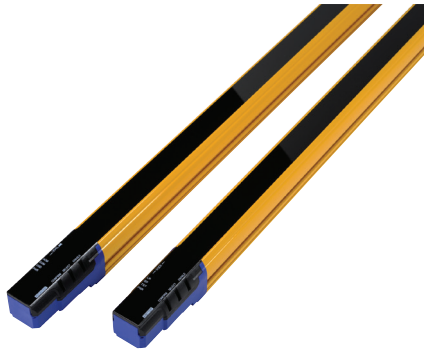# Datalogic Safety Light Curtains Advanced Series, Hand-safe

◆DATALOGIC

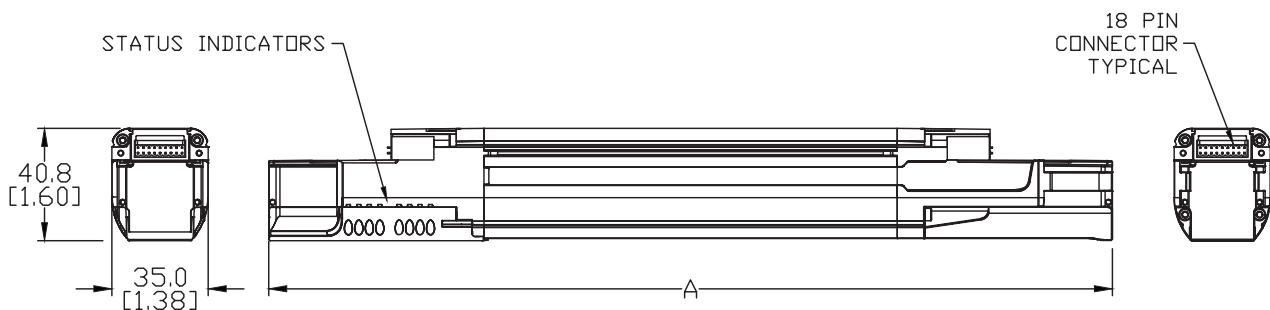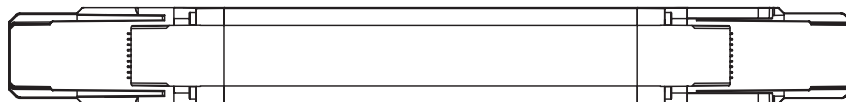## Programmable safety light curtain with 30mm resolution

- Includes both sender and receiver
- Type 4, PLe, SIL3
- 30mm resolution integrated light curtain for hand protection
- Operating distance up to 20m (selectable)
- 300-1800 mm protected height
- Zero dead zone
- Basic Configuration Mode (BCM) through pushbuttons
- Advanced Configuration Mode (ACM) through GUI (SG EXTENDED GUI software included)
- CASCADE (No differentiation between master and slave models)

- Integrated MUTING and BLANKING functions
- Compact housing
- Proprietary 18-pin to standard M12 connectors
- 8 signalling LEDs
- Alignment level bar graph on both TX and RX units
- IP65 rated
- UL, CE, TUV and RoHS compliant
- Accessory Dongle for:
  - Configuration cloning
  - Ethernet (TCP/IP connection)
  - Remote monitoring
  - Remote programming

SG4-30 Programmable Series Selection Table							
Part Number	Price	Protected Height mm[in]	Total Height A mm[in]	Number of Beams	Response Time [ms]	Response Time with Code [ms]	Approximate Product Weight per Unit kg [lb]
SG4-30-030-OO-P		300 [11.81]	306.3 [12.06]	16	13	16	2.10 [4.63]
SG4-30-045-OO-P		450 [17.72]	456.3 [17.96]	24	14	18	2.50 [5.51]
SG4-30-060-OO-P	2.00	600 [23.62]	606.3 [23.87]	32	15	20	3.00 [6.61]
SG4-30-075-OO-P	0.00	750 [29.53]	756.3 [29.78]	40	16	23	4.00 [8.82]
SG4-30-090-OO-P	4.00	900 [35.43]	906.3 [35.68]	48	17	25	4.30 [9.48]
SG4-30-105-OO-P	8.00	1050 [41.34]	1056.3 [41.59]	56	18	27	4.80 [10.58]
SG4-30-120-OO-P	9.00	1200 [47.24]	1206.3 [47.49]	64	19	29	5.40 [11.91]
SG4-30-135-OO-P	8.00	1350 [53.15]	1356.3 [53.40]	72	19	32	6.20 [13.67]
SG4-30-150-OO-P	8.00	1500 [59.06]	1506.3 [59.30]	80	20	24	7.00 [15.43]
SG4-30-165-OO-P	2.00	1650 [64.96]	1656.3 [65.21]	88	21	36	7.50 [16.54]
SG4-30-180-OO-P	0.00	1800 [70.87]	1806.3 [71.11]	96	22	38	8.00 [17.64]

Dimensions

mm [in]

STATUS INDICATORS

18 PIN CONNECTOR TYPICAL

40,8 [1.60]

35,0 [1.38]

A

Datalogic Safety Light Curtains ⊘DATALOGIC
Advanced Series

| SG4-14 and SG4-30 Programmable Series Specifications	
Electrical Data	
Supply Voltage	24VDC ± 20%
Current Consumption (Transmitter)	3W maximum
Current Consumption (Receiver)	5W maximum (without load)
Outputs	2 PNP OSSD outputs with short circuit protection (1.4 A @ 55°C)
Output Current	0.5 A maximum on each output
Output Voltage – ON status:	Vdd-1V
Output Voltage – OFF status:	0.2 V
Leakage Current	< 1mA
Output Compacitive Load	2.2 uF @ 24VDC
Recovery Time	100ms typical
Protected Height	300 - 1800 mm
Safety Category	Type 4 (ref. EN 61496-1)
Auxiliary Functions	Reset, Restart selection, Alignment, EDM, Test, Muting, Partial Muting, Override, Coding, Range reduction, Fixed Blanking, Floating Blanking, Cascade, PNP / NPN output, GUI programming
Electrical Protection	Class I / Class III
Electrical Connections	M12 5-pole for sender
	M12 12-pole + M12 5-pole for receiver muting applications
	M12 12-pole for receiver blanking applications
Cable Length (for supply power)	50m (164ft) maximum
Pollution Degree	2
Optical Data	
Light Emission	Infared LED (950nm)
Resolution	14mm 30mm
Operating Distance	0.2 - 7 m / 0.2 - 4 m (0.7 - 23 ft / 0.7 - 13 ft) for 14mm resolution 0.2 - 20 m / 0.2 - 12 m (0.7 - 66 ft / 0.7 - 39 ft) for 30mm resolution
Ambient Light Rejection	IEC 61496-2
Mechanical and Environmental Data	
Operating Temperature	0 to 55°C (32 to 131°F)
Storage Temperature	-25 to 70°C (-13 to 158°F)
Temperature Class	T6
Humidity	15 - 95% (non-condensing)
Mechanical Protection	IP65 (EN 60529)
Vibrations	Width 0.35 mm
	Frequency 10 - 55 Hz 20 sweep per axis
	1 octave / min (EN 60068-2-6)
Shock Resistance	16ms (10g) 1000 shock for each axis (EN60068-2-29)
Housing Material	Painted aluminum (yellow RAL 1003) front screen
Cap Material	PBT Valox 508 (pantone 072-CVC)
Front Glass Material	PMMA (Polymethylmethacrylate [acrylic])
Connectors	Proprietary 18-pin to standard M12
Agency Approvals	UL E226479, CE, TUV, RoHS

Status Indicators

Receiver

Sender
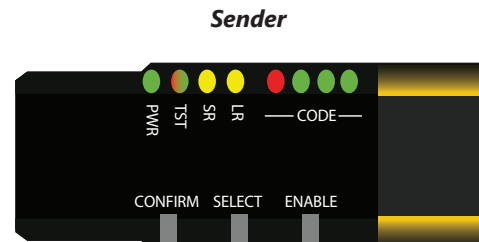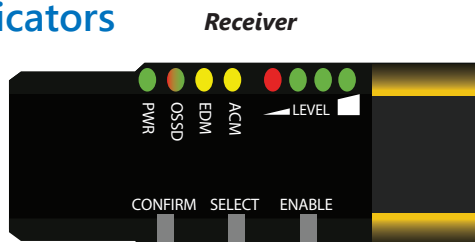
Safety Electrical Components

tESC-7

Datalogic Safety Light Curtains Advanced Series Accessories

◆DATALOGIC

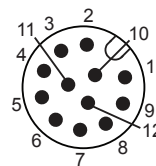## Basic Mode / Blanking Accessories

Receiver   *Sender*

CS-G1-70-B-002   CS-G1-50-B-002
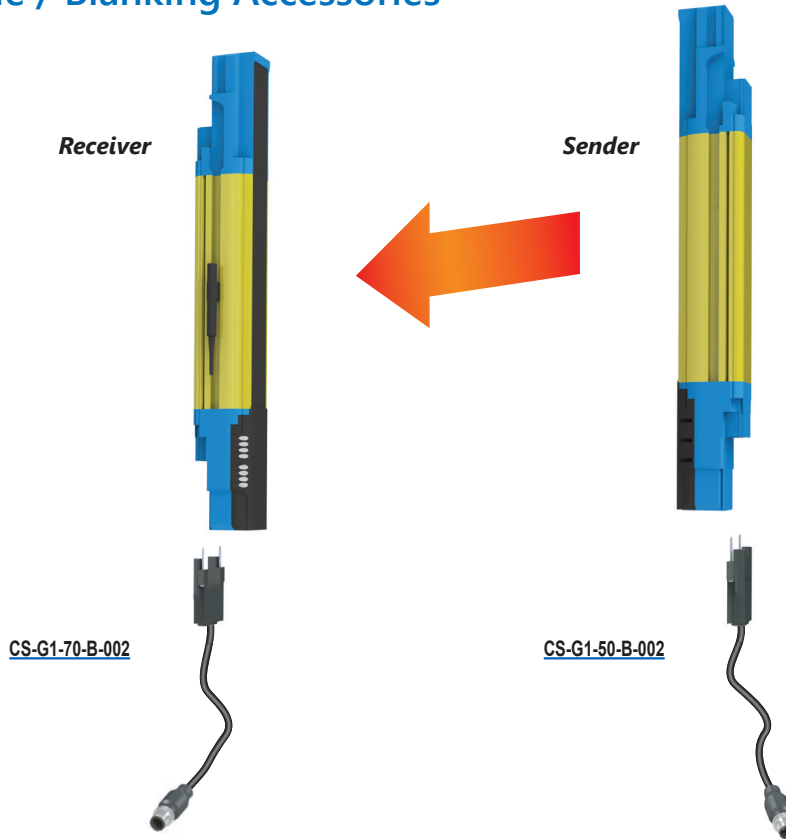
Pigtail Cable Blanking Configuration for Receiver (CS-G1-70-B-002)

M12 12-pin:	
1.	24V (brown)
2.	0V (blue)
3.	Reset / Restart / Align (white)
4.	Teach In (green)
5.	OSSD2 (pink)
6.	EDM (yellow)
7.	N.C. (black)
8.	OSSD1 (gray)
9.	Tolerance (red)
10.	Lamp (violet)
11.	N.C. (gray / pink)
12.	Earth (red / blue)

Pigtail Cable for Sender (CS-G1-50-B-002)

M12 5-pin:	
1.	24V (brown)
2.	Test (white)
3.	0V (blue)
4.	Earth (black)
5.	Not Used (gray)

Note: Confirm the specific color to each pinout based on the cable used during installation.

Safety Electrical Components   tESC-8
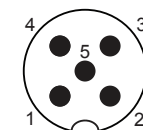
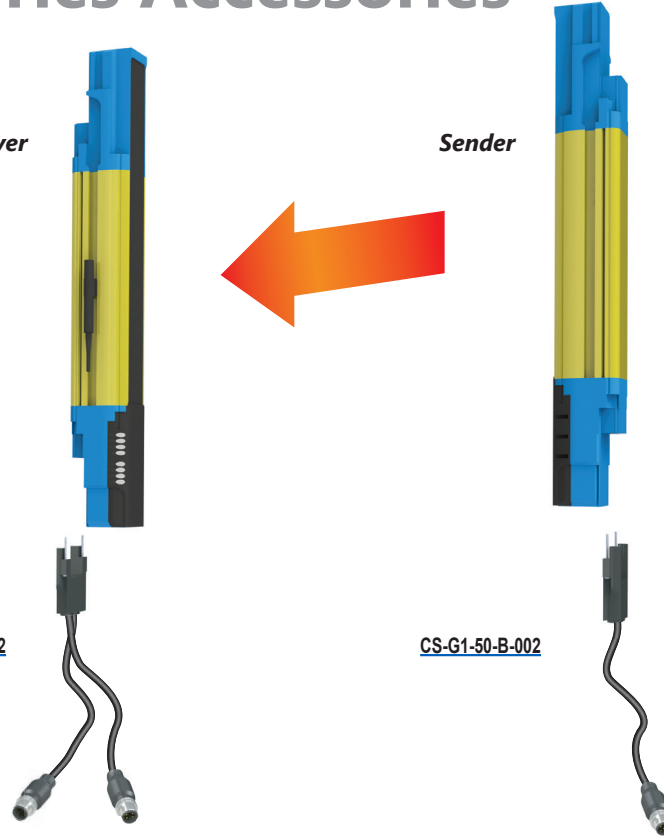# Datalogic Safety Light Curtains Advanced Series Accessories

Muting Accessories

Receiver

Sender

CS-R1-75-B-002

CS-G1-50-B-002
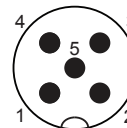
Pigtail Cable Muting Configuration for Receiver (CS-R1-75-B-002)
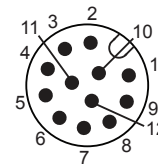
M12 12-pin:		
	1.	24V (brown)
	2.	0V (blue)
	3.	Reset / Restart / Align (white)
	4.	Teach In (green)
	5.	OSSD2 (pink)
	6.	EDM (yellow)
	7.	N.C. (black)
	8.	OSSD1 (gray)
	9.	Tolerance (red)
	10.	Lamp (violet)
	11.	N.C. (gray / pink)
	12.	Earth (red / blue)
M12 5-pin:		
	1.	24V (brown)
	2.	Muting2 (white)
	3.	0V (blue)
	4.	Muting1 (black)
	5.	N.C. (gray)

Pigtail Cable for Sender (CS-G1-50-B-002)
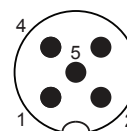
M12 5-pin:		
	1.	24V (brown)
	2.	Test (white)
	3.	0V (blue)
	4.	Earth (black)
	5.	Not Used (gray)

Note: Confirm the specific color to each pinout based on the cable used during installation.

Safety Electrical Components

Datalogic Safety Light Curtains Advanced Series Accessories

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Cascading Cables

Receiver

Sender

Cascading Cables
(three lengths)
CS-F1-80-B-0005 – 0.05 m
CS-F1-80-B-005 – 0.5 m
CS-F1-80-B-01 – 1m

Receiver

Sender
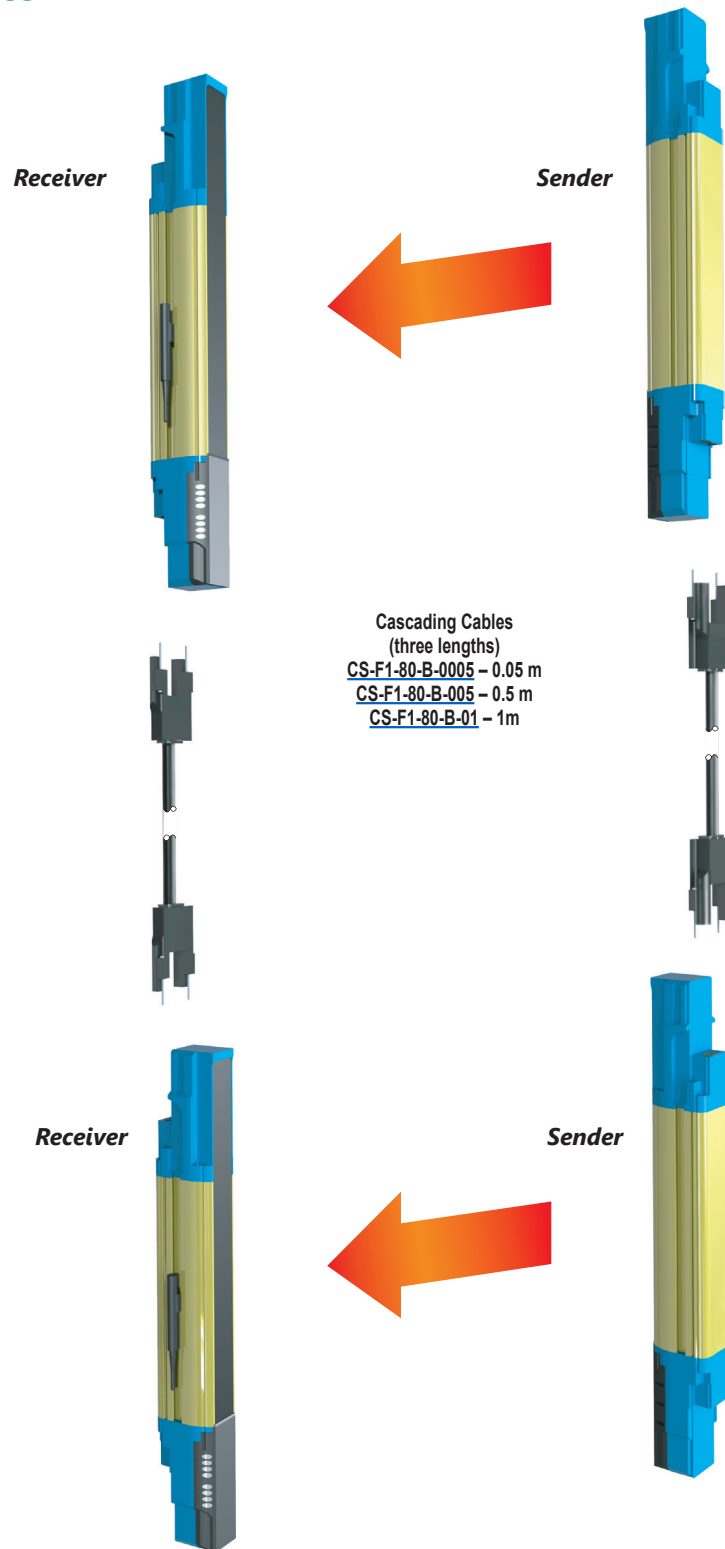
Note: A maximum number of three units, one master and two slaves, may be cascaded. The maximum length of the master unit is 1800mm and the maximum length of each slave is 1200mm.

Datalogic Safety Light Curtains Advanced Series Accessories

◆DATALOGIC

Safety Light Curtains Cables		
Part Number	**Price**	**Description**
CS-R1-75-B-002		Datalogic cable, muting, PVC jacket, 0.2 m cable length, 18-pin proprietary to 5-pin M12 male quick-disconnect to 12-pin M12 male quick-disconnect
CS-G1-70-B-002		Datalogic cable, blanking, PVC jacket, 0.2 m cable length, 18-pin proprietary to 12-pin M12 male quick-disconnect
CS-G1-50-B-002		Datalogic cable, emitter, PVC jacket, 0.2 m cable length, 18-pin proprietary to 5-pin M12 male quick-disconnect
CS-F1-80-B-0005		Datalogic cable, cascading, PVC jacket, 0.05 m cable length, 18-pin proprietary to 18-pin proprietary
CS-F1-80-B-005		Datalogic cable, cascading, PVC jacket, 0.5 m cable length, 18-pin proprietary to 18-pin proprietary
CS-F1-80-B-01		Datalogic cable, cascading, PVC jacket, 1m cable length, 18-pin proprietary to 18-pin proprietary

CS-R1-75-B-002

CS-G1-70-B-002

CS-G1-50-B-002

CS-F1-80-B-0005

CS-F1-80-B-005

CS-F1-80-B-01

Datalogic Safety Light Curtains Advanced Series Accessories

◆DATALOGIC

L-Muting Arms

SG-L-ARMS L muting arms provide an optional method of achieving unidirectional muting.
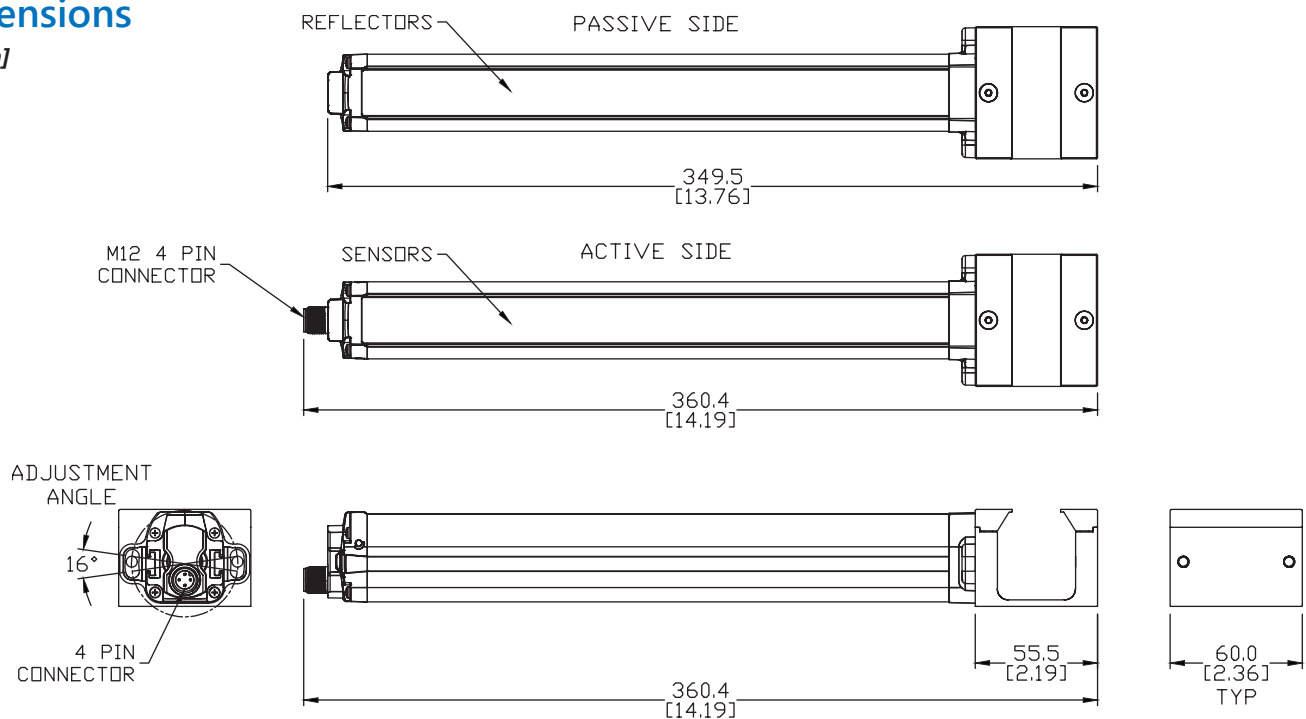
SG-L-ARMS

- Operating distance up to 3m
- Detectable objects down to 16.5 cm (6.5 in) in length. (See manual for exact formulas.)

Dimensions
mm [in]

REFLECTORS — PASSIVE SIDE

349.5
[13.76]

M12 4 PIN CONNECTOR — SENSORS — ACTIVE SIDE

360.4
[14.19]

ADJUSTMENT ANGLE

16°

4 PIN CONNECTOR

360.4
[14.19]

55.5
[2.19]

60.0
[2.36]
TYP

Datalogic Safety Light Curtains Advanced Series Accessories

⊕DATALOGIC

T-Muting Arms

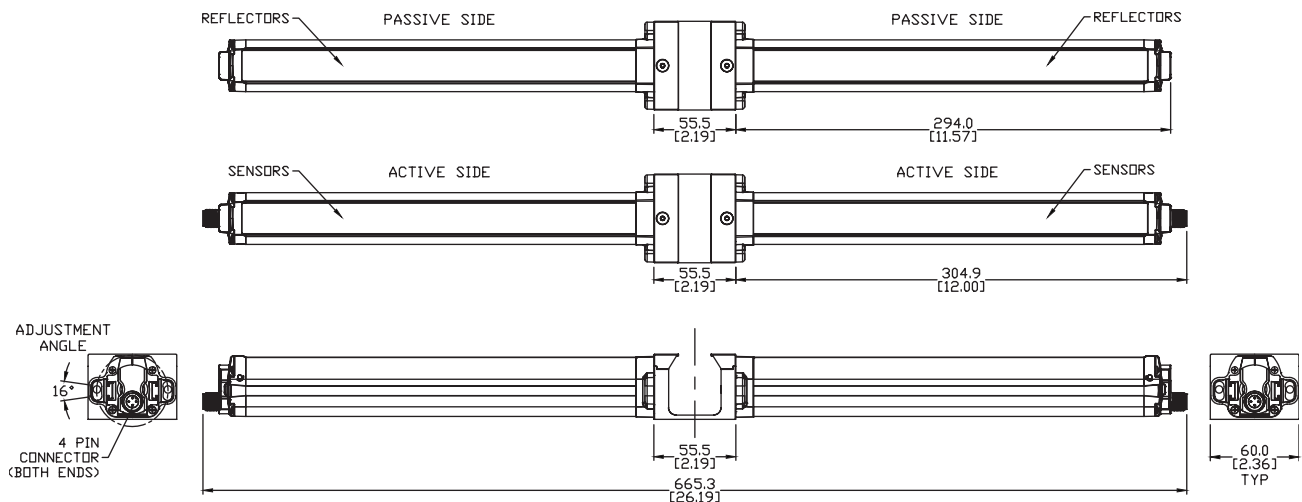SG-T-ARMS T muting arms provide an optional method of achieving bidirectional muting.

SG-T-ARMS

- Operating distance up to 3m
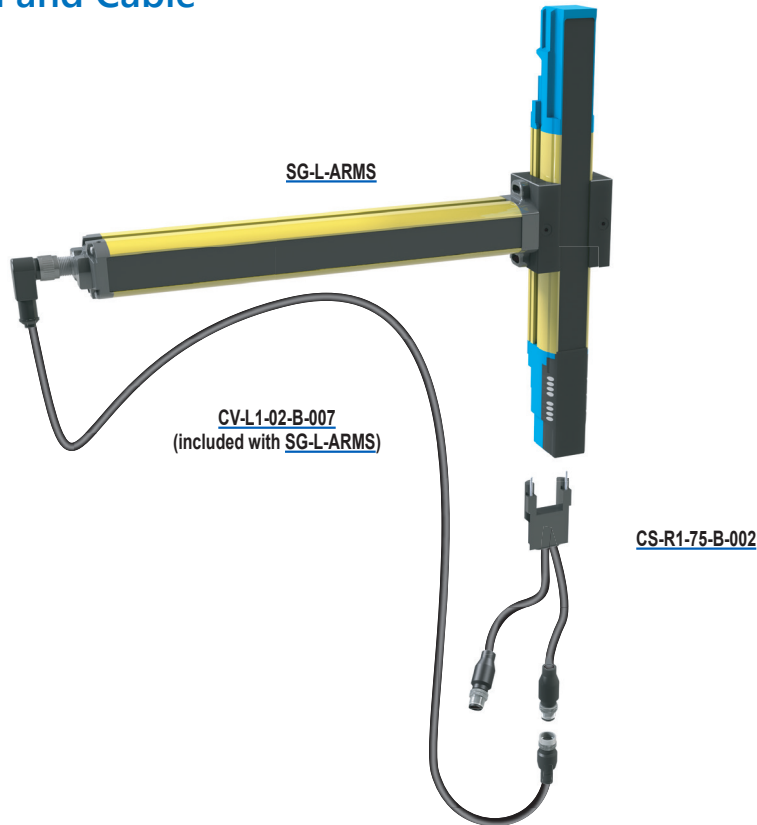- Detectable objects down to 34.5 cm (13.6 in). (See manual for exact formulas.)

Dimensions

mm [in]

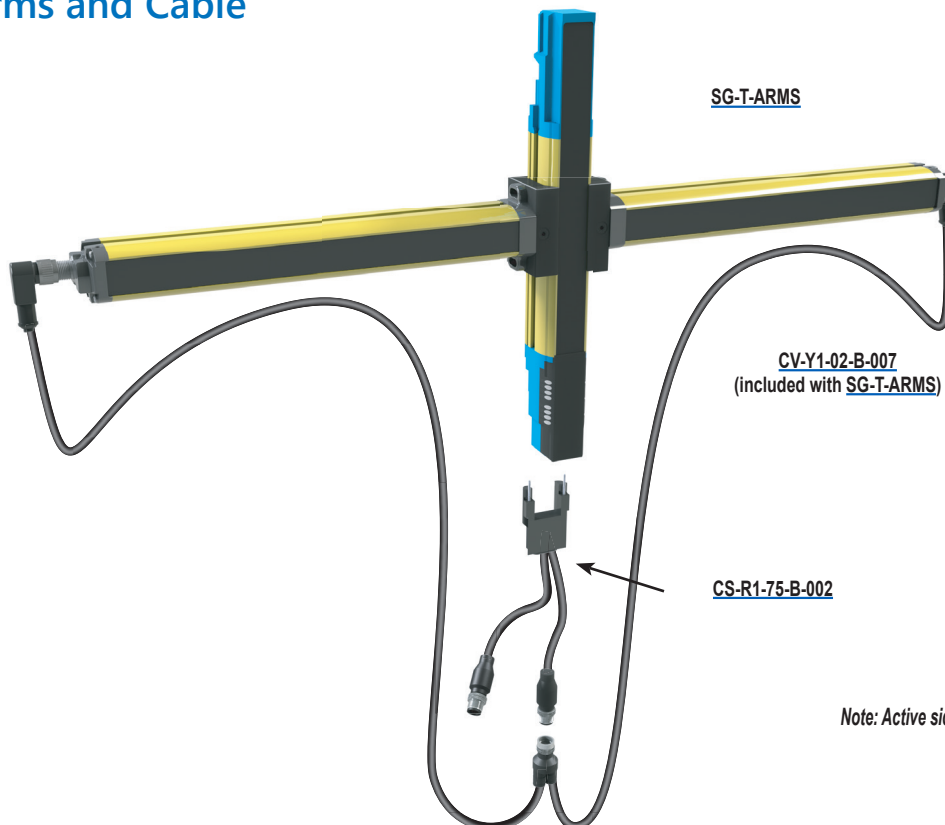# Datalogic Safety Light Curtains Advanced Series Accessories

◆DATALOGIC

L-Muting Arm and Cable

SG-L-ARMS

CV-L1-02-B-007
(included with SG-L-ARMS)

CS-R1-75-B-002

Note: Active side shown

T-Muting Arms and Cable

SG-T-ARMS

CV-Y1-02-B-007
(included with SG-T-ARMS)

CS-R1-75-B-002

Note: Active side shown

Datalogic Safety Light Curtains ⊙DATALOGIC
Advanced Series Accessories

Safety Light Curtains Muting Arms and Cables		
Part Number	Price	Description
SG-L-ARMS		Muting arm pair, L-type, 4-pin M12 female quick-disconnect. For use with SG4 series (-P) light curtains.
SG-T-ARMS		Muting arm pair, T-type, 4-pin M12 female quick-disconnect. For use with SG4 series (-P) light curtains.
CV-L1-02-B-007		Datalogic cable, L-muting, PVC jacket, 0.5 m cable length, 5-pin M12 female quick-disconnect to 5-pin M12 femalequick-disconnect
CV-Y1-02-B-007		Datalogic cable, T-muting, PVC jacket, 0.5 m cable length, 5-pin M12 female quick-disconnect to 5-pin M12 female quick-disconnect to 5-pin M12 female quick-disconnect

SG-L-ARMS

SG-T-ARMS

CV-L1-02-B-007

CV-Y1-02-B-007

Datalogic Safety Light Curtains Advanced Series Accessories

⬦DATALOGIC

Communication Interface

SG4-DONGLE communication interface attaches to programmable Datalogic Safety Light Curtains and a PC through an Ethernet TCP/IP connection allowing remote monitoring and remote programming. Configuring, cloning, error logging and remote monitoring and programming are simplified through the free downloadable software.*
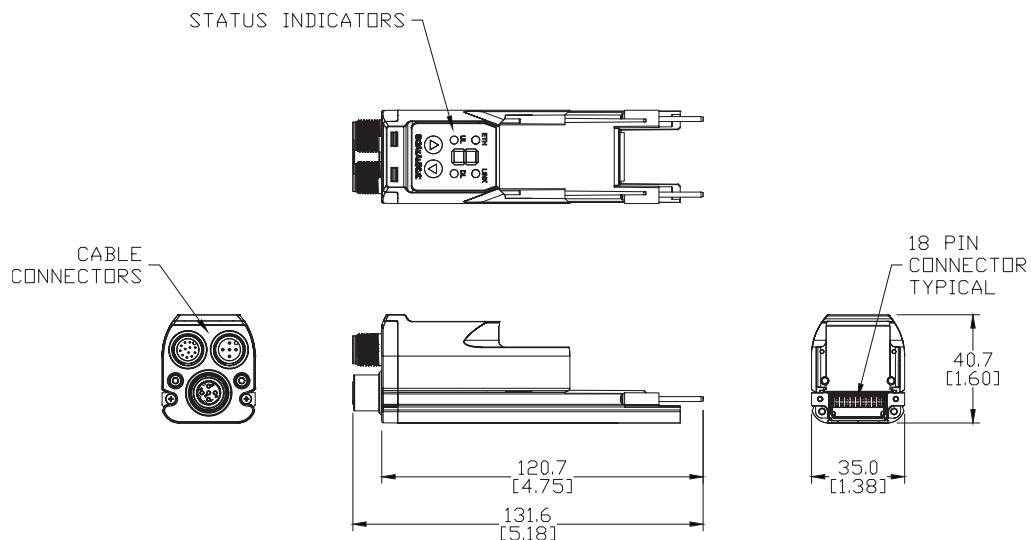
Note: To connect SG4-DONGLE directly to a PC, order Ethernet cable CAB-ETH-M01.

• Configuration cloning
• Ethernet TCP/IP connection
• Remote monitoring
• Remote programming using SG EXTENDED GUI software
• CE compliant

SG4-DONGLE

CE

Safety Light Curtains Communication Interface and Software		
Part Number	Price	Description
SG4-DONGLE		Programming dongle. Requires programming software included with SG4 (-P) light curtains.
SG-EXTENDED-GUI		Programming software for SG4 series (-P) on CD; software also available for free download from Automationdirect.com

Dimensions
mm [in]

STATUS INDICATORS

CABLE CONNECTORS

18 PIN CONNECTOR TYPICAL

120.7 [4.75]

131.6 [5.18]

40.7 [1.60]

35.0 [1.38]

Datalogic Safety Light Curtains Advanced Series Accessories

Communication Software

SG-EXTENDED-GUI communication software is available for download free of charge at _____.
Remote monitoring and programming are simplified through the software.*

*Note: To connect directly to a PC, order Ethernet cable CAB-ETH-M01.

• Remote monitoring
• Remote configuration
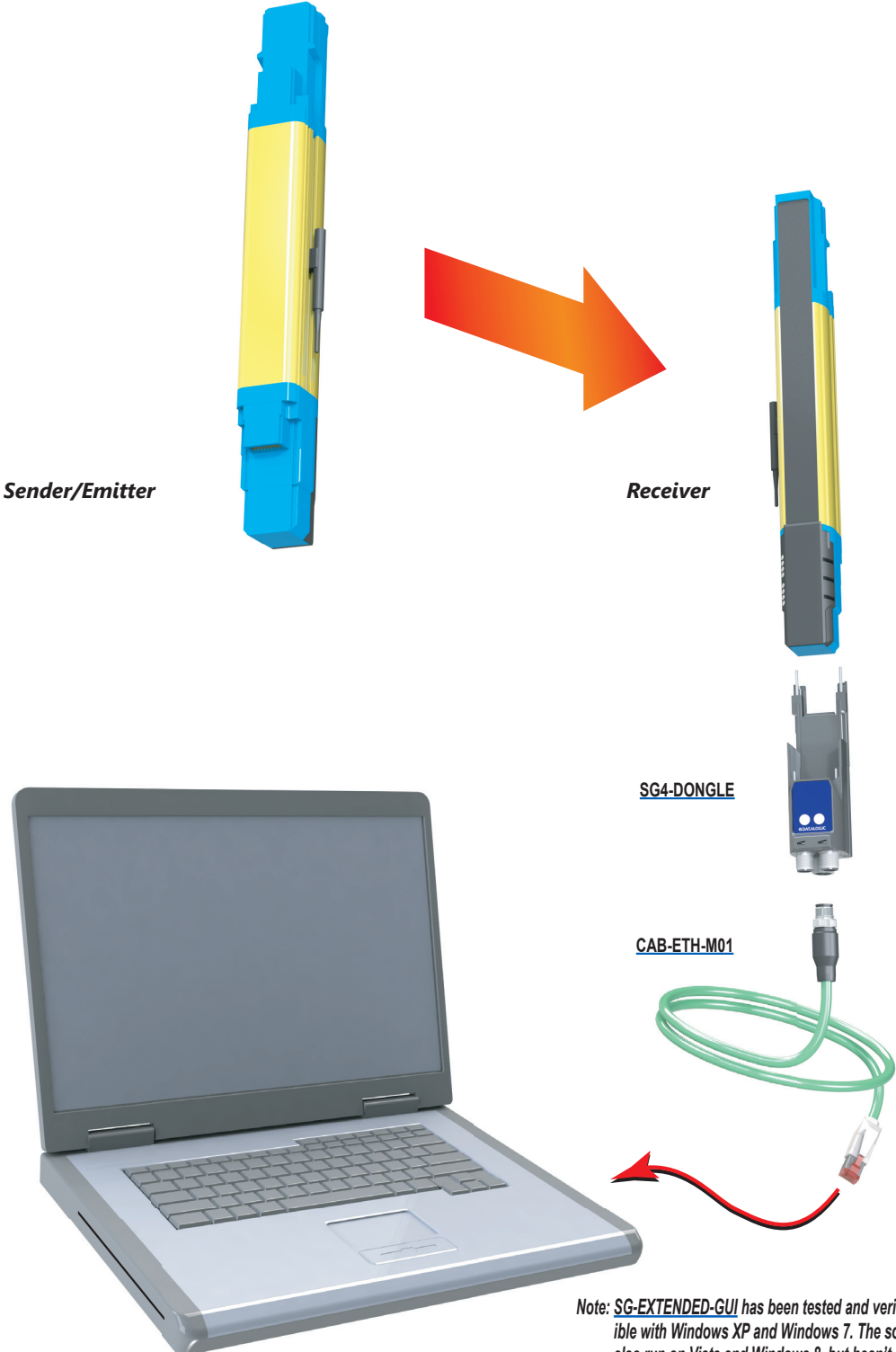
Part No. **SG-EXTENDED-GUI**

Software CD

Datalogic Parameters		
Function	*Parameters with BCM (Basic Configuration Mode): Without GUI*	*Parameters with ACM (Advanced Configuration Mode): With GUI*
Coding	None / Code 1 / Code 2	None / Code 1 / Code 2
Restart Mode	Auto / Manual Restart	Auto / Manual Restart
Override Restart	Manual	Manual / Auto
EDM	Enable / Disable	Enable / Disable
Range Reduction	Long / Short	Long / Short
Muting Type	T-muting / L-muting	T-muting / L-muting For L-muting: T12 time interval selection, T12 multiplier selection
Muting Timeout	10 minute / infinite	Selectable length in steps of 1 minute from 10min to 1080 minutes
Muting Filter	None	ON (100ms) or OFF
Muting Delay	None	Selectable in steps of 100ms up to 1000ms
Partial Muting	None	Possible to define up to 5 zones each defined in position and dimension
Override Mode	Level / Edge	Level / Edge
Override Timeout	120 seconds	Selectable in steps of 1 minute from 1 to 256 minutes
Fixed Blanking	Two zones can be configured	5 zones can be configured, also with increased tolerance (top or bottom)
Floating Blanking	1 or 2 beams floating blanking with partial surveillance selectable	**5 zones can be configured, total or partial surveillance without limit of number of beams
Reduced Resolution	4 beams	1 / 2 / 3 / 4 beams selectable

**Note - Blocking the two beams on both ends at the same time is not permitted.

Datalogic Safety Light Curtains Accessories

Communication Interface

Sender/Emitter

Receiver

SG4-DONGLE

CAB-ETH-M01

Note: **SG-EXTENDED-GUI** *has been tested and verified compatible with Windows XP and Windows 7. The software will also run on Vista and Windows 8, but hasn't been verified.*

Datalogic – Ethernet Cables

◆DATALOGIC

| Datalogic Communication Cables		
Part Number	*Price*	*Description*
CAB-ETH-M01		Datalogic cable, Ethernet, PVC jacket, shielded, 1m [3.28 ft] cable length, M12 4-pin male D-coded to RJ45
CAB-ETH-M03		Datalogic cable, Ethernet, PVC jacket, shielded, 3m [9.84 ft] cable length, M12 4-pin male D-coded to RJ45
CAB-ETH-M05		Datalogic cable, Ethernet, PVC jacket, shielded, 5m [16.40 ft] cable length, M12 4-pin male D-coded to RJ45

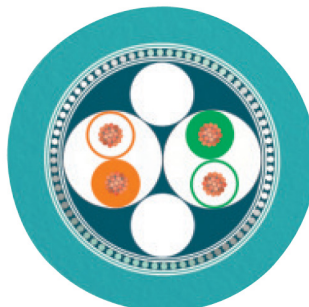CAB-ETH-M01

CAB-ETH-M03

CAB-ETH-M05

Diagrams
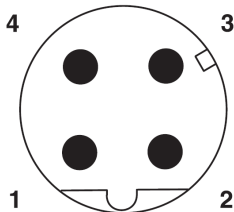
Pin assignment M12 male connector, 4-pos.,
D-coded, male side
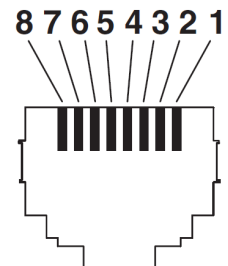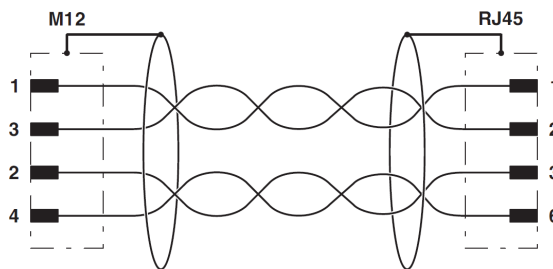
Connector pin assignment plug RJ45

Cable cross section

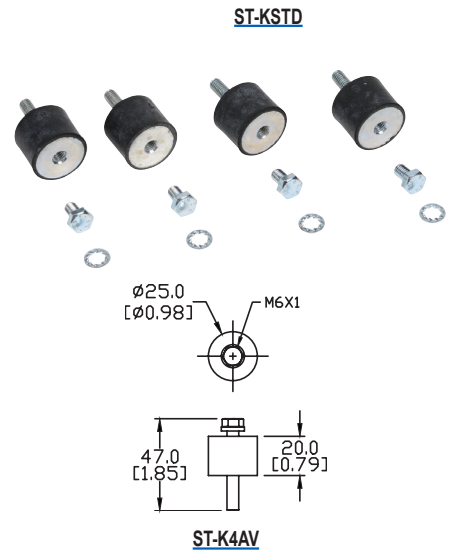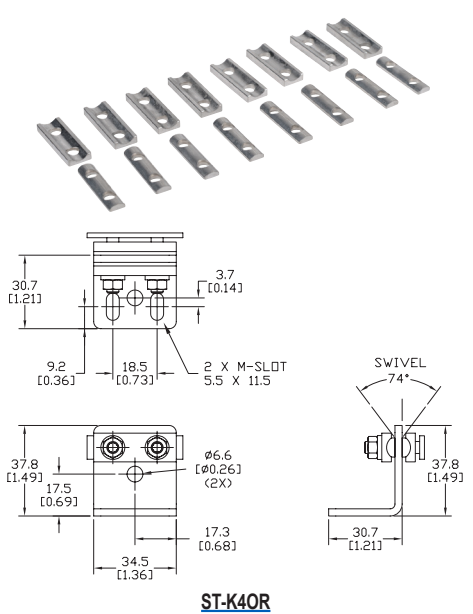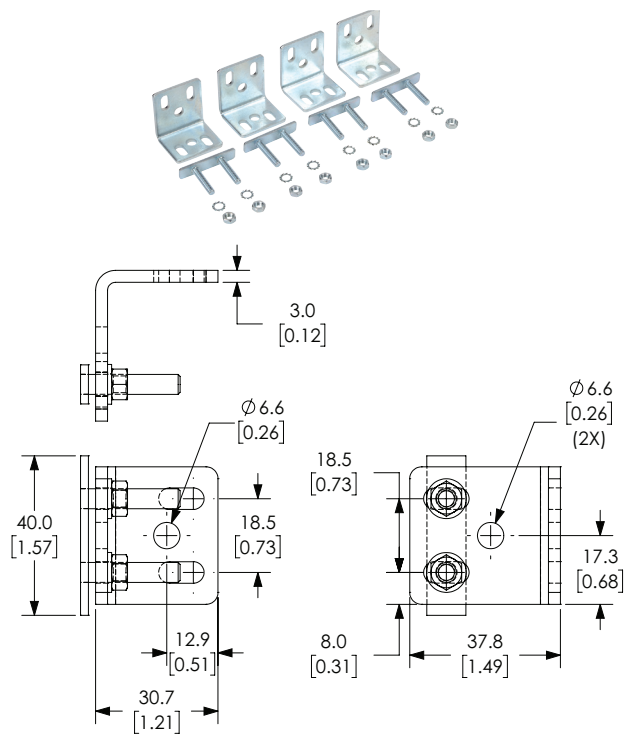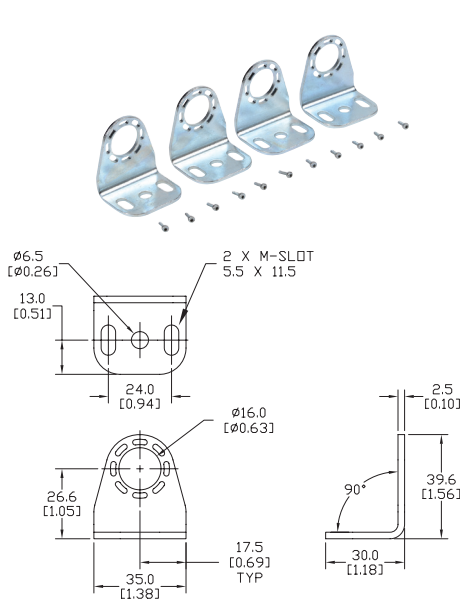# Datalogic Safety Light Curtains Accessories

◆DATALOGIC

Mounting Brackets

Datalogic Safety Light Curtains Mounting Accessories			
Part Number	Price	Description	Qty Per Package
ST-K4ROT		Mounting brackets, rotational, metal, package of 4. For use with SG4 base series (-E) light curtains.	4
ST-KSTD		Mounting brackets, standard, metal, replacement, package of 4. For use with all SG4 series light curtains.	4
ST-K4OR		Mounting brackets, lateral orientable, metal, package of 4. For use with all SG4 series light curtains.	4
ST-K4AV		Mounting brackets, anti-vibration, metal, package of 4. For use with all SG4 series light curtains.	4

Dimensions

mm [in]

ST-KSTD

ST-K4OR

ST-K4AV

Datalogic Safety Light Curtains Accessories

Test Pieces

TP-14 and TP-30 test pieces are used to verify if the resolution of safety light curtains is maintained inside the entire detection field. TP-14 has a diameter of 14mm [0.55 in] and TP-30 has a diameter of 30mm [1.18 in]. Both models have an overall length of 300mm [11.81 in].

Safety Light Curtains Test Pieces		
Part Number	Price	Description
TP-14		Test rod for 14mm resolution finger detection light curtains, plastic, 14mm diameter
TP-30		Test rod for 30mm resolution hand detection light curtains, plastic, 30mm diameter

TP-14

TP-30

Safety Products

Warning: Safety products sold by AutomationDirect are Safety components only. The purchaser/installer is solely responsible for the application of these components and ensuring all necessary steps have been taken to assure each application and use meets all performance and applicable safety requirements and/or local, national and/or international safety codes as required by the application. AutomationDirect cannot certify that our products, used solely or in conjunction with other AutomationDirect or other vendors' products, will assure safety for any application. Any person using or applying any products sold by AutomationDirect is responsible for learning the safety requirements for their individual application and applying them, and therefore assumes all risks, and accepts full and complete responsibility, for the selection and suitability of the product for their respective application.

AutomationDirect does not provide design or consulting services, and cannot advise whether any specific application or use of our products would ensure compliance with the safety requirements for any application.