

Safety Single Beam

Area Access Control



Description

The Area Access Control (AAC) safety single-beam is a 24V DC through-beam opto-electronic safety switch offered with two operating ranges (a short range (0.5...20 m (1.64...65.5 ft) or a long range (15...70 m (49.2...300 ft) system. The AAC system uses the same transmitter for both ranges and one of two receivers for a short-range or long-range system. This unique system configuration minimizes the number of cat. nos. necessary for specifying the AAC single-beam system.

The AAC safety single-beam is used as a whole-body detection device. The light beam produced between the AAC transmitter and receiver provides whole-body access detection for hazardous areas such as:

- Robotic work cells
- Processing machines
- Machining centers
- Palletizers
- Transfer lines
- High bay warehouses

Features

- Long scan range (up to 70 m (300 ft))
- Easy installation
- Die cast aluminium housing
- Heated front lens, allowing use even in outdoor applications
- Relay outputs

Specifications

Safety Ratings	
Standards	IEC 61496, Parts 1 & 2
Safety Classification	Type 4, IEC 61496; SIL 3 (IEC 61508); SIL CL3 (IEC 62061); Category 4 (EN ISO 13849); PLe (EN ISO 13849); B _{10d} parameter: 1 x 10 ⁶ switching cycles (@ DC-13, 24V, 0.6 A); 2 x 10 ⁵ switching cycles (@ DC-13, 24V, 1.5 A) PFH _d : 4.0 x 10 ⁻⁹ ; Mission time: 20 years
Certifications	CE Marked for all applicable directives and BG
Power Supply	
Input Power, Max.	24V DC ±20%
Maximum Residual Ripple	5% of U _v , max.
Power Consumption	24V DC 8 W max.
Outputs	
Safety Outputs	2 N.O. Relays
Switching Current @ Voltage, Min.	0.02 A to 2 A
Operating Characteristics	
Response Time	< 22 ms
Status Indicators	On state, Off state, alignment
Beam Diameter	23 mm (0.91 in.)
Scanning Range	0.5...20 m (1.64...65.5) or 15...70 m (49.2...300 ft)
Synchronization	Optical
Wavelength	950 nm
Environmental	
Enclosure Type Rating	IP67 (EN 60529)
Relative Humidity	15...95%, noncondensing
Operating Temperature [C (F)]	-25...55° (-13...131°)
Vibration	5 g, 10...55 Hz per IEC 60068-2.6
Shock	10 g, 16 ms per IEC 60068-2.29
Physical Characteristics	
Front Window	Heated
Weight	Transmitter unit: approx. 0.9...1.3 kg Receiver unit: approx. 1...1.4
Housing Cross Section	50 x 156 x 116 mm (1.96 x 6.14 x 4.56 in.)
Connection Type	Terminal chamber with cable gland (PG13.5 thread)
Cable Length	50 m (164 ft) max.

Note: The external power supply must be capable of buffering brief power failures of 20 ms as specified in IEC 60204-1.

Product Selection

Selection Guide for Receiver

Operating Range	Connection Type	Cat. No.
0.5...20 m (1.64...65.5)	Terminal chamber with cable gland (PG13.5 thread)	440L-R4F0020-Q
15...70 m (49.2...300 ft)		440L-R4F1570-Q

Selection Guide for Transmitter





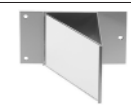
Operating Range	Connection Type	Cat. No.
0...70 m (0...300 ft)	Terminal chamber with cable gland (PG13.5 thread)	440L-T4F2070-Q

Recommended Logic Interfaces

Description	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. Page No.	Cat. No.
Single-Function Safety Relays for 2 N.C. Contact Switch							
MSR127RP	3 N.O.	1 N.C.	Removable (Screw)	Monitored Manual	24V AC/DC	5-26	440R-N23135
MSR127TP	3 N.O.	1 N.C.	Removable (Screw)	Auto./Manual	24V AC/DC	5-26	440R-N23132
MSR126.1	2 N.O.	None	Fixed	Auto./Manual	24V AC/DC	5-24	440R-N23114
Modular Safety Relays							
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
Muting Modules							
MSR22LM	2 N.O.	1 N.C.	Removable	Auto./Manual	24V DC	5-48	440R-P23071
MSR42 (requires optical interface to configure 445L-AF6150	2 PNP	2 PNP, configurable	Removable	Auto./manual or manual monitored	24V DC	5-52	440R-P226AGS-NNR

Note: The use of a category 4 safety relay module does not improve the category rating of the safety system beyond the Category 2 rating of the Type 2 light curtain in use.

Accessories

	Description	Cat. No.
	Laser alignment tool	440L-ALAT
	Adaptor for alignment aid on AAC	440L-ALBRK1
	Mounting bracket for AAC	440L-AMBRK4
	Corner mirror for scanning range 0...30 m	440L-AMIRR1
	Mounting kit for 440L-AMIRR1	440L-AMKIT
	Mounting bracket for mirror 440L-AMIRR1	440L-AMBRK1
	Glass corner mirror, 45° angle 0...30 m	440L-AMIRR2

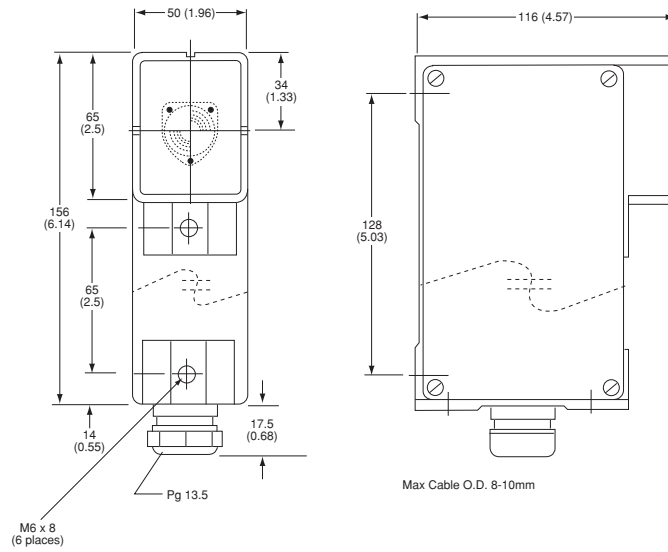
Presence Sensing Safety Devices

Safety Single Beam

Area Access Control

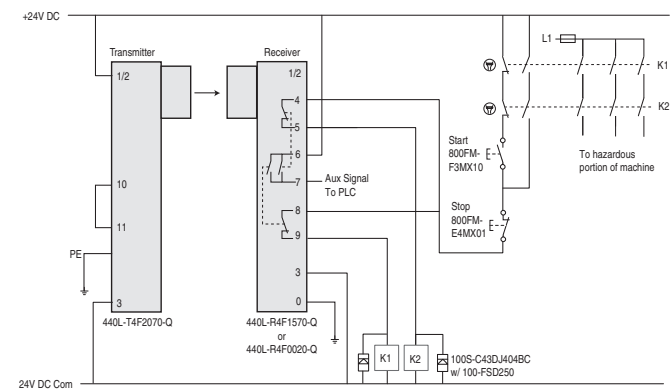
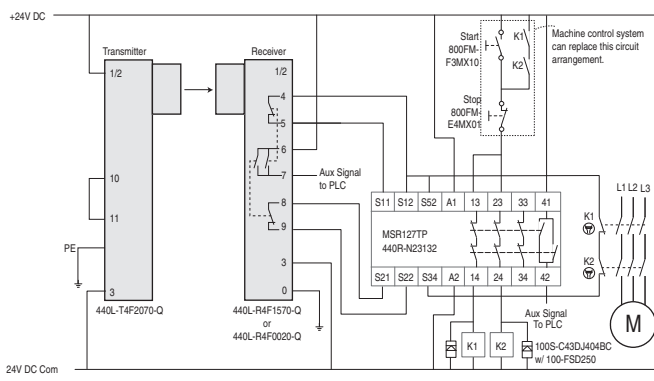
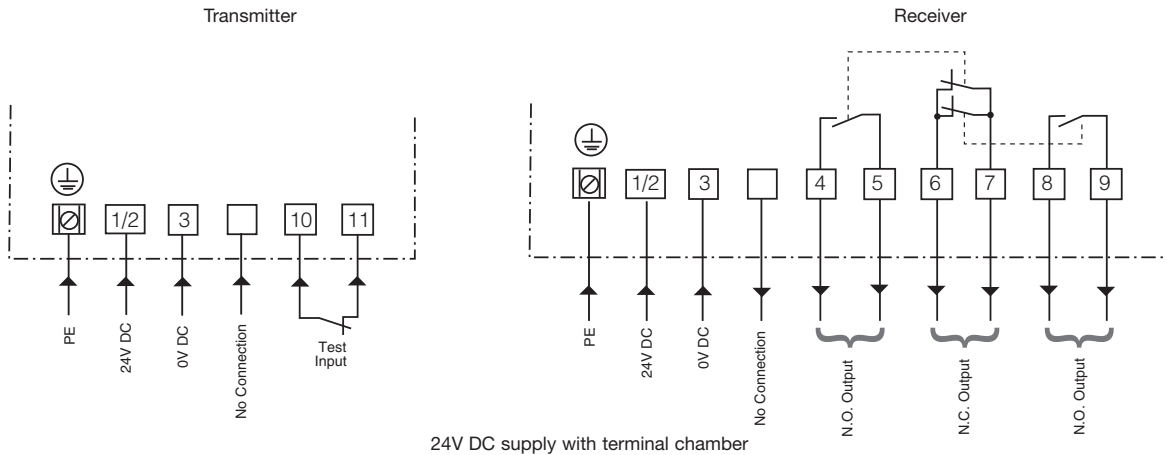
Approximate Dimensions

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



Typical Wiring Diagrams

Wiring diagram is not intended to be used for installation purposes.



2-Opto-electronics