



MOTOR PROTECTION CIRCUIT BREAKERS ARE SPECIAL TYPE OF CIRCUIT BREAKERS, DESIGNED FOR PROTECTION OF WIDE RANGE OF SINGLE-PHASE AND THREE-PHASE AC MOTORS AGAINST OVERLOAD AND SHORT CIRCUIT. THEY ARE USED IN INDUSTRY, SMALL MACHINES, AGRICULTURAL MACHINES, COMPRESSORS, ETC.



FOR MOTOR PROTECTION:

- All kind of AC induction motors
- For three-phase motors up to 22 kW

PROTECTION OF OTHER LOADS:

- Various low-inductive loads
- Version with a thermal overload release for single-phase consumers MST20
- Version with thermal and magnetic release for single-phase consumers MS20
- Version for short-circuit protection MSZ25
- Version for transformer protection MS25TR

OTHER BENEFITS:

- Manual control:
 - START, STOP, push-buttons - Test of release function (TEST)
- Automatic switch-off at over-current with thermal or magnetic release
- Control with under-voltage release or shunt release
- An auxiliary switch for side mounting or flush mounting used for indication of the switching state
- Indication of release with trip indicating auxiliary switch
- ON/OFF buttons positions unequivocally indicates switching position of main contacts
- Contact material :
 - resistant to contact welding
 - enables low contact heating
- Isolating distance between contacts: 4.5 mm per contact place
- Connection of a rigid or flexible conductor
- Assembly to 35 mm wide mounting rail in compliance with EN 60715
- Vertical or horizontal operational position

ORDERING DATA

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MOTOR PROTECTION CIRCUIT BREAKERS - MS25

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Motor protection circuit-breakers areas of use

Type	Motor protection	Overload protection	Short-circuit protection	Single-phase consumers	Transformer protection
MS25	■	■	■	■	
MST25	■	■		■	
MS20	■	■	■	■	
MS25TR		■	■		■
MSZ25			■	■	
MPE				■	

MOTOR PROTECTION CIRCUIT BREAKERS MS25

With overload and short-circuit release

AC-3 acc. to IEC/EN 60947-4-1

Type	Setting range (A)	Motor power (3-phase, 400 V) (kW)	Ordering No.	Weight (g)	Packaging (pcs)
MS25-0.16	0.1 ... 0.16	0.02	30.107.955	252	1
MS25-0.25	0.16 ... 0.25	0.06	30.107.956	252	1
MS25-0.4	0.25 ... 0.4	0.09	30.107.957	252	1
MS25-0.63	0.4 ... 0.63	0.12	30.107.958	252	1
MS25-1	0.63 ... 1	0.18 ... 0.25	30.107.959	252	1
MS25-1.6	1 ... 1.6	0.37 ... 0.55	30.107.960	252	1
MS25-2.5	1.6 ... 2.5	0.75 ... 1.1	30.107.961	252	1
MS25-4	2.5 ... 4	1.1 ... 1.5	30.107.962	252	1
MS25-6.3	4 ... 6.3	2.2 ... 2.5	30.107.963	252	1
MS25-10	6.3 ... 10	3 ... 4	30.107.964	252	1
MS25-16	10 ... 16	5 ... 7.5	30.107.965	252	1
MS25-20	16 ... 20	9	30.107.966	252	1
MS25-25	20 ... 25	11 ... 12.5	30.107.967	252	1
MS25-32	25 ... 32	15	30.109.475	252	1



MOTOR PROTECTION CIRCUIT BREAKERS MST25

With overload release

AC-3 acc. to IEC/EN 60947-4-1

Type	Setting range (A)	Motor power (3-phase, 400 V) (kW)	Ordering No.	Weight (g)	Packaging (pcs)
MST25-0.4	0.25 ... 0.4	0.09	30.108.240	252	1
MST25-0.63	0.4 ... 0.63	0.12	30.108.241	252	1
MST25-1	0.63 ... 1	0.18 ... 0.25	30.108.242	252	1
MST25-1.6	1 ... 1.6	0.37 ... 0.55	30.108.243	252	1
MST25-2.5	1.6 ... 2.5	0.75 ... 1.1	30.108.244	252	1
MST25-4	2.5 ... 4	1.1 ... 1.5	30.108.245	252	1
MST25-6.3	4 ... 6.3	2.2 ... 2.5	30.108.246	252	1
MST25-10	6.3 ... 10	3 ... 4	30.108.247	252	1
MST25-16	10 ... 16	5 ... 7.5	30.108.248	252	1
MST25-20	16 ... 20	9	30.108.249	252	1
MST25-25	20 ... 25	11 ... 12.5	30.108.250	252	1
MST25-32	25 ... 32	15	30.109.476	252	1



ORDERING DATA

MOTOR PROTECTION CIRCUIT BREAKERS - MS25

MOTOR PROTECTION CIRCUIT BREAKERS FOR SINGLE-PHASE CONSUMERS MS20

With overload and short-circuit release

AC-3 acc. to IEC/EN 60947-4-1

Type	Setting range (A)	Motor power (single-phase, 220-240 V) (kW)	Ordering No.	Weight (g)	Packaging (pcs)
MS20-0.16	0.1 ... 0.16	-	30.108.523	252	1
MS20-0.25	0.16 ... 0.25	-	30.108.524	252	1
MS20-0.4	0.25 ... 0.4	-	30.108.525	252	1
MS20-0.63	0.4 ... 0.63	-	30.108.526	252	1
MS20-1	0.63 ... 1	0.06 ... 0.09	30.108.527	252	1
MS20-1.6	1 ... 1.6	0.12	30.108.528	252	1
MS20-2.5	1.6 ... 2.5	0.18 ... 0.25	30.108.529	252	1
MS20-4	2.5 ... 4	0.37	30.108.513	252	1
MS20-6.3	4 ... 6.3	0.55 ... 0.75	30.108.514	252	1
MS20-10	6.3 ... 10	1.1 ... 1.5	30.108.515	252	1
MS20-16	10 ... 16	2.2	30.108.516	252	1
MS20-20	16 ... 20	3	30.108.517	252	1



CIRCUIT BREAKERS FOR THERMISTOR-PROTECTED MOTORS MPE

With overload and short-circuit release

AC-3 acc. to IEC/EN 60947-4-1

Type	Setting range (A)	Motor power (3-phase, 400 V) (kW)	Ordering No.	Weight (g)	Packaging (pcs)
MPE	0.25	0.06	30.107.879	252	1



CIRCUIT BREAKERS FOR SHORT-CIRCUIT PROTECTION MSZ25

With short-circuit release

Type	Setting range (A)	Motor power (3-phase, 400 V) (kW)	Ordering No.	Weight (g)	Packaging (pcs)
MSZ25-0.16	-	0.02	30.109.357	252	1
MSZ25-0.25	-	0.06	30.109.358	252	1



CIRCUIT BREAKERS FOR TRANSFORMER PROTECTION MS25TR

With overload and short-circuit release

AC-6a acc. to IEC/EN 60947-4-1

Type	Setting range (A)	Ordering No.	Weight (g)	Packaging (pcs)
MS25TR-0.16	0.1 ... 0.16	30.109.477	252	1
MS25TR-0.25	0.16 ... 0.25	30.109.478	252	1
MS25TR-0.4	0.25 ... 0.4	30.109.479	252	1
MS25TR-0.63	0.4 ... 0.63	30.109.480	252	1
MS25TR-1	0.63 ... 1	30.109.481	252	1
MS25TR-1.6	1 ... 1.6	30.109.482	252	1
MS25TR-2.5	1.6 ... 2.5	30.109.368	252	1
MS25TR-4	2.5 ... 4	30.109.369	252	1
MS25TR-6.3	4 ... 6.3	30.109.370	252	1
MS25TR-10	6.3 ... 10	30.109.371	252	1
MS25TR-16	10 ... 16	30.109.372	252	1
MS25TR-20	16 ... 20	30.109.373	252	1
MS25TR-25	20 ... 25	30.109.374	252	1
MS25TR-32	25 ... 32	30.109.483	252	1



ORDERING DATA



EXAMPLE:

The same switch with under-voltage release for control voltage 380 V with an auxiliary switch with two NO contacts, built in the enclosure, with an emergency stop push-button and green signal lamp for 230 V:

MS25 - 4 / U 380 / PS 20 / O41 / NAT / SSz 230

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ORDERING DATA

MOTOR PROTECTION CIRCUIT BREAKERS - ACCESSORIES

MS25

Auxiliary contact block for lateral mounting PS

Type	Number of contacts		Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
	NO	NC				
PS01	0	1		38.901.670	35	1
PS10	1	0		38.901.669	35	1
PS11	1	1		38.901.501	35	1
PS20	2	0		38.901.500	35	1



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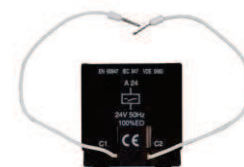
Under-voltage release U

Voltage (V)*	Frequency (Hz)	Ordering No.	Weight (g)	Packaging (pcs)
24	50/60	38.901.502	62	1
24	60	38.901.952	62	1
48	50	38.901.904	62	1
48	60	38.902.956	62	1
60	50	38.901.504	62	1
110	50	38.901.505	62	1
120	60	38.901.505	62	1
120	50	38.903.035	62	1
220 - 240	50	38.901.506	62	1
240	60	38.901.506	62	1
380 - 415	50	38.901.508	62	1
440	60	38.901.508	62	1
415	60	38.902.964	62	1
480	50	38.902.966	62	1
480	60	38.901.863	62	1
500	50	38.902.968	62	1
500	60	38.902.970	62	1
600	50	38.902.972	62	1
600	60	38.901.870	62	1



Shunt release A

Voltage (V)*	Frequency (Hz)	Ordering No.	Weight (g)	Packaging (pcs)
24	50/60	38.901.510	62	1
24	60	38.901.953	62	1
48	50	38.901.905	62	1
48	60	38.902.957	62	1
110	50	38.901.513	62	1
120	60	38.901.513	62	1
120	50	38.901.727	62	1
220 - 240	50	38.901.514	62	1
240	60	38.901.514	62	1
380 - 415	50	38.901.516	62	1
440	60	38.901.516	62	1
415	60	38.902.965	62	1
480	50	38.902.967	62	1
480	60	38.901.864	62	1
500	50	38.902.969	62	1
500	60	38.902.971	62	1
600	50	38.902.973	62	1
600	60	38.901.872	62	1



* U and A releases for other control voltage/frequencies are on request.

ORDERING DATA

MS25

Trip-indicating auxiliary contact block RS

Type	Number of contacts		Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
	NO	NC				
RS01	0	1		38.902.149	35	1
RS10	1	0		38.902.150	35	1

- RS contact changes position from its normal state when the MS25 MPCB trips due to overload, short-circuit or the manual depression of the TEST lever.



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Adapters for connection of MS25 with a contactor

Type	Conductor length (mm)	Conductor cross-section (mm ²)	Thermal current (A)	Ordering No.	Weight (g)	Packaging (pcs)
DST-U-2.5	40	2.5	20	665.200.020	12	10
DST-U-4	40	4	35	665.200.021	16	10
DST-U-2.5 L	70	2.5	20	665.200.022	14	10



Enclosures for MS25

Type	Degree of protection	Ordering No.	Weight (g)	Packaging (pcs)
Enclosure O-41	IP41	38.422.509	222	1
Enclosure O-55	IP55	38.422.510	222	1
Front plate CP-41	IP41	38.422.035	150	1
Front plate CP-55	IP55	38.421.994	150	1



CP-41/55



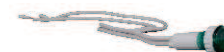
O-41/55

MOTOR PROTECTION CIRCUIT BREAKERS - ACCESSORIES

MS25

Accessories for enclosures O-41/55 and CP-41/55

Type	Voltage	Ordering No.	Weight (g)	Packaging (pcs)
Emergency stop push-button NAT	/	38.901.665	40	1
Emergency stop push-button with keylock NAT-K	/	38.902.488	40	1
Padlocking feature Z	/	38.901.632	95	1
Push-button diaphragm IP55	/	38.422.130	12	1
Neutral link NL	/	38.552.076	525	25
Signal lamp SSr (Red)	250 V	623.000.131	175	25
	400 V	623.009.261		
Signal lamp SSz (Green)	250 V	623.009.257	175	25
	400 V	623.009.262		
Signal lamp SSb (Transparent)	250 V	623.009.256	175	25
	400 V	623.009.263		
Cable inlet M25 x 1.5	/	315.609.520	15	100



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ORDERING DATA

MOTOR PROTECTION CIRCUIT BREAKERS - ACCESSORIES

MS32, MS25

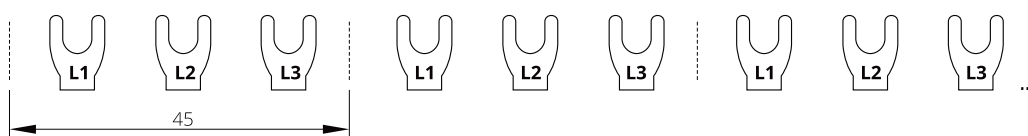
Connection blocks MSS-3L

Type	Number of MPCB	Length (mm)	Ordering No.	Weight (g)	Packaging (pcs)
MSS-3L-M2-45	2	80	655.200.001	26	10
MSS-3L-M3-45	3	125	655.200.002	48	10
MSS-3L-M4-45	4	170	655.200.003	68	10
MSS-3L-M5-45	5	215	655.200.004	90	10
MSS-3L-M2 + Hi-45 + 9	2	90	655.200.005	30	10
MSS-3L-M3 + Hi-45 + 9	3	145	655.200.006	54	10
MSS-3L-M4 + Hi-45 + 9	4	200	655.200.007	78	10
MSS-3L-M5 + Hi-45 + 9	5	250	655.200.008	111	10

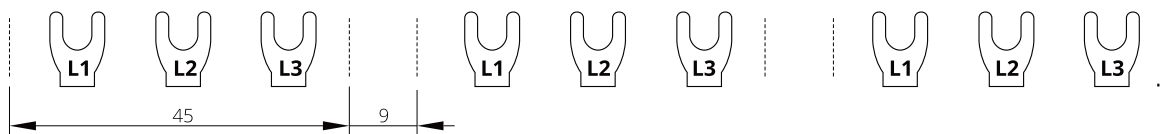


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MSS-3L-MX-45 CONNECTION BLOCKS



MSS-3L-MX-45 + 9 CONNECTION BLOCKS (FOR MPCB WITH SIDE-MOUNTED ACCESSORIES)



Supply block (25 mm²)

Type	Ordering No.	Weight (g)	Packaging (pcs)
ESB-S/V-MS	655.200.009	40	10



Protection for connection cable

Type	Ordering No.	Weight (g)	Packaging (pcs)
BS-MS 0	655.200.010	2	10



ORDERING DATA

MOTOR PROTECTION CIRCUIT BREAKERS - MS25

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		Symbol	Unit	MS25	MST25	MS20	MPE	MSZ25	MS25TR		
GENERAL	Type										
	Use			motor protection		single-phase consumer	single-phase AC motors with built-in thermal switch	short-circuit protection	transformer protection		
	Standards			IEC/EN 60947-4-1, IEC/EN 60947-2, IEC/EN 60204, UL 60947, CSA 22.2 No. 14		IEC/EN 60947-2, IEC/EN 60947-4-1	IEC/EN 60947-2, IEC/EN 60947-4-1	IEC/EN 60947-2	IEC/EN 60947-2		
	Approvals			CE, UL, EAC		CE, EAC	CE	CE	CE		
	Climatic class			Constant damp heat acc. to IEC 60068-2-78 Cyclic damp heat acc. to IEC 60068-2-30							
	Degree of protection			IP20, after terminals covering IP40							
	Mounting			35 mm DIN rail (EN 60715)							
	Mounting position			any							
	Ambient temperature		°C	-25 ... +60							
	Storage temperature		°C	-25 ... +70							
	Temperature range of thermal compensation		°C	-5 ... +40							
	Maximum altitude (MSL) *		m	2000							
	Mechanical endurance		op. c.	100.000							
	Electrical endurance		op. c.	100.000 (AC-3), 20.000 (DC-5)		100.000 (AC-3)		100.000 (AC-3), 20.000 (DC-5)			
	Trip class acc. to IEC 60947-4-1			10A	10A	10A	10A	/	10A		
	Utilization category acc. to IEC 60947-4-1			AC-3, DC-5	AC-3, DC-5	AC-3, DC-5	AC-3	AC-3, DC-5	AC-3, DC-5		
	Utilization category acc. to IEC 60947-2			A							
	Max. switching frequency		op. c./h	25							
	Shock resistance acc. to IEC 68-2-27		g	20							
	Vibration resistance acc. to IEC 68-2-6		g	5 (at f = 5 ... 150 Hz)							
Overvoltage category			III								
Pollution degree			3								
Rated insulation voltage		U_i	V	690	400	690	250	400	690		
Rated impulse withstand voltage		U_{imp}	kV	6							
Weight				g							
				252							
MAIN CIRCUIT	Terminal capacity:										
	rigid		S	mm ²	1 ... 6						
	flexible				1 ... 4						
	flexible with end sleeve				0.75 ... 4						
	Conductor insulation stripping length			mm	10						
	Screw				M3						
	Screw type				PZ2, with self-lifting clamp protected from falling out						
	Tightening torque			Nm	1,8						
	Nominal current		I_n	A	0,16, 0,25, 0,4, 0,63, 1, 1,6, 2,5, 4, 6,3, 10, 16, 20, 25	0,4, 0,63, 1, 1,6, 2,5, 4, 6,3, 10, 16, 20, 25	0,16, 0,25, 0,4, 0,63, 1, 1,6, 2,5, 4, 6,3, 10, 16, 20, 25		0,4 ... 10	0,16, 0,25	2,5, 4, 6,3, 10, 16, 20, 25
	Current setting		I_T	A	0,1-0,16, 0,16-0,25, 0,25-0,4, 0,4-0,63, 0,63-1, 1-1,6, 1,6-2,5, 2,5-4, 4-6,3, 6,3-10, 10-16, 16-20, 20-25	0,25-0,4, 0,4-0,63, 0,63-1, 1-1,6, 1,6-2,5, 2,5-4, 4-6,3, 6,3-10, 10-16, 16-20, 20-25	0,1-0,16, 0,16-0,25, 0,25-0,4, 0,4-0,63, 0,63-1, 1-1,6, 1,6-2,5, 2,5-4, 4-6,3, 6,3-10, 10-16, 16-20, 20-25		fixed	fixed	2,5-4, 4-6,3, 6,3-10, 10-16, 16-20, 20-25
	Nominal current range		I_n	A	0.16 ... 25	0.4 ... 25	0.16 ... 20		0.4 ... 10	0.16 ... 0.25	2.5 ... 25
	Nominal frequency		f	Hz	50/60						
	Max. operational voltage		U_e	V	690	400	690	250	400	690	
	Thermal current		I_{th}	A	25**	25**	20**	10	0.25	25	
	Max. motor current AC-3			A	25	25	20	/	/	/	
	Max. motor current DC-5 (max. 250 V DC, all poles in series)			A	25	25	20	0.25	0.25	25	
	Number of all poles				3	3	1	1	3	3	
	Number of protected poles				3	3	1	1	3	3	
	Contact gap (per pole)			mm	9,5						
	Release type				thermal-magnetic	thermal	thermal-magnetic	thermal-magnetic	thermal	thermal-magnetic	
Operating current of thermal overload release				$1,05 I_n < I \leq 1,2 I_n$	$1,05 I_n < I \leq 1,2 I_n$	$1,05 I_n < I \leq 1,2 I_n$	/	/	$1,05 I_n < I \leq 1,2 I_n$		
Operating current of magnetic release (fixed)				$14 I_n \pm 20 \%$	$14 I_n \pm 20 \%$	$14 I_n \pm 20 \%$	$14 I_n \pm 20 \%$	$14 I_n \pm 20 \%$	$20 I_n \pm 20 \%$		
Sensitivity to phase failure				yes	yes	/	/	/	yes		
Power dissipation at I_n (all poles)			W	6 ... 7,5	6 ... 7,5	4 ... 5	2 ... 2,5	≈ 0,5	6 ... 7,5		

NOTE:

* Above 2000 m voltages U_i and U_e are reduced by 2% for every 100 m and current I_n by 2% for every 500 m.

** Maximum number of MPCBs mounted close together: 3

TECHNICAL DATA

MOTOR PROTECTION CIRCUIT BREAKERS - MS25

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MS25 motor protection switches, rated ultimate and service short-circuit breaking capacity I and max. back-up fuses if short circuit current I exceeds I_{cu}

Type	Max. back-up fuse $U_e < 400$ V gL (A)
MST25 - 0.4	1
MST25 - 0.63	2
MST25 - 1	2
MST25 - 1.6	4
MST25 - 2.5	6
MST25 - 4	16
MST25 - 6.3	20
MST25 - 10	25
MST25 - 16	35
MST25 - 20	50
MST25 - 25	50
MST25 - 32	50

Type	Symbol	Unit	MS25	MST25	MS20	MPE	MSZ25	MS25TR
MTTF - Mean time to failure $MTTF = 1/\lambda = B10/(0.1 n_{op})$		h				1666		
MTTF _d - Mean time to failure dangerous $MTTF_d = 1/\lambda_d = B10_d/(0.1 n_{op})$		h				5000		
B10 - Number of operating cycles until 10 % of devices fail		op.				20.000		
B10 _d - Number of operating cycles until 10 % of device dangerous $B10_d = B10/\text{ratio of dangerous failures}$		op.				60.000		
λ - Failure rate $\lambda = (0,1 n_{op})/B10$		1/h				6×10^{-4}		
λ_d - Failure rate dangerous $\lambda_d = (0,1 n_{op})/B10_d$		1/h				2×10^{-4}		
Ratio of dangerous failures		%				33		
n_{op} - Operating cycles (operating cycles/h)		op./h				120		

Switch selection for motor protection

Standard motor powers						Setting range
Single-phase	Three-phase					
220 V 230 V 240 V	220 V 230 V 240 V	380 V 400 V	440 V	550 V	660 V 690 V	A
kW						
		0.02			0.06	0.1 ... 0.16
		0.06	0.06	0.06	0.09	0.16 ... 0.25
	0.06	0.09	0.12	0.12	0.18	0.25 ... 0.4
	0.09	0.12	0.18	0.18	0.25	0.4 ... 0.63
0.06 ... 0.09	0.09 ... 0.12	0.18 ... 0.25	0.25	0.37	0.37 ... 0.55	0.63 ... 1
0.12	0.18 ... 0.25	0.37 ... 0.55	0.37 ... 0.55	0.55 ... 0.8	0.75 ... 1.1	1 ... 1.6
0.18 ... 0.25	0.37	0.75 ... 1.1	0.75 ... 1.1	1.1	1.5	1.6 ... 2.5
0.37	0.55 ... 0.75	1.1 ... 1.5	1.5	1.5 ... 2.2	2.2 ... 3	2.5 ... 4
0.55 ... 0.75	1.1 ... 1.5	2.2 ... 2.5	2.2 ... 3	3	4	4 ... 6.3
1.1 ... 1.5	1.5 ... 2.5	3 ... 4	4 ... 5	4 ... 5.5	5.5 ... 7.5	6.3 ... 10
2.2	3 ... 4	5 ... 7.5	5.5 ... 9	7.5 ... 9	11	10 ... 16
3	5.5	9	11	11 ... 12.5	15	16 ... 20
	5.5 ... 7.5	11 ... 12.5	12.5	15	18.5	20 ... 25
	7.5	15	15	18.5	22	25 ... 32

TECHNICAL DATA

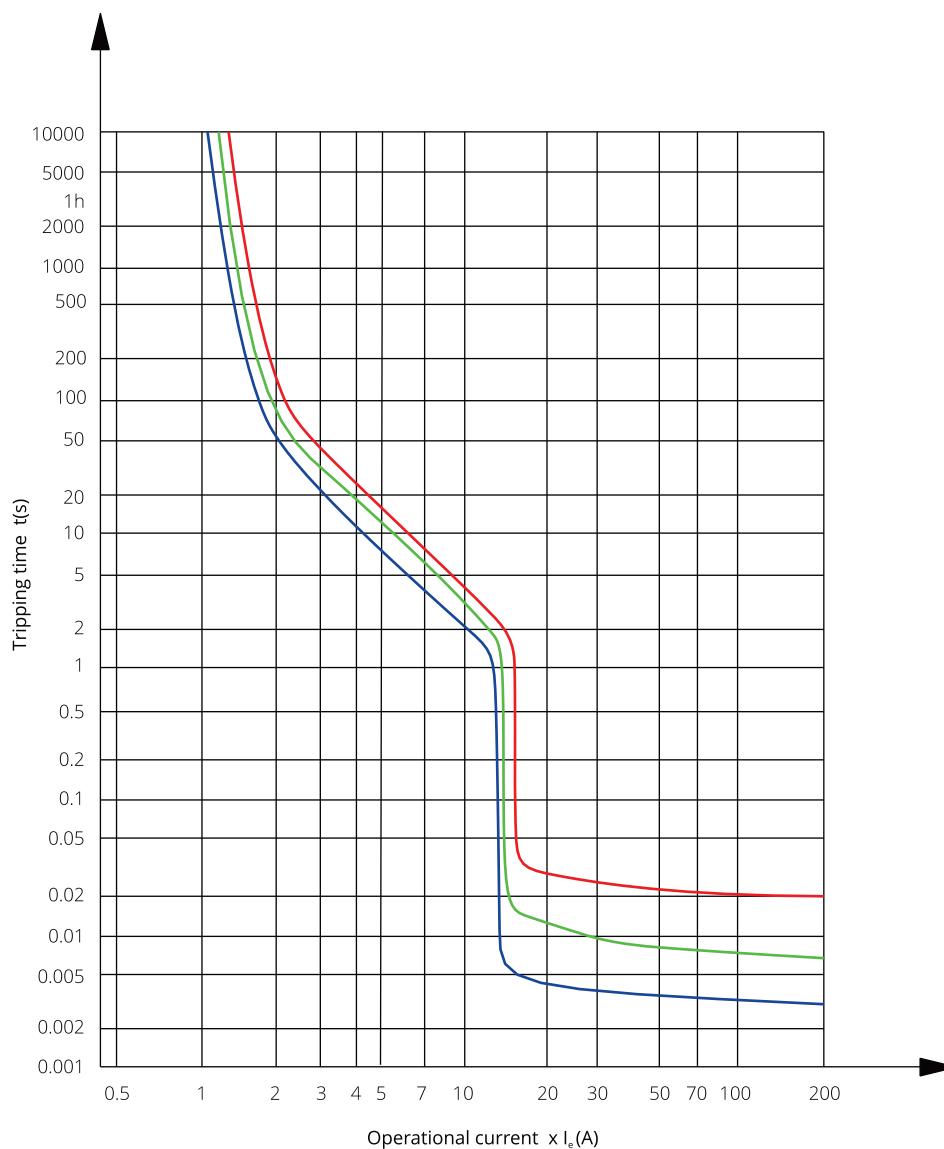
MOTOR PROTECTION CIRCUIT BREAKERS - MS25

MS25 motor protection switches, rated ultimate and service short-circuit breaking capacity I_{cu} and I_{cs} and max. back-up fuses if short circuit current I_{cp} exceeds I_{cu}

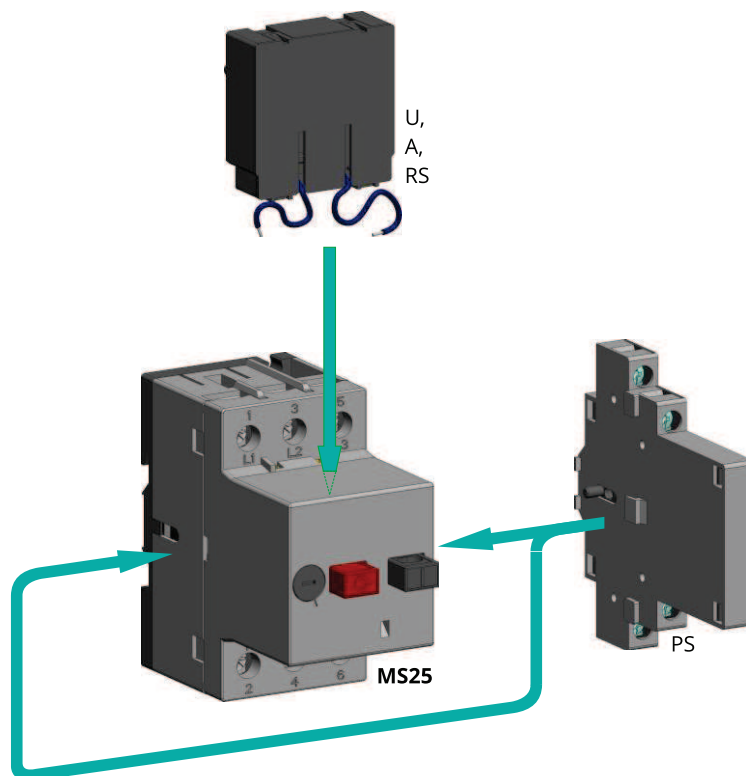
Type	Operating current of short-circuit release (A)	Rated ultimate short-circuit breaking capacity I_{cu} , I_{cs} (kA)				Max. back-up fuse, if $I_{cp} > I_{cu}$ (gL) (kA)			
		230 V	400 V	500 V	690 V	230 V	400 V	500 V	690 V
		I_{cu}	I_{cu}	I_{cu}	I_{cu}				
MS25 - 0.16	2.2	50	50	50	50				
MS25 - 0.25	3.5	50	50	50	50				
MS25 - 0.4	6	50	50	50	50				
MS25 - 0.63	9	50	50	50	50				
MS25 - 1	14	50	50	50	50				
MS25 - 1.6	23	50	50	50	50				
MS25 - 2.5	35	50	50	3	2.5			25	20
MS25 - 4	56	50	50	3	2.5			35	25
MS25 - 6.3	88	50	50	3	2.5			50	35
MS25 - 10	140	50	6	3	2.5		80	50	35
MS25 - 16	224	10	6	2.5	2	80	80	63	35
MS25 - 20	280	10	6	2.5	2	80	80	63	50
MS25 - 25	350	10	6	2.5	2	80	80	63	50
MS25 - 32	450	10	6	2.5	2	80	80	63	50

No back-up fuse required

Tripping characteristics



Mounting positions of accessories



MS25

Auxiliary switch for lateral mounting PS

Type	Symbol	Unit	PS
Standards			IEC 60947-5-1, UL 60947-5-1
Approvals			CE, UL, EAC
Rated impulse voltage	U_{imp}	kV	6
Rated insulation voltage	U_i	V	500
Thermal current	I_{th}	A	6
Rated operational current AC-15			
230 V	I_e	A	3.5
400 V			2
500 V			1.5
Mechanical endurance		op. c.	100.000
Terminal capacity	S	mm ²	0.75 ... 2.5
Conductor insulation stripping length		mm	8
Screw type			M3,5
Screw head			PZ1
Tightening torque		Nm	1

Trip-indicating auxiliary switch RS

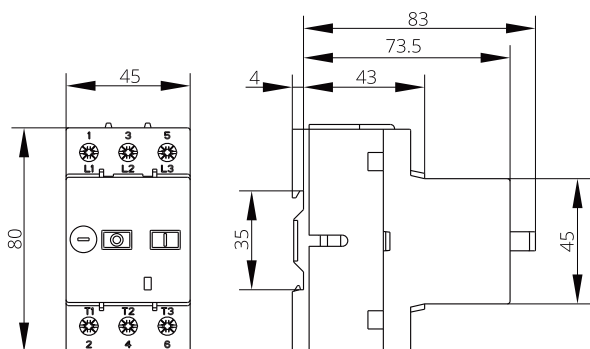
Type	Symbol	Unit	RS
Standards			IEC 60947-5-1, UL 60947-5-1
Approvals			CE, UL, EAC
Rated impulse voltage	U_{imp}	kV	6
Rated insulation voltage	U_i	V	500
Thermal current	I_{th}	A	6
Rated operational current AC-15			
230 V	I_e	A	3.5
400 V			2
500 V			1.5
Mechanical endurance		op. c.	100.000

Under-voltage release U, Shunt release A

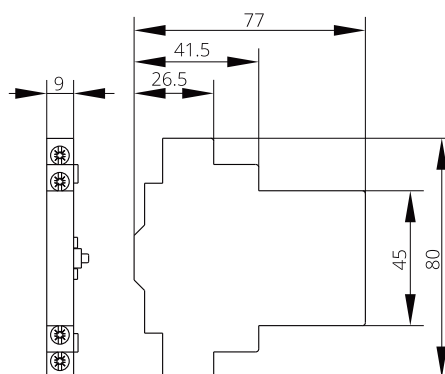
Type	Symbol	Unit	U, A
Standard			IEC 60947-5-1, UL 60947-5-1
Approvals			CE, UL, EAC
Control voltages (AC)	U_c	V	24, 48, 110, 120, 230, 400, 415, 480, 500, 600
Rated frequency	f	Hz	50/60
Pick-up voltage		x U_c	≤ 0.85
Drop-out voltage			0.7 ... 0.35
Power consumption switch-on operation		VA/W	7.5 / 4.3
operation			3.8 / 1.3
Duty cycle	t_{ON}/t_{OFF}	%	100
Noise level		dB	≤ 35
Mechanical and electrical endurance		op. c.	100.000

MOTOR PROTECTION CIRCUIT BREAKERS - MS25

MS25

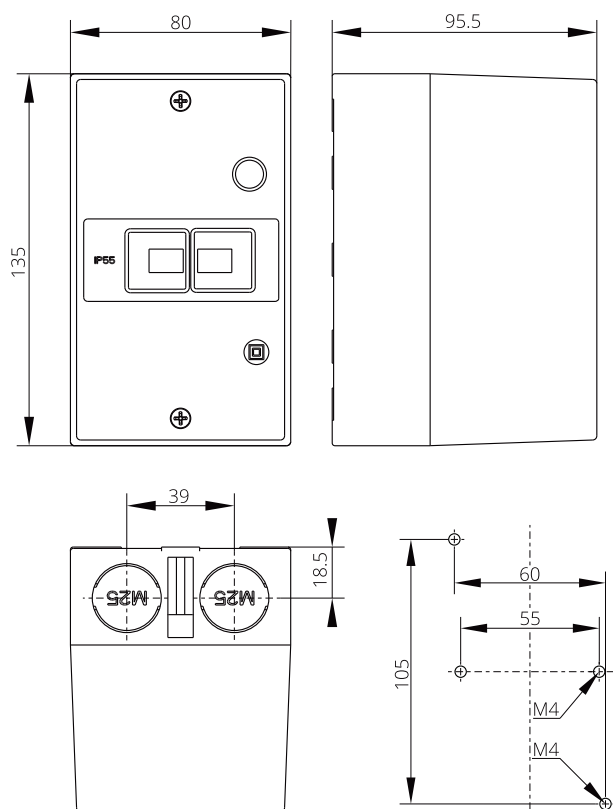


Auxiliary switch PS

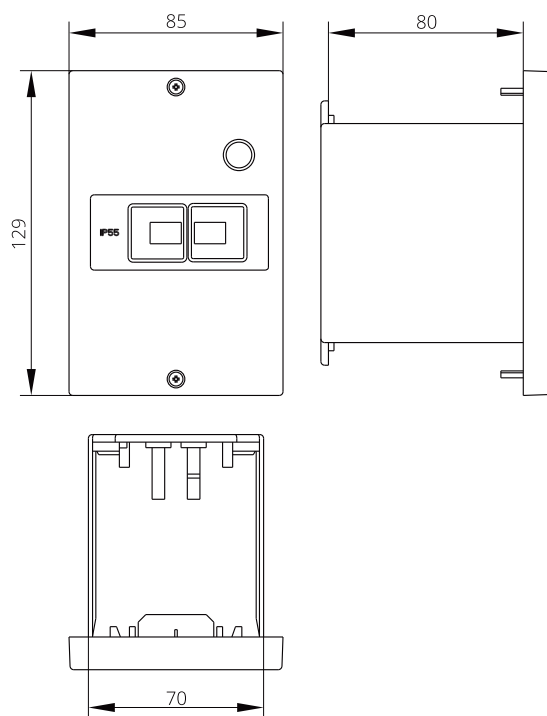


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DIMENSIONS