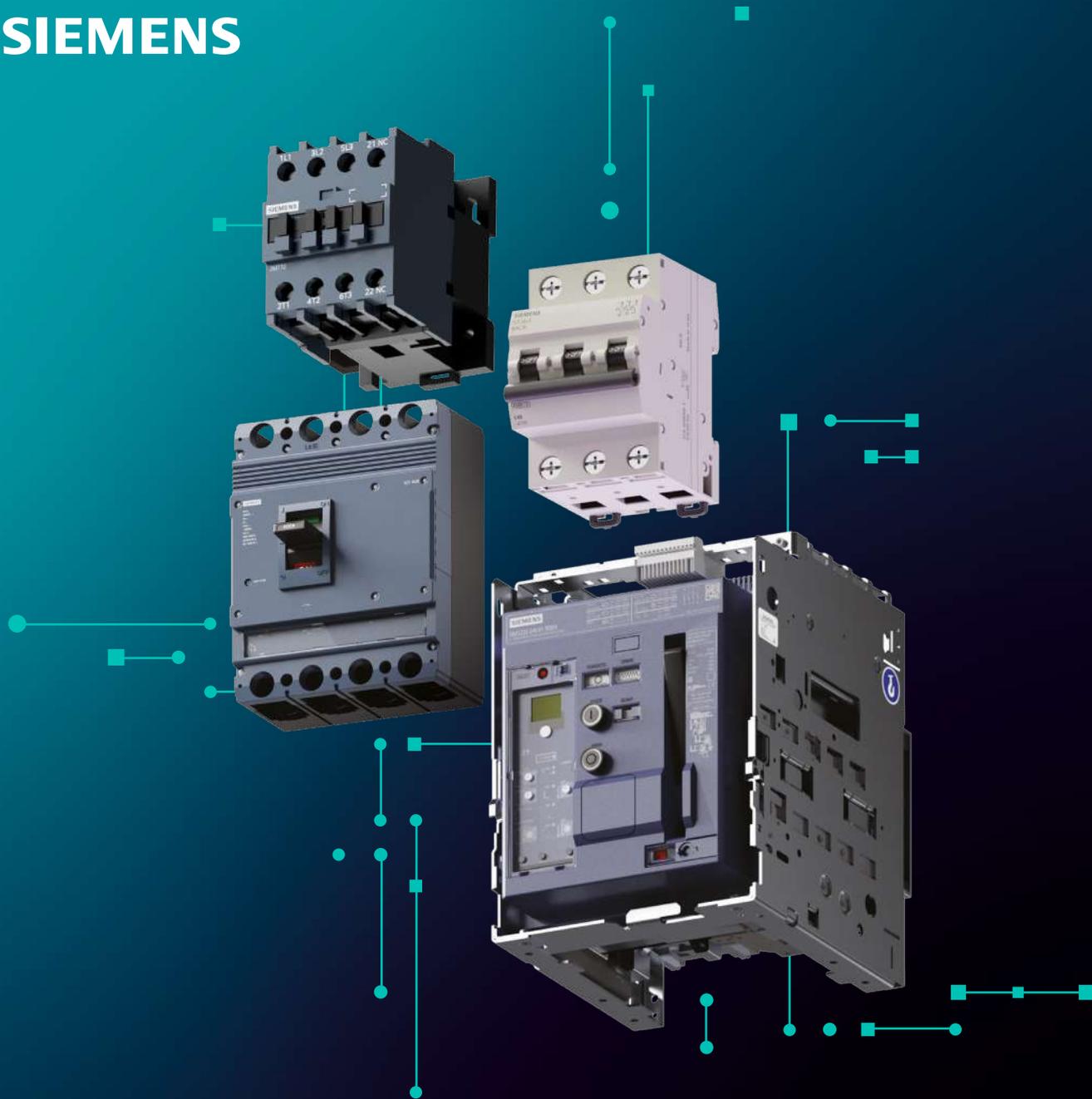


SIEMENS



SINOVA

low-voltage
electrical products

SINOVA The Power of **Simplicity**

Discover The Power of **Simplicity** with SINOVA

Backed by Siemens quality standards, SINOVA introduces exceptional ease of operation and cost-efficiency to electrical installations in buildings, utilities, industries, and infrastructure applications.

Our low-voltage electrical products offer protection, control, switching, and metering capabilities that help promote efficiency across the value chain, optimizing OPEX, CAPEX, and reducing environmental impact.

We are continuously driven to innovate and provide simple and reliable solutions. Inspired by efficiency and simplicity, we strive to empower industry professionals to streamline processes and complete projects quicker every time.



SINOVA power distribution

Experience the power of simplicity with our SINOVA power distribution range of electrical protection products.

In the complex realm of power distribution, our wide range of components is designed to protect your investment in people, equipment, and infrastructure from potential electrical faults and hazards while ensuring optimal performance. Our focus on safety, reliability, and value-driven excellence means you can have confidence in our power distribution products, which include air circuit breakers and molded case circuit breakers. Experience the assurance of Siemens quality, made simple with exact product features that meet your specific needs.

SINOVA The Power of **Simplicity**



3WJ air circuit breakers

Product **highlights**



Adaptable

Our air circuit breakers feature common footprints, allowing for easy and seamless integration.



Comprehensive

With a range of up to 4000A, our air circuit breakers cater to all your standard application needs.



Customizable

We provide complete flexibility for users to choose their desired features, ensuring cost-efficient performance that meets their specific requirements.

SINOVA The Power of **Simplicity**

Technical specifications

3WJ air circuit breakers

The automatic circuit breakers adhere to IEC 60947-2 standards, and non-automatic circuit breakers adhere to IEC 60947-2 CBI-Y standards.



I



II

Frame size				3WJ1108	3WJ1110	3WJ1112	3WJ1116	3WJ1220	3WJ1225	3WJ1232	3WJ1240
Rated current in at 40°C, at 50/60Hz	Main conductor	A		800	1000	1250	1600	2000	2500	3200	4000
	Neutral conductor (only 4P)	A		100%							
Rated operating voltage Ue at 50/60Hz		AC									
		V		440							
Rated impulse	Main circuits	kV		8							
	Auxiliary circuits	kV		4							
Utilization category				B							
Rated short circuit	Breaking capacity	up to									
Making capacity Icm (peak value)	S	440V AC	kA	105	105	105	105	121	121	121	121
Rated service short circuit	Breaking capacity	up to									
Breaking capacity Ics (rms value)	S	440V AC	kA	50	50	50	50	55	55	55	55
Rated ultimate short circuit	Breaking capacity	up to									
Breaking capacity Icu (rms value)	S	440V AC	kA	50	50	50	50	55	55	55	55
Permissible ambient temperatures	Operation		°C	-20...+70							
	Storage		°C	-40...+80							
Rated short-time withstand current Icw at 50/60Hz		1 secs	kA	50	50	50	50	55	55	55	55
Power loss at In With 3-phase symmetric load	Fixed-mounted		W	60	90	122	170	216	338	420	750
	Withdrawable including guide-frame		W	130	205	255	392	493	563	760	960
Endurance	Mechanical		Operating cycle	12000	12000	12000	12000	10000	10000	10000	10000
	Electrical up to 440V AC			8000	8000	8000	8000	4000	4000	4000	4000
Operating frequency	Mechanical		1/h	60							
Main conductor for minimum cross-section	Copper bars, bare		Qty mm ²	1x 60 x 10	2x 40 x 10	2x 60 x 10	2x 60 x 10	2x 100 x 10	2x 100 x 10	3x 100 x 10	4x 120 x 10
	Copper bars, bare		Qty mm ²	1x 50 x 10	2x 60 x 10	2x 40 x 10	2x 50 x 10	2x 80 x 10	2x 100 x 10	3x 100 x 10	4x 100 x 10
Auxiliary conductors (Cu)	Solid and finely stranded with end sleeves			1 x 0.5 ... 2.5mm ² ; 1 x AWG14							
Max no. of auxiliary conductors X cross-section				2 x 1.0 mm ²							



3VJ molded case circuit breakers

Product highlights



Compact

Our compact molded case circuit breakers fit easily into enclosures and switchboards, reducing overall module size.



Efficient

Our user-friendly molded case circuit breakers optimize operational efficiency and save energy, making them a cost-effective power distribution solution.



Reliable & safe

Designed to meet Siemens quality standards for reliable performance and 100% rated neutral operation for demanding applications.



Versatile

With a wide range of accessories, interchangeable neutral pole positioning, and various breaking capacities, our molded case circuit breakers provide flexibility for different installation requirements.

SINOVA The Power of **Simplicity**

Technical specifications

3VJ molded case circuit breakers



Type		3VJ10	3VJ10	3VJ11	3VJ12	3VJ13	3VJ14
Number of poles		1	2/3/4	2/3/4	2/3/4	3/4	3/4
Frame size		125X	125X	125	250	400	630
Rated operational current I _n at 50°C ambient temperature		16-125	16-125	16-125	160-250	320-400	500-630
Rated operational voltage Use 50/60Hz AC	V	240	415	415	415	415	415
Insulation voltage	V	800	800	1000	1000	1000	1000
Impulse voltage	kV	6	6	8	8	8	8
Suitable for isolation		Yes					
Utilization category, according to IEC60947-2		A					

Breaking capacity

Short circuit breaking capacities I_{cu} / I_{cs} rms value, according to IEC60947-2

I _{cu} @ AC 415* V-50/60Hz	kA	10	18	25	10	18	25	25	36	55	18	25	36	55	25	36	55	36	55
I _{cs} @ AC 415* V-50/60Hz	kA	100%	75%	100%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%

Trip units

Fixed Thermal Fixed Magnetic (1P/2P/3P/4P MCCBs)	FTFM	■																	
Adjustable Thermal Fixed Magnetic (3P/4P MCCBs)	ATFM	■																	
Neutral protection in 4P MCCB		100%																	

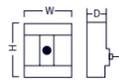
Operating cycles

Mechanical		15000	15000	15000	15000	15000	10000
Electrical @ 415* V AC		5000	5000	5000	5000	5000	4500

Connection technology

Standard connection technology		Screw terminal					
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Overall dimensions

Width x Height x Depth		35 x 118 x 62	80 (2P/3P) / 103.5 (4P) x 126 x 62	92 (2P/3P) x 122 (4P) x 150 x 81	107.5 (2P/3P) x 142.5 (4P) x 166 x 81	150 (3P) / 198 (4P) x 260 x 104	150 (3P) / 198 (4P) x 260 x 104
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*240V for 1P MCCBs

■ Available



SINOVA final distribution

Experience the power of simplicity with our SINOVA final distribution range of electrical protection products.

Our final distribution products exemplify the Siemens standard of excellence, ensuring safe and efficient power distribution to the end consumer energy management across buildings and industries. With a comprehensive range of components, including miniature circuit breakers, residual current circuit breakers, and isolators, SINOVA caters to the diverse needs of modern power distribution systems. Backed by Siemens' commitment to quality and value, our products are reliable and built for a seamless and secure power distribution experience.

SINOVA The Power of **Simplicity**



5TJ miniature circuit breakers

Product **highlights**



Reliable protection

Our miniature circuit breakers provide reliable protection for your installation with 4.5kA, 6kA, and 10kA breaking capacities.



Cost-effective

With low energy consumption, our miniature circuit breakers help you save on costs over their lifetime.



Easy to use

Our miniature circuit breakers offer flexibility in termination which includes cable, pin-type, and fork-type busbars, making them easy to use.

SINOVA The Power of **Simplicity**

Technical specifications

5TJ miniature circuit breakers

Parameters	Unit	Technical details
Standard		IEC 60898-1: 2015
Number of poles		1P, 2P, 3P, 4P
Rated voltage	V AC	240/415
Operational voltage	V AC/pole	Min. 24 Max. 440
Rated breaking capacity acc. to IEC 60898-1	kA AC	4.5kA, 6kA, & 10kA
Tripping characteristics		B, C (6kA & 10kA) & C (4.5kA)
Current rating	Ampere	B curve: 6-63 (6kA & 10kA) C curve: 6-63 (4.5kA, 6kA, & 10kA)
Insulation voltage	V AC	265/456
Rated frequency	Hz	50/60
Impulse withstand voltage	kV	4
Degree of pollution		2
Overvoltage category		III
Line load reversibility		Yes
Degree of protection acc. to EN 60529		IP20
RoHS compliant		Yes
CFC and silicone-free		Yes
REACH		Yes
Terminal tightening torque, recommended	N.m	2
Conductor cross-sections	mm ²	1...25 for 4.5kA & 6kA 1...35 for 10kA
Bi-connect (dual) terminals		Yes, on line side for 4.5kA and 6kA variant Yes, on both sides for 10kA variant
Busbar suitability		Both fork and pin type
Mounting position		Any
Average electrical/mechanical life		5,000/20,000 actuation
Ambient temperature	°C	- 25 ... +55 °C, max. 95% humidity Storage temperature: -40 +75 °C
Dimensional details Height x Width x Dimension	mm	84 x 18 x 76 mm (1 pole) Width change as number of module sizes increases from 1 pole...4 pole



5TJ residual current circuit breakers

Product highlights



Extensive product range

Our residual current circuit breakers come in current ratings of 16A, 25A, 32A, 40A, and 63A. They're available with sensitivities of 30mA, 100mA, and 300mA.



High compatibility

Compatible with 50Hz and 60Hz frequencies, catering to a wide range of needs.



Easy to use

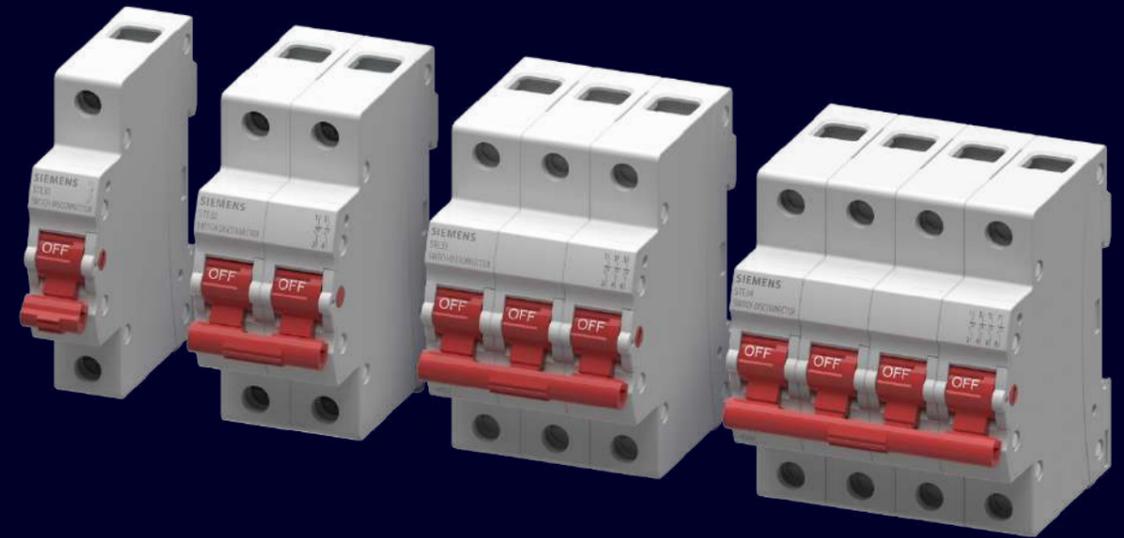
Our residual current circuit breakers offer flexibility in termination which includes cable, pin-type, and fork-type busbars, making them easy to use.

SINOVA The Power of **Simplicity**

Technical specifications

5TJ residual current circuit breakers

Parameters	Unit	Technical details
Standard		IEC 61008-1, IEC 61008-2-1
Number of poles		2P and 4P
Rated voltage	V AC	240/415
Rated current I _n	Ampere (A)	16, 25, 32, 40 and 63
Rated frequency	Hz	50/60
Type		AC
Rated residual current / Δn	mA	30, 100 and 300
Rated conditional short-circuit current as per IEC 61008-1	kA	6
Minimum operating voltage for test function		
30mA	V AC	90
100mA		140
300mA		200
Pollution degree		2
Overvoltage category		III
Impulse withstand voltage	kV	4
Handle end position, sealable (sealing wire)		Yes
Degree of protection acc. to EN 60529		IP20 front
RoHS compliant		Yes
CFC and silicone-free		Yes
REACH		Yes
Terminal tightening torque, recommended	N.m	2.5...3
Conductor cross-sections	mm ²	2.5...35
Bi-connect (dual) terminals		Yes (bottom only)
Busbar suitability		Both fork and pin type
Mounting position		Any
Average electrical / mechanical life		10,000/15,000 actuation
Ambient temperature	°C	- 25 ... +55 °C, max. 95% humidity Storage temperature: -25 ... +60 °C
Dimensional details Height x Width x Depth	mm	84.5 x 36 x 76 mm (2P) 84.5 x 72 x 76 mm (4P)



5TE isolators

Product highlights



Adaptable

Ideal for switching a variety of applications with mixed resistive and inductive loads in both residential and industrial applications.

IEC Safe

Complete isolation and safe system disconnection during maintenance work, ensuring the safety of personnel. Conform to IEC 60947-3.



Easy to use

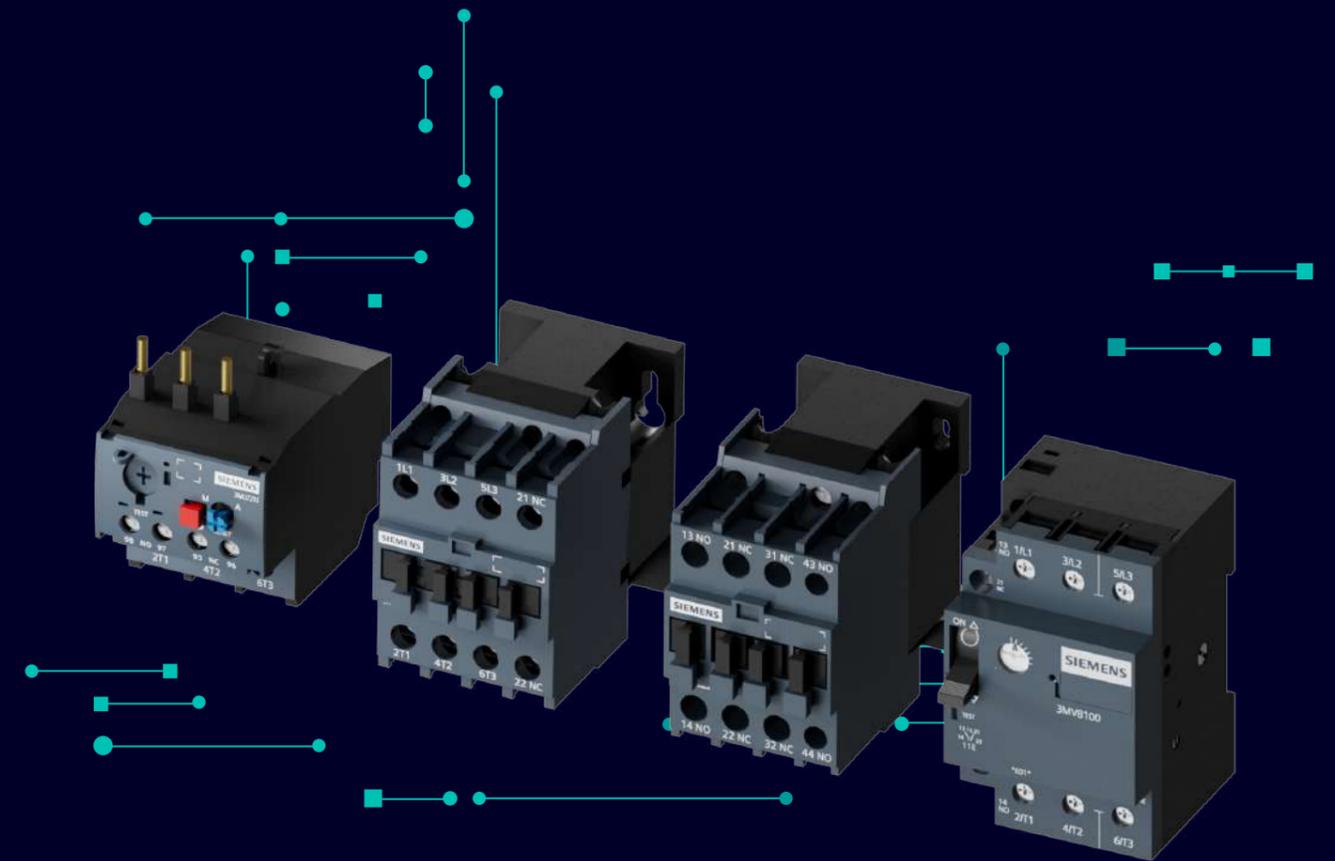
Our isolators offer flexibility in termination, which includes cable, pin-type, and fork-type busbars, making them easy to use.

SINOVA The Power of **Simplicity**

Technical specifications

5TE isolators

Parameters	Unit	Technical Details					
		IEC 60947-3					
Rated voltage Un V AC	V AC	1P-240V/415V AC ; 2P,3P,4P- 415V AC					
Current rating	A	25A	40A	63A	80A	100A	125A
Rated power dissipation Pv – per pole max		2.3	2.3	2.5	5.5	5.5	5.5
Breaking capacity							
• Short circuit withstand capacity Icw (1 sec)	A	300	480	756	960	1200	1500
• Short circuit making capacity Icm	A	500	800	1200	1500	1800	2200
Rated insulation voltage	V AC	660					
Rated frequency	Hz	50/60					
Utilization category		AC-22A					
Overvoltage category		III					
Pollution degree		3					
Impulse withstand voltage	kV	4kV					
Degree of protection (front side)		IP20					
Endurance in cycles							
• Mechanical		10000					
• Electrical		2000					
Handle end position (sealable wire)		Yes					
RoHS compliant		Yes					
Terminal details							
• Bi-connect terminal		Yes, at bottom					
• Terminal tightening torque N-m	N-m	2.5 - 3					
Conductor cross-section							
• Solid and stranded mm ²	mm ²	4 sq.mm - 35 sq.mm 4 sq.mm --- 50 sq.mm					
Ambient temperature	°C	-5 °C to 55 °C					
Storage temperature	°C	-25 °C to 70 °C					
Mounting		DIN rail (35mm)					
Orientation		Any (horizontal and vertical)					

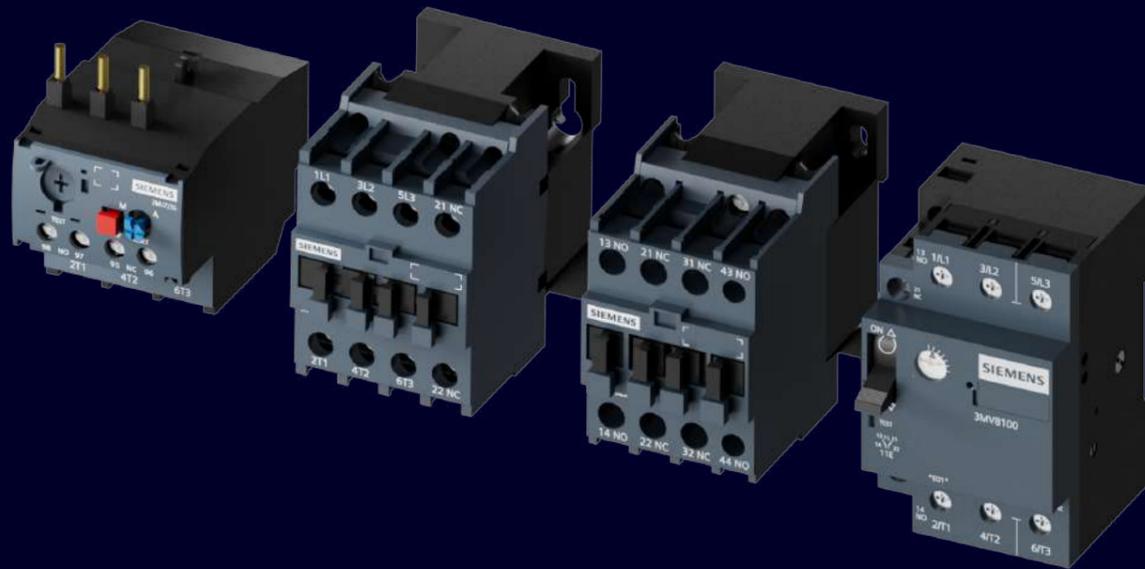


SINOVA control

Experience the power of simplicity with our SINOVA control range of electrical protection products.

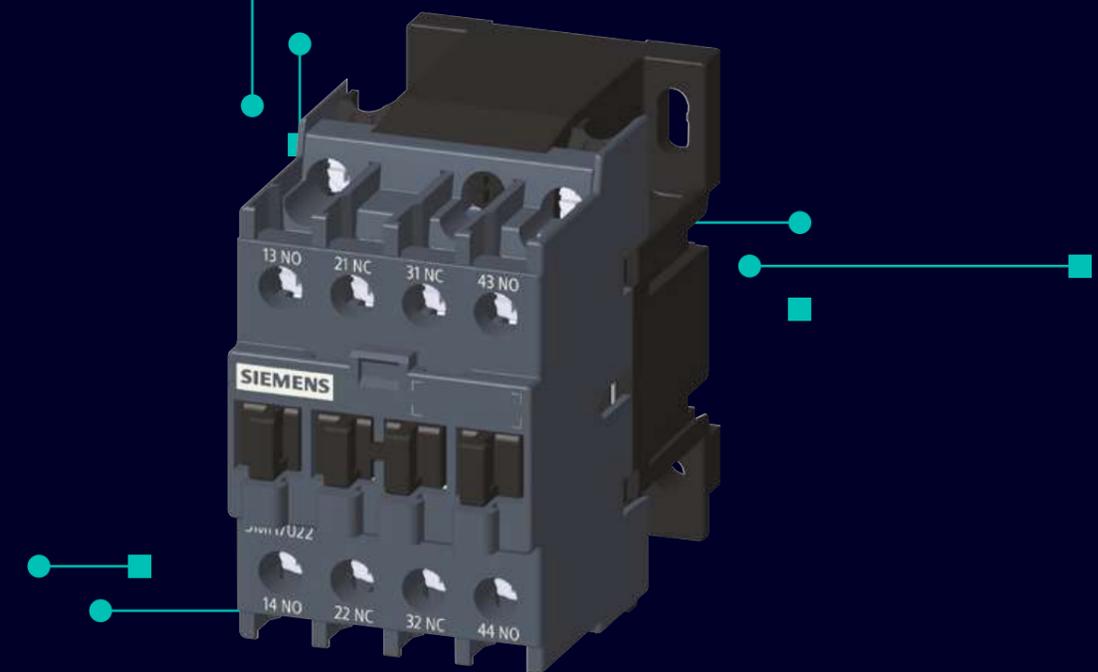
Our range of control products ensures efficient control and minimizes downtime with the help of our reliable contactors and motor protection devices. Additionally, our motor starter protectors prevent damage to your motors, fans, and pumps from overloads or short circuits. Experience the assurance of Siemens quality, made simple with exact product features to meet your specific needs.

SINOVA The Power of **Simplicity**



3MT7, 3MH7, 3MU7 & 3MV8
contactors, overload relays & motor starter protectors

Product highlights



3MH7 contactor relays



Adaptable

Our contactors and overload relays are designed to easily fit into various panel designs, catering to your control and protection requirements.



Trustworthy

Our contactors and overload relays ensure reliable motor protection with tested Type-2 coordinated feeder solutions.



Assurance

Our contactors and overload relays are compliant with IEC 60947-4-1 and IEC 60947-5-1 standards, RoHS compliant, CE certified, and type-tested under the CB scheme.



Consistent design

Our contactors and overload relays are uniform in design aesthetic and compatible with accessories across the product ranges.

SINOVA The Power of **Simplicity**

Technical specifications

3MH7 contactor relays



Type		3MH7022	3MH7031	3MH7040
General data				
Dimension (W x H x D) • Basic unit	mm	45 x 74.4 x 81.8		
Mounting position		22.5° inclination forward and backward, and 360° rotation, in relation to normal vertical mounting plane		
Mechanical service life • Basic unit • Basic unit with mounted auxiliary switch	Operating cycles	10,000,000		
Rated insulation voltage U_i (pollution degree 3)	V	1000		
Rated impulse withstand voltage U_{imp}	kV	6		
Permissible ambient temperature During operation During storage	°C	-5 ... +55		
	°C	-25 ... +70		
Relative air humidity	%	10 ... 95		
Degree of protection IP on the front		IP20		
Installation altitude at height above sea level, maximum	m	2000		
Short circuit protection				
With fuse links of operational class gG:	A	10		

Technical specifications

3MH7 contactor relays



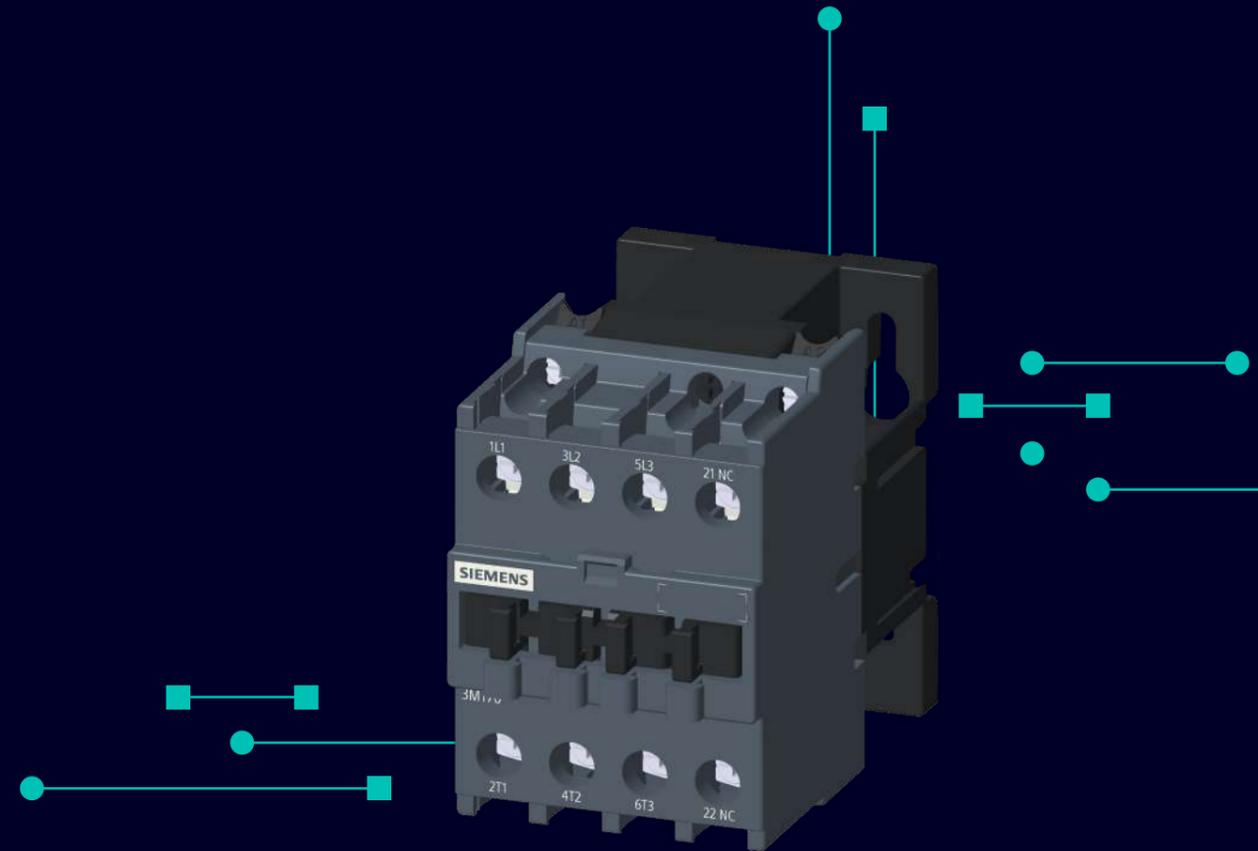
Type		3MH7022	3MH7031	3MH7040
Conductor cross-sections				
Auxiliary conductors and coil terminals Solid or stranded	mm ²	1 x (1.0 ... 4.0 mm ²); 2 x (1.0 ... 4.0 mm ²)		
Finely stranded with end sleeve	mm ²	1 x (1.0 ... 2.5 mm ²); 2 x (1.0 ... 1.5 mm ²)		
• Terminal screw - Tightening torque	Nm	M3.5 1.2		
Control				
Solenoid coil operating range • AC operation	at 50Hz at 60Hz	0.85 ... 1.1 x U_s 0.85 ... 1.1 x U_s		
Power consumption of the solenoid coil • AC operation, 50Hz - Closing - Closed • AC operation, 50Hz wide band - Closing - Closed • AC operation, 50/60Hz - Closing - Closed	VA/p.f. VA/p.f. VA/p.f. VA/p.f. VA/p.f.	70 / 0.75 11 / 0.3 90 / 0.75 15 / 0.3 80 / 0.75 12 / 0.3		
Operating times within operating range • AC operation - Closing delay - Opening delay	ms ms	7 ... 22 5 ... 20		

Technical specifications

3MH7 contactor relays



Type	3MH7022	3MH7031	3MH7040
Rated data of the auxiliary contacts			
Number of NO contacts	2	3	4
Number of NC contacts	2	1	0
Load rating with AC			
• Rated operational currents I_e			
- AC-12	690V	A	10
- AC-15 at rated operational voltage U_e	230V	A	6
	400V	A	3
	500V	A	2
	690V	A	1
• Load rating with DC (1 conducting path)			
- DC-12, at rated operational voltage U_e	24V	A	6
	110V	A	3
	220V	A	1
- DC-13, at rated operational voltage U_e	24V	A	6
	110V	A	1
	220V	A	0.3
	440V	A	0.14
	600V	A	0.1
Switching frequency			
Operating cycles/hour			
• Rated operation for utilization category			
	AC-12/DC-12	1/h	800
	AC-15	1/h	800
	DC-131/h	1/h	800
• No load switching frequency			
		1/h	1800



3MT7 3 pole power contactors

Reliable solutions for optimum control

Overview of ratings and sizes

3MT7 power contactors

Our 3MT7 3 pole power contactor range is a cost-efficient and reliable solution for a variety of switching applications. This comprehensive range of contactors provides an optimum selection for industrial and infrastructure applications.

Size 0				
	6A	9A	12A	
1NO or 1NC				
Size 1				
	18A	22A		
1NO or 1NC				
Size 2				
	25A	32A	38A	40A
1NO or 1NC				
Size 3				
	40A	50A	65A	
1NO + 1NC				
Size 4				
	80A	95A		
1NO + 1NC				

Overview of ratings and sizes

3MT7 power contactors

Size 5		
	120A	140A
Size 6		
	170A	205A
Size 7		
	250A	300A
Size 8		
	400A	

Technical specifications

3MT7 3 pole power contactors 6A to 95A



Type	3MT7006-0	3MT7010-0	3MT7012-0	3MT7018-1	3MT7022-1	3MT7025-2	3MT7032-2	3MT7038-2	3MT7040-2	3MT7040-3	3MT7050-3	3MT7065-3	3MT7080-4	3MT095-4	
Size	0	0	0	1	1	2	2	2	2	3	3	3	4	4	
General data															
Dimension (W x H x D)															
• Basic unit	W mm	45	45.5		56		74.5		84.5						
	H mm	74.4	74.5		82.9		127.4		127.4						
	D mm	81.8	86.8		95		112.6		112.6						
Mounting position	22.5° inclination forward and backward, and 360° rotation, in relation to normal vertical mounting plane					22.5° inclination forward and backward, and 360° rotation, in relation to normal vertical mounting plane									
Rated insulation voltage U_i (pollution degree 3)															
• Main circuit	V	1000		1000		1000		1000		1000					
• Auxiliary circuit	V	1000		1000		1000		1000		1000					
Rated impulse withstand voltage U_{imp}															
• Main circuit	kV	6		6		6		6		8					
• Auxiliary circuit	kV	6		6		6		6		6					
Permissible ambient temperature															
During operation	°C	-5 ... +55		-5 ... +55		-5 ... +55		-5 ... +55		-5 ... +55					
During storage	°C	-25 ... +70		-25 ... +70		-25 ... +70		-25 ... +70		-25 ... +70					
Relative air humidity	%	10 ... 95		10 ... 95		10 ... 95		10 ... 95		10 ... 95					
Degree of protection IP on the front															
		IP20		IP20		IP20		IP20		IP20					
Installation altitude at height above sea level, maximum	m	2000		2000		2000		2000		2000					
Short circuit protection															
Main circuit															
• Fuse links, operational class gG															
- Type of coordination "1"	A	32	32	32	40	40	50	50	63	63	80	100	100	160	160
- Type of coordination "2"	A	25	25	25	32	32	40	40	50	50	63	80	80	125	125
Auxiliary circuit															
• Fuse links, operational class gG	A	10		10		10		10		10					

Technical specifications

3MT7 3 pole power contactors 6A to 95A

Type	3MT7006-0	3MT7010-0	3MT7012-0	3MT7018-1	3MT7022-1	3MT7025-2	3MT7032-2	3MT7038-2	3MT7040-2	3MT7040-3	3MT7050-3	3MT7065-3	3MT7080-4	3MT095-4
Size	0	0	0	1	1	2	2	2	2	3	3	3	4	4
Conductor cross-sections														
Main conductors														
Solid or stranded	mm ²	1 x (1 ... 4 mm ²); 2 x (1 ... 4 mm ²)		1 x (1.5 ... 6 mm ²); 2 x (1.5 ... 6 mm ²)		1 x (1.5 ... 10 mm ²); 2 x (1.5 ... 6 mm ²)			1 x (2.5 ... 25 mm ²); 2 x (2.5 ... 16 mm ²)			1 x (4 ... 50 mm ²); 2 x (4 ... 35 mm ²)		
Finely stranded with end sleeve	mm ²	1 x (1 ... 4 mm ²); 2 x (1 ... 1.5 mm ²)		1 x (1 ... 6 mm ²); 2 x (1 ... 2.5 mm ²)		1 x (1.5 ... 10 mm ²); 2 x (1.5 ... 4 mm ²)			1 x (2.5 ... 25 mm ²); 2 x (2.5 ... 10 mm ²)			1 x (4 ... 50 mm ²); 2 x (4 ... 16 mm ²)		
• Terminal screw - Tightening torque	Nm	M3.5 1.2		M3.5 1.7		M4 1.85			M8 5			M10 9		
Auxiliary conductors and coil terminals														
Solid or stranded	mm ²	1 x (1.0 ... 4.0 mm ²); 2 x (1.0 ... 4.0 mm ²)				1 x (1.5 ... 4.0 mm ²); 2 x (1.5 ... 4.0 mm ²)			1 x (1.0 ... 4.0 mm ²); 2 x (1.0 ... 4.0 mm ²)					
Finely stranded with end sleeve	mm ²	1 x (1.0 ... 2.5 mm ²); 2 x (1.0 ... 1.5 mm ²)				1 x (1.5 ... 4.0 mm ²); 2 x (1.5 ... 4.0 mm ²)			1 x (1.0 ... 2.5 mm ²); 2 x (1.0 ... 1.5 mm ²)					
• Terminal screw - Tightening torque	Nm	M3.5 1.2				M4 1.85			M3.5 1.2					
Control														
Solenoid coil operating range														
• AC operation	at 50Hz at 60Hz	0.85 ... 1.1 x Us 0.85 ... 1.1 x Us				0.85 ... 1.1 x Us 0.85 ... 1.1 x Us			0.85 ... 1.1 x Us 0.85 ... 1.1 x Us					
Power consumption of the solenoid coil (maximum)														
• AC operation, 50Hz														
- Closing	VA/p.f.	70 / 0.75				100 / 0.75			230 / 0.75					
- Closed	VA/p.f.	11 / 0.3				15 / 0.3			44 / 0.3					
• AC operation, 50Hz wide band														
- Closing	VA/p.f.	90 / 0.75				120 / 0.75			-					
- Closed	VA/p.f.	15 / 0.3				15 / 0.3			-					
• AC operation, 50/60Hz														
- Closing	VA/p.f.	80 / 0.75				110 / 0.75			280 / 0.75					
- Closed	VA/p.f.	12 / 0.3				15 / 0.3			41 / 0.3					
Operating times within operating range														
• AC operation														
- Closing delay	ms	9 ... 25				12 ... 27			17 ... 29			17 ... 38		
- Opening delay	ms	4 ... 15				5 ... 22			6 ... 15			5 ... 23		

Technical specifications

3MT7 3 pole power contactors 6A to 95A



Type	3MT7006-0	3MT7010-0	3MT7012-0	3MT7018-1	3MT7022-1	3MT7025-2	3MT7032-2	3MT7038-2	3MT7040-2	3MT7040-3	3MT7050-3	3MT7065-3	3MT7080-4	3MT095-4	
Size	0	0	0	1	1	2	2	2	2	3	3	3	4	4	
Rated data for main contacts															
Load rating with AC															
• Utilization category AC-1															
- Rated operational currents I_e At 40 °C up to 690V	A	25	25	25	32	32	40	40	50	50	60	80	80	125	125
Utilization categories AC-3															
- Rated operational currents I_e at 400V, 55 °C	A	6	9	12	18	22	25	32	38	40	40	50	65	80	95
- Rated operational currents I_e at 690V, 55 °C	A	4	5.2	6.7	10.4	12.8	13	16	18.2	18.2	24	24	32	47	47
Rated operating power															
• Operating power at AC-3 at 400V	kW	2.2	4	5.5	7.5	11	11	15	18.5	18.5	18.5	22	30	37	45
• Operating power at AC-3 at 690V	kW	3	5.5	5.5	7.5	11	11	15	15	15	22	22	30	45	45
Power loss per pole	W	2.5	2.5	2.5	3.1	3.1	3.6	5.2	5.2	5.2	5.4	7.4	6.4	13.7	13.7
Mechanical service life (in million)															
• Basic unit	Operating cycles	10	10	10	10	10	10	10	10	10	5	5	5	3	3
Switching frequency in operating cycles/hour															
• No load switching frequency	1/h	1800	1800	1800	1800	1800	1800	1800	1800	1800	1200	1200	1200	1200	1200
• Switching frequency AC-1	1/h	600	600	600	600	600	600	600	600	600	600	600	600	600	600
• Switching frequency AC-3	1/h	750	750	750	750	750	750	600	600	600	600	600	600	400	400
Rated data for auxiliary contacts															
Number of auxiliary contacts		1NO or 1NC				1NO or 1NC				1NO + 1NC					
Load rating with AC															
• Rated operational currents I_e															
- AC-12	690V A	10				10				10					
- AC-15 at rated operational voltage U_e	230V A	6				6				6					
	400V A	3				3				3					
	500V A	2				2				2					
	690V A	1				1				1					
• Load rating with DC (1 conducting path)															
- DC-12, at rated operational voltage U_e	24V A	6								6					
	110V A	3								3					
	220V A	1								1					
- DC-13, at rated operational voltage U_e	24V A	6								6					
	110V A	1								1					
	220V A	0.3								0.3					
	440V A	0.14								0.14					
	600V A	0.1								0.1					

Technical specifications

3MT7 3 pole power contactors 120A to 400A

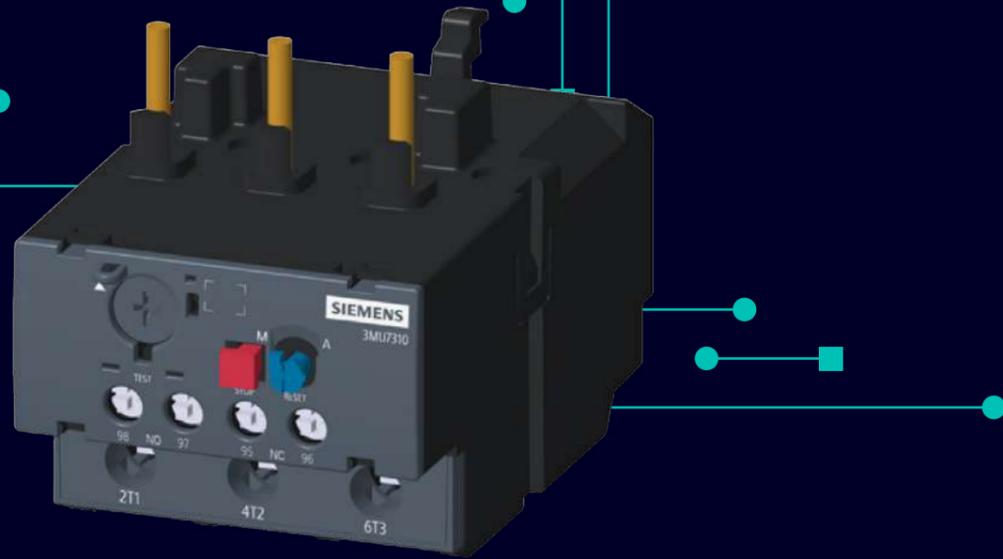
									
Type		3MT7120	3MT7140	3MT7170	3MT7205	3MT7250	3MT7300	3MT7400	
Size		5	5	6	6	7	7	8	
General data									
Dimension (W x H x D)									
Basic unit	W	mm	120	120	135	135	150	150	160
	H	mm	150	150	180	180	205	205	204
	D	mm	152	152	185	185	198	198	222
Mounting position		22.5° inclination forward and backward, and 90° to right / 90° to left, in relation to normal vertical mounting plane, i.e., coil terminals always on top side				22.5° inclination forward and backward, and 90° to right / 90° to left, in relation to normal vertical mounting plane, i.e., coil terminals always on top side			
Rated insulation voltage U_i (pollution degree 3)		V	1000		1000				
Rated impulse withstand voltage U_{imp}		kV	8		8				
Permissible ambient temperature									
During operation		°C	-5 ... +55		-5 ... +55				
During storage		°C	-25 ... +70		-25 ... +70				
Relative air humidity		%	10-95		10-95				
Degree of protection IP			IP00		IP00				
Installation altitude at height above sea level, maximum		m	2000		2000				
Short circuit protection									
Basic unit									
• Fuse links, operational class gG									
- Type of coordination "1"		A	400	400	400	400	500	500	630
- Type of coordination "2"		A	200	250	250	250	400	400	500
Conductor cross-sections									
Main conductors									
Stranded wire with cable lug		mm ²	2x (50 ... 120 mm ²)	2x (50 ... 120 mm ²)	2x (50 ... 120 mm ²)	2x (50 ... 120 mm ²)	2x (70 ... 240 mm ²)	2x (70 ... 240 mm ²)	2x (70 ... 240 mm ²)
Finely stranded with cable lug		mm ²	2x (35 ... 95 mm ²)	2x (35 ... 95 mm ²)	2x (35 ... 95 mm ²)	2x (35 ... 95 mm ²)	2x (50... 240 mm ²)	2x (50... 240 mm ²)	2x (50 ... 240mm ²)
Terminal bar (max. width)		mm ²	2x(20x3) mm	2x(20x3) mm	2x(20x3) mm	2x(20x3) mm	2x(25x5) mm	2x(25x5) mm	2x(25x5) mm
Terminal screw			M8 x 25	M8 x 25	M8 x 25	M8 x 25	M10 x 30	M10 x 30	M10 x 30
Tightening torque		Nm	10 ... 14 Nm	10 ... 14 Nm	10 ... 14 Nm	10 ... 14 Nm	14 ... 24 Nm	14 ... 24 Nm	14 ... 24 Nm
Control									
Solenoid coil operating range									
• AC operation		at 50Hz	0.85 to 1.1 x U_s		0.85 to 1.1 x U_s		0.85 to 1.1 x U_s		
		at 60Hz	0.85 to 1.1 x U_s				0.85 to 1.1 x U_s		

Technical specifications

3MT7 3 pole power contactors 120A to 400A

Type								
Type		3MT7120	3MT7140	3MT7170	3MT7205	3MT7250	3MT7300	3MT7400
General data								
Power consumption of the solenoid coil (maximum)								
• AC operation, 50Hz								
- Closing	VA/p.f.	550 / 0.45		910 / 0.38		1440 / 0.34		2450 / 0.21
- Closed	VA/p.f.	40 / 0.24		65 / 0.26		95 / 0.24		115 / 0.33
• AC operation, 50/60Hz								
- Closing	VA/p.f.	660 / 0.45		1080 / 0.38		1780 / 0.32		3050 / 0.32
- Closed	VA/p.f.	56 / 0.24		80 / 0.27		122 / 0.23		165 / 0.29
Operating times within operating range								
• AC operation								
- Closing delay	ms	22-37		25-40		25-40		25-40
- Opening delay	ms	8-30		10-30		10-30		8-30
Rated data for main contacts								
Load rating with AC								
Utilization category AC-1								
Rated operational currents I_e at 400V, 40°C	A	160	160	210	220	300	300	400
Utilization categories AC-3								
Rated operational currents I_e at 400V	A	120	140	170	205	250	300	400
Rated operational currents I_e at 690V	A	110	100	170	170	250	250	400
Rated operating power								
Operating power at AC-3 at 400V	kW	55	75	90	110	132	160	200
Operating power at AC-3 at 690V	kW	100	110	156	156	235	235	375
Mechanical service life (in million)								
Basic unit	Operating cycles	3			3			
Switching frequency in operating cycles hour								
No load switching frequency	Cycles/h	5000	5000	5000	5000	3000	3000	3000
Switching frequency AC-1	Cycles/h	800	800	800	750	800	750	700
Switching frequency AC-3	Cycles/h	750	750	700	500	700	500	500

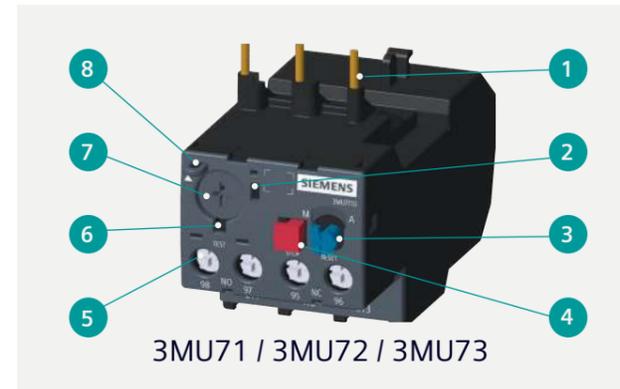
3MU7 thermal overload relays



Overview

Functions

3MU7 thermal overload relays are designed for consistent motor protection in all standard applications. Coupled with the 3MT7 3 pole power contactors, they provide optimum control and protection for your motor feeders.



3MU71 / 3MU72 / 3MU73

- 1 Connection for mounting onto contactors
- 2 Relay status
- 3 Selector switch for auto / manual reset and reset button
- 4 Stop button
- 5 Auxiliary circuit terminals
- 6 Test function
- 7 Motor current setting dial
- 8 Provision for fixing sealing cover



3MU74 / 3MU75

- 1 Terminals for cable / bar connection
- 2 Relay status
- 3 Selector switch for auto / manual reset and reset button
- 4 Stop / test button
- 5 Auxiliary circuit terminals
- 6 Motor current setting dial

Protection

- Tripping due to overload
- Tripping due to single-phase failure

Application

Our 3MU7 thermal overload relays are suitable for applications that require optimum inverse-time delayed protection of three-phase or single-phase AC motors. In the case of a single-phase motor, all the conducting paths of the relay must be connected in series. 3MU71 / 3MU72 / 3MU73 relays comply with tripping class 10 and 3MU74 / 3MU75 relays comply to tripping class 10A as per IEC 60947-4-1. The 3MU7 thermal overload relays compensate ambient temperature from the range of -5 to +55°C according to IEC 60947-4-1.

Technical specifications

3MU7 thermal overload relays

Type	3MU71	3MU72	3MU73	
				
General data				
Dimension (W x H x D)				
• Basic unit	mm	44 x 63.6 x 91.8	54 x 76.1 x 92.4	70 x 79.2 x 115
Tripping in the event of	Overload, single-phase failure			
Trip class acc. to IEC 60947-4-1	Class 10			
Reset	Manual			
Recovery	Minimum recovery time depends on the strength of the tripping current and characteristic			
Rated insulation voltage U_i (pollution degree 3)	V	690		
Rated impulse withstand voltage U_{imp}	Main circuit	kV		6
	Aux circuit	kV		4
Permissible ambient temperature	During operation	°C		-5 ... +55
	During storage	°C		-25 ... +70
Relative air humidity	%	10 ... 95		
Degree of protection IP on the front	IP20			
Installation altitude at height above sea level, maximum	m	2000		
Mounting position	22.5° inclination forward and backward, and ± 90° rotation, in relation to normal vertical mounting plane			
Type of mounting	Direct mounting on contactor Or stand-alone installation by screw fixing Or snap-on mounting on standard mounting rail			

Technical specifications

3MU7 thermal overload relays

Type	3MU71	3MU72	3MU73	
				
Main circuit				
Rated operational voltage U_e	V	400 / 690 (L-N / L-L)		
Operating frequency	Hz	50 / 60		
Current setting	A	0.10 ... 0.16	23 ... 32	23 ... 32
	A	to 17 ... 25	to 28 ... 36	to 80 ... 93
Power loss for rated current in hot state (maximum)	W	16.2	16.5	25.5
	• Per pole (maximum)	W	5.4	5.5
Short circuit protection	Refer "Selection & ordering data" Refer Type-2 coordination charts			
Auxiliary circuit				
Number of NO contacts	1			
Number of NC contacts	1			
Auxiliary contacts – Assignment	1 NO for the signal "tripped"; 1 NC for disconnecting the contactor			
Contact rating of the auxiliary contacts				
• AC-12 at 690V	A	5		
• AC-15 at rated operational voltage U_e	- 24V	A	4.17	
	- 48V	A	4.17	
	- 110V	A	3.64	
	- 220V	A	2.73	
	- 380V	A	1.58	
	- 600V	A	1	
	- 690V	A	0.7	

Technical specifications

3MU7 thermal overload relays



Type		3MU71	3MU72	3MU73
<ul style="list-style-type: none"> DC-13, at rated operational voltage U_e (1 conducting path) - 24V - 48V - 110V - 220V - 440V 	A		4.17	
	A		2.08	
	A		0.45	
	A		0.2	
	A		0.05	
Short circuit protection of auxiliary circuit				
<ul style="list-style-type: none"> With fuse links of operational class gG: 	A		10	
Conductor cross-sections				
Main conductors				
Solid or stranded	mm ²	1 x (1 ... 6 mm ²)	1 x (1.5 ... 10mm ²)	1 x (4 ... 35 mm ²)
Finely stranded with end sleeve	mm ²	1x (1 ... 10 mm ²)	1x (1.5 ... 10 mm ²)	1x (2.5 ... 35 mm ²)
<ul style="list-style-type: none"> Terminal screw 		M4	M4	M10
- Tightening torque	Nm	1.85	2.5	9
Auxiliary conductors				
Solid or stranded	mm ²		1 x (1.0 ... 4.0 mm ²)	
Finely stranded with end sleeve	mm ²		1 x (1.0 ... 4.0 mm ²)	
<ul style="list-style-type: none"> Terminal screw 			M3.5	
- Tightening torque	Nm		1.2	

Technical specifications

3MU7 thermal overload relays



Type		3MU74	3MU75
General data			
Dimension (W x H x D)			
<ul style="list-style-type: none"> Basic unit 	mm	147 x 157 x 173	
Tripping in the event of		Overload, single-phase failure	
Trip class acc. to IEC 60947-4-1		Class 10A	
Reset		Manual and remote reset	
Recovery		Minimum recovery time depends on the strength of the tripping current and characteristic	
Rated insulation voltage U_i (pollution degree 3)	V	1000	
Rated impulse withstand voltage U_{imp}	Main circuit kV Aux circuit kV	8 6	
Permissible ambient temperature			
During operation	°C	-5 ... +55	
During storage	°C	-25 ... +70	
Relative air humidity	%	10 ... 95	
Degree of protection IP on the front		IP00	
Installation altitude at height above sea level, maximum	m	2000	
Mounting position		22.5° inclination forward and backward, and ± 90° rotation, in relation to normal vertical mounting plane	
Type of mounting		Stand-alone installation by screw fixing	

Technical specifications

3MU7 thermal overload relays



Type		3MU74	3MU75
Main circuit			
Rated operational voltage U_e	V	230 / 400 (L-N / L-L)	
Operating frequency	Hz	50 / 60	
Current setting	A	85-135 to 250-400	312-500
Power loss for rated current in hot state (maximum)	W	33.6	45
• Per pole (maximum)	W	11.2	15
Short circuit protection of main circuit • With fuse links of operational class gG without contactor:	A	Refer "Selection & ordering data"	
Auxiliary circuit			
Number of NO contacts		1	
Number of NC contacts		1	
Auxiliary contacts – Assignment		1 NO for the signal "tripped"; 1 NC for disconnecting the contactor	
Contact rating of the auxiliary contacts			
• AC-12 at 690V	A	6	
• AC-15 at rated operational voltage U_e			
- 24V	A	2	
- 48V	A	1.25	
- 110V	A	1.25	
- 220V	A	1.15	
- 380V	A	1	
- 600V	A	0.3	
- 690V	A	0.3	

Technical specifications

3MU7 thermal overload relays



Type		3MU74	3MU75	
• DC-13, at rated operational voltage U_e (1 conducting path)				
- 24V	A		1	
- 48V	A		0.4	
- 110V	A		0.22	
- 220V	A		0.1	
Short circuit protection of auxiliary circuit				
• With fuse links of operational class at 690V gG:	A		6	
Conductor cross-sections				
Main conductors		3MU7410-3BA1	3MU7410-3EA1	3MU7510-4AA1
Flexible cable with Lugs	mm ²	2 x (25 ... 95)	2 x (70 ... 240)	2 x (150 ... 240)
Terminal bar (max. width)	mm	2 x 20 x 3	2 x 25 x 3	2 x 30 x 5
• Terminal screw		M8	M10	M10
- Tightening torque	Nm	10-14	14-24	14-24
Auxiliary contacts				
Solid or stranded	mm ²	2 x (1.0 ... 2.5 mm ²)		
Finely stranded with end sleeve	mm ²	2 x (0.75 ... 1.5 mm ²)		
• Terminal screw		M3.5		
- Tightening torque	Nm	0.8-1.2		

3MV8 motor starter protectors



Overview

3MV8 motor starter protectors

Our 3MV8 motor starter protectors are a cost-efficient and reliable solution for motor starting and protection. These are available in 2 frame sizes up to 52A. These come with optional built-in 1NO+1NC aux contacts.



Shunt release



Undervoltage release



Undervoltage release
with lead action auxiliary contact



3MV81



3MV82



Short circuit fault indicator



Auxiliary switch

Technical specifications

3MV8 motor starter protectors

Type	3MV81		3MV82		
General data					
Dimension • Basic unit	W	mm	54	70	
	H	mm	86	115	
	D	mm	70	108.5	
Mounting position	 90° inclination forward, backward, left and right				
Rated insulation voltage U_i (pollution degree 3) • Main circuit	V	750			
Rated impulse withstand voltage U_{imp} • Main circuit	kV	6			
Tripping class acc. to IEC 60947-4-1	Class 10A				
Permissible ambient temperature During operation	°C	-20 ... +55			
	°C	-50 ... +80			
Relative air humidity	%	10 ... 90			
Degree of protection IP on the front	IP20 (with wiring)				
Installation altitude at height above sea level, maximum	m	2000			
Rated data for main contacts					
Load rating with AC • Utilization category for circuit breaker as per IEC 60947-2 / EN60947-2	A				
	AC-3				
Utilization categories AC-3 - Rated operational currents I_e up to 690V, 55°C	A	25	52		
	Power loss per pole	W	I_e (A)	P (W)	I_e (A)
0.6			5	2.4	8
4			6	6	7
6			7	25	14
Mechanical service life • Basic unit	Operating cycles	100,000 ≤25A		30,000 >25A	
		Electrical service life AC-3 @400V		Operating cycles	
Switching frequency in operating cycles/hour • Switching frequency AC-3	1/h	25		25	

Technical specifications

3MV8 motor starter protectors

Type	3MV81		3MV82	
Rated data for auxiliary contacts				
Load rating with AC • Rated operational currents I_e - AC-15 at rated operational voltage U_e	230V	A	3	
	415V	A	1.5	
	500V	A	1	
Load rating with DC (1 conducting path) - DC-13, at rated operational voltage U_e	24V	A	2.8	
	60V	A	0.7	
	220V	A	0.3	
Switching frequency • Rated operation for utilization category	AC-15/DC-13	1/h	25	
Short circuit protection				
Auxiliary circuit • Back-up fuse (gL/gG)	A	10		
	A	6		
Conductor cross-sections				
Main conductors Solid or stranded	mm ²	2 x (1 ... 6 mm ²)	1 x (1.5 ... 25 mm ²); 2 x (1.5 ... 16 mm ²); 1.5 ... 25 + 1.5 ... 10 mm ²	
	mm ²	2 x (1 ... 4 mm ²)	1 x (1 ... 16 mm ²); 2 x (1 ... 10 mm ²); 1 ... 16 + 1 ... 6 mm ²	
• Terminal screw - Tightening torque	Nm	M4 1 ... 1.5	M5 2.5 ... 3	
	Auxiliary conductors Solid or stranded	mm ²	2 x (0.5 ... 2.5 mm ²);	2 x (0.5 ... 2.5 mm ²);
mm ²		2 x (0.5 ... 2.5 mm ²);	2 x (0.5 ... 1.5 mm ²);	
• Terminal screw - Tightening torque	Nm	M3 0.8 ... 1.2	M3 0.8 ... 1.2	

Technical specifications

SINOVA
The Power of **Simplicity**

Rated short-circuit breaking capacity

Type	Rating	<=240V AC			<=415V AC			<=440V AC			<=500V AC			<=690V AC		
		I _{cu} (kA)	I _{cs} (kA)	Fuse (gL/gG)	I _{cu} (kA)	I _{cs} (kA)	Fuse (gL/gG)	I _{cu} (kA)	I _{cs} (kA)	Fuse (gL/gG)	I _{cu} (kA)	I _{cs} (kA)	Fuse (gL/gG)	I _{cu} (kA)	I _{cs} (kA)	Fuse (gL/gG)
3MV81	<= 1A	100	100	•	100	100	•	100	100	•	100	100	•	100	100	•
	1.6A	100	100	•	100	100	•	100	100	•	100	100	•	2	2	20A
	2.4A	100	100	•	100	100	•	100	100	•	10	10	35A	2	2	35A
	3.2 & 4A	100	100	•	100	100	•	10	10	50A	3	3	50A	2	2	50A
	5 & 6A	100	100	•	100	100	•	5	5	63A	3	3	63A	2	2	63A
	8 & 10A	100	100	•	10	10	80A	5	5	80A	3	3	80A	2	2	80A
	13 & 16A	100	100	•	6	6	80A	5	5	80A	3	3	80A	2	2	80A
	20 & 25A	10	10	100A	6	6	80A	5	5	80A	3	3	80A	2	2	80A
3MV82	<= 2.4A	100	100	•	100	100	•	100	100	•	100	100	•	100	100	•
	4A	100	100	•	100	100	•	100	100	•	100	100	•	4	4	80A
	6A	100	100	•	100	100	•	100	100	•	100	50	•	4	4	100A
	10A	100	100	•	100	100	•	100	50	•	10	5	160A	4	4	125A
	16A	100	100	•	100	100	•	25	13	200A	10	5	160A	4	4	125A
	25A	100	100	•	100	50	•	25	13	200A	10	5	200A	4	4	160A
	32 & 52A	100	100	•	35	17	200A	25	13	200A	10	5	200A	4	4	160A

Note: "•" Indicates that no fuse is required because the breaking capacity of the circuit breakers is not less than 100kA. When the short circuit current at the installation point exceeds the circuit breaker's rated short circuit breaking capacity, the breakers must be protected by a backup fuse. The maximum rating of the backup fuse is given in the table for 100kA breaking capacity.

According to IEC 60947-2, the relationship between the short circuit breaking capacity and the minimum short circuit breaking capacity depends on the corresponding power factor.

Short circuit breaking capacity (A)	Power factor	Short circuit making capacity (A)
$I \leq 3000$	0.9	$1.42 \times I$
$3000 < I \leq 4500$	0.8	$1.47 \times I$
$4500 < I \leq 6000$	0.7	$1.5 \times I$
$6000 < I \leq 10000$	0.5	$1.7 \times I$
$10000 < I \leq 20000$	0.3	$2.0 \times I$
$20000 < I \leq 50000$	0.25	$2.1 \times I$
$50000 < I$	0.2	$2.2 \times I$

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