



M4000 Advanced / UE403
M4000 Advanced A/P / UE403
M4000 Advanced Curtain / UE403

Increased flexibility and availability – due to
exit monitoring and three-stage diagnostics

SICK
Sensor Intelligence.

Intelligent and efficient: connection of the muting signals directly on site

M4000 Advanced, M4000 Advanced A/P or M4000 Advanced Curtain: together with the UE403 switching amplifier the efficient solution for all muting applications involving automatic material transport.

M4000 Advanced and M4000 Advanced A/P

Features

- Long scanning range
- 2 to 8 beams
- Muting configurable together with UE403
- Laser alignment aid optionally integrated

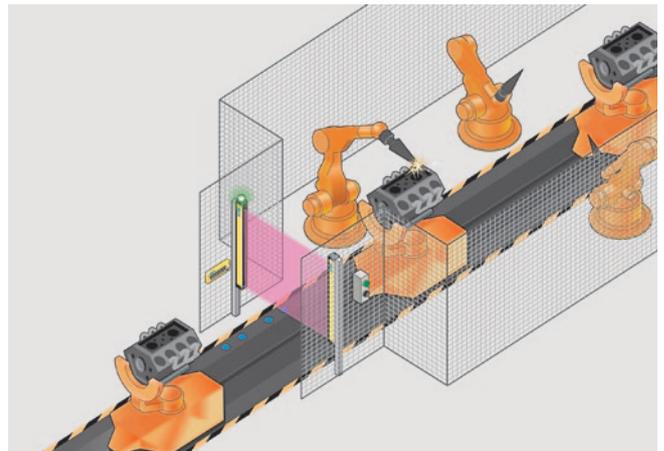
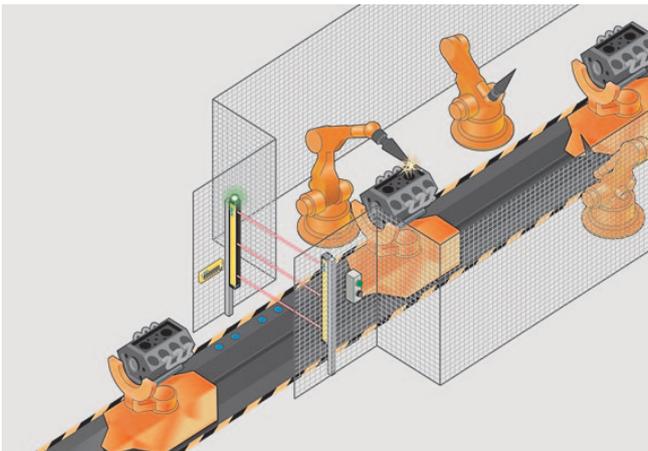
M4000 Advanced Curtain

Features

- 14/30 mm resolution
- 300 to 1800 mm protective field height
- Muting configurable together with UE403
- Laser alignment aid optionally integrated

Fields of application

- Use as access protection with and without muting
- Machine tools
- Automotive industry, robotics industries and automatic machining centers
- Storage and conveyor, packaging machinery, palletizer systems and stackers
- Wood machining, large weaving machines, and stone setting systems

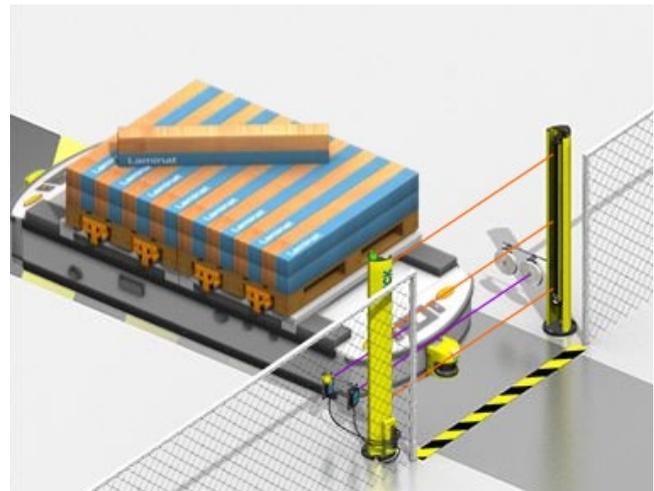


Increased flexibility and availability – due to exit monitoring and three-stage diagnostics

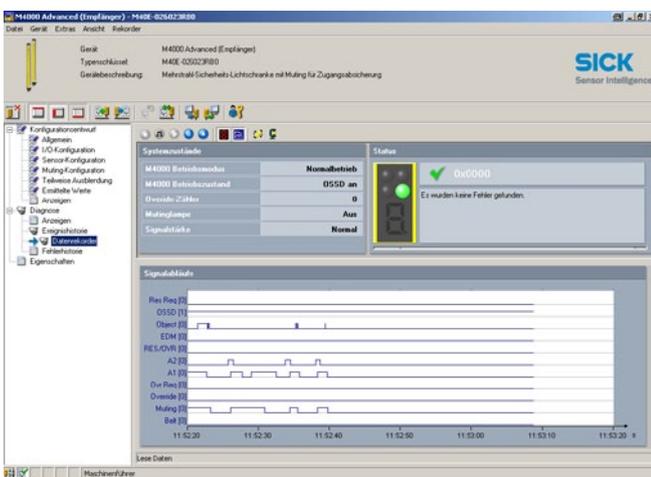
Access protection with differentiation between man and material (muting)



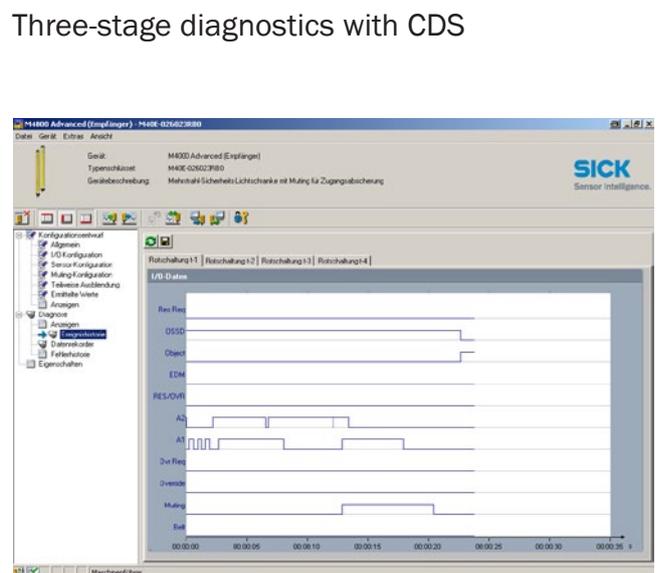
Entry/exit station with 4 muting sensors, the material can flow in both directions



Exit monitoring with 2 muting sensors in the hazardous area, material flow out of the hazardous area



Time-independent diagnostics with CDS data recorder – after an unintended downtime the plant can be restarted immediately, fault diagnostics can be carried out afterwards



Analysis of the event history stored in M4000 Advanced

Increased flexibility and availability – due to exit monitoring and three-stage diagnostics



Product description

The M4000 Advanced multiple light beam safety device, together with the UE403 switching amplifier, forms the efficient solution for conventional muting applications involving automatic material transport.

Thereby it doesn't make any difference if muting is realized with two or four muting sensors on entry/exit stations or on pure exit stations.

The straightforward configuration via PC and the on-site connection of the muting signals ensure maximum availability.

Various mounting adapters and innovative accessories enable flexible mounting. Integrated functions as well as status and diagnostics information allow quick commissioning and prevent unnecessary machine downtime.

The three-stage diagnostic function ensures a loss-free visualization of the signal sequences in the reading mode and time-independent diagnostics with the CDS data recorder. The event history is useful tracing errors in the muting process.

At a glance

- Long scanning range up to 90 m (typically)
- External device monitoring (EDM), restart interlock (RES), application diagnostic output (ADO), SDL interface
- Robust housing with three mounting grooves
- 2- and 4-sensor muting in combination with the UE403 switching amplifier
- Configuration and three-stage diagnostics via PC
- Active/passive variant for reduced installation effort
- Laser alignment aid and LED optionally integrated

Your benefits

- Three mounting grooves on robust housing ensure more flexibility during mounting and facilitate integration into the machine, via suitable brackets muting sensors can be fitted directly to the housing
- Together with the UE403 on-site connection of the muting signals reduces wiring effort
- Muting function exit monitoring requires only 2 muting sensors in the hazardous area. This is space-saving and a muting sensors protecting installation
- Reduced downtimes through all-around-visible LED in the M4000 as well as configuration memory in the UE403 switching amplifier
- Three-stage diagnostics for detailed visualizing of the signal sequence accelerates troubleshooting when errors occur in the muting process



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Detailed technical data

You can find more detailed data in the operating instructions. Download at www.mysick.com.

M4000 Advanced

General data

System part	Sender	Receiver
Number of beams	2 ... 8 (depending on type)	
Beam separation	220 mm ... 600 mm (depending on type)	
Scanning range		
Configurable	-	✓
	-	0.5 m ... 20 m
	-	Min. 9 m ... 70 m, typ. 9 m ... 90 m
Response time	-	Max. 12 ms (depending on type)
Safety-related parameters		
Type	Type 4 (IEC 61496)	
Safety integrity level	SIL3 (IEC 61508), SILCL3 (IEC 62061)	
Category	Category 4 (EN ISO 13849)	
Performance level	PL e (EN ISO 13849)	
PFHd (mean probability of a dangerous failure per hour)	6.6 x 10 ⁻⁹ (EN ISO 13849)	
T _M (Mission Time)	20 years (EN ISO 13849)	
Synchronization	Optical, without separate synchronization	
Protection class	III (EN 50178:1998)	
Enclosure rating	IP 65 (EN 60529)	
Ambient operating temperature from ... to	-10 °C ... +55 °C	
Storage temperature from ... to	-25 °C ... +70 °C	
Air humidity from ... to	15 % ... 95 %, non-condensing	
Housing cross-section	52 mm x 55.5 mm	
Vibration resistance	5 g (10 Hz ... 55 Hz) (IEC 60068-2-6)	
Shock resistance	10 g, 16 ms (IEC 60068-2-29)	
Housing material	Aluminum alloy ALMGSI 0.5, powder coated	
Front screen material	Polycarbonate, scratch-resistant coating	
Integrated laser alignment aid		≤ 1 mW
Laser class	-	2 (IEC 60825-1:2007) ¹⁾
Light sender/type of light	-	LED (visible red light)
Wave length	-	630 nm ... 680 nm

¹⁾ Do not stare into beam!

Functional data

System part	Sender	Receiver
Safe device communication via EFI/SDL		✓
Restart interlock	-	✓
Restart interlock (delivery status)	-	Internal
External device monitoring	-	✓
External device monitoring (delivery status)	-	Activated
Beam coding		✓
Beam coding (delivery status)		Non-coded
Configurable application diagnostic output	-	✓
Application diagnostic output (delivery status)	-	Contamination (OWS)
Sender test	✓	-

System part	Sender	Receiver
Sender test (delivery status)	Deactivated	-
Configurable scanning range	-	✓
Scanning range (delivery status)	-	20 m
Integrated laser alignment aid (optional)	✓ / - (depending on type)	
End cap with integrated LED (optional)	-	- / ✓ (depending on type)
SDL interface	✓	
Configuration method	PC with CDS (Configuration and Diagnostic Software)	
Concurrence monitoring (with UE403)	-	✓
Monitoring total muting time (with UE403)	-	✓
Sensor gap monitoring (with UE403)	-	✓
Sensor test (with UE403)	-	✓
Partial blanking (with UE403)	-	✓
End of muting by ESPE (with UE403)	-	✓
Belt stop (with UE403)	-	✓
Muting with override (with UE403)	-	✓
Exit monitoring (with UE403)	-	✓
Diagnosics		
Reading mode	-	✓
Data recorder	-	✓
Event history	-	✓

Electrical data

System part	Sender	Receiver
System connection	Hirschmann plug, M26 x 11 + FE	
Connecting cable wire cross-section	0.75 mm ²	
Connecting cable length	≤ 50 m ¹⁾	
Extension connection	-	Plug M12 x 5
Supply voltage V _s	24 V DC (19.2 V DC ... 28.8 V DC) ²⁾	
Residual ripple	± 10 %	
Power consumption	≤ 0.2 A	≤ 0.6 A
Safety outputs (OSSD)		
Type of output	-	2 PNP semiconductors, short-circuit protected, cross-circuit monitored ³⁾
Switching voltage HIGH	-	24 V DC (V _s - 2,25 V ... V _s)
Switching voltage LOW	-	2 V DC
Switching current	-	0 mA ... 500 mA
Application diagnostic output		
Switching voltage HIGH	-	PNP semiconductor, short-circuit protected
Switching voltage LOW	-	24 V DC (V _s - 4,2 V ... V _s)
Switching current	-	High resistance
		0 mA ... 100 mA
Display elements	LED/7-segment	

¹⁾ Depending on load, power supply and wire cross-section. The technical specifications must be observed.

²⁾ The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

³⁾ Applies to a voltage range from -30 V to +30 V.

M4000 Advanced A/P

General data

System part	Sender/receiver in one housing	Deflector unit
Number of beams	2 / 4 (depending on type)	
Beam separation	300 mm / 500 mm (depending on type)	
Scanning range		
Configurable	✓	-
Beam separation 300 mm	0.5 m ... 4.5 m	≤ 4.5 m
Beam separation 500 mm	0.5 m ... 7.5 m (depending on type)	≤ 7.5 m (depending on type)
Response time	Max. 10 ms	-
Safety-related parameters		
Type	Type 4 (IEC 61496)	-
Safety integrity level	SIL3 (IEC 61508), SILCL3 (IEC 62061)	-
Category	Category 4 (EN ISO 13849)	-
Performance level	PL e (EN ISO 13849)	-
PFHd (mean probability of a dangerous failure per hour)	6.6 x 10 ⁻⁹ (EN ISO 13849)	-
T _M (Mission Time)	20 years (EN ISO 13849)	-
Synchronization	Optical, without separate synchronization	-
Protection class	III (EN 50178:1998)	-
Enclosure rating	IP 65 (EN 60529)	-
Ambient operating temperature from ... to	-10 °C ... +55 °C	-
Storage temperature from ... to	-25 °C ... +70 °C	-
Air humidity from ... to	15 % ... 95 %, non-condensing	-
Housing cross-section	52 mm x 55.5 mm	
Vibration resistance	5 g (10 Hz ... 55 Hz) (IEC 60068-2-6)	-
Shock resistance	10 g, 16 ms (IEC 60068-2-29)	-
Housing material	Aluminum alloy ALMGS1 0.5, powder coated	-
Front screen material	Polycarbonate, scratch-resistant coating	-

Functional data

System part	Sender/receiver in one housing	Deflector unit
Safe device communication via EFI/SDL	✓	-
Restart interlock	✓	-
Restart interlock (delivery status)	Internal	-
External device monitoring	✓	-
External device monitoring (delivery status)	Activated	-
Beam coding	✓	-
Beam coding (delivery status)	Non-coded	-
Configurable application diagnostic output	✓	-
Application diagnostic output (delivery status)	Contamination (OWS)	-
Configurable scanning range	✓	-
Scanning range (delivery status)	7.5 m / 4.5 m (depending on type)	-
End cap with integrated LED (optional)	- / ✓ (depending on type)	-
SDL interface	✓	-
Configuration method	PC with CDS (Configuration and Diagnostic Software)	-
Concurrence monitoring (with UE403)	✓	-
Monitoring total muting time (with UE403)	✓	-
Sensor gap monitoring (with UE403)	✓	-

System part	Sender/receiver in one housing	Deflector unit
Sensor test (with UE403)	✓	-
End of muting by ESPE (with UE403)	✓	-
Belt stop (with UE403)	✓	-
Muting with override (with UE403)	✓	-
Exit monitoring (with UE403)	✓	-
Diagnosics		
Reading mode	✓	-
Data recorder	✓	-
Event history	✓	-

Electrical data

System part	Sender/receiver in one housing	Deflector unit
System connection	Hirschmann plug, M26 x 11 + FE	-
Connecting cable wire cross-section	0.75 mm ²	-
Connecting cable length	Max. 50 m ¹⁾	-
Extension connection	Plug M12 x 5	-
Supply voltage V_s	24 V DC (19.2 V DC ... 28.8 V DC) ²⁾	-
Residual ripple	± 10 %	-
Power consumption	≤ 0.6 A	-
Safety outputs (OSSD)		
Type of output	2 PNP semiconductors, short-circuit protected, cross-circuit monitored ³⁾	-
Switching voltage HIGH	24 V DC ($V_s - 2,25 V \dots V_s$)	-
Switching voltage LOW	2 V DC	-
Switching current	0 mA ... 500 mA	-
Application diagnostic output	PNP semiconductor, short-circuit protected	
Switching voltage HIGH	24 V DC ($V_s - 4,2 V \dots V_s$)	-
Switching voltage LOW	High resistance	-
Switching current	0 mA ... 100 mA	-
Display elements	LED/7-segment	-

¹⁾ Depending on load, power supply and wire cross-section. The technical specifications must be observed.

²⁾ The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

³⁾ Applies to a voltage range from -30 V to +30 V.

UE403 switching amplifier

General data

Type of muting sensors	Optical sensors, inductive sensors, mechanical switches, controller signals
Safety-related parameters	
Type	Type 4 (IEC 61496) ¹⁾
Safety integrity level	SIL3 (IEC 61508), SILCL3 (IEC 62061) ¹⁾
Category	Category 4 (EN ISO 13849) ¹⁾
Performance level	PL e (EN ISO 13849) ¹⁾
PFHd (mean probability of a dangerous failure per hour)	1.0 x 10 ⁻⁸ (EN ISO 13849) ¹⁾
T _M (Mission Time)	18 years (EN ISO 13849) ¹⁾
Protection class	III (EN 50178:1998)
Enclosure rating	IP 65 (IEC 60529)
Ambient operating temperature from ... to	-10 °C ... +55 °C
Air humidity from ... to	15 % ... 95 %, non-condensing
Storage temperature from ... to	-25 °C ... +70 °C
Vibration resistance	5 g (10 Hz... 55 Hz) (IEC 60068-2-6)
Shock resistance	10 g, 16 ms (IEC 60068-2-29)
Housing material	Die-cast aluminum powder coated
Material, connector strip	Polyamide
Assembly	Flexible mounting to the M4000 Advanced or directly in the system

¹⁾ Only in conjunction with M4000 Advanced, M4000 Advanced A/P or M4000 Advanced Curtain.

Electrical data

Supply voltage V _s	24 V DC (19.2 V DC ... 28.8 V DC), via connected ESPE
Power consumption	Max. 2 A
Inputs override, reset, C1, belt stop, muting sensors	
Switching voltage HIGH	24 V DC (11 V DC ... 30 V DC)
Input current HIGH	10 mA (6 mA ... 15 mA)
Switching voltage LOW	0 V DC (-30 V DC ... 5 V DC)
Input current LOW	0 mA (-0.5 mA ... 1.5 mA)
Outputs voltage supply for reset, override, C1, muting sensors	
Supply voltage	24 V DC (15 V DC ... 28.8 V DC)
Output current for muting sensors	Max. 500 mA ¹⁾
Output current for reset, override, C1	400 mA ¹⁾
Muting lamp	
Output current	Monitored: 20 mA ... 400 mA ²⁾ Not monitored: 0 mA ... 400 mA ²⁾
Connection type	Socket M12 x 5
Cable length	Max. 10 m ³⁾
Conductor cross-section	0.34 mm ²
Cable resistance	< 0.5 Ω (per cable)

¹⁾ Total of all supply currents from the connections RES/OVR, A1, A2, B1 and B2 (pin 1 in each case): max. 1000 mA.

²⁾ At max. 5 W power consumption.

³⁾ Between UE403 and M4000 Advanced, Advanced A/P or Advanced Curtain as well as between the muting sensors/control switches/muting lamp and UE403.

Ordering information

M4000 Advanced

Number of beams	Beam separation	Sender		Receiver	
		Type	Part no.	Type	Part no.
2	500 mm	M40S-025003AA0	1200060	M40E-025003RB0	1200065
		M40S-025003EA0	1202667	M40E-025003WB0	1202707
	600 mm	M40S-026003AA0	1200070	M40E-026003RB0	1200096
3	220 mm	M40S-032203AA0	1200063	M40E-032203RB0	1200097
	450 mm	M40S-034503AA0	1200071	M40E-034503RB0	1200098
4	220 mm	M40S-042203AA0	1200072	M40E-042203RB0	1200099
	300 mm	M40S-043003AA0	1200073	M40E-043003RB0	1200100
5	220 mm	M40S-052203AA0	1200074	M40E-052203RB0	1200101
6	220 mm	M40S-062203AA0	1200075	M40E-062203RB0	1200102
7	220 mm	M40S-072203AA0	1200076	M40E-072203RB0	1200103
8	220 mm	M40S-082203AA0	1200077	M40E-082203RB0	1200104

M4000 Advanced, includes end cap with integrated LED

Number of beams	Beam separation	Sender		Receiver	
		Type	Part no.	Type	Part no.
2	500 mm	M40S-025003AA0	1200060	M40E-025023RB0	1200062
	600 mm	M40S-026003AA0	1200070	M40E-026023RB0	1200079
3	220 mm	M40S-032203AA0	1200063	M40E-032223RB0	1200066
	400 mm	M40S-034003AA0	1200061	M40E-034023RB0	1200067
	450 mm	M40S-034503AA0	1200071	M40E-034523RB0	1200081
4	220 mm	M40S-042203AA0	1200072	M40E-042223RB0	- ¹⁾
	300 mm	M40S-043003AA0	1200073	M40E-043023RB0	1200109
5	220 mm	M40S-052203AA0	1200074	M40E-052223RB0	1208161
6	220 mm	M40S-062203AA0	1200075	M40E-062223RB0	1203850
7	220 mm	M40S-072203AA0	1200076	M40E-072223RB0	1201247
8	220 mm	M40S-082203AA0	1200077	M40E-082223RB0	1206683

¹⁾ When ordering for the first time, please use the information in the "Type" column instead of "Part no."

M4000 Advanced, with integrated alignment aid

Number of beams	Beam separation	Sender		Receiver	
		Type	Part no.	Type	Part no.
2	500 mm	M40S-025013AA0	1200057	M40E-025013RB0	1200058
	600 mm	M40S-026013AA0	1200078	M40E-026013RB0	1200105
3	450 mm	M40S-034513AA0	1200082	M40E-034513RB0	1200107
4	300 mm	M40S-043013AA0	1200080	M40E-043013RB0	1200108

M4000 Advanced, with integrated alignment aid and end cap with integrated LED

Number of beams	Beam separation	Sender		Receiver	
		Type	Part no.	Type	Part no.
2	500 mm	M40S-025013AA0	1200057	M40E-025033RB0	1200110
	600 mm	M40S-026013AA0	1200078	M40E-026033RB0	1200111
3	400 mm	M40S-034013AA0	1200069	M40E-034033RB0	1200068
	450 mm	M40S-034513AA0	1200082	M40E-034533RB0	1200112
4	300 mm	M40S-043013AA0	1200080	M40E-043033RB0	1200113

M4000 Advanced A/P

Number of beams	Beam separation	Scanning range	Sender/receiver in one housing		Deflector unit	
			Type	Part no.	Type	Part no.
2	500 mm	4.5 m	M40Z-025003BB0	1206482	PSD01-2501 ¹⁾	1027907
		7.5 m	M40Z-025003RB0	1200115	PSD01-1501 ²⁾	1027906
		4.5 m	M40Z-025003TB0	1200128	PSD01-2501 ¹⁾	1027907
4	300 mm	4.5 m	M40Z-043003TB0	1200127	PSD02-2301 ¹⁾	1027908

¹⁾ With fiber-optic cable deflection (max. effective scanning range 4.5 m).

²⁾ With mirror deflection (max. effective scanning range 7.5 m).

M4000 Advanced A/P, includes end cap with integrated LED

Number of beams	Beam separation	Scanning range	Sender/receiver in one housing		Deflector unit	
			Type	Part no.	Type	Part no.
2	500 mm	7.5 m	M40Z-025023RB0	1200126	PSD01-1501 ¹⁾	1027906
		4.5 m	M40Z-025023TB0	1200125	PSD01-2501 ²⁾	1027907
4	300 mm	4.5 m	M40Z-043023TB0	1200131	PSD02-2301 ²⁾	1027908

¹⁾ With fiber-optic cable deflection (max. effective scanning range 4.5 m).

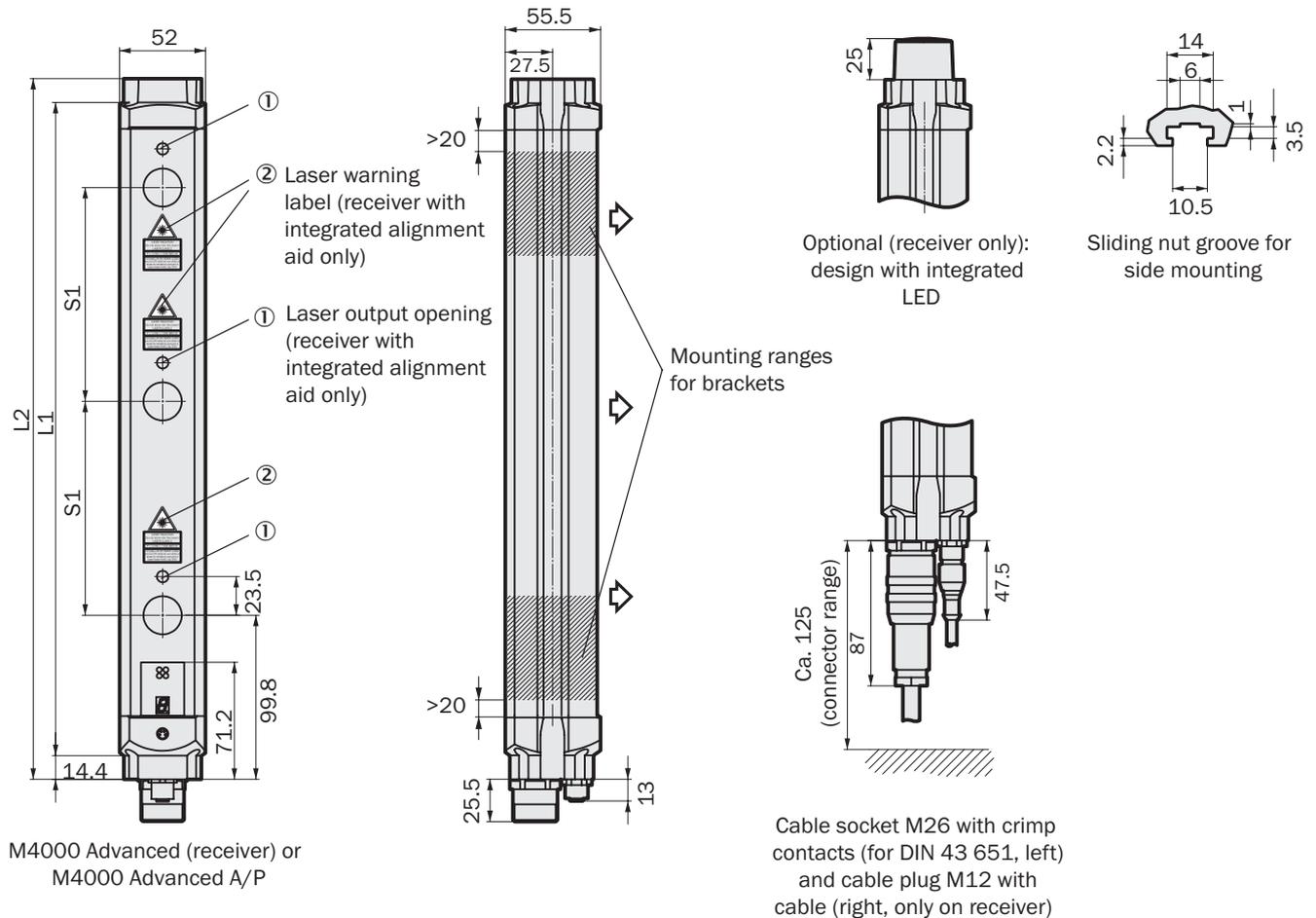
²⁾ With mirror deflection (max. effective scanning range 7.5 m).

UE403 switching amplifier

Type	Part no.
UE403-A0930	1026287

Dimensional drawings

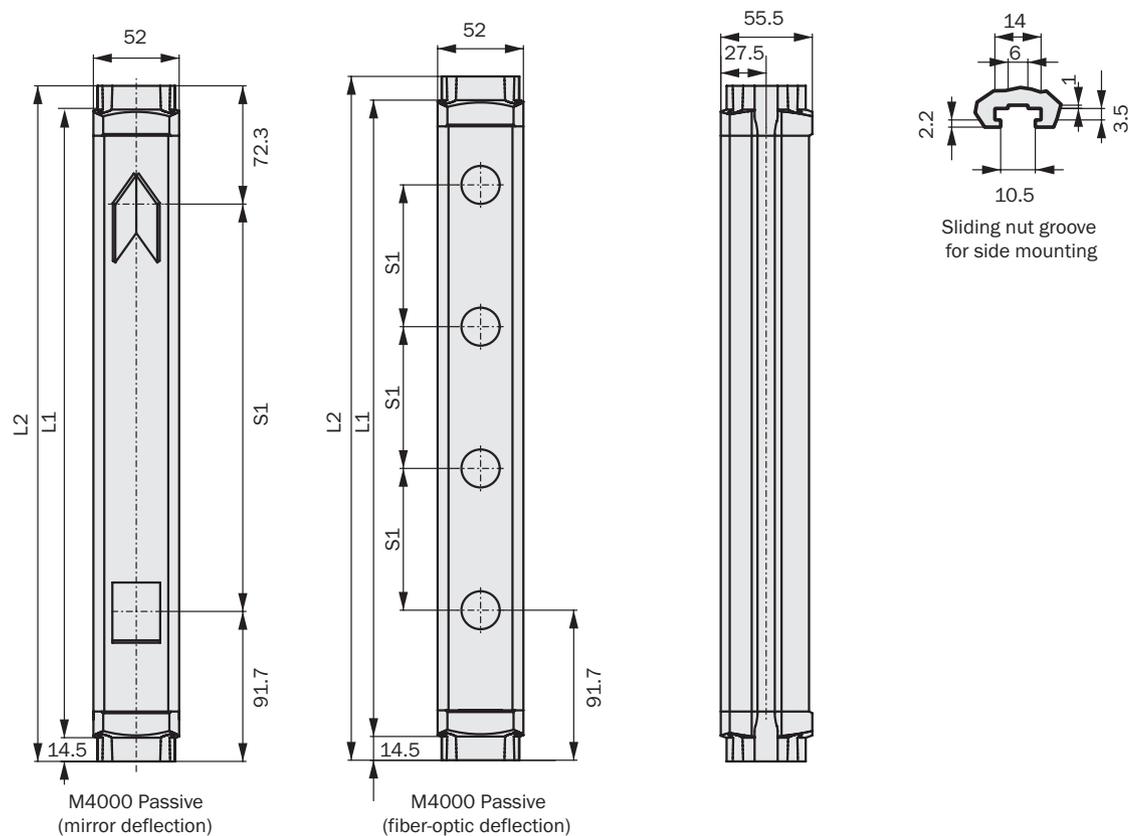
M4000 Advanced M4000 Advanced A/P



Number of beams	Beam separation S1	L1	L2
2	500	643	672
	600	743	772
3	220	583	612
	400	943	972
	450	1043	1072
4	220	803	832
	300	1043	1072
5	220	1023	1052
6		1243	1272
7		1462	1491
8		1682	1711

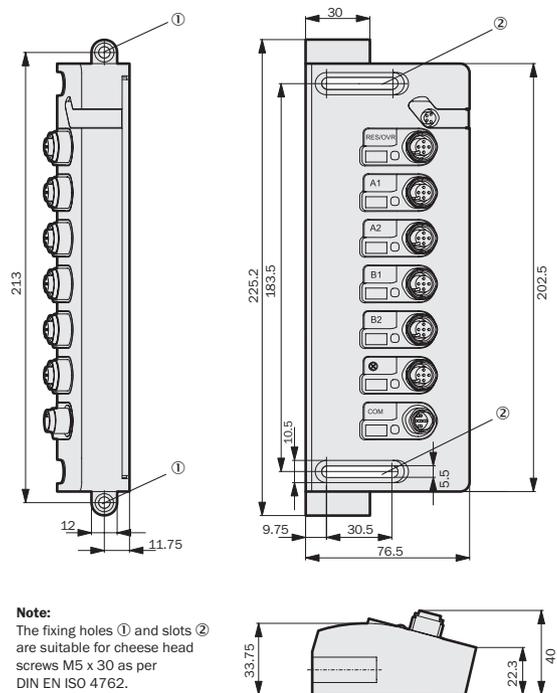
All dimensions in mm

Deflector units for M4000 Advanced A/P



Number of beams	Beam separation S1	L1	L2
2	500	643	672
4	300	1043	1072

UE403 switching amplifier

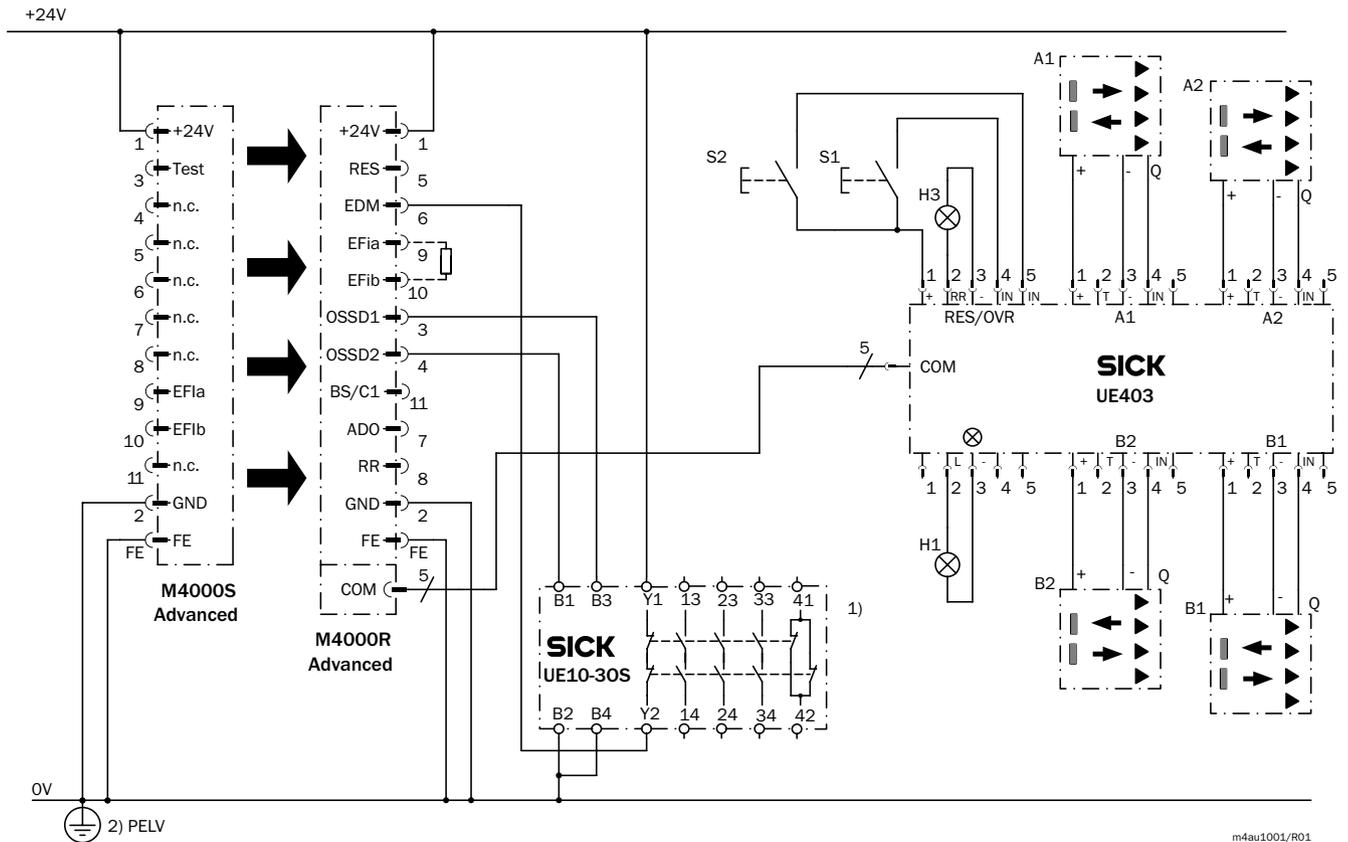


Note:
The fixing holes ① and slots ② are suitable for cheese head screws M5 x 30 as per DIN EN ISO 4762.

All dimensions in mm

Connection diagrams

You can find more connection diagrams at www.mysick.com.



Task

Connection of an M4000 Advanced multiple light beam safety device with UE403 switching amplifier to a UE10-30S safety relay.

Muting with 4 photoelectric reflex switches (dark-switching, PNP). Operating mode: with restart interlock and external device monitoring.

Operating characteristics

When the light path is clear and the UE10-30S is de-energized and functioning correctly, the yellow LED on the receiver and the H3 lamp flash. The system is ready for switch-on and waits for an input signal/switch-on signal. The system is enabled by pressing and releasing the S1 button. The OSSD1 and OSSD2 outputs are live, the UE10-30S is switched on. On interruption of one or several of the light beams, the UE10-30S is de-energized by the OSSD1 and OSSD2 outputs.

Muting and override

When the light path is clear and the muting input conditions are valid, muting starts. The H1 muting lamp illuminates. Different time and monitoring functions can be configured.

When the light path is interrupted and muting sensors are active, e.g., because of muting errors or a new power on, override is enabled by pressing and releasing the S2 button.

Fault analysis

OSSD cross-circuits and short-circuits are detected and lead to the inhibited state (lock-out). The erroneous behavior of the UE10-30S will be detected. The shutdown function is retained. On manipulation (e.g., jamming) of the S1 button, the system does not enable the output current circuits.

The failure of one muting sensor will be detected by the muting sequence and prohibit a new muting cycle. On manipulation (e.g., jamming) of the S2 button, the system does not enable override. A permanent use of the override function will be inhibited through the device.

Comments

¹⁾ Output circuits: These contacts are to be connected to the controller such that, with the output circuit open, the dangerous state is disabled. For categories 4 and 3, this integration must be dual-channel (x/y paths). Single-channel insertion in the control (z path) is only possible with a single-channel control and by taking the risk analysis into account.

²⁾ PELV in accordance with the requirements in EN 60204-1 / 6.4

Take note of the operating instructions of the integrated devices. This applies particularly to the use of configurable functions.

Accessories

M4000 Advanced, M4000 Advanced A/P

Mounting systems

Figure	Property	Packing unit	Type	Part no.		
					M4000 Advanced	M4000 Advanced A/P
	Mounting kit 1, rigid	4	BEF-3WNGBAST4	7021352	●	●
	Mounting kit 6, swivel function, side bracket	4	BEF-1SHABAZN4	2019506	●	●
	Mounting kit 3, adjustable, vibration-absorbing	4	BEF-1SHADAAL4	2017752	●	●
	Mounting kit 2, adjustable	4	BEF-1SHABAAL4	2017751	●	●
	Mounting bracket, rigid, vibration-absorbing	4	BEF-3SHADAAL4S07	2055830	●	●
	Mounting kit 12, swivel mount	4	BEF-2SMGEAKU4	2030510	●	●
	Omega bracket, flexible and quick installation with only one screw	4	BEF-2SMGEAAL4	2044846	●	●

Sliding nuts

Figure	Description	Remark	Packing unit	Part no.		
	Sliding nuts	Included with delivery	4	2017550	●	●
	Sliding nuts for deflector mirror	Suitable for PNS75 and PNS125	6	2030600	●	-

Connecting cables

Figure	Connection type	Direction of cable outlet	Remark	Cable length	Type	Part no.		
	Hirschmann cable socket M26 x 11 + FE	Straight	-	2.5 m	DOL-0612G2M5075KM0	2022544	●	●
				5 m	DOL-0612G05M075KM0	2022545	●	●
				7.5 m	DOL-0612G7M5075KM0	2022546	●	●
				10 m	DOL-0612G10M075KM0	2022547	●	●
				15 m	DOL-0612G15M075KM0	2022548	●	●
				20 m	DOL-0612G20M075KM0	2022549	●	●
			Without EFI: pin 9 and 10 not connected	30 m	DOL-0612G30M075KM0	2022550	●	●
				5 m	DOL-0610G05M075KM1	2046888	●	●
				7.5 m	DOL-0610G7M5075KM5	2044042	●	●
				10 m	DOL-0610G10M075KM1	2046889	●	●
			20 m	DOL-0610G20M075KM1	2046890	●	●	

Cable receptacles

Figure	Connection type	Direction of cable outlet	Type	Part no.	M4000 Advanced	M4000 Advanced A/P
	Hirschmann cable socket M26 x 1.1 + FE	Straight	DOS-0612G000GA3KM0	6020757	●	●
		Angled	DOS-0612W000GA3KM0	6020758	●	●

Extension connection cables

Figure	Connection type	Direction of cable outlet	Cable length	Remark	Type	Part no.		
	Plug M12 x 5, socket M12 x 5	Plug straight/ socket straight	0.6 m	Connection cable for M4000 Advanced with M12, 5-pin connector and UE403	DSL-1205-G0M6C	6025930	●	●
			1 m		DSL-1205-G01MC	6029280	●	●
			1.5 m		DSL-1205-G1M5C	6029281	●	●
			2 m		DSL-1205-G02MC	6025931	●	●
			5 m		DSL-1205-G05MC	6029282	●	●

Configuration connection cables

Figure	Description	Connection type	Cable length	Type	Part no.		
	Connects the configuration connection to the PC	M8 x 4, SUB-D 9-pin	2 m	DSL-8D04G02M025KM1	6021195	●	●
			10 m	DSL-8D04G10M025KM1	2027649	●	●
	Converter RS-232 to USB, with driver CD and operating instructions	Plug RS-232, USB	35 cm	Converter RS-232 to USB	6035396	●	●

Terminators

Description	Remark	Typ	Artikelnr.		
Terminal with 182 Ω resistance for pin 9 and 10 on the system connection	For improving the EMC behavior if EFI device communication is not used	Terminal with 182 Ω resistance	1026287	●	●

Power supply units

Figure	Input voltage	Output voltage	Maximum output current	Part no.		
	100 V AC ... 240 V AC	24 V DC	2.1 A	7028789	●	●
			3.9 A	7028790	●	●

Device columns with external grooves

Figure	Description	Max. installation length	Number of beams	Beam separation	Type	Part no.	M4000 Advanced	M4000 Advanced A/P
	Robust device columns with two external mounting grooves	965 mm	2	500 mm	PU3H96-00000000	2045490	●	●
		1165 mm	3	400 mm	PU3H11-00000000	2045641	●	-
		1265 mm	4	300 mm	PU3H13-00000000	2045642	●	●
		1720 mm	-	-	PU3H17-00000000	2045643	●	●
		2020 mm	-	-	PU3H21-00000000	2045644	●	●
		2250 mm	-	-	PU3H22-00000000	2045645	●	●
		2400 mm	-	-	PU3H24-00000000	2045646	●	●

Device columns for outdoor use

Figure	Description	Number of beams	Beam separation	Suitable for	Type	Part no.		
	With front screen heating, 220 V, including brackets and cable socket (without light beam safety device)	3	400 mm	M40x-0340x0xx0, M40x-0340x3xx0	PUM12-S01	2020800	●	-
		2	500 mm	M40x-0250x0xx0, M40Z-025000xR0, M40x-0250x3xx0, M40Z-025003xx0	PUM12-S02	2019654	●	●

Mirror columns with separate mirrors

Figure	Column height	Number of beams	Beam separation	Suitable for	Remark	Type	Part no.		
	985 mm	2	600 mm	M40x-0260xxxx	Completely mounted including mirrors	PM3S96-00230060	1040620	●	-
			500 mm	M40x-0250xxxx, M20x-02x05xxxx		PM3S96-00240020	1040619	●	-
	1185 mm	3	400 mm	M40x-0340xxxx, M20x-03x40x1xx		PM3S11-00330030	1040625	●	-
	1285 mm	3	450 mm	M40x-0345xxxx		PM3S13-00330050	1040624	●	-
		4	300 mm	M40x-0430xxxx, M20x-04x30xxxx		PM3S13-00430040	1040626	●	-
	985 mm	2	500 mm	M40Z-02500xxxx, M40Z-02501xxxx	Fully assembled with mirrors (45°)	PM3Z96-00240020	1041917	-	●

Mirror columns with protective field height mirror

Figure	Column height	Suitable for protective field height	Assembly	Type	Part no.	M4000 Advanced	M4000 Advanced A/P
	1285 mm	900 mm	The mirror is mounted 300 mm above the base plate	PM3C13-00030000	1043453	●	●
	1720 mm	1350 mm		PM3C17-00030000	1043454	●	●
	2000 mm	1650 mm		PM3C19-00030000	1043455	●	●
	2200 mm	1800 mm		PM3C20-00030000	1043456	●	●

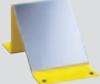
Column parts and accessories

Figure	Property	Packing unit	Type	Part no.		
	For floor fastening	1	Adjusting plate	4031053	●	●
		1	Steel plug	5308961	●	●
	Mounting kit for device columns	2	BEF-2SMGEAAL2	2045736	●	●
	Suitable for all mirror columns PM3Sxx-xxxxxxx and PM3Cxx-xxxxxxx, incl. spacer bolt	1	Mirror kit for back area monitoring	2034938	●	-

Additional front screens

Figure	Suitable for	Remark	Packing unit	Part no.		
 Example of use	M40x-0250xxxx	Including sliding nuts and fixing screws	2	2033225	●	●
	M40x-0260xxxx			2033226	●	-
	M40x-0322xxxx			2033227	●	-
	M40x-0340xxxx			2033228	●	●
	M40x-0345xxxx			2033229	●	-
	M40x-0422xxxx			2033230	●	-
	M40x-0522xxxx			2033231	●	-
	M40x-0622xxxx			2033232	●	-
	M40x-0722xxxx			2033233	●	-
	M40x-0822xxxx			2033234	●	-

Deflector mirrors

Figure	Mirror surface	Mirror material	Remark	Type	Part no.	M4000 Advanced	M4000 Advanced A/P
	75 mm x 80 mm	Glass	Including mounting adapter (two swivel mounts)	PNS75-008	1026647	●	-
	80 mm x 97 mm	Glass	For 90° deflection, incl. mounting set, not suitable for column mounting	PSK45	5306053	-	●
	80 mm x 80 mm	Glass	For 90° deflection, incl. mounting set, suitable for column mounting	PSK45-2	2057630	-	●

Laser alignment aid

Figure	Description	Scanning range	Voltage supply	Type of light	Part no.		
	Laser alignment aid AR60	Max. 60 m	2 batteries, 1.5 V Micro/AAA	Visible red light, laser class 2 (IEC 60825): do not stare into beam!	1015741	●	●
	Adapter AR60 M4000	-	-	-	4040006	●	●
	Alignment template for integrated laser alignment aid	-	-	-	4040263	●	-

Configuration software

Figure	Description	Type	Part no.		
	CDS (Configuration and Diagnostic Software)	CDS	2032314	●	●

Configuration tools

Figure	Description	Type	Part no.		
	For saving and transferring configurations. For C4000 Standard, Advanced, Palletizer, Entry/Exit, Fusion and M4000 Advanced, Advanced Curtain, Area	Clone plug for C4000 and M4000	1029665	●	●
	For Clone Plug / Host-Guest Plug	Wall mount	5318443	●	●

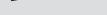
Muting mechanic kits

Figure	Description	Suitable for	Type	Part no.	M4000 Advanced	M4000 Advanced A/P
	Crossed muting (2 sensors), muting sensor brackets for mounting on M4000 housing profile or device columns with external mounting grooves	M4000 Advanced, M4000 Advanced A/P, M4000 Advanced Curtain and PU3Hxx device columns	M4000 muting arm-kit with two crossed-muting sensors	2046171	●	●
	Parallel muting (4 sensors), muting sensor brackets for mounting on M4000 housing profile or device columns with external mounting grooves	M4000 Advanced, M4000 Advanced A/P, M4000 Advanced Curtain and PU3Hxx device columns	M4000 muting arm-kit with four parallel-muting sensors	2046170	●	●
	Parallel muting (2 sensors), muting sensor brackets for mounting on M4000 housing profile or device columns with external mounting grooves	M4000 Advanced, M4000 Advanced A/P, M4000 Advanced Curtain and PU3Hxx device columns	M4000 muting arm-kit with two parallel-muting sensors	2060156	●	●

Partially-assembled/pre-assembled muting arm kits for device column mounting, including mounting systems

Figure	Description	Remark	Part no..		
	Round steel arm 400 mm, including 1 x universal bracket	For PU3H column profile and M4000 device profile	2045506	●	●
	Round steel arm 400 mm, including 2 x universal brackets		2045507	●	●
	Round steel arm 400 mm, including 1 x universal bracket with P250 fitted reflector		2045513	●	●
	Round steel arm 400 mm, including 2 x universal brackets with P250 fitted reflector		2045512	●	●
	Round steel arm 400 mm, including 1 x universal bracket with WL280P132 fitted sensor, 2 m cable with M12 plug		2045729	●	●
	Round steel arm 400 mm, including 2 x universal brackets with WL280P132 fitted sensor, 2 m cable with M12 plug		2045730	●	●

Muting mechanical components for device column mounting, including mounting systems

Figure	Description	Remark	Part no..		
	Round steel arm 400 mm, for mounting of universal brackets	For PU3H column profile and M4000 device profile	2045506	●	●
	Universal bracket for mounting sensors/reflectors	For round steel arm 400 mm	2045507	●	●
	Muting sensor protection, right side, for round steel arm		2045513	●	●
	Muting sensor protection, left side, for round steel arm		2045512	●	●

UE403 switching amplifier

Mounting systems

Description	Remark	Packing unit	Part no.	M4000 Advanced	M4000 Advanced A/P
Fixing screws with sliding nuts, for mounting to M4000	Included in the delivery	2	2033250	●	●

Connecting cables

Figure	Connection type	Direction of cable outlet	Cable length	Part no.		
	Plug M12 x 5	Straight	2 m	6026133	●	●
			5 m	6026134	●	●
			10 m	6026135	●	●

Connector

Figure	Connection type	Direction of cable outlet	Type	Part no.		
	Socket M12 x 4	Angled	DOS-1204-W	6007303	●	●
	Plug M12 x 4	Straight	STE-1204-G	6009932	●	●

Extension connection cables

Figure	Connection type	Direction of cable outlet	Cable length	Remark	Type	Part no.		
	Plug M12 x 5, socket M12 x 5	Plug straight/ socket straight	0.6 m	Connection cable for M4000 Advanced with M12, 5-pin connector and UE403	DSL-1205-G0M6C	6025930	●	●
			1 m		DSL-1205-G01MC	6029280	●	●
			1.5 m		DSL-1205-G1M5C	6029281	●	●
			2 m		DSL-1205-G02MC	6025931	●	●
			5 m		DSL-1205-G05MC	6029282	●	●

Configuration connection cables

Figure	Description	Connection type	Cable length	Type	Part no.		
	Connects the configuration connection to the PC	M8 x 4, SUB-D 9-pin	2 m	DSL-8D04G02M025KM1	6021195	●	●
			10 m	DSL-8D04G10M025KM1	2027649	●	●
	Converter RS-232 to USB, with driver CD and operating instructions	Plug RS-232, USB	35 cm	Converter RS-232 to USB	6035396	●	●

Muting sensor connecting cables

Connection type	Direction of cable outlet	Cable length	Remark	Type	Part no.		
						M4000 Advanced	M4000 Advanced A/P
Plug M12 x 3	Plug straight/ socket angled	1 m	Suitable for WT27, WL260, WT260 muting sensors; pin 2 (plug) not connected	DSL-1203B01MC34KM1	6026106	●	●
		2 m		DSL-1203B02MC34KM1	6026107	●	●
		5 m		DSL-1203B05MC34KM2	6025118	●	●
Plug M12 x 4	Plug straight/ socket angled	1 m	Suitable for WL24 and WT24 muting sensors	DSL-1204B01MC34KM0	6025974	●	●
				DSL-1204B01MC34KM2	6025944	●	●
		2 m	Suitable for WL24 and WT24 muting sensors	DSL-1204B02MC34KM0	6025975	●	●
				DSL-1204B02MC34KM2	6025945	●	●
		5 m	Suitable for WL24 and WT24 muting sensors	DSL-1204B05MC34KM1	6025087	●	●
				DSL-1204B05MC34KM2	6025116	●	●

Configuration software

Figure	Description	Type	Part no.		
	CDS (Configuration and Diagnostic Software)	CDS	2032314	●	●

Muting indicator lamps

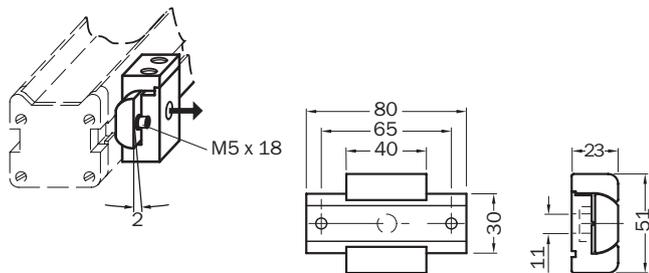
Figure	Type of muting indicator	Connection type	Cable length	Remark	Part no.		
 <small>Product may differ from illustration</small>	LED	Connector	2 m	Incl. mounting bracket and mounting kit	2033118	●	●
			10 m	Incl. mounting bracket	2033119	●	●
 <small>Product may differ from illustration</small>	Incandescent lamp	Connector	2 m	Incl. mounting bracket and mounting kit	2033116	●	●
			10 m	Incl. mounting bracket	2033117	●	●

Muting accessories, other

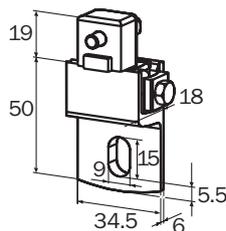
Figure	Description	Type	Part no.		
	Protective cap for device socket	Protective cap	6011170	●	●

Dimensional drawings mounting systems

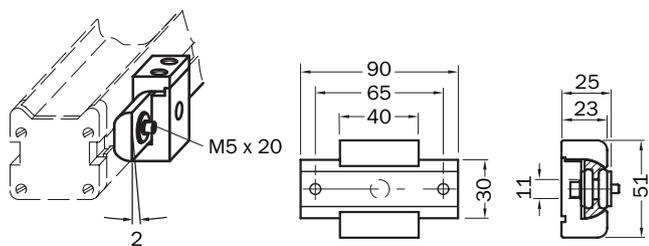
BEF-1SHABAAL4
Mounting kit 2, adjustable



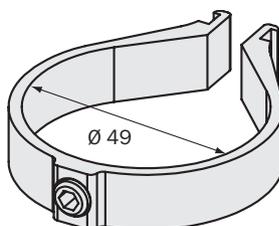
BEF-1SHABAZN4
Mounting kit 6, swivel function, side bracket



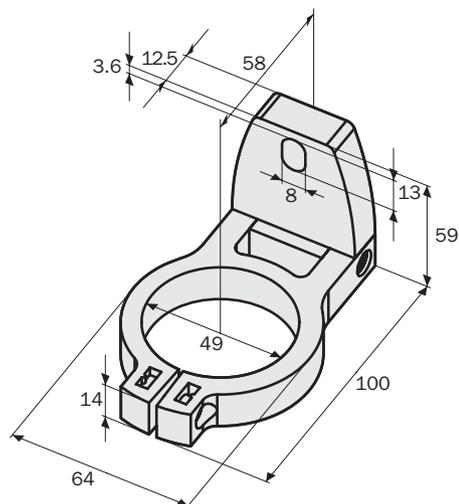
BEF-1SHADAAL4
Mounting kit 3, adjustable, vibration-absorbing



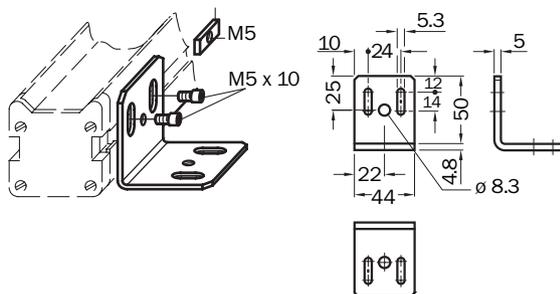
BEF-2SMGEAAL4
Omega bracket, flexible and quick installation with only one screw



BEF-2SMGEAKU4
Mounting kit 12, swivel mount



BEF-3WNGBAST4
Mounting kit 1, rigid



All dimensions in mm

Intelligent and efficient: connection of the muting signals directly on site











Additional information

Detailed technical data	25
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Product description

The M4000 Advanced safety light curtain, together with the UE403 switching amplifier, provides an efficient solution for all muting applications involving automatic material transport.

Thereby it doesn't make any difference if muting is realized with two or four muting sensors on entry/exit stations or on pure exit stations.

It is ideal for applications that require high resolutions due to a short safety distance. The straightforward configuration via PC and the on-site connection of the muting signals ensure maximum

availability. Various mounting adapters and innovative accessories enable flexible installation of both the device and muting sensors. Integrated functions, as well as status and diagnostics information, ensures quick commissioning and prevent unnecessary machine downtime.

The three-stage diagnostics function ensures a loss-free visualization of the signal sequences in the reading mode and time-independent diagnostics with the CDS data recorder. The event history is useful tracing errors in the muting process.

At a glance

- Resolution 14/30 mm, scanning range up to 19 m
 - External device monitoring (EDM), restart interlock (RES), application diagnostic output (ADO), and SDL interface
 - Robust housing with three mounting grooves
- 2- and 4-sensor muting in combination with the UE403 switching amplifier
 - Configuration and three-stage diagnostics via PC
 - Laser alignment aid and LED optional integrated

Your benefits

- High resolution (14/30 mm) reduces the safety distances for access protection – both with and without muting
 - Three mounting grooves on robust housing ensure more flexibility during mounting and facilitate integration into the machine, via suitable brackets muting sensors can be fitted directly to the housing
 - Together with the UE403 on-site connection of the muting signals reduces wiring effort
- Muting function exit monitoring requires only 2 muting sensors in the hazardous area. This is space-saving and a muting sensors protecting installation
 - Reduced downtimes through all-around-visible LED in the M4000 as well as configuration memory in the UE403 switching amplifier
 - Three-stage diagnostics for detailed visualizing of the signal sequence accelerates troubleshooting when errors occur in the muting process

Detailed technical data

You can find more detailed data in the operating instructions. Download at www.mysick.com.

General data

System part	Sender	Receiver
Beam separation	14 mm / 30 mm (depending on type)	
Scanning range		
Configurable	-	✓
Beam separation 14 mm	-	0 m ... 2.5 m / 2 m ... 8 m
Beam separation 30 mm	-	0 m ... 6 m / 5 m ... 19 m
Response time with beam coding	-	≤ 56 ms (depending on type) ¹⁾
Response time without beam coding	-	≤ 26 ms (depending on type) ¹⁾
Safety-related parameters		
Type	Type 4 (IEC 61496)	
Safety integrity level	SIL3 (IEC 61508), SILCL3 (IEC 62061)	
Category	Category 4 (EN ISO 13849)	
Performance level	PL e (EN ISO 13849)	
PFHd (mean probability of a dangerous failure per hour)	2.8 x 10 ⁻⁸ (EN ISO 13849)	
T _M (Mission Time)	20 years (EN ISO 13849)	
Synchronization	Optical, without separate synchronization	
Protection class	III (EN 50178:1998)	
Enclosure rating	IP 65 (EN 60529)	
Ambient operating temperature from ... to	-10 °C ... +55 °C	
Storage temperature from ... to	-25 °C ... +70 °C	
Air humidity from ... to	15 % ... 95 %, non-condensing	
Housing cross-section	52 mm x 55.5 mm	
Vibration resistance	5 g (10 Hz ... 55 Hz) (IEC 60068-2-6)	
Shock resistance	10 g, 16 ms (IEC 60068-2-29)	
Housing material	Aluminum alloy ALMGSI 0.5, powder coated	
Front screen material	Polycarbonate, scratch-resistant coating	

¹⁾ Other response times, see operating instructions.

Functional data

System part	Sender	Receiver
Safe device communication via EFI/SDL		✓
Restart interlock	-	✓
Restart interlock (delivery status)	-	Activated / deactivated (depending on type)
External device monitoring	-	✓
External device monitoring (delivery status)	-	Activated / deactivated (depending on type)
Beam coding		✓
Beam coding (delivery status)		Non-coded
Configurable application diagnostic output	-	✓
Application diagnostic output (delivery status)	-	Contamination (OWS)
Sender test	✓	-
Sender test (delivery status)	Deactivated	-
Configurable scanning range	-	✓
Scanning range (delivery status)	-	6 m / 2.5 m (depending on type)
End cap with integrated LED (optional)	-	- / ✓ (depending on type)
SDL interface		✓

System part	Sender	Receiver
Configuration method	PC with CDS (Configuration and Diagnostic Software)	
Concurrence monitoring (with UE403)	-	✓
Monitoring total muting time (with UE403)	-	✓
Sensor gap monitoring (with UE403)	-	✓
Sensor test (with UE403)	-	✓
Partial blanking (with UE403)	-	✓
End of muting by ESPE (with UE403)	-	✓
Belt stop (with UE403)	-	✓
Muting with override (with UE403)	-	✓
Exit monitoring (with UE403)	-	✓
Diagnostics	Reading mode	✓
	Data recorder	✓
	Event history	✓

Electrical data

System part	Sender	Receiver
System connection	Hirschmann plug, M26 x 11 + FE	
Connecting cable wire cross-section	0.75 mm ²	
Connecting cable length	Max. 50 m ¹⁾	
Extension connection	-	Plug M12 x 5
Supply voltage V_s	24 V (19.2 V ... 28.8 V) ²⁾	
Residual ripple	± 10 %	
Power consumption	≤ 0.2 A	≤ 0.6 A
Safety outputs (OSSD)	Type of output	2 PNP semiconductors, short-circuit protected, cross-circuit monitored ³⁾
	Switching voltage HIGH	24 V DC ($V_s - 2,25 V \dots V_s$)
	Switching voltage LOW	2 V DC
	Switching current	0 mA ... 500 mA
Application diagnostic output	Switching voltage HIGH	PNP semiconductor, short-circuit protected 24 V DC ($V_s - 4,2 V \dots V_s$)
	Switching voltage LOW	High resistance
	Switching current	0 mA ... 100 mA
Display elements	LED/7-segment	

¹⁾ Depending on load, power supply and wire cross-section. The technical specifications must be observed.

²⁾ The external voltage supply of the devices must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204.1. Suitable power supplies are available as accessories from SICK.

³⁾ Applies to a voltage range from -30 V to +30 V.

UE403 switching amplifier

General data

Type of muting sensors	Optical sensors, inductive sensors, mechanical switches, controller signals
Safety-related parameters	
Type	Type 4 (IEC 61496) ¹⁾
Safety integrity level	SIL3 (IEC 61508), SILCL3 (IEC 62061) ¹⁾
Category	Category 4 (EN ISO 13849) ¹⁾
Performance level	PL e (EN ISO 13849) ¹⁾
PFHd (mean probability of a dangerous failure per hour)	1.0 x 10 ⁻⁸ (EN ISO 13849) ¹⁾
T _M (Mission Time)	18 years (EN ISO 13849) ¹⁾
Protection class	III (EN 50178:1998)
Enclosure rating	IP 65 (IEC 60529)
Ambient operating temperature from ... to	-10 °C ... +55 °C
Air humidity from ... to	15 % ... 95 %, non-condensing
Storage temperature from ... to	-25 °C ... +70 °C
Vibration resistance	5 g (10 Hz... 55 Hz) (IEC 60068-2-6)
Shock resistance	10 g, 16 ms (IEC 60068-2-29)
Housing material	Die-cast aluminum powder coated
Material, connector strip	Polyamide
Assembly	Flexible mounting to the M4000 Advanced or directly in the system

¹⁾ Only in conjunction with M4000 Advanced, M4000 Advanced A/P or M4000 Advanced Curtain.

Electrical data

Supply voltage V _s	24 V DC (19.2 V DC ... 28.8 V DC), via connected ESPE
Power consumption	Max. 2 A
Inputs override, reset, C1, belt stop, muting sensors	
Switching voltage HIGH	24 V DC (11 V DC ... 30 V DC)
Input current HIGH	10 mA (6 mA ... 15 mA)
Switching voltage LOW	0 V DC (-30 V DC ... 5 V DC)
Input current LOW	0 mA (-0.5 mA ... 1.5 mA)
Outputs voltage supply for reset, override, C1, muting sensors	
Supply voltage	24 V DC (15 V DC ... 28.8 V DC)
Output current for muting sensors	Max. 500 mA ¹⁾
Output current for reset, override, C1	400 mA ¹⁾
Muting lamp	
Output current	Monitored: 20 mA ... 400 mA ²⁾ Not monitored: 0 mA ... 400 mA ²⁾
Connection type	Socket M12 x 5
Cable length	Max. 10 m ³⁾
Conductor cross-section	0.34 mm ²
Cable resistance	< 0.5 Ω (per cable)

¹⁾ Total of all supply currents from the connections RES/OVR, A1, A2, B1 and B2 (pin 1 in each case): max. 1000 mA.

²⁾ At max. 5 W power consumption.

³⁾ Between UE403 and M4000 Advanced, Advanced A/P or Advanced Curtain as well as between the muting sensors/control switches/muting lamp and UE403.

Ordering information

M4000 Advanced Curtain

- Resolution: 30 mm
- Scanning range: 0 m ... 19 m

Protective field height	End cap with integrated LED	Sender		Receiver	
		Type	Part no.	Type	Part no.
300 mm	-	M40S-60A303AA0	1201570	M40E-60A303RB0	1201572
	✓	M40S-60A303AA0	1201570	M40E-60A323RB0	1205630
450 mm	-	M40S-61A303AA0	1201127	M40E-61A303RB0	1201214
	✓	M40S-61A303AA0	1201127	M40E-61A323RB0	1205631
600 mm	-	M40S-62A303AA0	1201463	M40E-62A303RB0	1201464
	✓	M40S-62A303AA0	1201463	M40E-62A323RB0	1204362
750 mm	-	M40S-63A303AA0	1201571	M40E-63A303RB0	1201573
	✓	M40S-63A303AA0	1201571	M40E-63A323RB0	1205392
900 mm	-	M40S-64A303AA0	1201441	M40E-64A303RB0	1201442
	✓	M40S-64A303AA0	1201441	M40E-64A323RB0	1204680
1,050 mm	-	M40S-65A303AA0	1201482	M40E-65A303RB0	1201483
	✓	M40S-65A303AA0	1201482	M40E-65A323RB0	1205632
1,200 mm	-	M40S-66A303AA0	1201036	M40E-66A303RB0	1201035
	✓	M40S-66A303AA0	1201036	M40E-66A323RB0	1204764
1,350 mm	-	M40S-67A303AA0	1203236	M40E-67A303RB0	1203242
	✓	M40S-67A303AA0	1203236	M40E-67A323RB0	1205633
1,500 mm	-	M40S-68A303AA0	1203237	M40E-68A303RB0	1203243
	✓	M40S-68A303AA0	1203237	M40E-68A323RB0	1204598
1,650 mm	-	M40S-69A303AA0	1203238	M40E-69A303RB0	1203244
	✓	M40S-69A303AA0	1203238	M40E-69A323RB0	1205634
1,800 mm	-	M40S-70A303AA0	1203239	M40E-70A303RB0	1203245
	✓	M40S-70A303AA0	1203239	M40E-70A323RB0	1204829

- Resolution: 14 mm
- Scanning range: 0 m ... 8 m

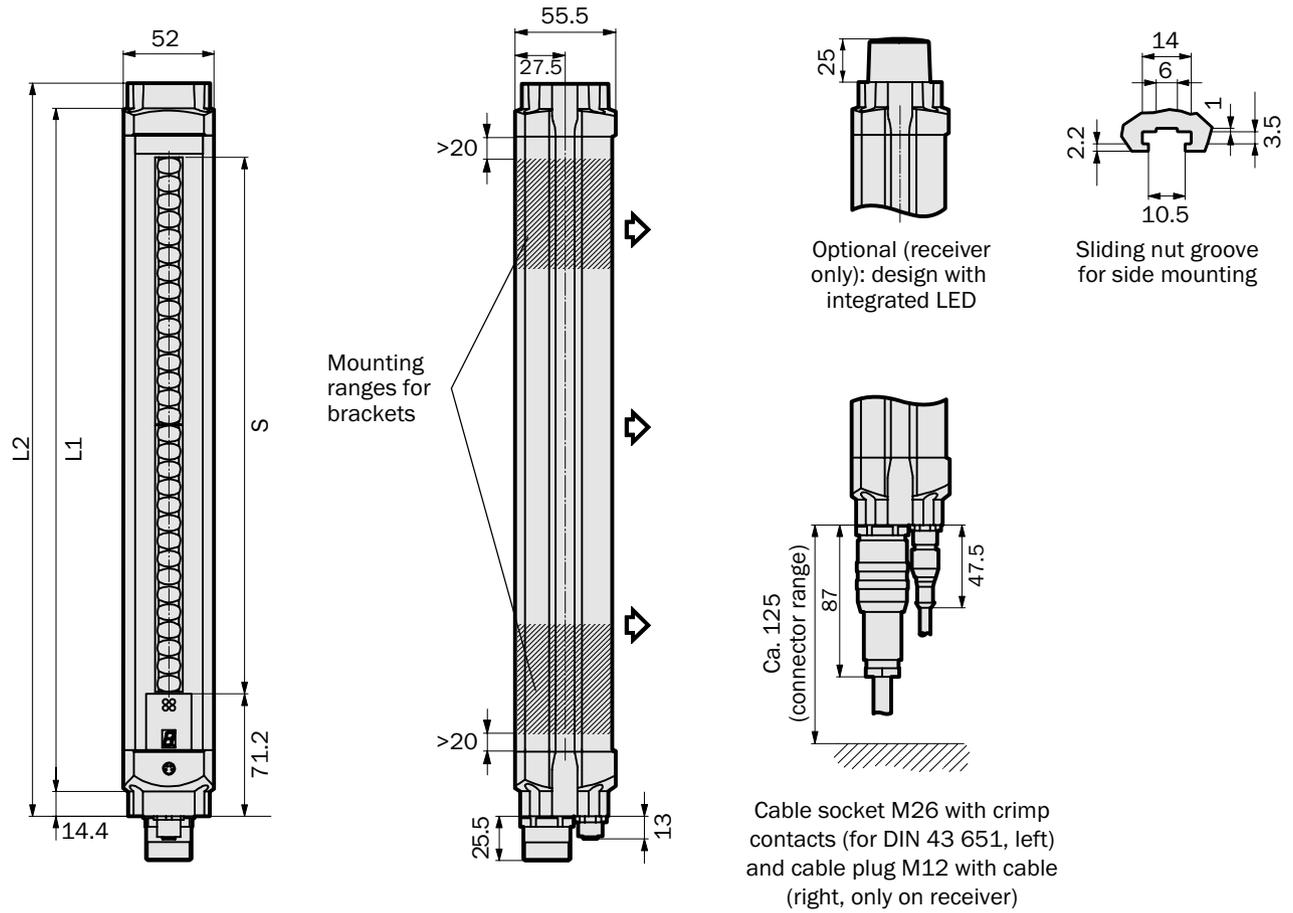
Protective field height	End cap with integrated LED	Sender		Receiver	
		Type	Part no.	Type	Part no.
300 mm	-	M40S-60A503AA0	1203262	M40E-60A503RB0	1203263
	✓	M40S-60A503AA0	1203262	M40E-60A523RB0	1205622
450 mm	-	M40S-61A503AA0	1203264	M40E-61A503RB0	1203265
	✓	M40S-61A503AA0	1203264	M40E-61A523RB0	1205623
600 mm	-	M40S-62A503AA0	1203266	M40E-62A503RB0	1203267
	✓	M40S-62A503AA0	1203266	M40E-62A523RB0	1205625
750 mm	-	M40S-63A503AA0	1203240	M40E-63A503RB0	1203241
	✓	M40S-63A503AA0	1203240	M40E-63A523RB0	1205303
900 mm	-	M40S-64A503AA0	1203268	M40E-64A503RB0	1203269
	✓	M40S-64A503AA0	1203268	M40E-64A523RB0	1205626
1,050 mm	-	M40S-65A503AA0	1203270	M40E-65A503RB0	1203271
	✓	M40S-65A503AA0	1203270	M40E-65A523RB0	1205627
1,200 mm	-	M40S-66A503AA0	1203272	M40E-66A503RB0	1203273
	✓	M40S-66A503AA0	1203272	M40E-66A523RB0	1204827
1,350 mm	-	M40S-67A503AA0	1203274	M40E-67A503RB0	1203275
	✓	M40S-67A503AA0	1203274	M40E-67A523RB0	1205628
1,500 mm	-	M40S-68A503AA0	1203276	M40E-68A503RB0	1203277
	✓	M40S-68A503AA0	1203276	M40E-68A523RB0	1203511
1,650 mm	-	M40S-69A503AA0	1203278	M40E-69A503RB0	1203279
	✓	M40S-69A503AA0	1203278	M40E-69A523RB0	1205629
1,800 mm	-	M40S-70A503AA0	1203250	M40E-70A503RB0	1203280
	✓	M40S-70A503AA0	1203250	M40E-70A523RB0	1204828

UE403 switching amplifier

Type	Part no.
UE403-A0930	1026287

Dimensional drawings

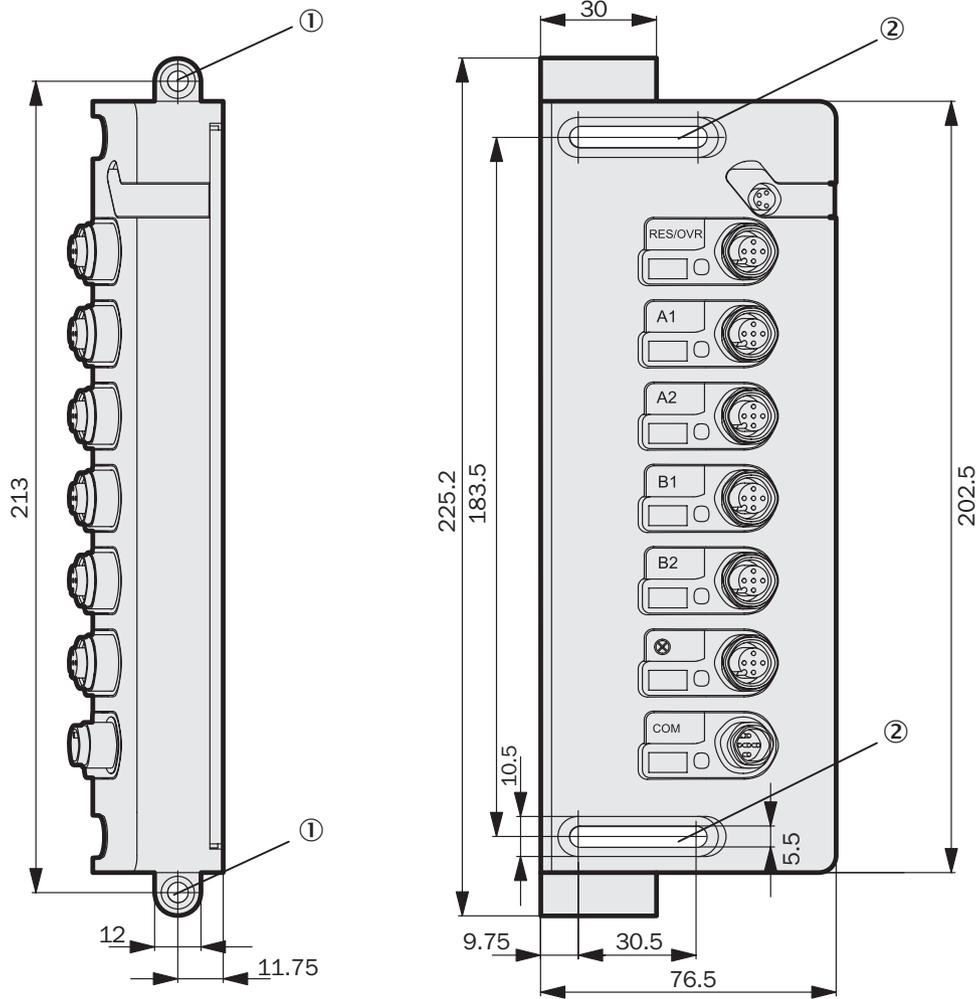
M4000 Advanced Curtain



Protective field height S	L1	L2
300	387	416
450	537	566
600	687	716
750	837	866
900	987	1016
1050	1137	1166
1200	1287	1316
1350	1437	1466
1500	1587	1616
1650	1737	1766
1800	1887	1916

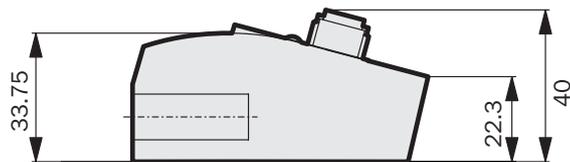
All dimensions in mm

UE403 switching amplifier



Note:

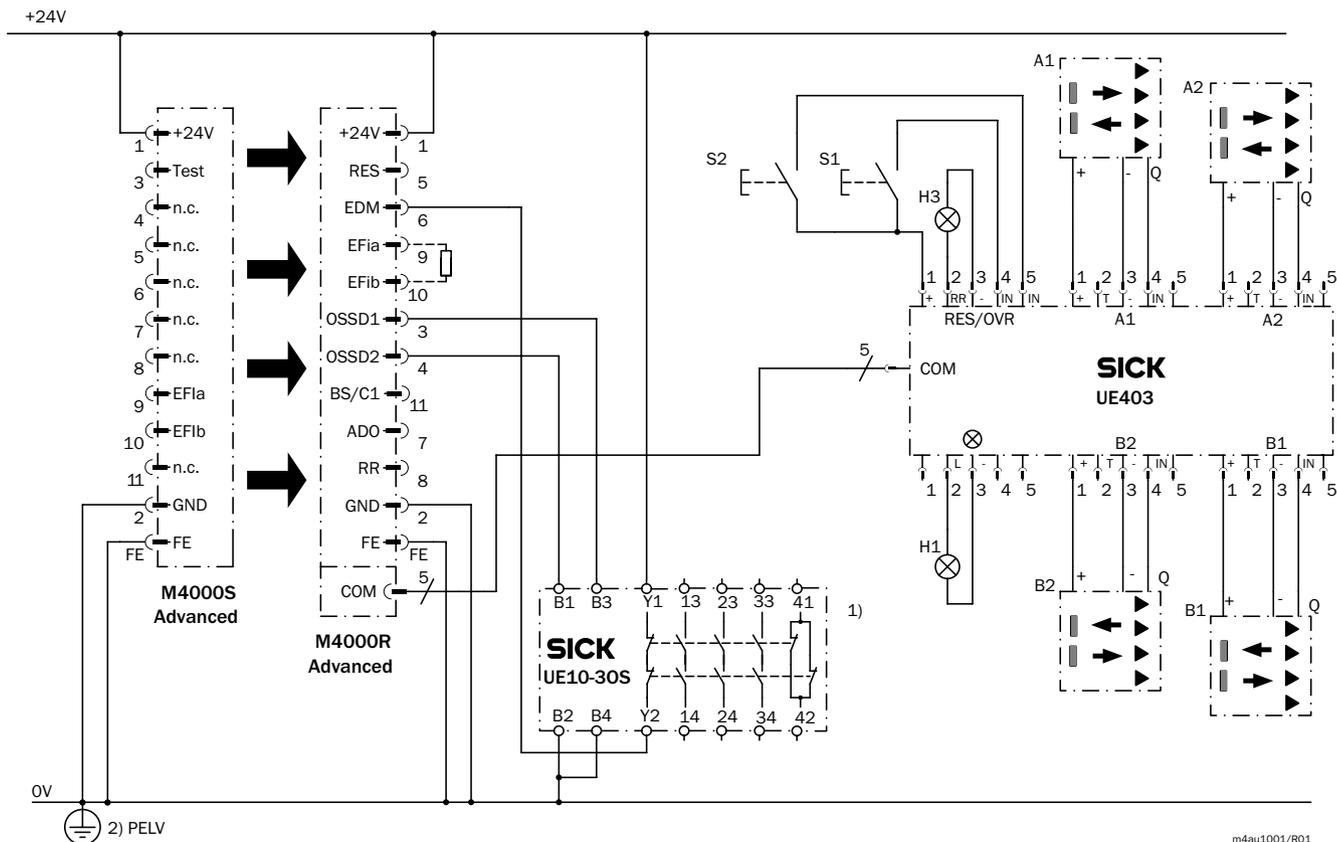
The fixing holes ① and slots ② are suitable for cheese head screws M5 x 30 as per DIN EN ISO 4762.



All dimensions in mm

Connection diagrams

You can find more connection diagrams at www.mysick.com.



m4au1001/R01

Task

Connection of a M4000 Advanced Curtain safety light curtain with UE403 switching amplifier to a UE10-30S safety relay.

Muting with 4 photoelectric retro-reflective sensors (dark switching, PNP).

Operating mode: with restart interlock and external device monitoring.

Operating characteristics

When the light path is clear and the UE10-30S is de-energized and functioning correctly, the yellow LED on the receiver and the H3 lamp flash. The system is ready for switch on and waits for an input signal/switch-on signal. The system is enabled by pressing and releasing the S1 button. The OSSD1 and OSSD2 outputs are live and the UE10-30S is switched on. Upon interruption of one or several of the light beams, the UE10-30S is de-energized by the OSSD1 and OSSD2 outputs.

Muting and override

When the light path is clear and the muting input conditions are valid, muting starts. The H1 muting lamp illuminates. Different time and monitoring functions can be configured.

When the light path is interrupted and muting sensors are active, e. g. because of muting errors or a new power-on, override is enabled by pressing and releasing the S2 button.

Fault analysis

OSSD cross-circuits and short-circuits are detected and lead to the inhibited state (lock-out). The erroneous behaviour of the UE10-30S will be detected. The shutdown function is retained. On manipulation (e.g. jamming) of the S1 button, the system does not enable the output current circuits.

The failure of one muting sensor will be detected by the muting sequence, and prohibit a new muting cycle. On manipulation (e.g., jamming) of the S2 button, the system does not enable override. A permanent use of the override function will be inhibited through the device.

Comments

¹⁾ Output circuits: These contacts are to be connected to the controller such that, with the output circuit open, the dangerous state is disabled. For categories 4 and 3, this integration must be dual-channel (x/y paths). Single-channel insertion in the control (z path) is only possible with a single-channel control and by taking the risk analysis into account.

²⁾ PELV in accordance with the requirements in EN 60204-1 / 6.4

Take note of the operating instructions of the integrated devices. This applies particularly on the use of configurable functions.

Accessories

M4000 Advanced Curtain

Mounting systems

Figure	Property	Packing unit	Type	Part no.
	Mounting kit 1, rigid	4	BEF-3WNGBAST4	7021352
	Mounting kit 6, swivel function, side bracket	4	BEF-1SHABAZN4	2019506
	Mounting kit 3, adjustable, vibration-absorbing	4	BEF-1SHADAAL4	2017752
	Mounting kit 2, adjustable	4	BEF-1SHABAAL4	2017751
	Mounting bracket, rigid, vibration-absorbing	4	BEF-3SHADAAL4S07	2055830
	Mounting kit 12, swivel mount	4	BEF-2SMGEAKU4	2030510
	Omega bracket, flexible and quick installation with only one screw	4	BEF-2SMGEAAL4	2044846

Sliding nuts

Figure	Description	Remark	Packing unit	Part no.
	Sliding nuts	Included with delivery	4	2017550
	Sliding nuts for deflector mirror	Suitable for PNS75 and PNS125	6	2030600

Connecting cables

Figure	Connection type	Direction of cable outlet	Remark	Cable length	Type	Part no.
	Hirschmann cable socket M26 x 11 + FE	Straight	-	2.5 m	DOL-0612G2M5075KM0	2022544
				5 m	DOL-0612G05M075KM0	2022545
				7.5 m	DOL-0612G7M5075KM0	2022546
				10 m	DOL-0612G10M075KM0	2022547
				15 m	DOL-0612G15M075KM0	2022548
				20 m	DOL-0612G20M075KM0	2022549
			Without EFI: pin 9 and 10 not connected	30 m	DOL-0612G30M075KM0	2022550
				5 m	DOL-0610G05M075KM1	2046888
				7,5 m	DOL-0610G7M5075KM5	2044042
				10 m	DOL-0610G10M075KM1	2046889
			20 m	DOL-0610G20M075KM1	2046890	

Cable receptacles

Figure	Connection type	Direction of cable outlet	Type	Part no.
	Hirschmann cable socket M26 x 11 + FE	Straight	DOS-0612G000GA3KM0	6020757
		Angled	DOS-0612W000GA3KM0	6020758

Extension connection cables

Figure	Connection type	Direction of cable outlet	Cable length	Remark	Type	Part no.
	Plug M12 x 5, socket M12 x 5	Plug straight/ socket straight	0.6 m	Connection cable for M4000 Advanced with M12, 5-pin connector and UE403	DSL-1205-G0M6C	6025930
			1 m		DSL-1205-G01MC	6029280
			1.5 m		DSL-1205-G1M5C	6029281
			2 m		DSL-1205-G02MC	6025931
			5 m		DSL-1205-G05MC	6029282

Configuration connection cables

Figure	Description	Connection type	Cable length	Type	Part no.
	Connects the configuration connection to the PC	M8 x 4, SUB-D 9-pin	2 m	DSL-8D04G02M025KM1	6021195
			10 m	DSL-8D04G10M025KM1	2027649
	Converter RS-232 to USB, with driver CD and operating instructions	Plug RS-232, USB	35 cm	Converter RS-232 to USB	6035396

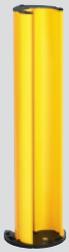
Terminators

Description	Remark	Typ	Artikelnr.
Terminal with 182 Ω resistance for pin 9 and 10 on the system connection	For improving the EMC behavior if EFI device communication is not used	Terminal with 182 Ω resistance	1026287

Power supply units

Figure	Input voltage	Output voltage	Maximum output current	Part no.
	100 V AC ... 240 V AC	24 V DC	2.1 A	7028789
			3.9 A	7028790

Device columns with external grooves

Figure	Description	Max. installation length	Suitable for protective field height	Type	Part no.
	Robust device columns with two external mounting grooves	965 mm	150 ... 750 mm	PU3H96-00000000	2045490
		1165 mm	150 ... 1050 mm	PU3H11-00000000	2045641
		1265 mm	150 ... 1200 mm	PU3H13-00000000	2045642
		1720 mm	150 ... 1350 mm	PU3H17-00000000	2045643
		2020 mm	150 ... 1650 mm	PU3H21-00000000	2045644
		2250 mm	150 ... 1800 mm	PU3H22-00000000	2045645
		2400 mm	150 ... 1800 mm	PU3H24-00000000	2045646

Mirror columns with protective field height mirror

Figure	Column height	Mirror length	Type	Part no.
	1285 mm	900 mm	PM3C13-00030000	1043453
	1720 mm	1350 mm	PM3C17-00030000	1043454
	2000 mm	1650 mm	PM3C19-00030000	1043455
	2200 mm	1800 mm	PM3C20-00030000	1043456

Column parts and accessories

Figure	Property	Packing unit	Type	Part no.
	For floor fastening	1	Adjusting plate	4031053
		1	Steel plug	5308961
	Mounting kit for device columns	2	BEF-2SMGEAL2	2045736
	Suitable for all mirror columns PM3Sxx-xxxxxxx and PM3Cxx-xxxxxxx, incl. spacer bolt	1	Mirror kit for back area monitoring	2034938

Additional front screens

Figure	Suitable for	Remark	Packing unit	Part no.
 <p>Example of use</p>	M40x-60xxxxxx	Including sliding nuts and fixing screws	2	2033235
	M40x-61xxxxxx		2	2033236
	M40x-62xxxxxx		2	2033237
	M40x-63xxxxxx		2	2033238
	M40x-64xxxxxx		2	2033239
	M40x-65xxxxxx		2	2033240
	M40x-66xxxxxx		2	2033241
	M40x-67xxxxxx		2	2033242
	M40x-68xxxxxx		2	2033243
	M40x-69xxxxxx		2	2033244
M40x-70xxxxxx	2	2033245		

Deflector mirrors PNS75

Figure	Mirror material	Suitable for protective field height	Type	Part no.
	Glass	300 mm	PNS75-034	1019414
		450 mm	PNS75-049	1019415
		600 mm	PNS75-064	1019416
		750 mm	PNS75-079	1019417
	Stainless steel	750 mm	PNS75-079S05	1046075
	Glass	900 mm	PNS75-094	1019418
		1050 mm	PNS75-109	1019419
		1200 mm	PNS75-124	1019420
		1350 mm	PNS75-139	1019421
		1500 mm	PNS75-154	1019422
		1650 mm	PNS75-169	1019423
		1800 mm	PNS75-184	1019424

Deflector mirrors PNS125

Figure	Mirror material	Suitable for protective field height	Type	Part no.
	Glass	300 mm	PNS125-034	1019425
		450 mm	PNS125-049	1019426
		600 mm	PNS125-064	1019427
		750 mm	PNS125-079	1019428
		900 mm	PNS125-094	1019429
		1050 mm	PNS125-109	1019430
		1200 mm	PNS125-124	1019431
		1350 mm	PNS125-139	1019432
		1500 mm	PNS125-154	1019433
		1650 mm	PNS125-169	1019434
		1800 mm	PNS125-184	1019435

Laser alignment aid

Figure	Description	Scanning range	Voltage supply	Type of light	Part no.
	Laser alignment aid AR60	Max. 60 m	2 batteries, 1.5 V Micro/AAA	Visible red light, laser class 2 (IEC 60825): do not stare into beam!	1015741
	Adapter AR60 M4000	-	-	-	4040006
	Alignment template for integrated laser alignment aid	-	-	-	4040263

Configuration software

Figure	Description	Type	Part no.
	CDS (Configuration and Diagnostic Software)	CDS	2032314

Configuration tools

Figure	Description	Type	Part no.
	For saving and transferring configurations. For C4000 Standard, Advanced, Palletizer, Entry/Exit, Fusion and M4000 Advanced, Advanced Curtain, Area	Clone plug for C4000 and M4000	1029665
	For Clone Plug / Host-Guest Plug	Wall mount	5318443

Device protection

Figure	Description	Type	Part no.
	14 mm diameter	Test rod	2022599
	30 mm diameter	Test rod	2022602
	Test rod holder	BEF-3WNAAAAL1	2052249

UE403 switching amplifier**Mounting systems**

Description	Remark	Packing unit	Part no.
Fixing screws with sliding nuts, for mounting to M4000	Included in the delivery	2	2033250

Connecting cables

Figure	Connection type	Direction of cable outlet	Cable length	Part no.
	Plug M12 x 5	Straight	2 m	6026133
			5 m	6026134
			10 m	6026135

Connectors

Figure	Connection type	Direction of cable outlet	Type	Part no.
	Socket M12 x 4	Angled	DOS-1204-W	6007303
	Plug M12 x 4	Straight	STE-1204-G	6009932

Extension connection cables

Figure	Connection type	Direction of cable outlet	Cable length	Remark	Type	Part no.
	Plug M12 x 5, socket M12 x 5	Plug straight/ socket straight	0.6 m	Connection cable for M4000 Advanced with M12, 5-pin connector and UE403	DSL-1205-G0M6C	6025930
			1 m		DSL-1205-G01MC	6029280
			1.5 m		DSL-1205-G1M5C	6029281
			2 m		DSL-1205-G02MC	6025931
			5 m		DSL-1205-G05MC	6029282

Configuration connection cables

Figure	Description	Connection type	Cable length	Type	Part no.
	Connects the configuration connection to the PC	M8 x 4, SUB-D 9-pin	2 m	DSL-8D04G02M025KM1	6021195
			10 m	DSL-8D04G10M025KM1	2027649
	Converter RS-232 to USB, with driver CD and operating instructions	Plug RS-232, USB	35 cm	Converter RS-232 to USB	6035396

Muting sensor connecting cables

Connection type	Direction of cable outlet	Cable length	Remark	Type	Part no.
Plug M12 x 3	Plug straight/ socket angled	1 m	Suitable for WT27, WL260, WT260 muting sensors; pin 2 (plug) not connected	DSL-1203B01MC34KM1	6026106
		2 m		DSL-1203B02MC34KM1	6026107
		5 m		DSL-1203B05MC34KM2	6025118
Plug M12 x 4	Plug straight/ socket angled	1 m	Suitable for WL24 and WT24 muting sensors Suitable for WL12, WL14, WL18, WL23, WL27 muting sensors; pin 4 (plug) rotated to pin 2 (socket), pin 2 (plug) not connected	DSL-1204B01MC34KM0	6025974
				DSL-1204B01MC34KM2	6025944
		2 m		DSL-1204B02MC34KM0	6025975
				DSL-1204B02MC34KM2	6025945
		5 m		DSL-1204B05MC34KM1	6025087
				DSL-1204B05MC34KM2	6025116

Muting mechanic kits

Figure	Description	Suitable for	Type	Part no.
	Crossed muting (2 sensors), muting sensor brackets for mounting on M4000 housing profile or device columns with external mounting grooves	M4000 Advanced, M4000 Advanced A/P, M4000 Advanced Curtain and PU3Hxx device columns	M4000 muting arm-kit with two crossed-muting sensors	2046171
	Parallel muting (4 sensors), muting sensor brackets for mounting on M4000 housing profile or device columns with external mounting grooves	M4000 Advanced, M4000 Advanced A/P, M4000 Advanced Curtain and PU3Hxx device columns	M4000 muting arm-kit with four parallel-muting sensors	2046170
	Parallel muting (2 sensors), muting sensor brackets for mounting on M4000 housing profile or device columns with external mounting grooves	M4000 Advanced, M4000 Advanced A/P, M4000 Advanced Curtain and PU3Hxx device columns	M4000 muting arm-kit with two parallel-muting sensors	2060156

Partially-assembled/pre-assembled muting arm kits for device column mounting, including mounting systems

Figure	Description	Remark	Part no..
	Round steel arm 400 mm, including 1 x universal bracket	For PU3H column profile and M4000 device profile	2045506
	Round steel arm 400 mm, including 2 x universal brackets		2045507
	Round steel arm 400 mm, including 1 x universal bracket with P250 fitted reflector		2045513
	Round steel arm 400 mm, including 2 x universal brackets with P250 fitted reflector		2045512
	Round steel arm 400 mm, including 1 x universal bracket with WL280P132 fitted sensor, 2 m cable with M12 plug		2045729
	Round steel arm 400 mm, including 2 x universal brackets with WL280P132 fitted sensor, 2 m cable with M12 plug		2045730

Muting mechanical components for device column mounting, including mounting systems

Figure	Description	Remark	Part no..
	Round steel arm 400 mm, for mounting of universal brackets	For PU3H column profile and M4000 device profile	2045506
	Universal bracket for mounting sensors/reflectors	For round steel arm 400 mm	2045507
	Muting sensor protection, right side, for round steel arm		2045513
	Muting sensor protection, left side, for round steel arm		2045512

Configuration software

Figure	Description	Type	Part no.
	CDS (Configuration and Diagnostic Software)	CDS	2032314

Muting indicator lamps

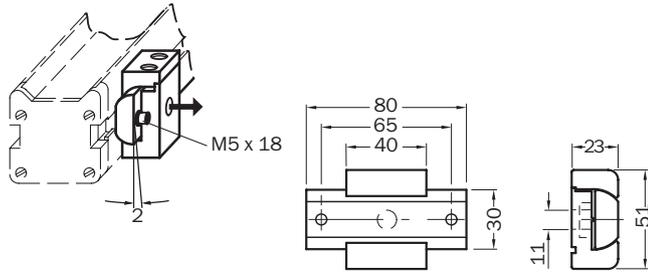
Figure	Type of muting indicator	Connection type	Cable length	Remark	Part no.
 Product may differ from illustration	LED	Connector	2 m	Incl. mounting bracket and mounting kit	2033118
			10 m	Incl. mounting bracket	2033119
 Product may differ from illustration	Incandescent lamp	Connector	2 m	Incl. mounting bracket and mounting kit	2033116
			10 m	Incl. mounting bracket	2033117

Muting accessories, other

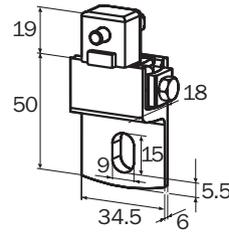
Figure	Description	Type	Part no.
	Protective cap for device socket	Protective cap	6011170

Dimensional drawings mounting systems

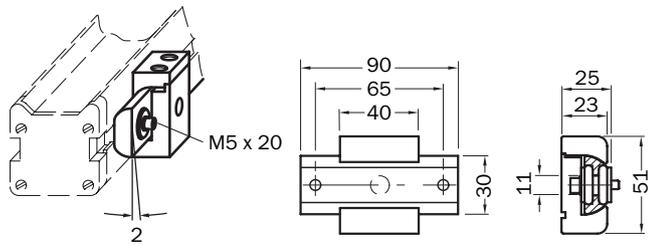
BEF-1SHABAAL4
Mounting kit 2, adjustable



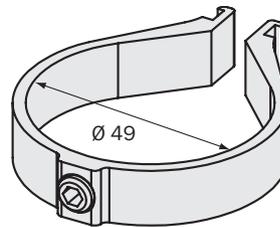
BEF-1SHABAZN4
Mounting kit 6, swivel function, side bracket



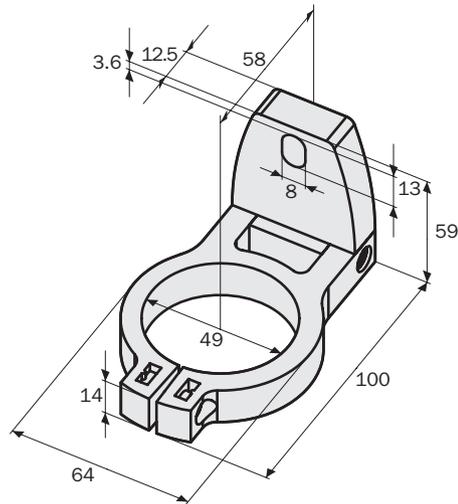
BEF-1SHADAAL4
Mounting kit 3, adjustable, vibration-absorbing



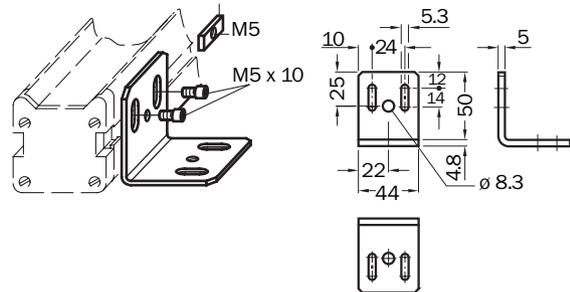
BEF-2SMGEAAL4
Omega bracket, flexible and quick installation with only one screw



BEF-2SMGEAKU4
Mounting kit 12, swivel mount

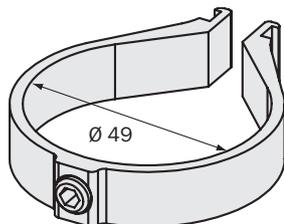


BEF-3WNGBAST4
Mounting kit 1, rigid



Dimensional drawings column parts and accessories

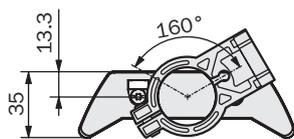
BEF-2SMGEAAL2



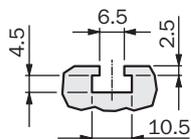
All dimensions in mm

Dimensional drawings deflector mirrors

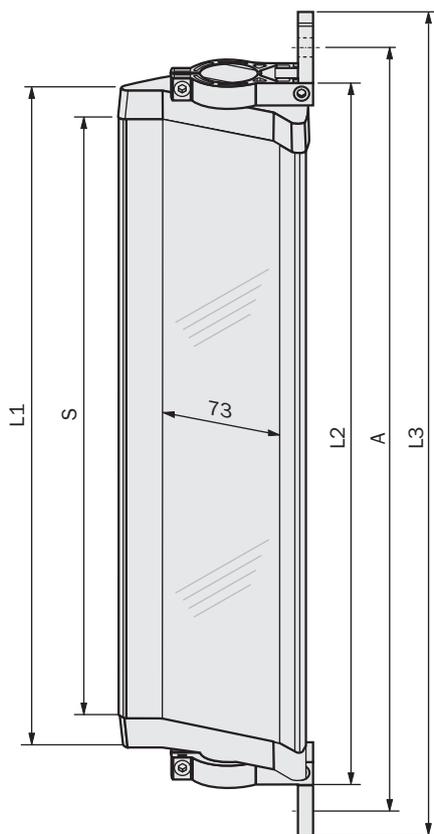
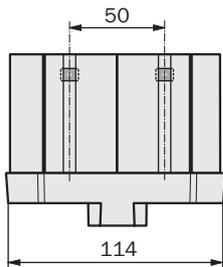
PNS75



Mounting with swivel mount bracket (Part No. 2019659)



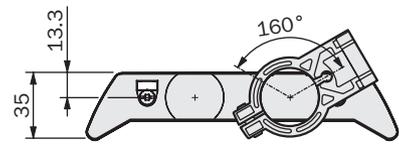
Sliding nut groove for side mounting



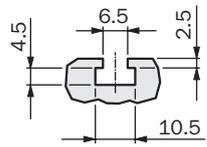
Mirror height S	L1	L2	L3	A
340	372	396	460	440
490	522	546	610	590
640	672	696	760	740
790	822	846	910	890
940	972	996	1060	1040
1090	1122	1146	1210	1190
1240	1272	1296	1360	1340
1390	1422	1446	1510	1490
1540	1572	1596	1660	1640
1690	1722	1746	1810	1790
1840	1872	1896	1960	1940

All dimensions in mm

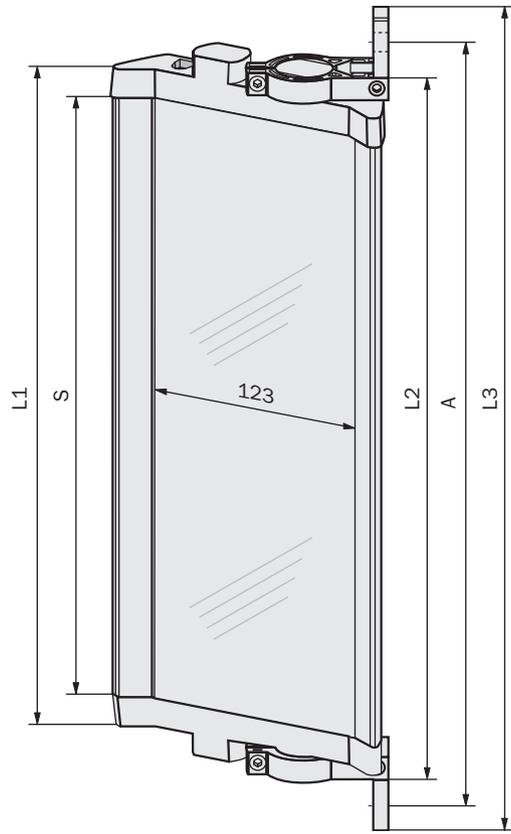
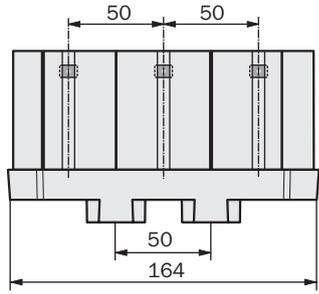
PNS125



Mounting with swivel mount bracket (Part No. 2019659)



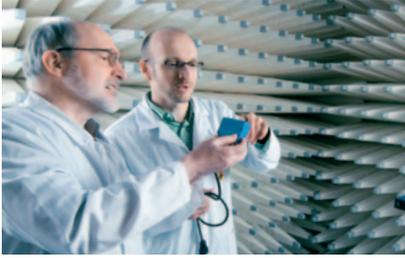
Sliding nut groove for side mounting



Mirror height S	L1	L2	L3	A
340	372	396	460	440
490	522	546	610	590
640	672	696	760	740
790	822	846	910	890
940	972	996	1060	1040
1090	1122	1146	1210	1190
1240	1272	1296	1360	1340
1390	1422	1446	1510	1490
1540	1572	1596	1660	1640
1690	1722	1746	1810	1790
1840	1872	1896	1960	1940

All dimensions in mm

SICK at a glance



Leading technologies

With a staff of more than 5,000 and over 50 subsidiaries and representations worldwide, SICK is one of the leading and most successful manufacturers of sensor technology. The power of innovation and solution competency have made SICK the global market leader. No matter what the project and industry may be, talking with an expert from SICK will provide you with an ideal basis for your plans – there is no need to settle for anything less than the best.



Unique product range

- Non-contact detecting, counting, classifying and positioning of any type of object
- Accident and operator protection with sensors, safety software and services
- Automatic identification with bar code and RFID readers
- Laser measurement technology for detecting the volume, position and contour of people and objects
- Complete system solutions for analysis and flow measurement of gases and liquids



Comprehensive services

- SICK LifeTime Services – for safety and productivity
- Application centers in Europe, Asia and North America for the development of system solutions under real-world conditions
- E-Business Partner Portal www.mysick.com – price and availability of products, requests for quotation and online orders

Worldwide presence with subsidiaries in the following countries:

Australia
Belgium/Luxembourg
Brasil
Česká Republika
China
Danmark
Deutschland
España
France
Great Britain
India
Israel
Italia

Japan
Nederland
Norge
Österreich
Polska
Republic of Korea
România
Russia
Schweiz
Singapore
South Africa
Suomi
Sverige
Taiwan
Türkiye
United Arab Emirates
USA/Canada/México

Please find detailed addresses and additional representatives and agencies in all major industrial nations at www.sick.com