

MSR45E

Description

The MSR45E is a safety relay expansion module for the MSR41/MSR42 (MSR4x) multi-function safety controller. The MSR45E comes in 22.5 mm DIN housing and is designed to easily connect to the MSR4x. The MSR45E safety relay expansion module is a Category 4 module with externally monitored contactors via the MSR4x. Interconnecting these devices is as simple as plugging ribbon-cable connectors to the back of each module. Up to three MSR45E safety relay expansion modules may be interconnected to an MSR4x. The ribbon-cable connectors must be ordered separately based on the number of MSR45E units that are attached to the MSR4x.

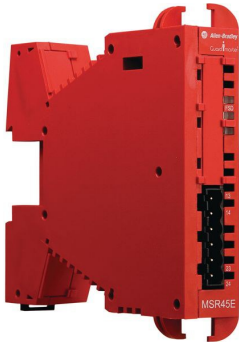
Features

- Category 4 per EN 954-1
- SIL CL3 per IEC 61508
- Stop category 0 or 1
- Two safety contacts N.O.

LED Indicators

Green	K1 Closed
Green	K2 Closed

Specifications



Safety Ratings	
Standards	EN 954-1, IEC/EN 60204-1, IEC 61496-1
Safety Classification	Cat. 4 per EN 954-1, SIL CL3 per EN IEC 61508
Functional Safety Data ★ Note: For up-to-date information, visit http://www.ab.com/safety/	PFH _D : < 3.0E-10 MTTFd: > 206 years For use in SIL3 systems (according to IEC 62061) depending on the architecture and application characteristics
Certifications	CE Marked for all applicable directives, cULus, and TÜV
Power Supply	
Input Power Entry	24V DC from MSR41 or MSR42
Power Consumption	1.5 W
Inputs	
Reset	Determined by MSR41 or MSR42
Power On Delay/ Recovery Time	<35 ms/ Determined by configuration
Response Time	Determined by configuration
Outputs	
Safety Contacts	2 N.O.
Auxiliary Contacts	—
Thermal Current I_{Ith}	1 x 8 A or 2 x 6 A nonswitching
Rated Impulse withstand Voltage I_{Ith}	—
Switching Current @ Voltage, Min.	10 mA @ 10V
Fuses, Output	External 6 A slow blow or 10 A fast acting
Mechanical Life	10,000,000 operations
Utilization Category	
Inductive: AC-15	3 A @ 250V AC
Inductive: DC-13	6 A @ 24V DC
Environmental and Physical Characteristics	
Enclosure Type Rating/ Terminal Protection	IP20/ IP20
Operating Temperature [C (F)]	0...55° (32...131°)
Vibration	10...55 Hz, 0.35 mm
Shock	10 g, 16 ms, 100 shocks
Mounting	35 mm DIN Rail
Weight [g (lb)]	150 (0.33)
Conductor Size, Max.	1 x 2.5 mm2 (14 AWG) stranded

★ Usable for IEC 62061. Data is based on the following assumptions:

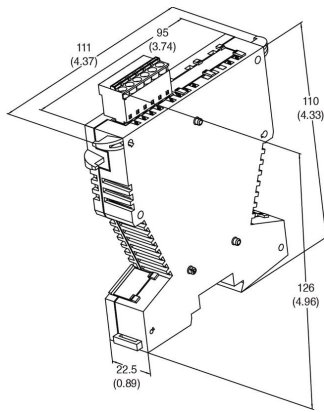
- Mission time/Proof test interval of 20 years
- Functional test at least once within six-month period

Product Selection

Inputs	Safety Outputs	Auxiliary Outputs	Time Delay	Terminals	Reset Type	Power Supply	Cat. No.
MSR4x base module	2 N.O.	—	Software configurable thorough MSR4x	Removable	MSR4x base module defines reset type	24V DC from the base unit	440R-P4NANS

Approximate Dimensions

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.

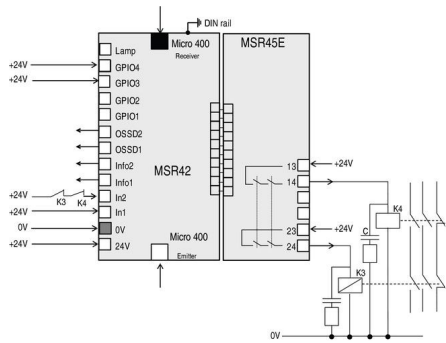


Accessories

Description	Cat. No.
Ribbon cable—for one MSR45E	440R-ACABL1
Ribbon cable—for two MSR45Es	440R-ACABL2
Ribbon cable—for three MSR45Es	440R-ACABL3
Replacement terminal block kit—MSR45E	440R-ATERM2C

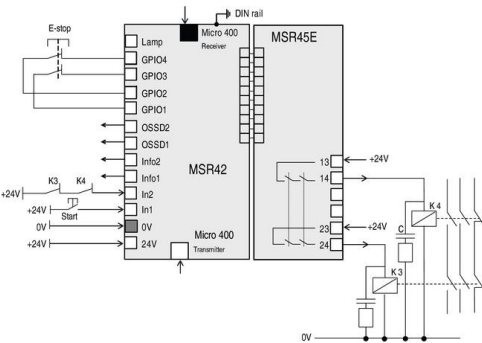
Typical Wiring Diagrams

Hardware Configuration



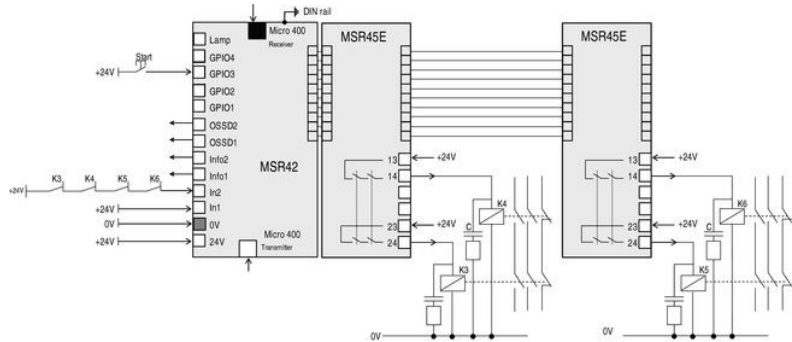
Micro 400, Automatic Reset, Start/Restart Monitored Output

Software Configuration



Micro 400 Light Curtain, E-Stop, Manual Reset, Start/Restart Monitored Output

Hardware Configuration



Micro 400 Light Curtain, Manual Reset, Start/Restart Monitored Output