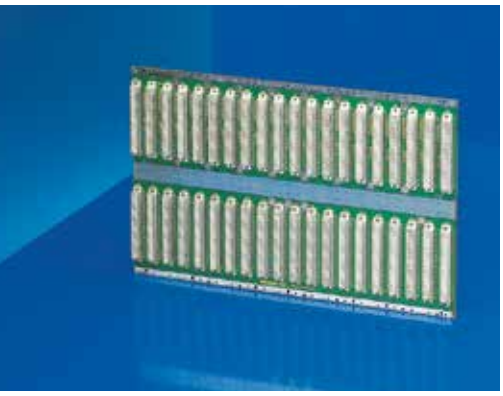
Supply includes

Backplane, fully populated.

+ Accessories

For backplane mounting:
Conductive strips, see page 145
Insulating strips, see page 145

Backplanes VME J1/J2 Monolithic



Technical specifications

Number of layers	6
Layer structure	Optimised for optimum RF performance. Outer layers designed as shielding surface.
PCB thickness	3.2 mm ± 10 %
Ohmic resistance of the signal tracks	< 1 Ohm
Surge impedance Z of the signal tracks	60 Ohm
Basic power consumption, terminated at both ends	Active: < 200 mA Passive: < 1.5 A
Power supply: - Busbar with screw terminal M6 - Screw terminal M4 and FASTON 6.3 x 0.8 mm - < 5 slots	+5 V, and 0 V ±12 V, +5 V STBY and case FASTON 6.3 x 0.8 mm
Current carrying capacity of busbar	max. 200 A
Current carrying capacity of a combined double flat-pin connector/screw terminal	25 A
Current carrying capacity of a FASTON flat connector	10 A
Current carrying capacity of the assembly, per slot	+5 V 9.0 A +12 V 1.5 A -12 V 1.5 A +5 V STDBY 1.5 A
Termination ON-/IN-board	active (may be switched to passive)
Installation height	6 U
Distance between slots	4 HP
Connectors	Press-fit technique quality class 2, 400 connection cycles C96
Operating temperature range	Active termination 0° . . . +70°C Passive termination –40° . . . +85°C
Relative humidity	90%, non-condensing

Slot	Dimensions		Model No.
	Height mm	Width mm	
2	261.7	39.5	**3686.495**
3	261.7	59.5	**3686.496**
4	261.7	80	**3686.497**
5	261.7	100	**3686.498**
6	261.7	120.5	**3686.499**
7	261.7	141	**3686.500**
8	261.7	161.5	**3686.501**
9	261.7	181.5	**3686.502**
10	261.7	202	**3686.503**
11	261.7	222.5	**3686.504**
12	261.7	242.5	**3686.505**
13	261.7	263	**3686.506**
14	261.7	283	**3686.507**
15	261.7	303.5	**3686.508**
16	261.7	324	**3686.509**
17	261.7	344	**3686.510**
18	261.7	364.5	**3686.511**
19	261.7	385	**3686.512**
20	261.7	405	**3686.513**
21	261.7	425.5	**3686.514**

Material

Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes

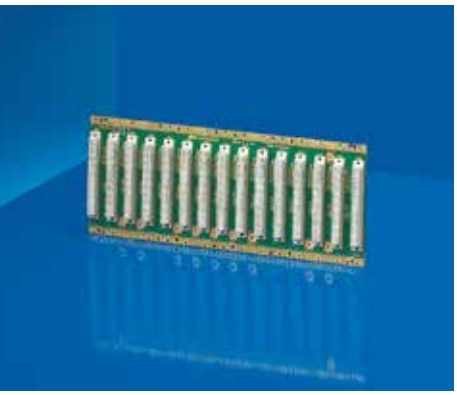
Backplane, fully populated.

+ Accessories

For backplane mounting:
Conductive strips, see page 145
Insulating strips, see page 145

VME – BACKPLANES

VME J1 system bus



Technical specifications		
	VME J1	VME J2
Number of layers	6	2
Layer structure	Optimised for optimum RF performance, outer layers designed as shielding surface.	
PCB thickness	3.2 mm ± 10 %	3.2 mm ± 10%
Ohmic resistance of the signal tracks	< 1 Ohm	< 1 Ohm
Wellenwiderstand Z der Signalleitungen	60 Ohm	60 Ohm
Surge impedance Z of the signal tracks	Active: < 150 mA Passive: < 1.2 A	Passive: < 0.6 A
Power supply: - M4 screw terminal and FASTON 6.3 x 0.8 mm - < 5 slots	+5 V, 0 V, ±12 V, ±5 V STBY and case FASTON 6.3 x 0.8 mm	x FASTON 6.3 x 0.8 mm
Current carrying capacity of a combined double flat-pin connector/screw terminal	25 A	25 A
Current carrying capacity of a FASTON flat connector	10 A	10 A
Current carrying capacity of the assembly, per slot	+5 V 4.5 A +12 V 1.5 A -12 V 1.5 A +5 V STDBY 1.5 A	+5 V 4.5 A
Termination ON-/IN-board	active/passive (changeover)	active/passive (changeover)
Installation height	3 U	3 U
Distance between slots	4 HP	4 HP
Connectors	Press-fit technique quality class 2, 400 connection cycles C96	Press-fit technique quality class 2, 400 connection cycles C96
Operating temperature range	Active termination 0° . . . +70°C Passive termination –40° . . . +85°C	Passive termination –40° . . . +85°C
Relative humidity	90 %, non-condensing	90 %, non-condensing

Slot	Dimensions		Model No.
	Height mm	Width mm	
3	128.4	59.5	**3686.555**
4	128.4	80	**3686.556**
5	128.4	100	**3686.557**
6	128.4	120.5	**3686.558**
7	128.4	141	**3686.559**
8	128.4	161.5	**3686.560**
9	128.4	181.5	**3686.561**
10	128.4	202	**3686.562**

Slot	Dimensions		Model No.
	Height mm	Width mm	
12	128.4	242.5	**3686.563**
13	128.4	263	**3686.564**
14	128.4	283	**3686.565**
15	128.4	303.5	**3686.566**
18	128.4	364.5	**3686.567**
20	128.4	405	**3686.568**
21	128.4	425.5	**3686.569**

Material

Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes

Backplane, fully populated.

+ Accessories

For backplane mounting:
Conductive strips, see page 145
Insulating strips, see page 145

VME J2 expansion bus

Slot	Dimensions		Model No.
	Height mm	Width mm	
3	128.4	59.5	**3686.585**
4	128.4	80	**3686.586**
5	128.4	100	**3686.587**
6	128.4	120.5	**3686.588**
7	128.4	141	**3686.589**
8	128.4	161.5	**3686.590**
9	128.4	181.5	**3686.591**
10	128.4	202	**3686.592**

Slot	Dimensions		Model No.
	Height mm	Width mm	
12	128.4	242.5	**3686.593**
13	128.4	263	**3686.594**
14	128.4	283	**3686.595**
15	128.4	303.5	**3686.596**
18	128.4	364.5	**3686.597**
20	128.4	405	**3686.598**
21	128.4	425.5	**3686.599**

Material

Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes

Backplane, fully populated.

+ Accessories

For backplane mounting:
Conductive strips, see page 145
Insulating strips, see page 145

MPS Monitoring electronics

In order to ensure maximum system availability and performance in industrial computers, all hardware components must offer functional reliability. The monitoring electronics for microcomputer packaging systems (MPS) offers a highly flexible, scalable security concept for key parameters such as temperature, voltage and fan speed. At the heart of this concept are intelligent function modules such as controller, temperature, fan and LCD display or LED display modules. The system may be polled, or parameters set via the Internet using remote control functions, thanks to compatibility with the HEITEC CMC-TC monitoring system. Alternatively, this may be executed directly on the MPS system, via a PC, or with the aid of CMC-TC, directly from a control point.

Benefits at a glance:

- Monitoring of temperature, voltage, fan speed and fan alarm
- Flexible, scalable system concept
- Intelligent function modules
- Adjustable temperature limits
- Remote control via the Internet in conjunction with the HEITEC CMC-TC enclosure monitoring system
- Choice of parameter levels
- Internal communications via I^2C bus

Controller-Module (CMC & RS232)

Monitoring of system voltage, PSU-status, HeiCool alarm and data transfer of the temperature- and/or fan module via the RS 232 (to PC) or RS422-interface (to CMC-TC).

Packs of	Order No.
1	9909.193

Supply includes

Unit consisting of:
Controller-module, front plate 3 U, 4 HP

Controller-Module (CMC & LAN)

Monitoring of system voltage, PSU-status, HeiCool alarm and data transfer of the temperature- and/or fan module via LAN- (to PC) or RS422- interface (to CMC-TC).

Packs of	Order No.
1	9913.260

Supply includes

Unit consisting of:
Controller-Module, front plate 3 U, 4 HP

Display- and Controller-Module (CMC & RS232)

Controller-Module:
Monitoring of system voltage, PSU-status, HeiCool alarm and data transfer of the temperature- and/or fan module via RS232- (to PC) or RS422- interface (to CMC-TC).

Display-Module:
- Handling via 3 keys: forward, escape, return
- 3 LEDs: Fan, Temperature, Volt for optical display as sum alarm
- For displaying temperature, power supply, fan speed
- Brightness and lightning optionally adjustable with turn on/off function
- Temperature display in °F/°C
- LCD (2 x 20 digits) for displaying data details

Packs of	Order No.
1	**9912.483**

Supply includes
Unit consisting of:
Controller-module, display-Moduel,
Front panel 6 U, 8 HP

LED Display- and Controller Module (CMC & RS232)

Controller-Module:
Monitoring of system voltage, PSU-status, HeiCool alarm and data transfer of the temperature-s and/or fan module via RS232- (to PC) or RS422- interface (to CMC-TC).

LED Display-Module:
- + 3.3 V
- + 5.0 V
- + 12 V
- – 12 V
- 2 x alarm (fan, temperature)
- Display of system voltage as to critical values
  – Red: voltage deficiency
  – Yellow (1 flash): below limit
  – Yellow (2 flashes): over limit
  – Green: voltage ok

Packs of	Order No.
1	**9913.748**

Supply includes
Unit consisting of:
Controller-module, display-Moduel,
Front panel 6 U, 4 HP

Temperature-Module

- Up to 2 modules cascadable
- Data transfer of each temperature sensor to the controller-module
- Up to 4 temperature sensors
- Internal communication via I^2C

Note
Only applicable in connection with
Controller-/LCD- or LED-modules

Packs of	Order No.
1	**9909.230**

Supply includes
Unit consisting of:
Temperature-module, front panel 3 U, 4 HP

LED Display-Module

LED Display-Module:
- + 3.3 V
- + 5.0 V
- + 12 V
- – 12 V
- 2 x alarm (fan, temperature)
- Display of system voltage as to critical values
  – Red: voltage deficiency
  – Yellow (1 flash): below limit
  – Yellow (2 flashes): over limit
  – Green: voltage ok

Packs of	Order No.
1	**9912.294**

Note
Only applicable in connection with Controller-/Display- or LED-modules

Supply includes
Unit consisting of:
LED-module, front panel 3 U, 4 HP

Fan-Module

Monitoring fan functions
(Attention: requires fan with alarm signal)

Packs of	Order No.
1	**9912.293**

Note
Only applicable in connection with Controller-/Display- or LED-modules

Supply includes
Unit consisting of:
Fan-module, front panel 3 U, 4 HP

Mains switch

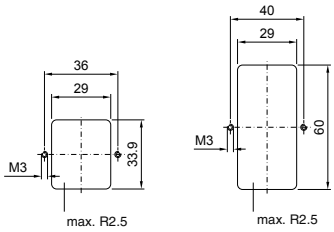
LED Display-module:
- Rocker switch 6 A/250 V, 2-pole, FASTON connections, (4.7 x 0.8 mm)
- VDE, UL, CSA, TÜV, SEMKO, DEMCO, SEV,NEMKO, SETI, BEAB approvals
- Insulation resistance: > 10 MΩ
- Test voltage: 1 kV
- Front panel: 21 x 15 mm
- Cut-out: 19.2 x 12.9 mm
- Installation depth: 17 mm

Max. current	Packs of	Order No.
6 A	1 St.	**3687.711**

Filtered IEC mains inlet

For mains input
Combination module consisting of an IEC socket to IEC 60 320 and IEC 60 950 with line filter and 5 x 20 mm G fuse holder.

Technical specifications
Metal enclosure for screw mounting
Mains input: via IEC socket
Mains output: via 3 FASTON contacts (L, N, PE, 6.3 x 0.8)
Variants available with or without switch
Temperature range: –25°C to +85°C



	Order No.	
	with switch	without switch
	3687.709	**3687.710**
Mains voltage max.	250 V AC	250 V AC
Leakage current	2 x 0.32 mA	ð 500 µA
Max. current	6 A	6 A
Mounting holes	40 mm	36 mm
Installation depth	90 mm	56 mm
Cut-out	60 x 29 mm	33.9 x 29 mm
Approvals	VDE, SEMKO, SEV, UL, CSA	VDE

Order No.	Page
2089.000	203
2092.200	203
2094.200	203
3606.140	158
3606.200	158
3606.300	177
3606.321	183
3606.330	178
3606.550	202
3606.560	202
3606.610	202
3634.060	180
3634.070	180
3634.085	87
3634.100	83
3634.110	83
3634.120	83
3634.130	83
3634.140	83
3634.150	83
3634.160	83
3634.170	83
3634.180	83
3634.190	83
3634.200	83
3634.210	83
3634.220	83
3634.230	83
3634.240	83
3634.250	83
3634.420	89, 164
3634.430	202
3634.435	202
3634.450	89, 164
3634.510	86, 143
3634.600	86, 142
3634.615	87, 142
3634.620	86, 143
3634.625	89, 164
3634.630	89, 164
3634.635	89, 164
3634.640	89, 164
3634.645	89, 164
3634.650	89, 164
3634.655	89, 164
3634.660	89, 164
3634.665	90, 164
3634.670	89, 164
3634.675	89, 164
3634.680	89, 164
3634.685	89, 164
3634.690	89, 164
3634.695	88, 127
3634.700	88, 127
3634.705	88, 127
3634.710	88, 127
3634.715	88, 127
3634.720	88, 127
3634.725	88, 127
3634.730	88, 127
3634.735	88, 127

Order No.	Page
3634.740	88, 127
3634.745	88, 130
3634.750	88, 130
3634.770	152
3634.780	153
3636.010	57
3652.000	174
3652.010	174
3652.020	174
3652.030	174
3652.040	174
3652.050	174
3652.060	174
3652.070	174
3652.080	174
3652.200	174
3652.210	174
3652.220	174
3652.230	174
3652.240	174
3652.250	174
3652.260	174
3652.270	174
3652.500	110, 180
3652.510	110, 180
3652.520	110, 180
3652.530	110, 180
3652.600	110, 180
3652.610	110, 180
3652.620	110, 180
3652.630	110, 180
3653.010	182
3653.020	182
3653.030	182
3653.040	182
3653.050	182
3653.060	182
3653.070	182
3653.100	182
3653.110	182
3653.120	182
3653.130	182
3653.140	182
3653.150	182
3653.200	182
3653.210	182
3653.220	182
3653.230	182
3653.240	182
3653.250	182
3653.300	182
3653.310	182
3653.320	182
3653.330	182
3653.340	182
3653.350	182
3654.300	202
3654.320	202
3654.330	202
3654.340	202
3654.350	202

Order No.	Page
3654.360	202
3654.370	202
3658.160	202
3658.190	202
3658.210	202
3659.000	208
3659.010	215
3659.020	215
3659.030	214
3659.050	208, 214
3659.060	208, 215
3659.090	208, 209
3659.100	210
3659.110	214
3659.120	210, 211
3659.180	214
3659.190	214
3659.230	210, 215
3659.240	215
3659.250	211, 216
3659.270	216
3659.280	216
3659.290	211, 216
3659.320	211, 217
3659.330	211, 217
3659.340	211
3659.350	211, 217
3659.400	211
3659.410	214
3659.540	215
3659.700	212
3659.710	213
3659.900	209
3666.006	222
3666.007	222
3666.008	225
3666.010	57
3684.019	202
3684.020	31
3684.021	31
3684.022	31
3684.023	31
3684.024	31
3684.025	31
3684.026	31
3684.027	31
3684.028	32
3684.029	32
3684.030	32
3684.031	32
3684.032	32
3684.033	32
3684.034	31
3684.035	31
3684.036	31
3684.037	32
3684.038	32
3684.039	32
3684.040	32
3684.041	32
3684.042	32

Order No.	Page
3684.043	31
3684.044	31
3684.045	31
3684.046	31
3684.047	31
3684.048	31
3684.049	31
3684.050	31
3684.051	31
3684.052	31
3684.053	31
3684.054	31
3684.055	31
3684.056	31
3684.057	31
3684.058	31
3684.059	31
3684.060	31
3684.061	31
3684.062	32
3684.063	32
3684.064	32
3684.065	32
3684.072	97
3684.073	97
3684.074	97
3684.075	97
3684.076	97
3684.077	97
3684.078	97
3684.109	203
3684.128	33
3684.129	33
3684.130	33
3684.131	33
3684.132	33
3684.133	33
3684.134	34
3684.135	34
3684.136	34
3684.137	34
3684.138	34
3684.139	34
3684.142	33
3684.143	33
3684.144	33
3684.145	33
3684.146	33
3684.147	33
3684.148	34
3684.149	34
3684.150	34
3684.151	34
3684.152	34
3684.153	34
3684.156	33
3684.157	33
3684.158	33
3684.159	33
3684.160	33
3684.161	33

Order No.	Page
3684.162	33
3684.163	33
3684.164	33
3684.165	33
3684.166	33
3684.169	33
3684.170	33
3684.171	33
3684.172	33
3684.173	33
3684.174	33
3684.175	33
3684.176	33
3684.177	33
3684.178	33
3684.179	33
3684.180	34, 83
3684.181	34
3684.187	34
3684.188	34
3684.189	34
3684.190	34, 83
3684.191	34
3684.192	34
3684.193	34
3684.194	34
3684.195	34
3684.196	34
3684.197	34
3684.198	34
3684.204	159
3684.205	159
3684.206	151
3684.207	151
3684.208	151
3684.209	151
3684.210	83, 151
3684.211	151
3684.212	151
3684.213	151
3684.220	83, 150
3684.221	150
3684.222	150
3684.223	150
3684.224	150
3684.225	150
3684.226	150
3684.227	150
3684.228	150
3684.229	150
3684.233	202
3684.234	148
3684.236	146
3684.237	146
3684.238	146
3684.239	146
3684.240	146
3684.241	146
3684.242	146
3684.243	146
3684.244	146

Order No.	Page
3684.245	147
3684.246	147
3684.247	179
3684.248	179
3684.249	179
3684.250	83, 179
3684.251	179
3684.252	179
3684.253	179
3684.254	179
3684.255	179
3684.256	179
3684.257	179
3684.258	179
3684.259	179
3684.260	179
3684.261	179
3684.262	179
3684.263	179
3684.264	179
3684.265	179
3684.266	179
3684.267	179
3684.268	179
3684.269	179
3684.272	179
3684.273	179
3684.274	179
3684.275	179
3684.276	179
3684.277	179
3684.278	179
3684.279	179
3684.280	179
3684.281	187
3684.282	187
3684.283	187
3684.284	188
3684.285	188
3684.286	188
3684.287	188
3684.291	180
3684.292	180
3684.293	180
3684.294	180
3684.295	180
3684.298	110, 180
3684.299	110, 180
3684.300	110, 180
3684.301	110, 180
3684.302	180
3684.304	189
3684.305	189
3684.306	189
3684.307	189
3684.311	189
3684.312	189
3684.313	189
3684.314	189
3684.317	186
3684.320	187

Order No.	Page
3684.321	187
3684.322	187
3684.323	201
3684.324	201
3684.325	159
3684.326	159
3684.328	169
3684.330	165
3684.331	165
3684.332	165
3684.333	165
3684.334	165
3684.335	165
3684.336	165
3684.337	165
3684.338	165
3684.339	165
3684.340	165
3684.341	165
3684.342	165
3684.343	165
3684.344	166
3684.345	166
3684.346	166
3684.347	166
3684.348	166
3684.349	166
3684.350	166
3684.351	166
3684.352	166
3684.353	166
3684.354	166
3684.355	166
3684.356	166
3684.357	166
3684.358	165
3684.359	165
3684.360	165
3684.361	165
3684.362	165
3684.363	165
3684.364	165
3684.365	165
3684.366	165
3684.367	165
3684.368	165
3684.369	165
3684.370	165
3684.371	165
3684.372	165
3684.373	165
3684.374	166
3684.375	166
3684.376	166
3684.377	166
3684.378	166
3684.379	166
3684.380	166
3684.381	166
3684.382	166
3684.383	166

Order No.	Page
3684.384	166
3684.385	166
3684.386	166
3684.387	166
3684.388	166
3684.389	166
3684.410	171
3684.411	172
3684.413	166
3684.414	166
3684.415	166
3684.416	166
3684.417	166
3684.418	166
3684.419	166
3684.420	166
3684.421	166
3684.422	166
3684.423	166
3684.424	166
3684.425	166
3684.426	166
3684.427	166
3684.428	166
3684.429	166
3684.430	166
3684.431	166
3684.432	166
3684.433	166
3684.435	202
3684.482	202
3684.511	48, 126
3684.512	48, 126
3684.513	48, 126
3684.514	48, 126
3684.515	48, 126
3684.516	48, 126
3684.517	48, 126
3684.518	48, 126
3684.519	48, 126
3684.520	48, 126
3684.521	48, 126
3684.522	48, 126
3684.523	48, 126
3684.524	48, 126
3684.525	48, 126
3684.526	48, 126
3684.527	48, 126
3684.528	48, 126
3684.529	48, 126
3684.530	48, 126
3684.531	48, 126
3684.532	48, 126
3684.533	48, 126
3684.534	48, 126
3684.535	48, 126
3684.536	48, 126
3684.537	48, 126
3684.538	48, 126
3684.539	48, 126
3684.540	48, 126

Order No.	Page
3684.541	48, 126
3684.542	48, 126
3684.543	48, 126
3684.544	48, 126
3684.545	48, 126
3684.546	48, 126
3684.547	48, 126
3684.548	48, 126
3684.549	48, 126
3684.550	48, 126
3684.551	48, 126
3684.552	48, 126
3684.553	48, 126
3684.554	48, 126
3684.560	132
3684.561	132
3684.562	132
3684.565	133
3684.566	133
3684.567	133
3684.570	41, 135
3684.571	41, 135
3684.572	41, 135
3684.579	44, 138
3684.580	138
3684.581	44, 138
3684.582	44, 138
3684.584	46, 140
3684.587	46, 140
3684.588	46, 140
3684.589	46, 140
3684.590	140
3684.591	140
3684.592	34, 132
3684.593	34, 132
3684.594	34, 132
3684.595	34, 132
3684.596	34, 132
3684.596	34, 132
3684.597	144
3684.598	144
3684.599	144
3684.600	144
3684.601	144
3684.602	144
3684.603	144
3684.604	144
3684.605	144
3684.606	144
3684.607	144
3684.608	144
3684.609	144
3684.610	144
3684.611	145
3684.612	145
3684.614	49, 128
3684.615	49, 128
3684.616	49, 128
3684.617	49, 128
3684.618	49, 128
3684.619	49, 128

Order No.	Page
3684.620	49, 128
3684.621	49, 128
3684.622	49, 128
3684.623	49, 128
3684.624	49, 128
3684.625	49, 128
3684.626	49, 128
3684.627	49, 128
3684.628	49, 128
3684.629	49, 128
3684.630	49, 128
3684.631	49, 128
3684.632	49, 128
3684.633	57
3684.634	57
3684.635	57
3684.636	57
3684.637	57
3684.638	57
3684.639	57
3684.640	57
3684.643	55, 146
3684.644	55, 146
3684.645	55, 146
3684.654	154
3684.655	154
3684.656	154
3684.657	154
3684.658	154
3684.659	154
3684.660	154
3684.661	154
3684.662	154
3684.663	154
3684.664	154
3684.665	154
3684.666	154
3684.668	155
3684.669	155
3684.670	157
3684.672	157
3684.673	157
3684.674	157
3684.675	157
3684.676	157
3684.677	157
3684.678	150
3684.679	150
3684.680	161
3684.681	161
3684.683	50, 161
3684.684	50, 161
3684.685	50, 161
3684.686	50, 161
3684.687	50, 161
3684.688	50, 161
3684.689	50, 161
3684.691	50, 161
3684.692	50, 161
3684.693	50, 161
3684.694	50, 161

Order No.	Page
3684.695	50, 161
3684.696	50, 161
3684.698	50, 161
3684.700	50, 161
3684.701	50, 161
3684.702	50, 161
3684.703	50, 161
3684.714	52, 162
3684.715	52, 162
3684.716	52, 162
3684.717	52, 162
3684.718	52, 162
3684.719	52, 162
3684.720	52, 162
3684.721	52, 162
3684.722	52, 162
3684.723	52, 162
3684.724	52, 162
3684.725	52, 162
3684.726	52, 163
3684.727	52, 163
3684.728	52, 163
3684.729	52, 163
3684.730	52, 163
3684.731	52, 163
3684.732	52, 163
3684.733	52, 163
3684.734	52, 163
3684.735	52, 163
3684.736	163
3684.737	163
3684.738	178
3684.739	178
3684.740	178
3684.741	178
3684.742	178
3684.743	178
3684.744	178
3684.745	178
3684.746	178
3684.747	178
3684.748	178
3684.807	56, 147
3684.808	147
3684.812	187
3684.813	187
3684.814	187
3684.839	188
3684.840	188
3684.841	188
3684.842	188
3684.870	187
3684.871	187
3684.872	187
3684.885	178
3684.886	178
3684.887	178
3684.888	178
3684.889	178
3684.890	178
3684.891	178

Order No.	Page
3684.892	178
3684.893	178
3684.894	178
3684.895	178
3684.896	178
3684.897	178
3684.898	178
3684.899	178
3684.900	178
3684.901	178
3684.902	178
3684.903	178
3684.904	178
3684.905	178
3684.906	178
3684.907	178
3684.908	178
3684.909	178
3684.910	178
3684.911	178
3684.912	178
3684.913	178
3684.914	178
3684.915	178
3684.916	178
3684.917	178
3684.918	178
3684.919	178
3684.920	178
3684.921	178
3684.922	178
3684.923	178
3684.924	178
3684.925	178
3684.926	178
3684.927	178
3684.928	178
3684.929	178
3684.930	178
3684.953	155
3684.954	155
3684.955	34, 132
3684.956	34, 132
3684.957	50, 161
3684.958	50, 161
3684.960	34, 132
3684.961	39, 133
3684.962	41, 135
3684.963	44, 138
3684.964	46, 140
3684.965	144
3684.966	144
3684.974	56, 147
3684.975	56, 147
3684.976	178
3684.977	178
3685.000	172
3685.097	203
3685.146	172
3685.177	179
3685.178	179

Order No.	Page
3685.179	179
3685.180	179
3685.181	179
3685.182	179
3685.183	179
3685.184	179
3685.185	179
3685.186	179
3685.187	179
3685.188	179
3685.189	179
3685.190	179
3685.191	179
3685.192	179
3685.193	179
3685.194	179
3685.195	179
3685.196	179
3685.197	203
3685.198	177
3685.229	56
3685.231	31
3685.232	31
3685.233	31
3685.234	31
3685.235	32
3685.236	32
3685.237	32
3685.238	31
3685.239	31
3685.240	31
3685.241	33
3685.242	33
3685.243	33
3685.244	33
3685.245	50, 161
3685.246	50, 161
3685.247	50, 161
3685.248	50, 161
3685.249	50, 161
3685.250	50, 161
3685.251	50, 161
3685.252	50, 161
3685.253	50, 161
3685.254	50, 161
3685.256	203
3685.257	155
3685.258	155
3685.259	155
3685.260	157
3685.261	157
3685.262	157
3685.263	157
3685.264	157
3685.265	157
3685.266	172
3685.267	34, 132
3685.268	41, 135
3685.269	39, 133
3685.270	44, 138
3685.271	144

Order No.	Page
3685.272	46, 140
3685.273	145
3685.274	145
3685.275	145
3685.276	57
3685.277	57
3685.279	172
3685.280	172
3685.281	31
3685.282	203
3685.282	203
3685.286	150
3685.289	203
3685.290	203
3685.291	151
3685.292	151
3685.294	185
3685.302	187
3685.303	187
3685.304	197
3685.306	197
3685.307	197
3685.319	170
3685.328	200
3685.329	200
3685.331	200
3685.332	200
3685.348	179
3685.349	179
3685.350	178
3685.429	178
3685.490	176
3685.491	176
3685.492	176, 184
3685.493	176
3685.494	176, 184
3685.495	176
3685.496	176
3685.497	176
3685.498	176
3685.499	176
3685.500	167
3685.501	167
3685.502	167
3685.503	167
3685.504	167
3685.505	167
3685.506	167
3685.508	167
3685.509	167
3685.510	167
3685.511	167
3685.512	167
3685.513	167
3685.514	167
3685.516	167
3685.517	167
3685.518	167
3685.519	167
3685.520	167
3685.521	167

Order No.	Page
3685.522	167
3685.524	167
3685.525	167
3685.526	167
3685.527	167
3685.528	167
3685.529	167
3685.530	167
3685.532	167
3685.533	167
3685.534	167
3685.535	167
3685.536	167
3685.537	167
3685.538	167
3685.540	167
3685.541	167
3685.542	167
3685.543	167
3685.544	167
3685.545	167
3685.546	167
3685.548	173
3685.549	173
3685.550	173
3685.551	173
3685.552	173
3685.553	173
3685.554	173
3685.555	173
3685.556	173
3685.557	173
3685.558	173
3685.559	173
3685.560	173
3685.561	173
3685.562	173
3685.563	173
3685.564	173
3685.566	173
3685.567	173
3685.568	173
3685.569	175
3685.570	175
3685.571	175
3685.572	175
3685.573	175
3685.574	175
3685.575	175
3685.576	175
3685.577	175
3685.578	175
3685.579	175
3685.580	175
3685.581	175
3685.582	175
3685.583	175
3685.584	175
3685.585	175
3685.586	175
3685.587	168

Order No.	Page
3685.588	168
3685.589	168
3685.590	168
3685.591	173
3685.592	173
3685.595	176
3685.596	176
3685.597	176
3685.598	176
3685.599	176
3685.600	176
3685.601	176
3685.602	176
3685.603	176
3685.604	176
3685.605	177
3685.606	177
3685.607	177
3685.608	177
3685.609	177
3685.610	177
3685.611	177
3685.612	177
3685.613	177
3685.614	50, 177
3685.615	177
3685.616	177
3685.617	177
3685.618	177
3685.626	172
3685.627	172
3685.628	185
3685.629	184, 185
3685.630	184, 185
3685.630	184, 185
3685.631	184, 185
3685.632	185
3685.633	184, 185
3685.634	184, 185
3685.635	184, 185
3685.636	184
3685.637	184
3685.638	184
3685.639	184
3685.640	184
3685.641	184
3685.642	50, 161
3685.645	184, 185
3685.646	184, 185
3685.648	184, 185
3685.649	184, 185
3685.650	185
3685.651	185
3685.652	185
3685.653	185
3685.654	185
3685.655	185
3685.656	185
3685.657	185
3685.658	185
3685.659	185

Order No.	Page
3685.660	185
3685.661	185
3685.662	185
3685.663	185
3685.664	185
3685.665	185
3685.667	185
3685.668	185
3685.669	185
3685.670	185
3685.671	185
3685.672	185
3685.673	185
3685.674	185
3685.675	185
3685.676	185
3685.677	185
3685.678	185
3685.679	185
3685.680	185
3685.681	185
3685.683	184
3685.684	184
3685.685	184
3685.686	184
3685.687	184
3685.688	184
3685.689	184
3685.690	184
3685.691	184
3685.692	184
3685.693	184
3685.694	184
3685.695	184
3685.696	184
3685.697	184
3685.698	184
3685.699	184
3685.700	184
3685.701	184
3685.702	184
3685.703	184
3685.704	184
3685.705	184
3685.706	184
3685.707	184
3685.708	184
3685.709	184
3685.710	184
3685.711	184
3685.713	185
3685.714	185
3685.715	185
3685.716	185
3685.717	185
3685.718	185
3685.743	48, 126
3685.744	48, 126
3685.745	48, 127
3685.746	177
3685.747	177

Order No.	Page
3685.748	177
3685.749	177
3685.750	177
3685.751	177
3685.752	177
3685.753	177
3685.754	177
3685.755	177
3685.756	177
3685.757	177
3685.758	177
3685.759	155
3685.761	176, 184
3685.762	176, 184
3685.763	176
3685.764	185
3685.765	185
3685.766	185
3685.767	184, 185
3685.768	185
3685.769	184, 185
3685.770	185
3685.771	185
3685.772	185
3685.773	185
3685.774	185
3685.775	185
3685.776	185
3685.777	185
3685.783	151
3685.784	151
3685.785	151
3685.786	151
3685.787	151
3685.788	151
3685.789	56
3685.790	157
3685.793	48, 126
3685.794	48, 126
3685.795	48, 126
3685.796	48, 126
3685.797	48, 126
3685.798	48, 126
3685.799	48, 126
3685.805	172
3685.813	161, 162
3685.814	161, 162
3685.824	172
3685.850	48, 126
3685.851	50, 161
3685.852	50, 161
3685.853	50, 161
3685.855	161, 162
3685.856	51, 162
3685.857	51, 162
3685.890	48
3685.891	48, 126
3685.892	48, 126
3685.893	48, 126
3685.894	48, 126
3685.895	48, 126

Order No.	Page
3685.896	48, 126
3685.897	48, 126
3685.898	48, 126
3685.899	48, 126
3685.959	48, 126
3685.966	172
3685.967	172
3685.985	38, 132
3685.991	41, 135
3686.005	46, 140
3686.037	172
3686.063	155
3686.136	156
3686.137	156
3686.138	179
3686.139	179
3686.140	179
3686.149	144
3686.159	45, 139
3686.191	45, 139
3686.329	193
3686.359	193
3686.469	197
3686.471	197
3686.472	197
3686.473	252
3686.474	252
3686.495	253
3686.496	253
3686.497	253
3686.498	253
3686.499	253
3686.500	253
3686.501	253
3686.502	253
3686.503	253
3686.504	253
3686.505	253
3686.506	253
3686.507	253
3686.508	253
3686.509	253
3686.510	253
3686.511	253
3686.512	253
3686.513	253
3686.514	253
3686.536	171
3686.555	254
3686.556	254
3686.557	254
3686.558	254
3686.559	254
3686.560	254
3686.561	254
3686.562	254
3686.563	254
3686.564	254
3686.565	254
3686.566	254
3686.567	254

Order No.	Page
3686.568	254
3686.569	254
3686.570	240, 241
3686.572	172
3686.573	172
3686.574	172
3686.585	254
3686.586	254
3686.587	254
3686.588	254
3686.589	254
3686.590	254
3686.591	254
3686.592	254
3686.593	254
3686.594	254
3686.595	254
3686.596	254
3686.597	254
3686.598	254
3686.599	254
3686.629	196
3686.634	252
3686.635	252
3686.643	190
3686.644	190
3686.645	190
3686.646	190
3686.647	191
3686.648	191
3686.649	191
3686.650	191
3686.655	192
3686.656	192
3686.657	192
3686.658	190
3686.659	190
3686.805	186
3686.900	168
3686.901	168
3686.902	168
3686.903	168
3686.904	168
3686.905	168
3686.906	168
3686.907	168
3686.908	169
3686.909	169
3686.916	203
3686.917	203
3686.919	45, 139
3686.924	203
3686.973	55, 146
3686.974	55, 146
3686.975	55, 146
3686.976	55, 146
3686.977	55, 146
3686.978	55, 146
3686.979	55, 146
3686.980	55, 146
3686.981	55, 146

Order No.	Page
3686.989	183
3687.014	160
3687.015	203
3687.020	203
3687.021	202
3687.050	203
3687.051	203
3687.052	160
3687.146	203
3687.519	185, 202
3687.520	184
3687.521	184
3687.522	184
3687.523	184
3687.524	184
3687.525	184
3687.526	154
3687.527	154
3687.528	154
3687.529	173
3687.530	173
3687.531	173
3687.536	184
3687.537	184
3687.538	184
3687.539	184
3687.545	174
3687.555	184
3687.556	184
3687.557	184
3687.558	184
3687.559	184
3687.560	184
3687.561	184
3687.562	184
3687.563	184
3687.564	184
3687.565	184
3687.566	184
3687.567	184
3687.568	184
3687.574	144
3687.575	144
3687.576	144
3687.577	144
3687.585	184
3687.587	184
3687.588	184
3687.589	185
3687.590	185
3687.591	185
3687.600	46, 140
3687.601	46, 140
3687.602	46, 140
3687.603	46, 140
3687.609	252
3687.610	252
3687.611	252
3687.612	191
3687.613	191
3687.614	191

Order No.	Page
3687.615	191
3687.618	50, 161
3687.619	50, 161
3687.620	50, 161
3687.621	50, 161
3687.623	50, 161
3687.624	53, 163
3687.625	53, 163
3687.626	161, 162
3687.627	50, 161
3687.628	50, 161
3687.629	50, 161
3687.630	51, 162
3687.631	51, 162
3687.633	51, 162
3687.634	51, 162
3687.635	51, 162
3687.637	51, 162
3687.638	51, 162
3687.639	51, 162
3687.640	53, 163
3687.641	53, 163
3687.642	53, 163
3687.643	53, 163
3687.644	53, 163
3687.645	53, 163
3687.646	53, 163
3687.647	53, 163
3687.648	53, 163
3687.649	53, 163
3687.650	53, 163
3687.651	53, 163
3687.652	53, 163
3687.655	176
3687.656	176
3687.657	176
3687.658	176
3687.659	176
3687.660	176
3687.661	176
3687.662	176
3687.663	176
3687.664	176
3687.665	201
3687.666	201
3687.667	67, 77
3687.668	67, 77
3687.669	67, 77
3687.670	67, 77
3687.671	77
3687.672	77
3687.673	77
3687.674	77
3687.677	53, 163
3687.680	67, 77
3687.681	67, 77
3687.682	67, 77
3687.683	67, 77
3687.684	67, 77
3687.685	67, 77
3687.686	67, 77

Order No.	Page
3687.687	67, 77
3687.688	67, 77
3687.689	67, 77
3687.690	67, 77
3687.691	67, 77
3687.692	53, 163
3687.709	257
3687.710	257
3687.711	257
3687.724	40, 134
3687.726	154
3687.739	153
3687.814	97
3687.815	97
3687.816	97
3687.817	97
3687.818	97
3687.819	97
3687.820	97
3687.821	97
3687.822	97
3687.823	97
3687.832	156
3687.742	75
3687.743	73
3687.744	75
3687.746	73
3687.747	73
3687.748	73
3687.749	73
3687.750	75
3687.751	75
3687.776	73
3687.777	73
3687.800	73
3687.924	158, 193
3687.932	172
3687.933	172
3687.934	172
3687.936	156
3687.937	156
3687.951	156
3687.955	172
3687.956	160
3688.000	34
3688.001	39, 133
3688.002	41, 135
3688.003	44, 138
3688.004	46, 140
3688.005	154
3688.100	63, 127
3688.101	63, 127
3688.102	63, 127
3688.103	63, 127
3688.104	42, 62
3688.105	64, 164
3688.106	64, 164
3688.107	64, 164
3688.108	64, 164
3688.109	64, 164
3688.110	63, 130

Order No.	Page
3688.111	63, 130
3688.112	64
3688.113	64
3688.114	59
3688.115	59
3688.116	59
3688.117	59
3688.118	199, 211
3688.121	211
3688.123	211
3688.130	199
3688.528	198
3688.603	240
3688.606	55, 146
3688.607	240
3688.608	241
3688.609	55, 146
3688.610	55, 111
3688.611	55, 111
3688.612	55, 146
3688.613	55, 146
3688.614	55, 146
3688.615	55, 146
3688.616	55, 146
3688.633	55, 146
3688.634	55, 146
3688.658	180
3688.659	181
3688.660	181
3688.661	181
3688.662	181
3688.663	181
3688.695	198
3688.709	203
3688.770	169
3688.771	169
3688.772	169
3688.773	169
3688.780	170
3688.781	170
3688.784	170
3688.785	170
3688.786	171
3688.787	171
3688.790	171
3688.791	171
3689.036	156
3689.089	155
3689.090	156
3689.091	155
3689.092	156
3689.093	155
3689.097	156
3689.098	156
3689.300	238
3689.301	238
3689.302	238
3689.303	238
3689.304	238
3689.305	238
3689.306	238

Order No.	Page
3689.307	238
3689.308	238
3689.309	238
3689.310	238
3689.311	238
3689.312	238
3689.313	238
3689.314	239
3689.315	239
3689.316	239
3689.317	239
3689.318	239
3689.319	239
3689.320	239
3689.321	239
3689.322	239
3689.323	239
3689.324	239
3689.325	239
3689.326	239
3689.327	239
3689.329	241
3689.330	241
3689.331	241
3689.332	241
3750.000	114
3750.002	114
3750.004	114
3750.030	114
3750.032	114
3750.034	114
3750.100	113
3750.102	113
3750.104	113
3750.110	113
3750.112	113
3750.114	113
3750.200	113
3750.202	113
3750.204	113
3750.210	113
3750.212	113
3750.214	113
3750.220	113
3750.222	113
3750.224	113
3750.300	113
3750.302	113
3750.304	113
3750.310	114
3750.312	114
3750.314	114
3750.320	114
3750.322	114
3750.324	114
3750.330	114
3750.332	114
3750.334	114
3750.340	114
3750.342	114
3750.344	114

Order No.	Page
3750.350	113
3750.352	113
3750.354	113
3750.360	113
3750.362	113
3750.364	113
3750.400	113
3750.402	113
3750.404	113
3750.410	114
3750.412	114
3750.414	114
3750.420	114
3750.422	114
3750.424	114
3750.430	114
3750.432	114
3750.434	114
3750.440	114
3750.442	114
3750.444	114
3750.450	113
3750.452	113
3750.454	113
3750.600	114
3750.602	114
3750.604	114
3750.610	114
3750.612	114
3750.614	114
3750.620	114
3750.622	114
3750.624	114
3750.630	114
3750.632	114
3750.634	114
3750.640	114
3750.642	114
3750.644	114
3750.650	114
3750.652	114
3750.654	114
3750.700	114
3750.702	114
3750.704	114
3750.710	114
3750.712	114
3750.714	114
3750.720	114
3750.722	114
3750.724	114
3750.730	114
3750.732	114
3750.734	114
3750.900	114
3750.902	114
3750.904	114
3750.910	114
3750.912	114
3750.914	114
3750.920	114

Order No.	Page
3750.922	114
3750.924	114
3750.930	114
3750.932	114
3750.934	114
3751.100	114, 121
3751.120	114, 121
3751.130	114, 121
3751.150	114, 121
3751.160	114, 121
3751.170	114, 121
3751.180	114, 121
3751.200	120
3751.202	120
3751.204	120
3751.210	120
3751.212	120
3751.214	120
3751.250	118
3751.260	118
3751.270	118
3751.300	119
3751.310	119
3751.320	119
3751.330	119
3751.340	119
3751.350	119
3751.360	120
3751.370	120
3751.380	120
3751.400	117
3751.410	117
3751.420	117
3751.450	117
3751.460	117
3751.500	116
3751.510	116
3751.520	116
3751.530	114, 121
3751.540	114, 121
3751.600	114, 121
3751.610	114, 121
3751.620	114, 121
3751.630	114, 121
3751.640	116
3751.650	116
3751.660	116
3751.670	116
3751.680	116
3751.690	116
3751.700	116
3751.710	116
3751.720	116
3751.730	116
3751.740	116
3751.750	116
3751.760	116
3751.770	116
3751.780	116
3751.790	116
3751.800	119

Order No.	Page
3751.810	119
3751.820	118
3751.830	118
3751.850	120
3751.852	120
3751.854	120
3751.900	118
3751.910	118
3751.920	118
3751.930	118
3798.000	118
3901.000	109
3919.000	108
3981.200	108
3981.210	108
3981.220	108
3981.230	108
3981.240	108
3981.260	108
3981.270	108
3981.280	108
3981.290	108
3981.300	109
3981.310	109
3981.320	109
3981.330	109
3981.340	109
3981.350	109
3981.360	109
3981.370	109
3981.380	109
3981.390	111
3981.400	111
3981.410	111
3981.500	111
3981.700	107
3981.701	107
3981.702	107
3981.710	107
3981.711	107
3981.712	107
3981.720	107
3981.730	107
3981.740	107
3981.741	107
3981.742	107
3981.750	107
3981.751	107
3981.752	107
3981.760	107
3981.770	107
3981.900	107
3981.901	107
3981.902	107
3981.910	107
3981.911	107
3981.912	107
3981.920	107
3981.930	107
3981.940	107
3981.941	107

Order No.	Page
3981.942	107
3981.950	107
3981.951	107
3981.952	107
3981.960	107
3981.970	106
3982.000	101
3982.010	101
3982.020	101
3982.030	101
3982.040	103
3982.050	103
3982.060	103
3982.070	103
3982.080	103
3982.090	103
3982.100	103
3982.110	105
3982.120	105
3982.130	105
3982.140	105
3982.150	105
3982.160	105
3982.170	105
3982.190	105
3982.300	101
3982.370	108
3982.380	108
3982.390	108
3982.700	107
3982.701	107
3982.702	107
3982.710	107
3982.711	107
3982.712	107
3982.720	107
3982.730	107
3982.740	107
3982.741	107
3982.742	107
3982.750	107
3982.751	107
3982.752	107
3982.760	107
3982.770	107
3982.900	107
3982.901	107
3982.902	107
3982.910	107
3982.911	107
3982.912	107
3982.920	107
3982.930	107
3982.940	107
3982.941	107
3982.942	107
3982.950	107
3982.951	107
3982.952	107
3982.960	107
3982.970	107

Order No.	Page
3983.000	102
3983.010	102
3983.020	102
3983.030	102
3983.040	104
3983.050	104
3983.060	104
3983.070	104
3983.080	104
3983.090	104
3983.100	104
3983.110	106
3983.120	106
3983.130	106
3983.140	106
3983.150	106
3983.160	106
3983.170	106
3983.190	106
3983.290	102
3983.300	102
7094.600	203
9687.608	252
9810.337	240, 241
9810.338	240, 241
9901.417	202
9901.021	48, 127
9901.023	48, 127
9901.816	144
9901.991	139
9902.240	155
9904.131	240
9904.745	133
9904.928	252
9904.929	252
9904.930	252
9904.931	252
9904.932	252
9904.933	252
9905.105	240
9905.574	172
9905.990	172
9906.727	48, 127
9906.914	48, 127
9907.699	227
9908.721	38, 132
9908.722	40, 134
9908.723	42, 136
9909.193	255
9909.230	256
9909.483	235
9909.484	247
9910.007	252
9910.008	252
9910.009	252
9910.010	252
9910.011	252
9910.012	252
9910.013	252
9910.014	252
9910.015	252

Order No.	Page
9910.016	252
9910.944	232
9910.945	232
9910.946	233
9910.947	234
9910.948	233
9910.949	246
9910.950	246
9910.954	246
9910.955	246
9910.956	247
9910.957	247
9910.958	248
9910.959	248
9910.960	249
9911.220	227
9911.570	227
9911.571	227
9911.758	222
9911.760	222
9911.803	223
9911.885	226
9911.886	226
9911.887	226
9911.888	226
9911.889	226
9911.890	226
9911.891	227
9911.892	227
9911.893	227
9912.293	257
9912.294	257
9912.362	252
9912.410	252
9912.411	252
9912.412	252
9912.413	252
9912.414	252
9912.415	252
9912.416	252
9912.417	252
9912.418	252
9912.419	252
9912.420	252
9912.421	252
9912.422	252
9912.423	252
9912.424	252
9912.425	252
9912.426	252
9912.427	252
9912.428	252
9912.429	252
9912.430	252
9912.431	252
9912.432	252
9912.433	252
9912.434	252
9912.435	252
9912.436	252
9912.483	256

Order No.	Page
9912.522	137
9912.523	44
9912.828	153
9913.260	255
9913.748	256
9914.268	79, 129
9916.222	199, 211
9916.676	110
9918.119	121
9918.120	121
9918.121	121
9918.122	121
9918.123	121
9918.125	121
9918.814	152
9918.815	152
9918.816	152
9918.817	152
9918.818	152
9918.819	152
9918.820	152
9918.821	152
9919.472	116
9919.605	242
9919.795	99
9919.796	99
9919.797	99
9919.798	99
9919.799	99
9919.800	99
9919.834	158
9919.911	243
9919.912	243
9919.999	97
9920.069	137
9921.685	149
9921.710	149
9921.721	79, 129
9921.722	148
9921.723	148
9921.724	148
9921.725	79, 129
9921.726	79, 129
9921.788	132
9921.789	132
9921.790	133
9921.791	133
9921.793	132
9921.795	134
9921.798	133
9921.799	133
9921.803	142
9921.860	77
9921.861	77
9921.862	77
9921.863	77
9921.864	77
9921.865	77
9921.866	77
9921.867	77
9921.883	148

Order No.	Page
9921.884	148
9921.885	148
9921.942	146
9921.943	146
9921.944	146
9921.945	145, 147
9921.946	108
9921.947	108
9921.948	108
9921.949	108
9921.950	108
9921.951	108
9921.952	108
9921.953	108
9921.954	108
9921.666	211
9921.879	164

A

Page

Accessories
– for subracks 126
– CPCI/VMEbus 257
– MicroTCA 225
– HeiCase 116
– HeiPac Vario-Module 107
AC-fans
– for subracks 190
– for microcomputer systems 190
Adaptor 65
Adaptor rail
– rear, centre (E) 140
AdvancedMC
– Face Plates 226
– Filler Sheets 227
Air baffle 187
Air block panel 158
Air partition 187
Aluminium front door
– vertically hinged, for HeiCase 119
Aluminium centre part
– for three-part guide rails 157
Assembly parts
– for Electronic-Packaging 202
AT/ATX power supply 199
ATX Industrial PCs 210

B

Page

Backplane 9 U Monolithic with power supply connector 241
Backplane VME J1/J2 Monolithic 253
Backplane
– CPCI 238
– CPCISerial 242
– VME 253
– VME64x 252
– VMEbus, technical specification 250
Bottom covers
– for HeiPac Vario-Module 107

C

Page

Card retainer 215
Carrying handle/support stand
– for HeiPac Vario-Module 111
Carrying Handles
– for HeiCase 118
– for HeiPac Vario-Module 109
Climate Control 186
Components for EMC Installation, for subracks 146
Conductive strip (H) 145
Contact strip, EMC 146
Connection cable
– for AC fans 191
Verbindungsstift
– for injector/extractor handles types IV, IVs and VII 170
Contact springs 154
Controller modules (CMC & LAN) 255
Controller modules (CMC & RS232) 255
Conversion module 227
Covers
– for lateral space 173
– for drives 214
– for HeiPac Vario-Module 107
– for mezzanine front panels 181
– for subracks 161
CPCI
– Backplane 238
– Busplatinen, technical specification 236
– Rack-mount systems 230
– Accessories 257
CPCI power supply
– Open Frame 400 W 196
– Plug-in 197
CPCI/VMEbus
– MPS monitoring 255
– Accessories 257
CubeTCA 224

D

Page

DC-fan
– for subracks 191
– for rear panels 216
Display- and controller-module (CMC & RS232) 256
Door cut-out trim
– for subracks 180
Drive holder 215

E

Page

Earthingset for HeiPac Vario-Module 110
Earthingset for HeiCase 118
EMC
– Expansion acccessories 146
– Gaskets 146
– Front/rear panels for ventilation 187
– Front panels, handles 166
– Front panels hinged 180
– Contact strip 146
– Rear panels for fan installation 188
– Shielding plate for fans 193
– Seals for mezzanine cut-outs 181
Enclosure
– for Industrial PCs 208
End pieces
– for three-part guide rails 157
– for guide rails, aluminium 155
ESD contacts 159
Extractor handle
– Type I and Type II 168
– Type III 173

F

Page

Face Plates 226
Fan module 257
Fan mounting plate 186
Fans
– AC fans 190
– DC fans 191
Feet
– for HeiCase 120
– for HeiPac Vario-Module 108
Flange 19″ 128
Filler Sheets 227
Finger guard
– for AC/DC fans 192
Filtered IEC mains inlet 257
Front panels
– for type III extractor handle 173
– for handles type I, II, IV, IVs or VII 166
– for handles type V and VI 176
– with handles type I or II 165
– with handles type V and PCB holder 174
– for ATX power supply 200
– for subracks 165
– to conceal the vertical support 150
Front corner trims
– for HeiPac Vario-Module 109
Front doot
– for HeiCase 119
Front flanges
– for HeiPac Vario-Module 108
Front/rear panels for ventilation 187
Front trim panels for AT/ATX 217

G

	Page
Ground contact	156
Guide rails	
– for 4,4″	158
– for subracks	154
– for drive modules	183

H

	Page
Handles	
– for front panels	165
– for Industrial PCs	215
– for subracks	57
- Type V und VI	176
HeiBox ALU 1 U	96
HeiBox ECO 1 U	98
HeiCase	112
HeiPac	
– ATX	208
– Compact	66
– EASY	82
– Eco	58
– for CPCI	232
– for VMEbus	246
– HEAVY	
– Table of horizontal rails	130
– Power Supplies	196
– Vario	30
– Vario EMC	30
– Vario-Module	100
HeiPac box type plug-in unit	
– Individual components	184
– Type I	182
Horizontal mounting kit	151

I

	Page
Identification strip (J)	144
Identification strip	
– for type I, II extractor handle and type IV injector/extractor handle	168
– for type V handles	176
Industrial PCs	206
Instrument cases/system enclosures	
– HeiCase	112
– HeiPac Vario-Module	100
Insulated centre part	
– for three-part guide rails	157
Insulating strip (G)	145
Injector/extractor handles	168

K

	Page
Keyable guide rails	
– Aluminium, three-part	157
– for I/O assemblies	156
– Plastic	154
– with ½HP offset	
Keyboards lid	
– for HeiCase	119
Keys	159
Keying tool	160

L

	Page
LED display and controller module (CMC & RS232)	256
LED display module	257

M

	Page
Mains switch CPCI/VME	257
Mezzanine front panels	181
MicroTCA	
– CubeTCA	224
– Development systems/ rack-mount systems	222
– PicoTCA	223
– Accessories	225
Micro switch for “live insertion”	171
Micro switch with cable & connector	171
Micro switch mounting clip	172
Modular syst. AT/ATX Vario Economy	211
Monitoring	
– MPS	255
Mounting brackets	
– for HeiCase	116
Mounting base for power supplies	201
Mounting blocks	148
Mounting clip	148
– for plastic covers	172
Mounting plate	
– for Ripac Vario-Module	108
MPS Monitoring	255

P

	Page
PCB holder	
– for front panels	177
– for box type plug-in units	183
PCB holder kit	177
PCB ejector / retainer	160
PicoTCA	223
Power Module Ri-PM	225
Power supply units	196
Power supply boards	240
Plastic covers for PCBs	172
Punched strip	145

R

	Page
Rack-mount system	
– for CPCI	230
– for industrial PCs	206
– for industrial PCs, accessories	214
– for VME/VME64x	244
– MicroTCA	222
– PicoTCA	223
Rails, horizontal	132
– for HeiPac EASY	142
Rear door	
– for fan installation, for HeiCase	121
– Vertically hinged, for HeiCase	121
Rear feet	
– for HeiPac Vario-Module	109
Rear panels	
– for fan installation	188
– for fan installation, horizontal hinged	189
– screw-fastenedfor HeiCase	121
– for AT/ATX Economy	216

S

	Page
Slide rails	
– for HeiCase	116
Side panels	
– for subracks	126
– for HeiPac EASY	127
Side panels and flanges	128
Slim-Box Vario	230
Slotted rear panels	217
Spacers	
– for HeiCase	117
Subracks accessories	
– for subracks	126
– for CPCI- and VME-systeme	257
– for Industrial PCs	
Support spacers	
– for mezzanine cards	181
Support stand/carrying handle	
– for HeiPac Vario-Module	111
Subracks	28
– Individual components	126
– EMC installation	146
– Climate control	186
– HeiPac Vario COMPACT	66
– HeiPac EASY	82
– HeiPac Vario HEAVY	76
– HeiPac Vario	30
– HeiPac Vario EMC	30
– Accessories	125
Mounting kits	150
System enclosures	
– HeiBox	96
– HeiCase	112
– HeiPac Vario-Module	100

T

	Page
Telescopic slides	214
Temperatur- module	256
Temperature sensor	
– For DC-fan	192
Threaded inserts	
– for HeiCase	116
– Threaded inserts (I)	144
Tower-feet for HeiCase	120
Trim frame	
– vented	151
– for horizontal mounting kit	151
Trim section	
– for HeiCase	118
– rear, for HeiPac	57

U

	Page
U-channel front panels	
– for handles type I, II, IV, IVs, or VII	167
– for handles type V and VI	176
– With extractor type I, II or injector / extractor type IV	166
Universal holder	
– for front panel support	174
Unused slot cover	214

V

	Page
Vario, HeiPac	30
Vario, HeiPac EMV	30
Vario-Modulea, HeiPac	100
Vertical divider kit	150
Vertical support	150
VME J1 system bus	254
VME J2 expansion bus	254
VMEbus	
– Backplanes	252
– Backplanes, technical specifications	250
– Rack-mount systems	244
– MPS Monitoring	255
– Accessories	257

Z

	Page
Z rail for connector	144

WEITERE INFORMTIONEN UNTER
WWW.HEITEC.DE

WE MEET YOUR INDIVIDUAL NEEDS!

You are looking for a product in the field of electronic packaging that is not in our catalogue?

Please contact us!

We will gladly submit a tailored quotation.

Phone: 09126 - 29 34 0
E-Mail: eps-quote@heitec.de

HEITEC – WE CREATE YOUR ELECTRONIC WORLD

See our website for contact details of our sales partners.

HEITEC AG
Dr.-Otto-Leich-Straße 16
90542 Eckental

Phone: +49 9126 2934 0

Fax: +49 9126 2934 199

E-Mail: electronics@heitec.de

Internet: www.heitec-eps.com

© HEITEC AG | KAT_EPS_EN_02