

Motor protection switches

MS25, MST25, MS20, MST20



- Versions:
 - MS25 - with thermal and magnetic releases
 - MST25 - with a thermal release only
 - MS20 - with thermal and magnetic releases for single-phase consumers
 - MST20 - with a thermal overload release for single phase consumers
- Manual control:
 - START, STOP, push-buttons
 - Test of release function (TEST)
- Automatic switch-off 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
- ON/OFF, push-buttons position unequivocally indicates the switching position of main circuit 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 accordance with EN 60715 or fixing with two screws
- Vertical or horizontal operational position

TECHNICAL DATA

GENERAL	Standards			IEC/EN 60947-2, IEC/EN 60947-4-1, IEC/EN 60947-5-1, IEC/EN 60204, UL 508, CSA 22.2 No. 14
	Approvals			UL, SEMKO
	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
	Ambient temperature		°C	-25 ... +60
	Storage temperature		°C	-25 ... +70
	Temperature range of thermal compensation for overload release		°C	-5 ... +40
	Mechanical and electrical endurance		op. c.	100.000
	Max. operating cycles		op. / h	25
	Shock resistance acc. to IEC 68-2-27		g	20
	Vibration resistance acc. to IEC 68-2-6			5 g at f = 5 ... 150 Hz
	Overvoltage category / pollution degree			III / 3
	Rated insulation voltage	U_i	V	690
	Rated impulse withstand voltage	U_{imp}	kV	6
	Weight		kg	0.252

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TECHNICAL DATA

MAIN CIRCUIT	Designation of connection terminals				1 - L1 ; 3 - L2 ; 5 - L3 ; 2 - T1 ; 4 - T2 ; 6 - T3	
	Terminal capacity	rigid	S	mm ²	0.75 ... 6	
		flexible			0.75 ... 4	
	Screw	with self-lifting clamp, protected against falling out				
	Screw head	PZ2				
	Tightening torque			Nm	1.8	
	Max. operational voltage			U_e	V	690
	Setting range			A	0.1 - 0.16 (only MS25); 0.16 - 0.25 (only MST25); 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	
	No. of poles				3	
	Operating current of thermal overload release			I	$1.05 I_r < I \leq 1.20 I_r$ I_r ...set value	
	Sensitivity to phase failure					yes
	Power dissipation on pole at load with I_n			P	W	2 - 2.5
	Utilization category	acc. to IEC/EN 60947-4-1				AC-3
		acc. to IEC/EN 60947-2				A
Trip class acc. to IEC/EN 60947-4-1					10A	

SWITCH SELECTION FOR MOTOR PROTECTION

Standard motor power						Setting range
Single-phase	Three-phase					
220 V 230 V 240 V	220 V 230 V 240 V	380 V 400 V 415 V	440 V	500 V	660 V 690 V	
kW						A
		0.02			0.06	0.1 ... 0.16
		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	0.25	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 ... 0.8	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

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

TECHNICAL DATA									
Type	Operating current of short-circuit release (A)	Rated ultimate short-circuit breaking capacity I_{cu} (kA)				Max. back-up fuse, if $I_{cp} > I_{cu}$ (gL) (A)			
		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	50	50	50	50	No back-up fuse required			
MS25 – 0.25	3	50	50	50	50				
MS25 – 0.4	6	50	50	50	50				
MS25 – 0.63	8	50	50	50	50				
MS25 – 1	12	50	50	50	50				
MS25 – 1.6	18	50	50	50	50				
MS25 – 2.5	33	50	50	3	2.5			25	20
MS25 – 4	48	50	50	3	2.5			35	25
MS25 – 6.3	75	50	50	3	2.5			50	35
MS25 – 10	110	50	6	3	2.5		80	50	35
MS25 – 16	160	6	4	2.5	2	80	80	63	35
MS25 – 20	220	6	4	2.5	2	80	80	63	50
MS25 – 25	270	6	4	2.5	2	80	80	63	50

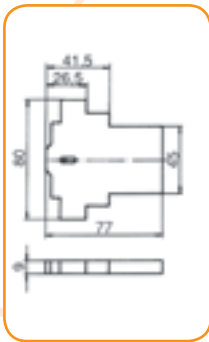
MST25 motor protection switches and max. back-up fuses for short-circuit protection:

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

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ACCESSORIES



PS

Auxiliary switch for lateral mounting

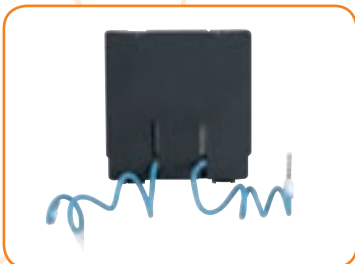
- PS 11 - with one make and one break contact
- PS 10 - with one make contact
- PS 01 - with one break contact
- PS 20 - with two make contacts

Rated insulation voltage	U_i	V	500	
Thermal current	I_{th}	A	6	
Rated operational current at AC-15	230 V	I_e	A	
	400 V			3.5
	500 V			2
Terminal capacity	S	mm ²	0.75 ... 2.5	
Tightening torque		Nm	1	



U - Under-voltage release
A - Shunt release

Control voltages	U_c	V	24 ... 600
Rated frequency	f	Hz	50 or 60
Coil consumption	switch on:	W	VA
	operation:	W	VA
			4,3 / 7,5
			1,3 / 3,8



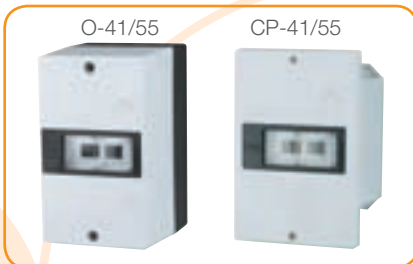
RS - Trip-indicating auxiliary switch and

Rated insulation voltage	U_i	V	500	
Thermal current	I_{th}	A	6	
I_e Rated operational current at AC-15	230 V	I_e	A	
	400 V			3.5
	500 V			2
Terminal capacity	S	mm ²	0.75 ... 2.5	
Tightening torque		Nm	1	

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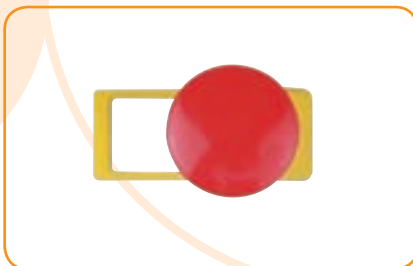
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ENCLOSURES



O-41/55
Enclosure IP41/55
CP-41/55
Front plate IP41/55

MS25 or MST25 with all accessories can be built into an enclosure or a front plate.



NAT - Emergency stop push-button. It is also available with a key-lock.



Z - Padlocking feature



M - Push-button diaphragm

The manufacturer also supplies an enclosure and a front plate with degree of protection IP55 (O-55, CP-55); in this case the diaphragm is already mounted. However, it should be removed if a padlocking feature or an emergency stop bush-button is built-in.



NL - Neutral link

One N/PE neutral link is usually built in the enclosure O-41/55 or CP-41/55. A place for an additional neutral link is also available.



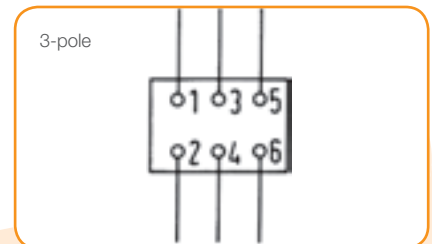
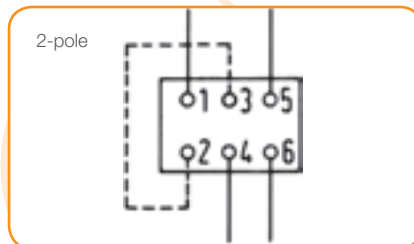
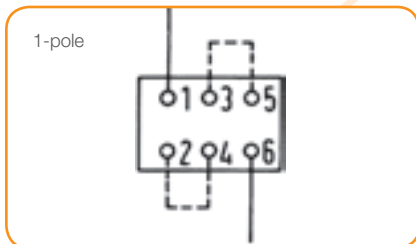
SS - Signal lamp

230, 240, 400 V
B-white, R-red, Z-green

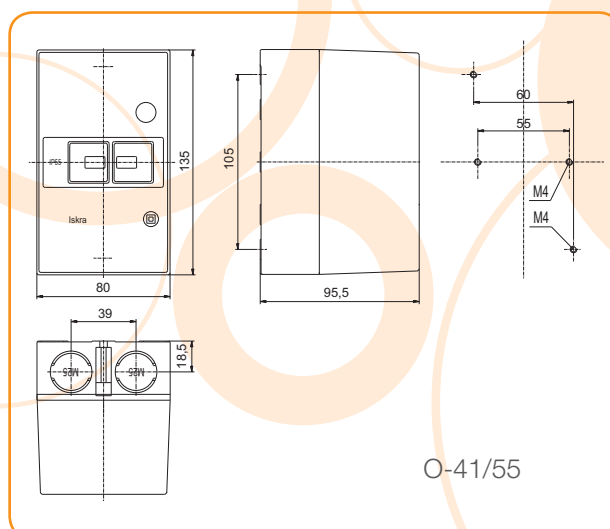
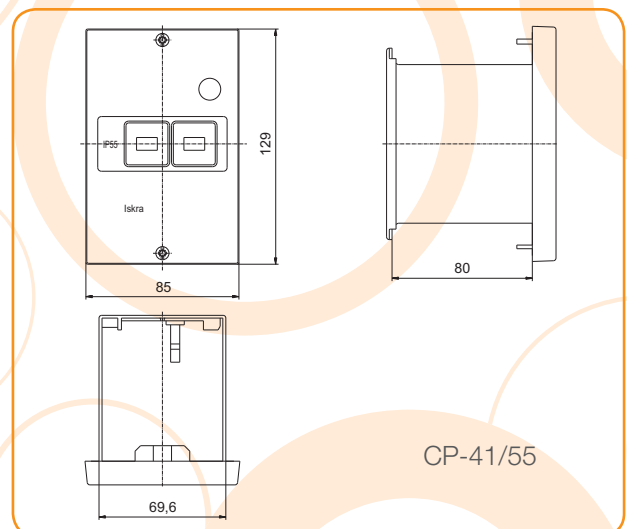
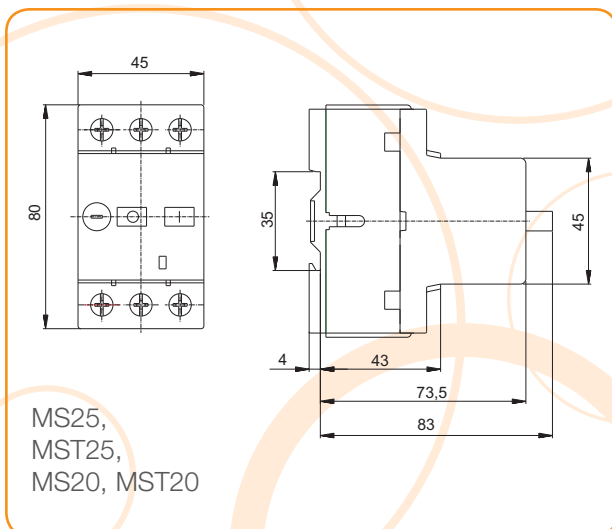
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CONNECTION DIAGRAM



DIMENSIONS



ORDERING DATA

MS25 with the setting range 2.5 - 4.0 A:

MS25 - 4

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 a green signal lamp for 230 V:

MS 25 - 4 / U 380 / PS 20 / O-41 / NAT / SSz 230