

# Operator Interface

## Enabling Switches

### GripSwitch



#### Description

The three position enabling switch can be used as part of the conditions required to allow safe working inside a machine guard, e.g., set-up, maintenance, or troubleshooting. It is lightweight and ergonomically designed for easy use. The standard model includes two independent three-position switches which are actuated by squeezing the trigger. Additional models are available with an optional jog button or dual channel e-stop button.

The trigger switch has three positions. The mid-position is the “enabled” position.

Position 1—there is no pressure on the trigger switch, and the safety contacts are open.

Position 2—the trigger switch is squeezed to the mid-position, and the safety contacts are closed. This mid-position is the “enabled” position.

Position 3—the trigger switch is fully pressed and the safety contacts are open.

When the trigger switch is released from position three back to position one, the safety contacts remain open, as it passes through position two.

#### Features

- Dual three position enabling switches
- Lightweight and ergonomic
- Optional jog and e-stop functions

4-Emergency Stop Devices

#### Specifications

Safety Ratings				
Standards	IEC/EN60947-5-8, IEC/EN 60947-5-1, IEC/EN 60204-1, NFPA 79, ANSI B11.19, ANSIR15.06, ISO 10218, ISO 11161			
Safety Classification	Cat. 1 Device per EN954-1; Dual channel suitable for Cat. 3 or 4 systems			
Certifications	CE Marked for all applicable directives, cULus Listed, BG			
Outputs				
Safety Contacts *	2 N.C. direct opening action			
Auxiliary Contacts	1 N.C.			
Jog Contact	1 N.O.			
E-Stop	2 N.C. Direct-Opening Action			
Thermal Current/ $I_{th}$	3 A			
Rated Insulation Voltage	(Ui) 250V (jog button 125V)			
Switching Current @ Voltage, Min.	5 mA @ 3V AC/DC			
Utilization Category		30V DC	125V AC	250V AC
3-Position Switch Terminals 1-2 and 3-4	DC-12 or AC-12 Resistive	2 A	3 A	0.5 A
	DC-13 or AC-15 Inductive	1 A	1.5 A	0.5 A
Monitor Switch Terminals 5-6	DC-12 or AC-12 Resistive	2 A	2 A	1 A
	DC-13 or AC-15 Inductive	1 A	1 A	0.5 A
E-Stop Switch Terminals 5-6 and 7-8	DC-12 or AC-12 Resistive			
	DC-13 or AC-15 Inductive			0.5 A
Operating Characteristics				
Operating Force, Min.	Position 2: 15 N (3.37 lbf) approx. Position 3: 50 N (11.2 lbf) max.			
Direct Opening Force	90 N (20 lbf)			
Actuation Frequency, Max.	1200 operations per hour			
Environmental				
Enclosure Type Rating	IP66 Standard Switch (NEMA 6) IP65 Jog Button and E-Stop Switches			
Relative Humidity	45...85%			
Operating Temperature [C (F)]	-10...+60° (14...140°)			
Vibration	5...55 Hz, 0.5 mm			
Shock	10 g			
Physical Characteristics				
Wire Size	0.14...1.5 mm <sup>2</sup> (24...14 AWG)			
Cable Size	7...13 mm (0.27... 0.51 in.)			
Terminal Screw Torque	0.5...0.6 N•m (4.4...5.3 lbf•in)			
Conduit Type	M20			
Material	Polyamide (Nylon) PA66			
Boot Material	NBR/PVC Nitrile Blended with PVC			
Weight [g (lb)]	250 (0.55) with E-stop 210 (0.46) standard and jog			
Color	Black/grey			

\* The safety contacts are described as normally closed (N.C.) i.e., with the guard closed, actuator in place (where relevant) and the machine able to be started.

## Product Selection

Description	Cat. No.
	M20 Conduit with Cable Strain Relief
Standard Switch (No additional buttons)	440J-N21TNPM
Switch with Jog Button	440J-N21TNPM-NP
Switch with Emergency Stop Button	440J-N2NTNPM-NE

**Note:** Base plate included with all switches.

## Recommended Logic Interfaces

Description	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. Page No.	Cat. No.
<b>Single-Function Safety Relays for 2 N.C. Contact Switch</b>							
MSR127RP	3 N.O.	1 N.C.	Removable (Screw)	Monitored Manual	24V AC/DC	5-26	<b>440R-N23135</b>
MSR127TP	3 N.O.	1 N.C.	Removable (Screw)	Auto./Manual	24V AC/DC	5-26	<b>440R-N23132</b>
<b>Modular Safety Relays</b>							
MSR210P Base 2 N.C. only	2 N.O.	1 N.C. and 2 PNP Solid State	Removable	Auto./Manual or Monitored Manual	24V DC from the base unit	5-82	440R-H23176
MSR220P Input Module	—	—	Removable	—	24V DC	5-86	440R-H23178
MSR310P Base	MSR300 Series Output Modules	3 PNP Solid State	Removable	Auto./Manual Monitored Manual	24V DC	5-102	440R-W23219
MSR320P Input Module	—	2 PNP Solid State	Removable	—	24V DC from the base unit	5-106	440R-W23218

**Note:** For additional Safety Relays connectivity, see page 5-4.  
 For additional Safety I/O and Safety PLC connectivity, see page 5-116.  
 For application and wiring diagrams, see page 10-1.

## Connection Systems

Description	Cat. No.		
	4-Pin Micro (M12) Quick Disconnect	5-Pin Micro (M12) Quick Disconnect†	8-Pin Micro (M12) Quick Disconnect
Cordset	889D-F4AC-♣	889D-F5AC-♣	889D-F8AB-♣
Patchcord	889D-F4ACDM-§	889D-F5ACDM-§	889D-F8ABDM-§

♣ Replace symbol with 2 (2 m), 5 (5 m), or 10 (10 m) for standard cable lengths.  
 § Replace symbol with 1 (1 m), 2 (2 m), 5 (5 m), or 10 (10 m) for standard cable lengths.  
 † To connect to ArmorBlock Guard I/O.

4-Emergency  
Stop Devices