Barrières immatérielles de sécurité GuardShield™ Micro 400

Barrières immatérielles de sécurité compactes, type 4, SIL 3
avec contrôleur DIN

La barrière immatérielle de sécurité Allen-Bradley® Guardmaster® GuardShield Micro 400 est une solution économique, de type 4 et à trois boîtiers conçue pour les chaînes de montage de petite taille et les environnements de fonctionnement ambiants ou les espace réduits. C'est un capteur de présence polyvalent pouvant être utilisé sur des machines dangereuses pour la protection du point d'opération. Disponible avec des résolutions 14 mm et 30 mm, cette solution de norme SIL 3 offre des fonctionnalités étendues si associé à un automate MSR42. L'automate MSR42 est un autre module de sécurité multi-fonctions, adaptable en mode de fonctionnement fil à fil ou configurable par logiciel. Il est équipé de deux OSSD PNP pouvant être connectées directement au dispositif de commutation final. Si des sorties relais de sécurité sont requises, jusqu'à trois modules d'extension à relais de sécurité (MSR45E) peuvent être facilement connectés à l'automate.

GuardShield, une solution fiable et fonctionnelle encore plus flexible

Lorsque la barrière immatérielle de sécurité GuardShield Micro 400 est connectée à un automate MSR42, les applications qui requièrent deux ou trois barrières immatérielles, telles que les lecteurs lasers de sécurité, les arrêts d'urgence ou les interrupteurs de sécurité, sont configurées simplement par le biais des entrées polyvalentes du MSR42, rendant l'application plus flexible.
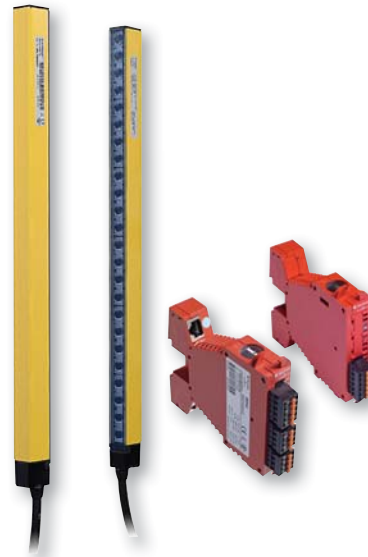
Cette fonctionnalité permet de simplifier le circuit de sécurité et de réduire le temps de câblage général ainsi que les coûts totaux des systèmes de sécurité comportant plusieurs dispositifs. De plus, grâce à leur taille compacte, elles s'adaptent à des zones des machines ou des équipements trop petites pour les produits concurrents.

La barrière immatérielle GuardShield Micro 400 associée à l'automate MSR42 est conforme à la norme SIL 3 selon IEC61508. L'homologation IEC61496 et UL61496, ainsi que le marquage CE par TÜV, font de cette barrière immatérielle une solution complète pour une vaste gamme d'applications de protection de machines complexes.

Elles comportent deux blocs (émetteur et récepteur) identifiés par une même référence catalogue pour plus de simplicité. Le module MSR42, le module MSR45E, les connecteurs de câble plat et les cordons de raccordement doivent être commandés séparément pour compléter le système de sécurité.
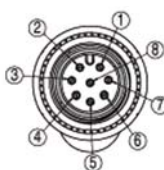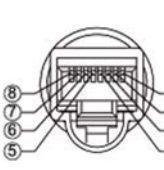
Fonctionnalités :

- Câble précâblé avec connecteur M12
- Système à trois boîtiers avec automate de sécurité dédié
- Disponible en résolution 14 mm et 30 mm
- Profil compact avec boîtier fin (15 mm x 20 mm)
- Hauteurs de protection de 150 mm à 1200 mm par incréments de 150 mm
- Le contrôleur DIN est aussi un module de sécurité multi-fonctions
- Configuration des fonctionnalités de l'automate par câble ou logiciel
- Modules d'extension à relais de sécurité (MSR45E) faciles à connecter à l'automate
- Une solution de protection complète conforme aux normes IEC61496 et UL61496 et marquée CE par TÜV

Références de commande

Résolution	Hauteur de protection — mm (in.)	Nombre de rayons	Référence catalogue		
			Paire	Émetteur uniquement	Récepteur uniquement
14 mm	150 (5,9)	15	445L-P4C0150FP	445L-T4C0150FP	445L-R4C0150FP
	300 (11,8)	30	445L-P4C0300FP	445L-T4C0300FP	445L-R4C0300FP
	450 (17,7)	45	445L-P4C0450FP	445L-T4C0450FP	445L-R4C0450FP
	600 (23,6)	60	445L-P4C0600FP	445L-T4C0600FP	445L-R4C0600FP
	750 (29,5)	75	445L-P4C0750FP	445L-T4C0750FP	445L-R4C0750FP
	900 (35,4)	90	445L-P4C0900FP	445L-T4C0900FP	445L-R4C0900FP
	1050 (41,3)	105	445L-P4C1050FP	445L-T4C1050FP	445L-R4C1050FP
	1200 (47,2)	120	445L-P4C1200FP	445L-T4C1200FP	445L-R4C1200FP
30 mm	150 (5,9)	6	445L-P4E0150FP	445L-T4E0150FP	445L-R4E0150FP
	300 (11,8)	12	445L-P4E0300FP	445L-T4E0300FP	445L-R4E0300FP
	450 (17,7)	18	445L-P4E0450FP	445L-T4E0450FP	445L-R4E0450FP
	600 (23,6)	24	445L-P4E0600FP	445L-T4E0600FP	445L-R4E0600FP
	750 (29,5)	30	445L-P4E0750FP	445L-T4E0750FP	445L-R4E0750FP
	900 (35,4)	36	445L-P4E0900FP	445L-T4E0900FP	445L-R4E0900FP
	1050 (41,3)	42	445L-P4E1050FP	445L-T4E1050FP	445L-R4E1050FP
	1200 (47,2)	48	445L-P4E1200FP	445L-T4E1200FP	445L-R4E1200FP

Références de commande — Cordon de raccordement

Vue de face, connecteur M12		Vue de face, connecteur RJ45		Description	Référence catalogue
C-C (3:1)	Tableau des broches : 1 Bleu 2 Gris 3 Vert 4 Blanc 5 Noir 6 Rose 7 Marron 8 Jaune Blindage : Fils torsadés	B-B (3:1)	Tableau des broches : 1 Bleu 2 Gris 3 Vert 4 Blanc 5 Noir 6 Rose 7 Marron 8 Jaune Blindage : Fils torsadés	Cordon de raccordement 8 broches M12 à RJ45, 3 m	445L-AC8RJ*

* Remplacez le symbole avec 3 (3 m), 5 (5 m) ou 8 (8 m) pour des longueurs de câble standard.

Automate MSR42 Micro 400 et module de sécurité multi-fonctions

(illustré avec les modules d'extension à relais de sécurité MSR45E)

Le module d'extension à relais de sécurité MSR45E se connecte facilement à l'automate MSR42 Micro 400 et fournit deux sorties relais de sécurité par module. Un câble plat est requis pour interconnecter jusqu'à trois modules d'extension de sécurité MSR45E à un automate MSR42.

www.rockwellautomation.com

Presence Sensing Safety Devices

POC Type 4 Safety Light Curtains
GuardShield Micro 400

A GuardShield Cascadable Micro 400 safety light curtain system is comprised of one or two pair of Cascadable Micro 400 light curtains as well as a standard Micro 400 pair as the last segment pair in the cascaded system.

GuardShield Micro 400 cascaded pairs are offered in both 14 mm and 30 mm resolutions in limited protected heights which are listed in the table below. It is possible to mix 14 mm and 30 mm resolution pairs in a cascaded Micro 400 system.

IMPORTANT	The standard GuardShield Micro 400 must always be the last segment in a cascaded Micro 400 system.

The cascadable Micro 400 safety light curtains are ordered as pairs (transmitter and receiver) and are shipped under one cat. no. After selecting the appropriate light curtain cat. nos. for a cascaded Micro 400 system, select the standard Micro 400 pair as the last segment in the cascaded system and also select interconnecting patchcords.

A cascadable pair of GuardShield Micro 400 light curtains has a 500 mm (19.8 in.) pigtail with a female M12 QD on the bottom of the Micro 400 light curtain and a 500 mm (19.8 in.) pigtail with a male M12 QD attached to the top of the Micro 400 transmitter and receiver.

The GuardShield Cascadable Micro 400 system operates as a single light curtain pair with a common set of OSSDs. Each segment pair is connected in series making the response time of the complete system the sum of each segment pair, plus the response time of the MSR41 or MSR42 and other safety devices in the stop circuit.

When connecting two cascadable segments together, the resultant cable length between segments is 1000 mm (39.6 in.).

If an additional length between segment pairs is required, Rockwell Automation offers an M12-to-M12 patchcord in 1 m (39.37 in.) and 3 m (118.1 in.) lengths (Cat. Nos. 445L-AC8PC1 or 445L-AC8PC3).

IMPORTANT	The maximum cascaded Micro 400 system length can not exceed 10 m as measured between the RJ45 connection at the MSR42 controller to the last beam in the standard Micro 400, including all cable lengths. The maximum number of beams in a cascaded Micro 400 system can not exceed 255 beams.

Description

The GuardShield Micro 400 is an economical three-box (transmitter, receiver and controller) Type 4 safety light curtain offered in a small profile (15 x 20 mm (0.59 x 0.79 in.)) housing. Designed for use in benign industrial environments (IP54), this light-duty safety light curtain system is targeted to the semi-conductor, micro electronic and small assembly machine markets.

Protective heights are offered from 150…1200 mm (5.91…47.2 in.) in 150 mm (5.91 in.) increments. The compact housing size allows the GuardShield Micro 400 to be mounted in areas where standard safety light curtains may not be able to be mounted due to space constraints. It is also possible to recess the GuardShield Micro 400 transmitter and receiver into machine frames.

The Micro 400 requires a dedicated controller. The MSR41 controller is used for on/off application and the MSR42 can also be used as a multi-function safety module, allowing the connection of additional safety light curtains, safety laser scanner, or any safety device with two Output Signal Switch Devices (OSSD) outputs, or two contacts, such as E-stops and enabling switches.

There are a number of operating modes that can be configured with the MSR42 controller. EDM, START/Restart interlock, fixed and floating blanking and muting are possible.

The Micro 400 transmitter and receiver are offered with 8-pin M12 connectors at the end of 500 mm (19.8 in.) integrated cables. The patchcords to connect the transmitter and receiver to the controller are the same and are offered in 3, 5, and 8 m (9.8, 16.4, and 26.2 ft) lengths. These patchcords are configured on one end with M12 connectors (which mate to the integrated pigtail connectors) and RJ45 connectors on the opposite end (which plug into the MSR42 controller).

Cascadable System

The GuardShield Micro 400 is also offered in a cascadable configuration. GuardShield Cascadable Micro 400 safety light curtains allow the interconnection of multiple segments of the Micro 400 safety light curtain with a common pair of safety outputs. This cascadable configurability of the GuardShield Micro 400 reduces overall system wiring and allows the GuardShield Micro 400 to be fitted into a variety of applications where the safety distances for mounting the light curtain may allow personnel to stand between the sensing field of the light curtain and the hazard or where multiple sided guarding is required and the use of corner mirrors is not possible.

Features

- Very small profile 15 x 20 mm (0.59 x 0.79 in.)
- M12 connector on 20 inch pigtails
- Minimal dead space of optic heads

Applications

- Light assembly machines/equipment
- Semi-conductor
- Micro-electronics
- Pharmaceutical

2-Opto-electronics

Presence Sensing Safety Devices

POC Type 4 Safety Light Curtains

GuardShield Micro 400

Specifications

2-Opto-electronics

Safety Ratings

Standards	IEC/EN61496 Parts 1 and 2. UL61496 Parts 1 and 2, UL1998
Safety Classification	Type 4 per IEC/EN61496. Category 4 device per EN 954-1, SIL 3 per IEC 61508, PLe per EN/ISO 13849
Certifications	cULus Listed, TÜV, CE Marked for all applicable directives
Power Supply	Input power from MSR41 or MSR42 controller
Input Power, Max.	24V DC ±15%
Maximum Residual Ripple	5% of Vss
Power Consumption	0.07 A max. (no load)

Outputs

Micro 400 Outputs	Data output to controller (MSR41 or MSR42)
MSR41/MSR42 Outputs	Two 400 mA OSSD
Non-Safety Outputs	Auxiliary outputs from MSR41 or MSR42 controller—2 configurable 100 mA, outputs
Switching Current @ Voltage, Max.	400 mA @ 24V DC

Operating Characteristics

Response Time	14 mm: 14…42 ms; 30 mm; 12…23 ms, varies by protective height and resolution
Indicator LEDs—light curtains	ON -State, OFF-State, Intensity
Protected Height [mm (in.)]	150…1200 mm (5.91…47.24 in.) in 150 mm increments
Resolution [mm (in.)]	14 (0.55), 30 (1.18)
Scanning Range/Resolution	14 mm (0.55 in.) resolution: 0…5 m (16.4 ft) 30 mm (1.18 in.) resolution: 0…5 m (16.4 ft)
Synchronization	Electrical through MSR41 or MSR42
Wavelength	940 nm

Environmental

Enclosure Type Rating	Micro 400 is IP54; MSR41 and MSR42 are IP20
Relative Humidity	15…95% (noncondensing)
Operating Temperature [C (F)]	0…55 ° (14…131 °)
Vibration	IEC 60068-2-6; Frequency 10…55 Hz; Amplitude 0.35 mm (0.01 in.)
Shock	IEC 60068-2-29; Acceleration 10 g, pulse duration 16 ms 10…55 Hz; Amplitude 0.35 mm (0.01 in.)

Physical Characteristics

Mounting	180° adjustable mounting brackets supplied
Weight	Varies by protective height
Housing Cross Section	15 mm x 20 mm (0.59…0.79 in.)
Connection Type	Transmitter/receiver: 8-pin M12 micro QD
Cable Length	For MSR41 and MSR42: 3, 5, and 8 m (9.8, 16.4, and 26.2 ft), max. Total system length can not exceed 10 m (32.8 ft).
Cascadable Patchcords	1 and 3 m (39.37 and 118.1 in.) M12 to M12 patchcords. Total system length cannot exceed 10 m (32.8 ft) including protective height of Micro 400 (500 mm (19.8 in.)), integrated cables and patchcords from M12 connector to MSR41 or MSR42.

Product Selection

IMPORTANT	The maximum length of a GuardShield Micro 400 system is limited to 10 m. This total length includes the length from the last beam in the light curtain housing plus the length of the pigtail cable and the patchcord length.

Standard System

The Allen-Bradley Guardmaster GuardShield Micro 400 safety light curtains are offered in 14 and 30 mm resolution, are ordered as pairs (transmitter and receiver) and are shipped under one cat. no. Each GuardShield Micro 400 pair is shipped with 180° adjustable mounting brackets. After selecting the appropriate pair by cat. no., ensure that the dedicated safety controller (MSR42), required cables, interfaces and accessories are ordered as needed.

Protected Height [mm (in.)]	Resolution [mm (in.)]	Number of Beams	Cat. No.	Protected Height [mm (in.)]	Resolution [mm (in.)]	Number of Beams	Cat. No.
150 (5.9)	14 (0.55)	15	445L-P4C0150FP	150 (5.9)	30 (1.18)	6	445L-P4E0150FP
300 (11.8)	14 (0.55)	30	445L-P4C0300FP	300 (11.8)	30 (1.18)	12	445L-P4E0300FP
450 (17.7)	14 (0.55)	45	445L-P4C0450FP	450 (17.7)	30 (1.18)	18	445L-P4E0450FP
600 (23.6)	14 (0.55)	60	445L-P4C0600FP	600 (23.6)	30 (1.18)	24	445L-P4E0600FP
750 (29.5)	14 (0.55)	75	445L-P4C0750FP	750 (29.5)	30 (1.18)	30	445L-P4E0750FP
900 (35.4)	14 (0.55)	90	445L-P4C0900FP	900 (35.4)	30 (1.18)	36	445L-P4E0900FP
1050 (41.3)	14 (0.55)	105	445L-P4C1050FP	1050 (41.3)	30 (1.18)	42	445L-P4E1050FP
1200 (47.2)	14 (0.55)	120	445L-P4C1200FP	1200 (47.2)	30 (1.18)	48	445L-P4E1200FP

IMPORTANT	The GuardShield Micro 400 requires a dedicated controller (MSR41 or MSR42) as well as transmitter and receiver patchcords.

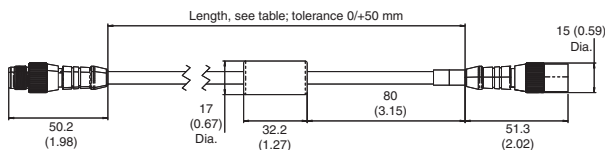### Cascadable System

The Allen Bradley Guardmaster GuardShield Cascadable Micro 400 safety light curtains are offered in limited protective heights in 14 mm and 30 mm resolutions.They are most commonly ordered as pairs (cascadable transmitter and cascadable receiver) and are shipped under one part number. Each GuardShield Cascadable Micro 400 pair is shipped with mounting brackets. After selecting the appropiate cascadable pair cat. no., ensure that the dedicated safety controller (MSR41 or MSR42), appropiate cables, interfaces and accessories are ordered as well.

Protected Height [mm (in.)]	Resolution [mm (in.)]	Number of Beams	Cat. No.	Protected Height [mm (in.)]	Resolution [mm (in.)]	Number of Beams	Cat. No.
150 (5.9)	14 (0.55)	15	445L-C4C0150FP	150 (5.9)	30 (1.18)	6	445L-C4E0150FP
300 (11.8)	14 (0.55)	30	445L-C4C0300FP	300 (11.8)	30 (1.18)	12	445L-C4E0300FP
450 (17.7)	14 (0.55)	45	445L-C4C0450FP	600 (23.6)	30 (1.18)	24	445L-C4E0600FP
600 (23.6)	14 (0.55)	60	445L-C4C0600FP	900 (35.4)	30 (1.18)	36	445L-C4E0900FP
900 (35.4)	14 (0.55)	90	445L-C4C0900FP	1200 (47.2)	30 (1.18)	48	445L-C4E1200FP
1200 (47.2)	14 (0.55)	120	445L-C4C1200FP			—	

Micro 400 Patchcord for Interconnecting Cascaded Segments (if required)

Length, see table; tolerance 0/+50 mm

15 (0.59) Dia.

50.2 (1.98)   17 (0.67) Dia.   32.2 (1.27)   80 (3.15)   51.3 (2.02)

Cascadable Patchcords

Description	Cat. No.
1 m (39.37 in.) patchcord	445L-AC8PC1
3 m (118.11 in.) patchcord	445L-AC8PC3
5 m (196.85 in.) patchcord	445L-AC8PC5

2-Opto-electronics

Presence Sensing Safety Devices

POC Type 4 Safety Light Curtains

GuardShield Micro 400

Micro 400 IP69K Light Curtains

The GuardShield Micro 400 is offered with the transmitter and receiver sealed in clear acrylic tubes with an environmental rating of IP69K. These IP69K Micro 400 light curtains are factory sealed and are ordered as pairs. They are offered in a 14 mm resolution in protected heights of 300 mm (11.8 in.), 600 mm (23.6 in.), 900 mm (35.4 in.) and 1200 mm (47.2 in.) with an operating range of five meters.

The required MSR 41 or MSR42 controllers maintain the IP20 rating and must be mounted in a suitable enclosure.

The Micro 400 IP69K transmitter and receiver are both offered with eight pin M12 connectors at the end of 500 mm (19.8 in.) integrated cables. The patchcords to connect the transmitter and receiver to the controller are the same cat. no. and are offered in 3 m (9.8 ft), 5 m (16.4 ft), and 8 m (26.2 ft) lengths.

These patchcords are configured on one end with M12 connectors, which mate to the integrated pigtail connectors and RJ45 connectors on the opposite end. These connectors plug into the MSR41 or MSR42 controller.

Areas of Use

- Light assembly machines/equipment
- Semi-conductor
- Micro-electronics
- Pharmaceutical
- Filling systems
- Clean rooms
- Food processing

Protected Height [mm (in.)]	Resolution [mm (in.)]	Number of Beams	Cat. No.
300 (11.8)	14 (0.55)	30	445L-P4C0300KD
600 (23.6)	14 (0.55)	60	445L-P4C0600KD
900 (35.4)	14 (0.55)	90	445L-P4C0900KD
1200 (47.2)	14 (0.55)	120	445L-P4C1200KD

Required Micro 400 Controller—Select One

	Mounting	Size	Cat. No.
MSR41—ON/OFF	35 mm DIN Rail	22.5 mm	**440R-P221AGS**
MSR42—Multi-functional module	35 mm DIN Rail	22.5 mm	**440R-P226AGS-NNR**

Optional Safety Relay Interfaces

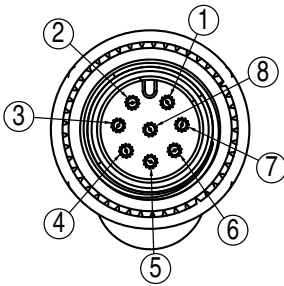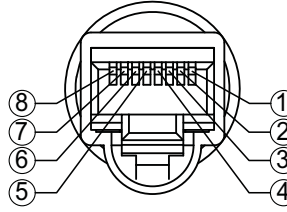| Relay	Input Voltage	Reset	Outputs	Cat. No.
MSR45E Safety Relay Expansion Model	Supplied by MSR41 or MSR42	Determined by MSR41 or MSR42	2 N.O.	**440R-P4NANS**

Possible 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	2 N.O.	None	Fixed	Auto./Manual	24V AC/DC	5-24	**440R-N23117**

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Publication S117-CA001A-EN-P

Allen-Bradley

Guardmaster®

Standard Micro 400 Patchcords—Required (Transmitters and receivers both use 8-pin M12 to RJ45 patchcords)

Face View M12 Connector	Face View RJ45 Connector	Description	Cat. No.
		1 m patchcord, PVC jacket	445L-AC8RJ1
		2 m patchcord, PVC jacket	445L-AC8RJ2
		3 m patchcord, PVC jacket	445L-AC8RJ3
		5 m patchcord, PVC jacket	445L-AC8RJ5
		8 m patchcord, PVC jacket	445L-AC8RJ8

Pinning table:
1: blue
2: grey
3: green
4: white
5: black
6: pink
7: brown
8: yellow
Shield: Braid wires

Pinning table:
1: blue
2: grey
3: green
4: white
5: black
6: pink
7: brown
8: yellow
Shield: Braid wires

Patchcord [mm (in.)]

Cable
6.3 (0.25) dia.
17 (0.67)
Ferrite
150 (5.91)
32.5 (1.28)

Optional Safety Relay Interface (accessories for MSR41 or MSR42 Controllers)

The MSR41 or MSR42 can have up to three MSR45E safety relays inter-connected. Each module requires a ribbon cable connector to make the interconnection. The table shows the cat. no. for each ribbon cable connector as well as the optical interface for the programming of the MSR42. Programming of the MSR42 is only necessary for advanced operating modes or connection of additional devices.

Description	Cat. No.
Ribbon cable—for one MSR45E	440R-ACABL1
Ribbon cable—for two MSR45Es	440R-ACABL2
Ribbon cable—for three MSR45Es	440R-ACABL3
USB optical interface software configuration tool used to configure the MSR42	445L-AF6150

Note: The configuration software can be downloaded at *www.ab.com/safety*.

2-Opto-electronics

Presence Sensing Safety Devices

POC Type 4 Safety Light Curtains

GuardShield Micro 400

Optional Accessories

Description	Cat. No.
Adjustable 180° bracket kit (two per kit) supplied with each pair Two kits required per pair	445L-AF6143
Flat bracket kit (two per kit) Two kits per pair	445L-AF6145
Adjustable flat bracket (two per kit) Two kits required per pair	445L-AF6149
IP69K mounting bracket kit (two kits per pair supplied with each pair)	445L-AF6160

Corner Mirror for Multi-Sided Guarding

Specially constructed glass mirrors for 2- and 3-sided safeguarding applications.

| IMPORTANT | Each mirror reduces maximum scan range by 10% per mirror. |

GuardShield Micro 400 Protected Height [mm (in.)]	Narrow Mirror Short-Range 0…4 m	Cat. No.
150 (5.9)/300 (11.8)		440L-AM0750300
450 (17.7)		440L-AM0750450
600 (23.6)		440L-AM0750600
750 (29.5)		440L-AM0750750
900 (35.4)		440L-AM0750900
1050 (41.3)		440L-AM0751050
1200 (47.2)		440L-AM0751200

2-Opto-electronics

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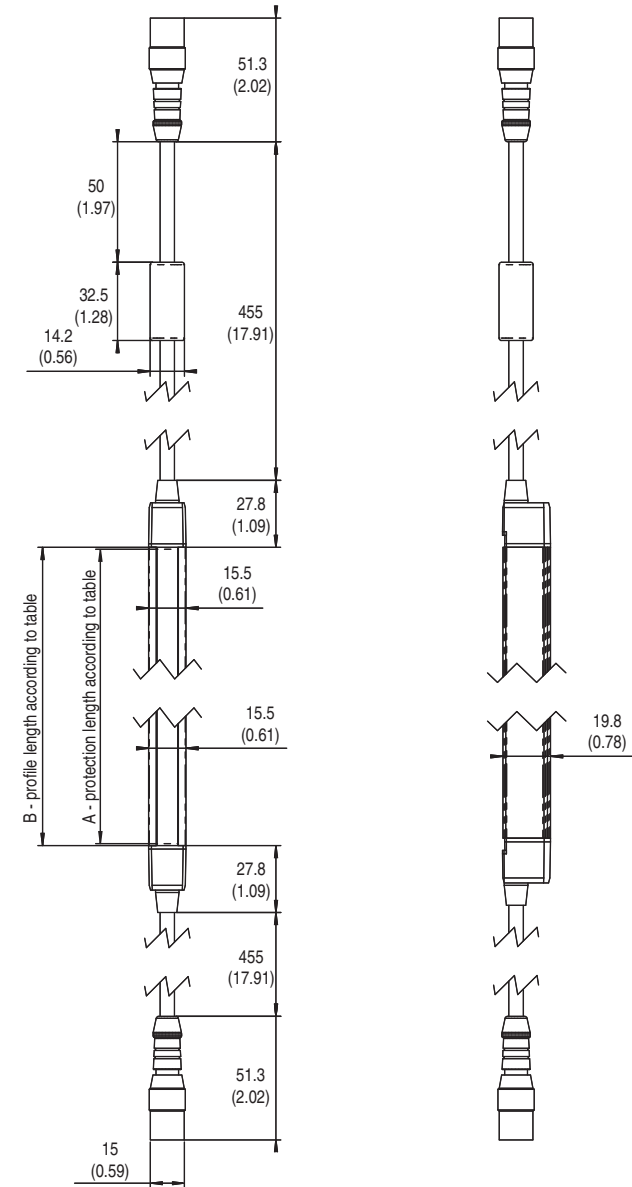Publication S117-CA001A-EN-P

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Approximate Dimensions

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

**Safety Light Curtains—Standard**
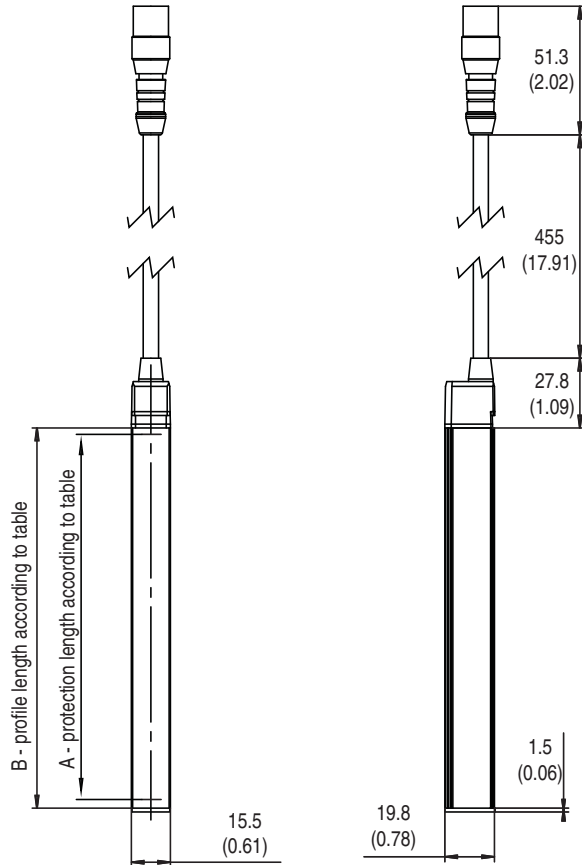
Safety Light Curtains—Cascadable

2-Opto-electronics

Type	A Protective Height [mm]	B Profile Length [mm]
445L-✽4‡0150FB	150	151.5 ±0.3
445L-✽4‡0300FB	300	301 ±0.3
445L-✽4‡0450FB	450	451 ±0.3
445L-✽4‡0600FB	600	601 ±0.3
445L-✽4‡0750FB	750	751 ±0.3
445L-✽4‡0900FB	900	901 ±0.3
445L-✽4‡1050FB	1050	1051 ±0.3
445L-✽4‡1200FB	1200	1201 ±0.3

✽ P = Standard pair, C = Cascadable pair

‡ C = 14 mm, E = 30 mm

Presence Sensing Safety Devices

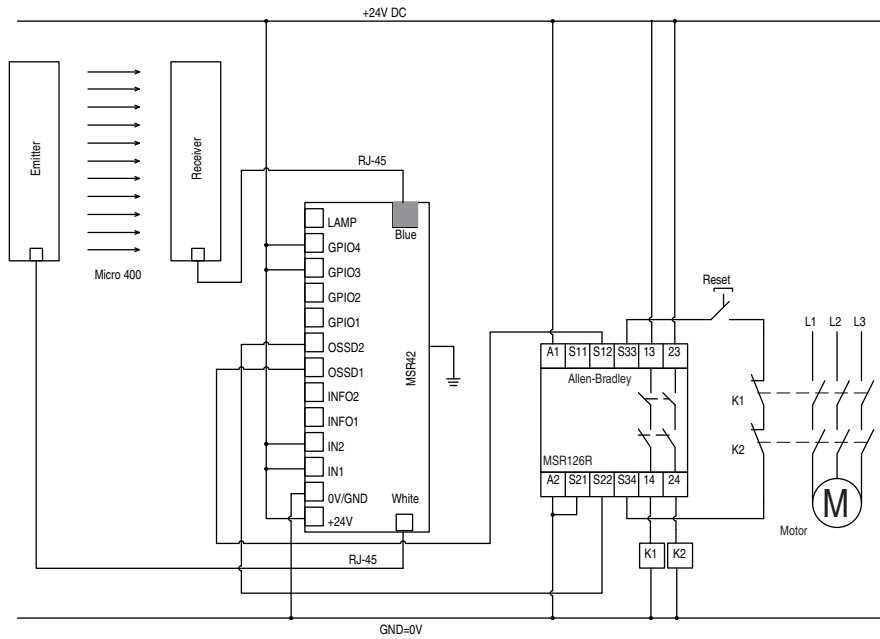# POC Type 4 Safety Light Curtains

GuardShield Micro 400

IP69K Micro 400
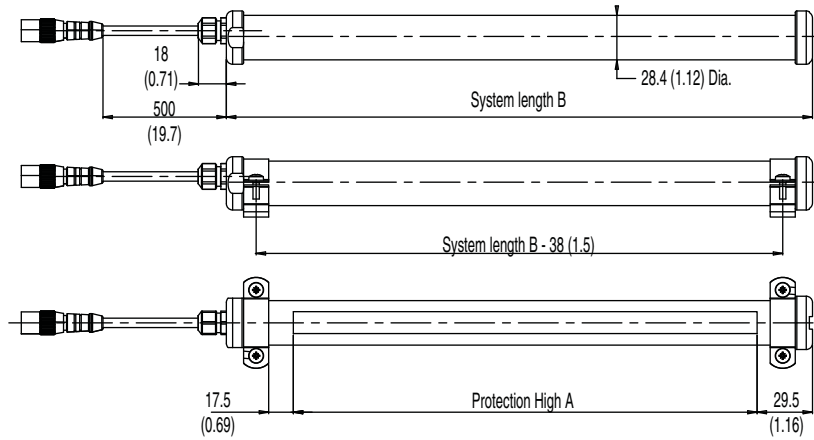
Wiring Diagram for Connection to MSR126 Relay

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

Micro 400 with MSR42 and MSR126R for Monitored Manual Reset with Monitored Output

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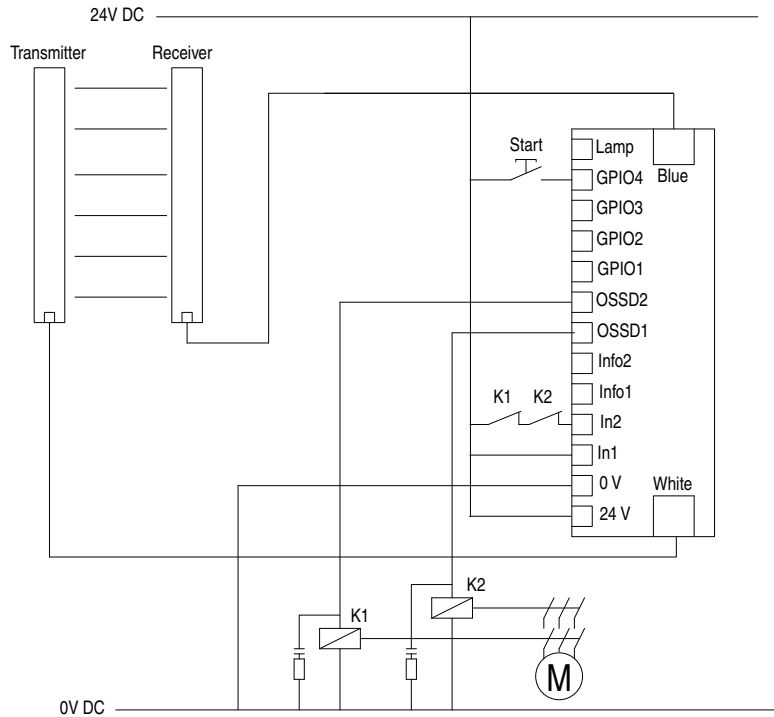
Presence Sensing Safety Devices
POC Type 4 Safety Light Curtains
GuardShield Micro 400

Wiring Diagram for Connection to MSR45E Expansion Module
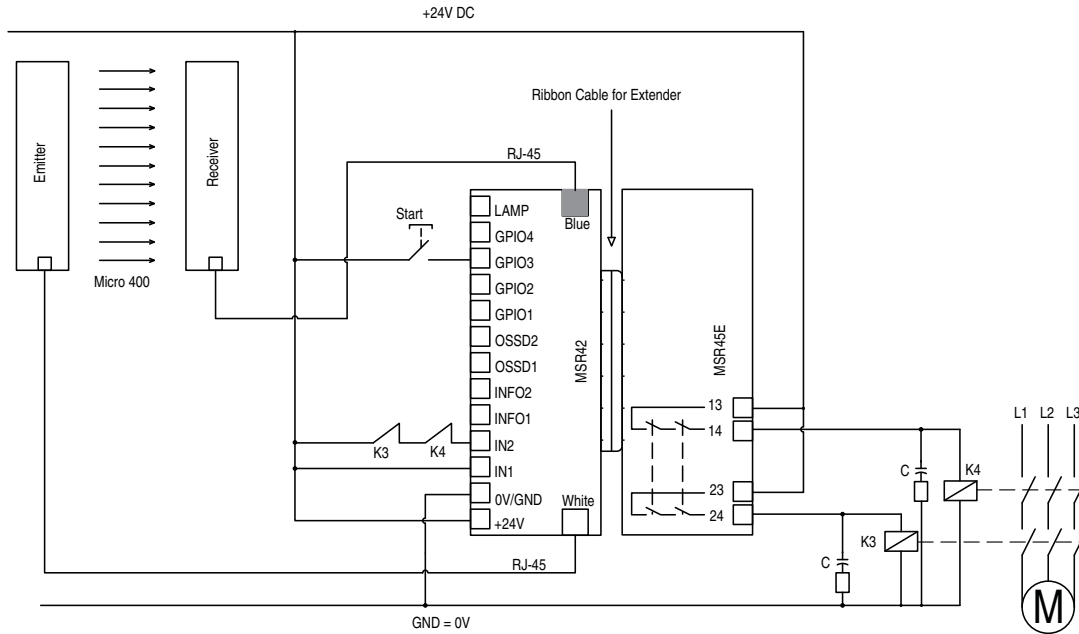
Micro 400 with MSR42 Add-on MSR45E for Manual Reset with Start Release

Wiring Diagram for Connection of MSR42 to Contactor if EDM Is Activated

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