MS Series Motor Starter/Protector Specifications

Shunt release

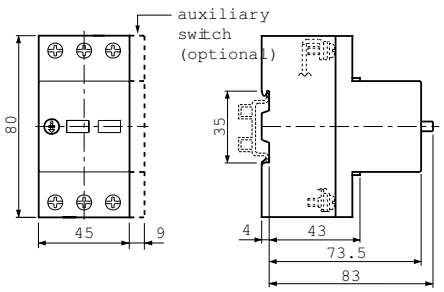
Shunt releases are used for electrically tripping the MSP. These units are easily installed inside the MSP and are offered in 120 and 220/240 volt AC versions.

Undervoltage release

Undervoltage releases are also installed inside the MSP and trip the device when the monitored voltage drops below a specified level. This is to protect the motor from damage when a low voltage situation occurs. Undervoltage releases may be wired to monitor voltage at point, but are typically wired to two of the incoming lines to the motor circuit. Undervoltage releases are not to be confused with the MSP's internal phase loss protection.

Note: A shunt release and undervoltage release cannot be installed in the same MSP.

Dimensions (mm)



Specifications		
General		
Standards		IEC 947, EN 60947, VDE 0660, EN 60204, VDE 0113
Approvals		UL
Impact Resistance at 20ms Duration		20g
Ambient Temperature		-25 to 50 °C (open) -25 to 40 °C (enclosed)
Climactic Class		IEC 68-2-3, IEC 68-2-30
Weight		0.55 lb (250g)
Protection Degree		IP 20
Mounting		Vertical or horizontal
Main Circuits		
Insulation Voltage		690V
Insulation Impulse Voltage		6kV
Thermal Current		25A
Utilization Category		AC3
Wire Size Maximum		14-10 AWG
Terminal Torque Specification		2 N·m
Auxiliary Contact		
Insulation Voltage		500V
Thermal Current		6A
Operational Current:	***230V***	3.5A
	400V	2A
	500V	1.5A
Maximum Fuse Size		6A
Wire Size Maximum		18-14 AWG

Notes: Phase loss protection only works under load.
The phase loss protection is a product of the thermal overload protection circuitry.
Maximum number of MSP units which can be mounted close together (side by side) is three.

Dimensions and installation data for these products are available on our website, listed under Tech Support/technical and application notes/motor controls/contactors and starters/ Application Data for MS25 manual starter.

Phase loss protection

Phase loss protection is integral to the MSP overload protection system. Phase loss protection works by detecting unequal current in each of the phases. A mechanical device senses the difference in the position of the bi-metallic overload strips and trips the MSP when this occurs. For proper phase loss detection, the MSP must be sized and adjusted to the motor it is protecting. The phase loss protection works only when the motor is running, and is a product of the thermal overload protection circuitry.

Note: The MSP provides magnetic short circuit protection as well as thermal overload protection under IEC 60947 requirements. NEC 430 may require a short circuit protection device upstream from the MSP. It is the responsibility of the user to comply with applicable codes and requirements.

Motor starter/protector combination consisting of a contactor, MSP with optional MS25-PS11 auxiliary contact and a UMP45 adapter plate. Components are sold separately.

MS Series MSP Selection Guide

Choose your motor starter/protector according to the FLA rating on your motor data plate. Refer to the charts on the following page.

Accessories

To complete your motor starter/ protector, there are several accessories that may be used. The Auxiliary Switch (contact) has one normally open contact and one normally closed contact. The Shunt Release trips when voltage is applied (120V or 220V). With the Undervoltage Release, your motor is protected from a low voltage situation.

Motor Starter/Protector and Accessories

Part Number	Price	Description
MS25-16	Retired	Motor starter protector with thermal overload release, setting range from 0.1 to 0.16A
MS25-25	Retired	Motor starter protector with thermal overload release, setting range from 0.16 to 0.25A
MS25-40	Retired	Motor starter protector with thermal overload release, setting range from 0.25 to 0.4A
MS25-63	$63.00	Motor starter protector with thermal overload release, setting range from 0.4 to 0.63A
MS25-100	$63.00	Motor starter protector with thermal overload release, setting range from 0.63 to 1A
MS25-160	Retired	Motor starter protector with thermal overload release, setting range from 1 to 1.6A
MS25-250	Retired	Motor starter protector with thermal overload release, setting range from 1.6 to 2.5A
MS25-400	Retired	Motor starter protector with thermal overload release, setting range from 2.5 to 4A
MS25-630	Retired	Motor starter protector with thermal overload release, setting range from 4 to 6.3A
MS25-1000	Retired	Motor starter protector with thermal overload release, setting range from 6.3 to 10A
MS25-1600	$73.00	Motor starter protector with thermal overload release, setting range from 10 to 16A
MS25-2000	Retired	Motor starter protector with thermal overload release, setting range from 16 to 20A
MS25-2500	Retired	Motor starter protector with thermal overload release, setting range from 20 to 25A
MS25-PS11	Retired	Auxiliary switch, 1 N.O. contact, 1 N.C. contact
MS25-A120	$31.50	120V/60Hz Shunt Release
MS25-U220	Retired	220V/60Hz UnderVoltage Release
MS25-U440	Retired	440V/60Hz UnderVoltage Release
UMP45	Retired	DIN Rail Adapter Plate

MS25 Series Motor Starter/Protector Short Circuit Instantaneous Trip Current and Backup Fuse Recommendations

Manual Starter/ Protector Part Number	Short Circuit Trip Current 1	Short Circuit Breaking Capacity (kA)				Max Back-Up Fuses Class CC or Class J 2			
		220/240VAC	460/480VAC	500 VAC	690 VAC	230 VAC	400 VAC	500 VAC	690 VAC
MS25-16	2	50	50	50	50	*	*	*	*
MS25-25	3	50	50	50	50	*	*	*	*
MS25-40	5	50	50	50	50	*	*	*	*
MS25-63	8	50	50	50	50	*	*	*	*
MS25-100	12	50	50	50	50	*	*	*	*
MS25-160	20	50	50	50	50	*	*	*	*
MS25-250	33	50	50	3	2.5	*	*	25	20
MS25-400	44	50	50	3	2.5	*	*	35	25
MS25-630	75	50	50	3	2.5	*	*	50	35
MS25-1000	120	50	6	3	2.5	*	80	50	35
MS25-1600	160	6	4	2.5	2	63	80	63	35
MS25-2000	230	6	4	2.5	2	63	80	63	50
MS25-2500	270	6	4	2.5	2	63	80	63	50

Note 1: The short-circuit trip is the current at which the device will instantly trip via the electromagnetic trip circuitry within the MSP.The short circuit breaking capacity is the total branch circuit supply current that the device can safely protect. Fields marked with an asterisk indicate that the device can safely handle any supply current with output fusing.

Note 2: The trip currents and back-up fuses are per IEC 60947. Local codes and regulations may require additional short circuit protection. Consult codes applicable to your application.

GH Series Contactor/MSP Selection Guide

Step 1: Select your motor FLA (full load amperage) from column A.

Step 2: Go to column B to find your contactor model. Check the maximum amperage rating for that contactor. Ranges overlap and you may have to go to the next larger size.

Step 3: After selecting your contactor, go to column C to find your motor starter/protector.

Step 4: Order the motor starter/protector, contactor or any other accessories.

Motor Contactor and Motor Starter/Protector (MSP) Selection Guide (when motor FLA is known)

A	B	C	IEC Frame Size	Special Assembly Note
Current Range Motor FLA	Contactor Model	Motor Starter/Protector Part Number		
0.1 to 0.16 A	GH15BN Up to 9A FLA	MS25-16	45 mm frame size	Note: A DIN rail adapter plate is needed for assembly of the contactor and motor starter/protector. This plate allows two DIN rail devices to be mounted together as an assembly to one piece of DIN rail. The part number is UMP45.
0.16 to 0.25 A		MS25-25		
0.25 to 0.4 A		MS25-40		
0.4 to 0.63 A		MS25-63		
0.63 to 1 A		MS25-100		
0.1 to 1.6 A		MS25-160		
1.6 to 2.5 A		MS25-250		
2.5 to 4 A		MS25-400		
4 to 6.3 A		MS25-630		
6.3 to 10 A		MS25-1000		
10.0 to 16 A	GH15CN Up to 12 A FLA	MS25-1600		
10.0 to 16.0 A	GH15DN Up to 16A FLA	MS25-1600		
16.0 to 20.0 A	GH15ET Up to 25A FLA	MS25-2000		
20.0 to 25.0 A		MS25-2500		

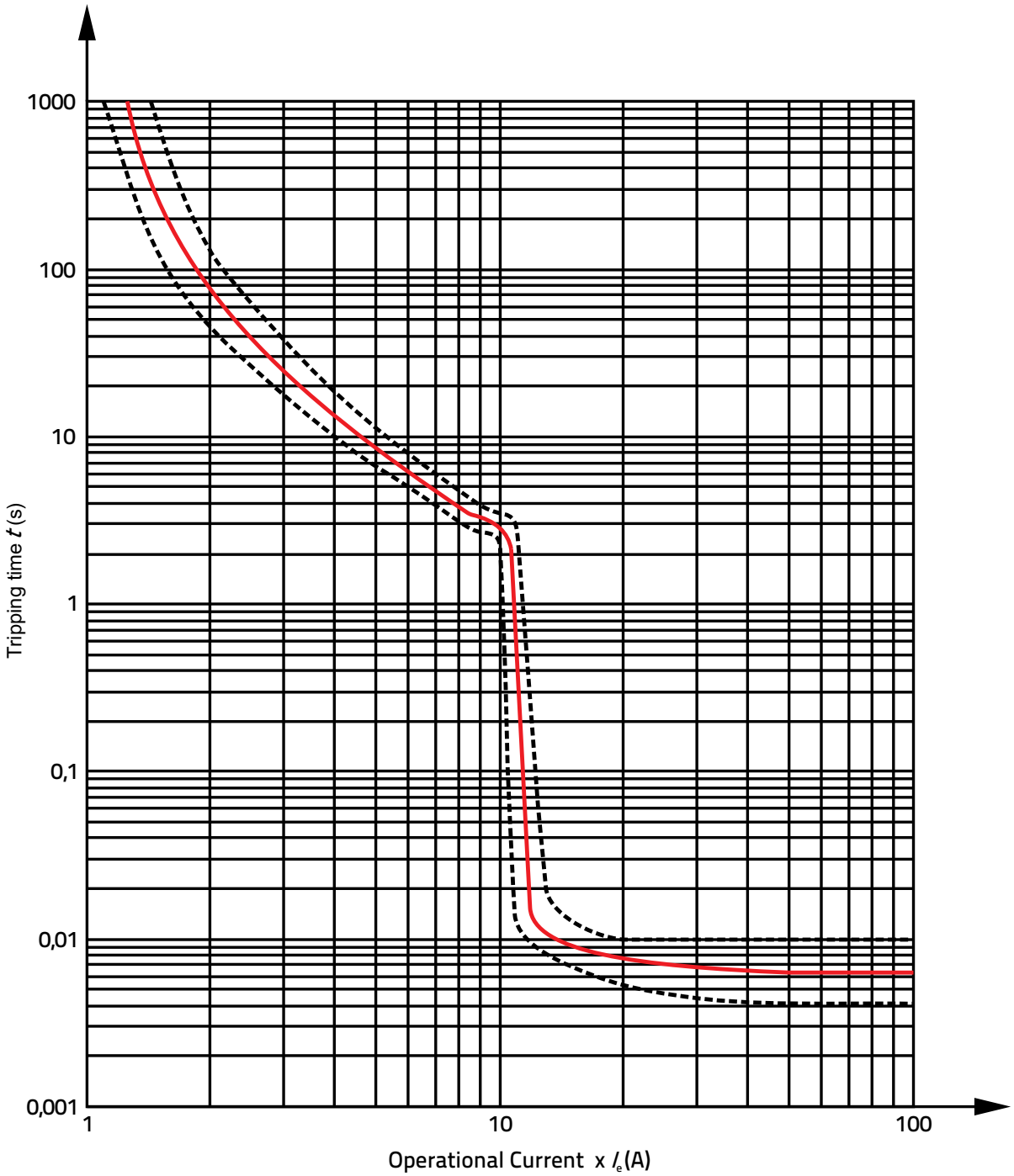
The following charts are to be used as a guideline only. Motor control devices should be sized using the motor FLA (full load amperage) rating. It is the user's responsibility to size the motor starter/protector properly.

- **Step 1:** Select your motor horsepower rating in column A based on the rating from the motor data plate or spec. sheet.
- **Step 2:** Go to column B to find your contactor model. Check the maximum amperage rating for that contactor. Ranges overlap and you may need to go to the next larger size.
- **Step 3:** After selecting your contactor, go to column C to find your motor starter/protector.

Motor Contactor and MSP Selection Guide for 440-480 Volt Three-Phase Motor Control

A	B	C	IEC Frame Size	Special Assembly Note
Motor Horsepower	Contactor Model	Motor Starter/Protector Part Number		
1/2	GH15BN Up to 9A FLA	MS25-160	45mm frame size	Note: A DIN rail adapter plate is needed for assembly of the contactor and motor starter/protector. This plate allows two DIN rail devices to be mounted together as an assembly to one piece of DIN rail. The part number is UMP45.
3/4		MS25-160		
1		MS25-250		
1 1/2		MS25-400		
2		MS25-400		
3		MS25-630		
5		MS25-1000		
7 1/2	GH15CN Up to 12A FLA	MS25-1600		
10	GH15DN Up to 16A FLA	MS25-1600		
15	GH15ET Up to 25A FLA	MS25-2500		

Motor Contactor and MSP Selection Guide for 230-240 Volt Three-Phase Motor Control

A	B	C	IEC Frame Size	Special Assembly Note
Motor Horsepower	Contactor Model	Motor Starter/Protector art Number		
1/2	GH15BN Up to 9A FLA	MS25-250	45 mm frame size	Note: A DIN rail adapter plate is needed for assembly of the contactor and motor starter/protector. This plate allows two DIN rail devices to be mounted together as an assembly to one piece of DIN rail. The part number is UMP45
3/4		MS25-400		
1		MS25-400		
1 1/2		MS25-630		
2		MS25-1000		
3	GH15CN Up to 12A FLA	MS25-1000		
5	GH15DN Up to 16A FLA	MS25-1600		
7 1/2	GH15ET Up to 25A FLA	MS25-2500		

MS25 Series Tripping Characteristics