

PULS does it again:
practical, versatile and reliable like
the SilverLine – yet small like
no other.

PULS



Data Sheet

MiniLine

with DC 48-56V / 50W

- Mounted and connected in record time, no tools required
- World-wide approvals (UL, EN, CSA, CB Scheme) for industry and office/home
- Tiny: WxHxD = 45 x 75 x 91 mm
- NEC Class 2 Power Supply
- Adjustable output voltage up to DC 56V
- 100-240V Wide Range Input
- PULS Overload Design™ (high output overload capability)

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Mini is more.

Technical Data ML50.105

Spring Clamps

Input

Input voltage	AC 100-240V (Wide Range), 47...63Hz Admiss. limits: AC 85...264V (DC 85...375V)
Input current	<1.0A (@ AC 100V, 50W P_{out}) <0.6A (@ AC 196V, 50W P_{out})
External fusing	not required, unit provides internal fuse (T3A15H, not accessible)
Transient immunity	Transient resistance acc. to VDE 0160 / W2 (750V / 1.3ms), over entire load range
Hold-up time (see diagram below)	>170ms @ AC 230V, 48V / 1.05A >97ms @ AC 196V, 48V / 1.05A >17ms @ AC 100V, 48V / 1.05A

Efficiency, Reliability

Efficiency	typ. 90% (AC 230V, 48V / 1.05A) (see also diagram below)
Losses	typ. 6W (AC 230V, 48V / 1.05A)
MTBF (Reliability)	appr. 600.000h acc. to Siemensnorm SN 29500 (48V / 1.05A, AC 230V, $T_{amb} = +40^{\circ}\text{C}$)

Prior to shipment, every unit undergoes the following tests in order to isolate any defective units which might suffer an early failure:

- Run-in/burn-in (Full load, $T_{amb} = +60^{\circ}\text{C}$, on/off cycle)
- Functional test (100%)

Construction, Mechanics, Installation

Robust plastic housing (US Patent No. D442, 923S), fine ventilation grid on three housing sides to keep out small parts (e.g. screws), IP20

Dimensions and weight

- W x H x D 45mm x 75mm x 91mm (+ DIN Rail)
Depth incl. terminals: 98mm (+ DIN Rail)
- Weight 240g

Mounting orientation  (cf. 'Output')

Ventilation/Cooling Normal convection, no fan required

- Free space f. cooling recom'd.: 25mm on sides with ventilation grid

Easy snap-on mounting onto the DIN-rail (TS35/7,5 or TS35/15).

Unit sits safely and firmly on the rail; no tools required even to remove

Connection by Spring Clamp terminals; uniformly firm hold, vibration-resistant and maintenance-free: 2 terminals per output

Connector size range

- flexible cable 0.3-2.5mm² (28-12 AWG)
- solid cable 0.3-4mm² (28-12 AWG)
Ferrules admissible
- Wire strip length 6mm (0.24in) recommended

Output

Output voltage	DC 48-56V (adj. by front panel potentiometer) • preset 48V $\pm 0.5\%$ @ 1.05A
Voltage regulation	stat. <1% V_{out} dyn. $\pm 2\%$ V_{out} over all
Ripple/Noise	<200mV _{pp} (20MHz bandw., 50 Ω measurem.)
Overvoltage prot. (OVP)	<60V
Rated continuous loading	up to 1.05A @ 48V / 0.9A @ 56V (convection cooling), depending on built-in orientation, V_{in} and T_{amb} For details see derating diagram below
Overload behaviour	PULS Overload Design™ : No switch-off at overload/short-circuit, instead: up to 1.5 · I_{rated} . So you need no oversizing to start awkward loads.
Protection	Unit is protected against (also permanent) short-circuit, overload and open-circuit.
Derating	depending on built-in orientation; see diagram below
Power back immunity	63V
Operating indicator	Green LED

Environmental Data, EMC, Safety

Ambient temperature range (measured 25mm below unit)

- storage/transport -25°C ... +85°C
- operation -10°C ... +70°C (for derating see diagram below)

Humidity max. 95% (without condensation)

Electromagnetic emissions (EME) EN 61000-6-3 (includes EN 61000-6-4)
Class B (EN 55011, EN 55022)

Electromagnetic immunity (EMI) EN 61000-6-2 (includes EN 61000-6-1)

Safe low voltage: SELV (EN60950, VDE0100/T.410), PELV (EN50178)
Prot. class/degree: Class I (EN60950) / IP20 (EN60529)

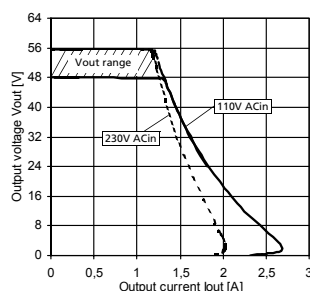
The PSU complies with all major **safety approvals** for EU (EN 60 950, EN 60204-1, EN 50178), USA (UL 60950, E137006, UL508 LISTED, E198865), Canada (CAN/CSA-C22.2 No 60950 [CUR], CAN/CSA-C22.2 No. 14 [CUL]), CB Scheme (IEC 60950).

Design details – for your advantage:

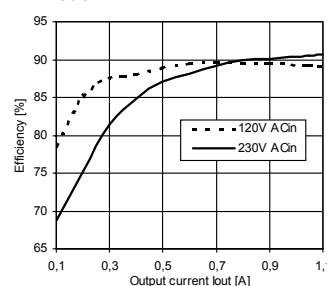
- All terminals are easy to reach as mounted on the front panel.
- Input and output are strictly apart from each other (input below, output above) and so cannot be mixed up.
- **Mounting and connection do not require any screwdriver**
→ Easy, quick, durable and reliable installation.

Diagrams

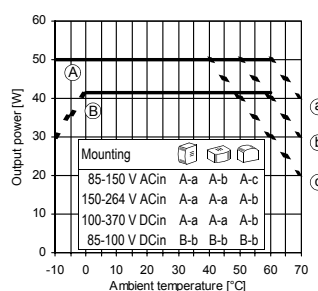
Output characteristic V_{out}/I_{out} (min.)



Efficiency (@ $V_{out} = 48\text{V}$, typ.)



Derating of output power



Hold-up time with ACin (at $V_{out} = 48\text{V}$, typ. + min.)

