



MLP1-SMMA0AC

MLP1

SAFETY LOCKING DEVICES

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
MLP1-SMMA0AC	1077943

Other models and accessories → www.sick.com/MLP1



Detailed technical data

Safety-related parameters

Safety integrity level	SIL3 (IEC 61508), SILCL3 (EN 62061)
Category	Category 4 (EN ISO 13849)
Performance level	PL e (EN ISO 13849) ¹⁾
PFH_D (mean probability of a dangerous failure per hour)	1.5 x 10 ⁻⁸ (EN ISO 13849) ²⁾
T_M (mission time)	20 years (EN ISO 13849)
Type	Type 4 (EN ISO 14119)
Actuator coding level	Low coding level (EN ISO 14119)
Safe state in the event of a fault	At least one safety-related semiconductor output (OSSD) is in the OFF state.

¹⁾ In a cascade, the performance level for the cascade as a whole depends on the number and type of devices in the cascade. PL e is only possible in cascades with a maximum of 6 devices.

²⁾ At 40 °C and 1000 m above sea level.

Interfaces

Connection type	Cable with plug M12, 5-pin
Length of cable	150 mm
Cable material	PVC
Long connecting cable	≤ 140 m

Electrical data

Protection class	III (IEC 61140)
Contamination rating	3 (EN 60947-1)
Classification according to cULus	Class 2
Usage category	DC-13 (IEC 60947-5-1)
Rated insulation voltage U_i	32 V
Rated impulse withstand voltage U_{imp}	1,500 V

¹⁾ In a cascade, the value is multiplied by the number of safety switches in the cascade.

Supply voltage U_V when an individual safety switch is connected		
	Sensor	24 V DC (19.2 V DC ... 28.8 V DC)
	Magnet	24 V DC (19.2 V DC ... 28.8 V DC)
Supply voltage U_V when a cascade is connected		
	Sensor	24 V DC (22.8 V DC ... 28.8 V DC)
	Magnet	24 V DC (21.6 V DC ... 28.8 V DC)
Power consumption		
	Locking active	350 mA
	Locking deactivated	50 mA
Switching frequency		≤ 0.5 Hz
Type of output		Semiconductor (OSSD)
Output current (OSSDs)		≤ 100 mA
Diagnostic output		≤ 25 mA, short-circuit protected
Cable capacitance		400 nF (for OUT A and OUT B)
Response time		50 ms ¹⁾
Enable time		100 ms ¹⁾
Risk time		100 ms ¹⁾
Switch-on time		2.5 s
Locking principle		Power to lock

¹⁾ In a cascade, the value is multiplied by the number of safety switches in the cascade.

Mechanical data

Weight		
	Switches	510 g
	Actuator	210 g
Material		
	Sensor housing	Anodized aluminum
	Actuator housing	Fiber-glass-reinforced PVC
	Anchor plate	Nickel-plated steel
Dimensions (W x H x D)		
	Switches	120 mm x 60 mm x 38.5 mm
	Actuator	120 mm x 60 mm x 20.5 mm
Offset tolerance		
	Vertical	≤ 5 mm
	Horizontal	≤ 5 mm
	Aperture angle	$\leq 3^\circ$

Ambient data

Enclosure rating	IP67 (EN 60529)
Ambient operating temperature	-20 °C ... +55 °C
Storage temperature	-25 °C ... +70 °C
Relative humidity	50 %, at 70 °C (IEC 60947-5-2)

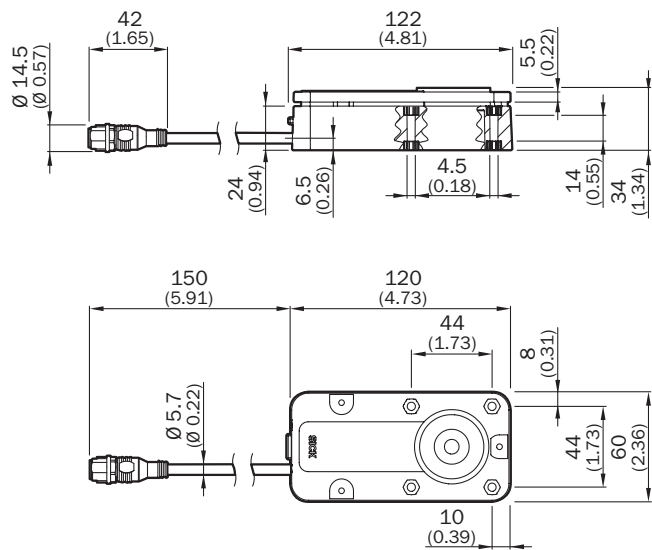
Vibration resistance	10 Hz ... 55 Hz, 1 mm (IEC 60068-2-6)
Shock resistance	30 g, 11 ms (EN 60068-2-27)
EMC	EN IEC 61326-3-1 EN IEC 60947-5-2 EN IEC 60947-5-3

Classifications

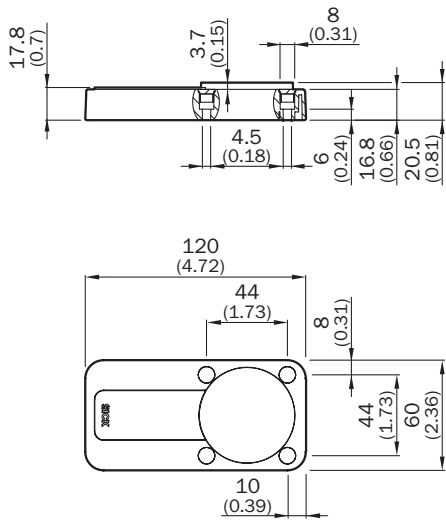
ECl@ss 5.0	27272603
ECl@ss 5.1.4	27272603
ECl@ss 6.0	27272603
ECl@ss 6.2	27272603
ECl@ss 7.0	27272603
ECl@ss 8.0	27272603
ECl@ss 8.1	27272603
ECl@ss 9.0	27272603
ETIM 5.0	EC002593
ETIM 6.0	EC002593
UNSPSC 16.0901	39122205

Dimensional drawing (Dimensions in mm (inch))

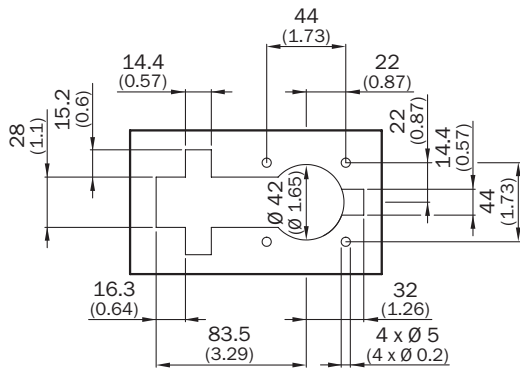
Sensor with M12 male connector



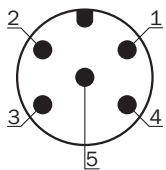
Actuator



Recess for flush mounting



Connection diagram



Pin	Designation	Description
1	+24 V DC	Safety switch voltage supply
2	OSSD 1	OSSD 1 output
3	0 V	0 V DC voltage supply
4	OSSD 2	OSSD 2 output
5	Magnet	Magnet control 24 V DC

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We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

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