TECHNICAL DESCRIPTION

OLM –
Optical Linear Measurement Sensor

Highly repeatable, absolute measurement of any distance along linear or curved paths.

SICK
Sensor Intelligence.

New paths in distance measurement – The OLM optical linear measurement sensor measures travel distances along a straight line, curve, incline and more.

The OLM determines travel distances up to 10 km, with millimeter precision. Fast travelling speeds, high reproducibility and fast output rates make the OLM optical linear measurement sensor perfect for a multitude of applications.

Image source: Dürr AG

The OLM optical linear measurement sensor determines its absolute position using bar code tape mounted along the length of travel.

FLEXIBLE MEASUREMENT OPTIONS.

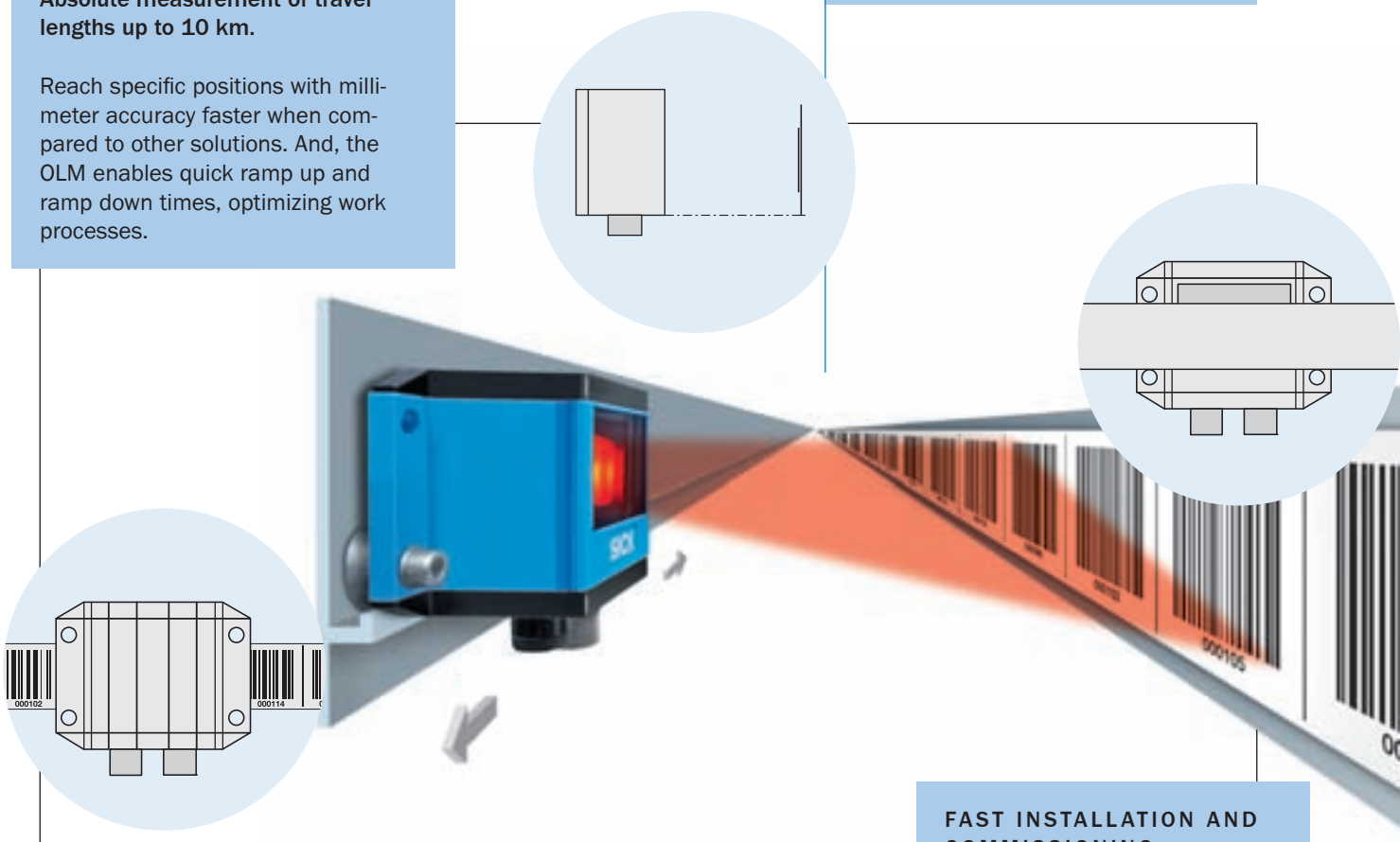
Measure along a straight line, curve, incline and more.

Mount the bar code tape along a curve, free-roaming path, incline/decline or straight line, the OLM will measure the right position every time – even if the path is blocked by another vehicle. Either the OLM sensor or bar code tape can be fixed, providing more application solution possibilities.

INCREASED SPEED AND POSITIONING ACCURACY.

Absolute measurement of travel lengths up to 10 km.

Reach specific positions with millimeter accuracy faster when compared to other solutions. And, the OLM enables quick ramp up and ramp down times, optimizing work processes.



RELIABLE MEASUREMENT.

Non-contact solution helps ensure longer use.

The compact OLM contains no moving or rotating parts, which means greater reliability and reduced wear. The sensor's camera-based technology offers double the life of laser-based solutions. It is also shock and vibration resistant, for maximum availability.

FAST INSTALLATION AND COMMISSIONING.

Reduce startup time.

With easy alignment and simple mounting, the OLM reduces valuable time spent on installation. In additon, continuous recalibration is not required. SICK's free SOPAS software makes it easy to program the device via Ethernet. Multiple output options are available – no gateways are required for most platforms.

Sample applications.

Image source: Dematic GmbH

OVERHEAD CONVEYORS

Transporting, sorting, storing, buffering and delivering products and goods are the core tasks of overhead conveyors. The OLM optical linear measurement sensor ensures reproducible, accurate positioning of each individual conveyor.

➲ Maximum reliability and optimized material flow.

Image source: Dürr AG

ROTARY TABLES AND TURNTABLES

The OLM enables in-sequence positioning and maximum flexibility in many applications, including bottle filling on turntables or in the automotive industry. The OLM optical linear measurement sensor determines the travel distance, which the control system uses to calculate the angle of rotation.

➲ Efficient and fast, flexible adaptation to changes.

The OLM optical linear measurement sensor measures the right position every time – even if the path is blocked by another vehicle.

Image source: Dematic GmbH

SHUTTLES

Shuttles, the interfaces between stock supplies and picking, must store and pick quickly. Based on current demand, the number of operating shuttles can be changed. The OLM optical linear measurement sensor enables independent positioning of any number of vehicles on a rail system without interference.

➲ Very high throughput and a cost-efficient solution for small and large logistics centers.

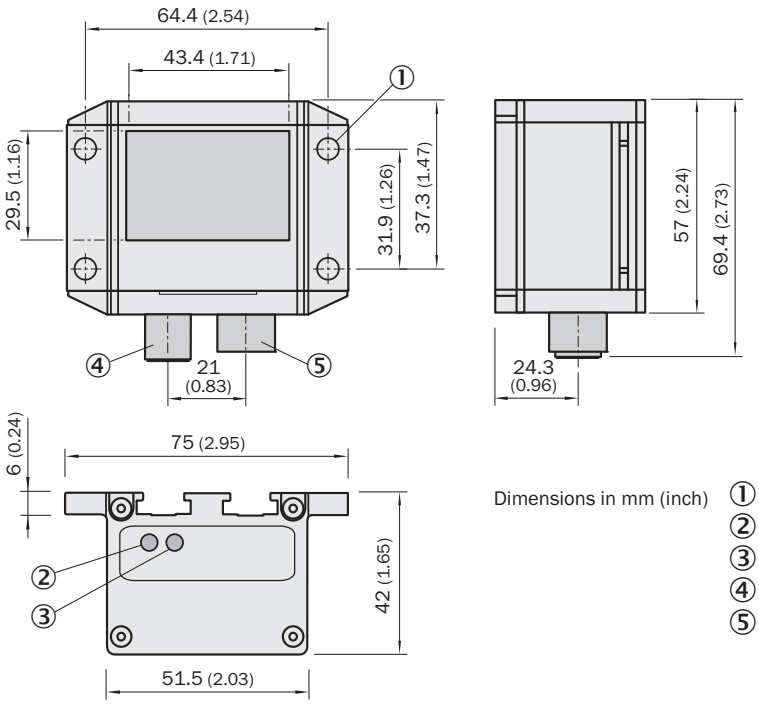
COMPLEX VEHICLE MANEUVERS

The OLM is ideal for applications that have multi-directional tracks that require vehicles to travel on different paths and still maintain absolute position – even during right angle transfers and abrupt distance jumps.

➲ Maximum flexibility and reliable operation.

- Non-contact optical barcode positioning
- Camera-based technology with visible LED illumination
- High resolution measurement and high output rate enable precise and fast positioning
- No internal moving parts, increases uptime
- 10 km measurement range, even around corners
- Wide operating temperature range –30 °C to +60 °C
- Ethernet connectivity

Dimensional drawing

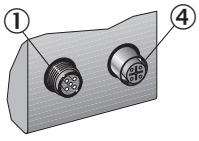


Dimensions in mm (inch)

① Mounting holes, Ø 5.5 mm
② Power LED [power on]
③ Status LED [status]
④ Connection plug M12, 5-pin/8-pin
⑤ Connector socket M12, 4-pin

Connection types, M12

OLM 100 – 1005

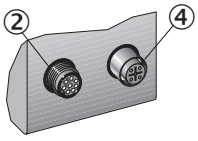


①

brn	1	L+ (+10...30 VDC)
wht	2	B (+)
blu	3	M (0 V)
blk	4	A (–)
gra	5	FE (shield)

M12 (A-coded)

OLM 100 – 1001
OLM 100 – 1003

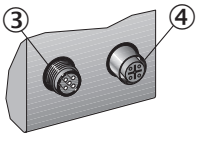


②

wht	1	NC
brn	2	L+ (+10...30 VDC)
grn	3	Rx–/Clk–
yel	4	Rx+/Clk+
gra	5	Tx–/Data–
pnk	6	Tx+/Data+
blu	7	M (0 V)
red	8	NC
		FE (shield)

M12 (A-coded)

OLM 100 – 1006



③

	1	FE (shield)
red	2	L+ (+10...30 VDC)
blk	3	M (0 V)
wht	4	CAN_H
blu	5	CAN_L

M12 (A-coded)

④

	1	Tx+
	2	Rx+
	3	Tx–
	4	Rx–

M12 (D-coded)

General technical data

Measurement range		0 ... 10,000 m [1]
Distance to bar code tape		100 mm ± 20 mm
Resolution		0.1 mm or 1 mm (SSI, RS422, CANopen)/1 mm (RS485)
Light source		LED red
Service life		100,000 h [2]
Supply voltage V_S [3]		10 ... 30 V DC
Residual ripple [4]		≤ 5 V_{PP}
Power consumption		< 3 W
Enclosure rating		IP 65 (EN 60 529)
VDE protection class		III
Ambient temperature	Operation	–20 °C ... +60 °C [5] [6]
	Storage	–40 °C ... +75 °C
Ambient light [7]		30,000 lux
Weight		Approx. 260 g
Housing material		Aluminium, zinc

1) Dependent on the set resolution and transfer protocol
2) Typ. at +25 °C
3) Limit values, reverse polarity protected
4) May not exceed or fall short of V_S tolerances
5) –30 °C with 30 min. warm-up time
6) Non-condensing
7) Typ. value at +25 °C ambient temperature

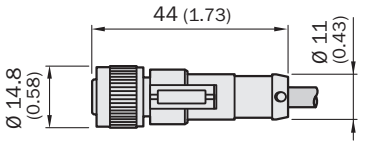
Type-specific data incl. order information

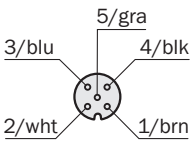
Type	Order no.	Interface	Reproducibility [8]	Max. movement speed	Output rate
OLM100-1005	1046580	RS485	1 mm	4 m/s	5 ms
OLM100-1001	1047411	SSI	1 mm	4 m/s	1 ms
OLM100-1003	1047412	RS422	1 mm	4 m/s	5 ms
OLM100-1006	1047413	CANopen	1 mm	4 m/s	5 ms

8) Statistical error 1 σ

Accessories

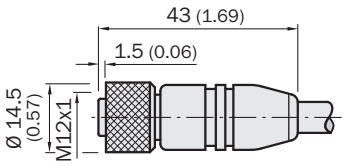
Type	Order no.	Description
DOL-1205-G05MAC	6036384	Female connector, M12, 5-pin, A-coded, moulded cable shield on locking nut, 5 m

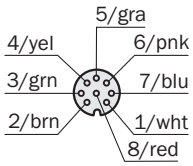




Dimensions in mm (inch)

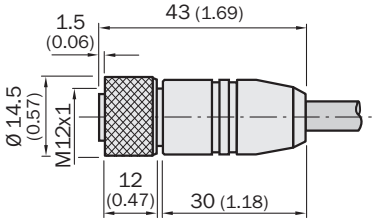
Type	Order no.	Description
DOL-1208-G02MAH1	6032448	Female connector, M12, 8-pin, A-coded, straight, moulded cable, shield on locking nut, 2 m
DOL-1208-G05MAH1	6032449	Female connector, M12, 8-pin, A-coded, straight, moulded cable, shield on locking nut, 5 m
DOL-1208-G10MAH1	6032450	Female connector, M12, 8-pin, A-coded, straight, moulded cable, shield on locking nut, 10 m
DOL-1208-G20MAH1	6032451	Female connector, M12, 8-pin, A-coded, straight, moulded cable, shield on locking nut, 20 m

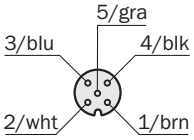




Dimensions in mm (inch)

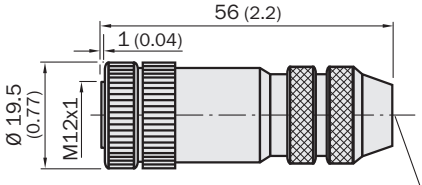
Type	Order no.	Description
DOL-1205-G06MK	6028326	CANopen female connector, M12, 5-pin, A-coded, moulded cable with screen connected to pin 1, 6 m

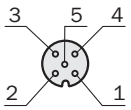




Dimensions in mm (inch)

Type	Order no.	Description
DOS-1205-GA	6027534	CANopen female connector, M12, 5-pin, straight, shielded, 360° shield on locking nut, terminal screwed, A-coding



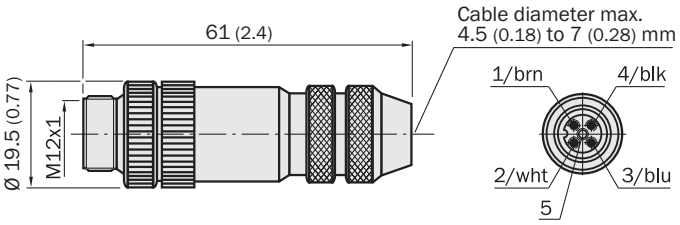


Cable diameter max.
4.5 (0.18) to 7 (0.28) mm

Dimensions in mm (inch)

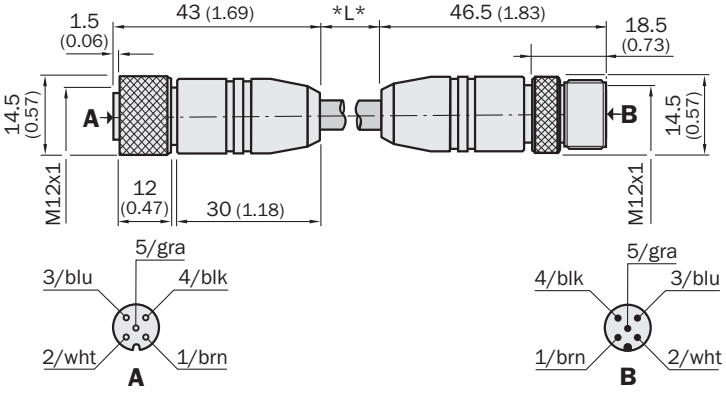
Accessories

Type	Order no.	Description
STE-1205-GA	6027533	CANopen male connector, M12, 5-pin, straight, shielded, 360° shield on locking nut, terminal screwed, A-coding



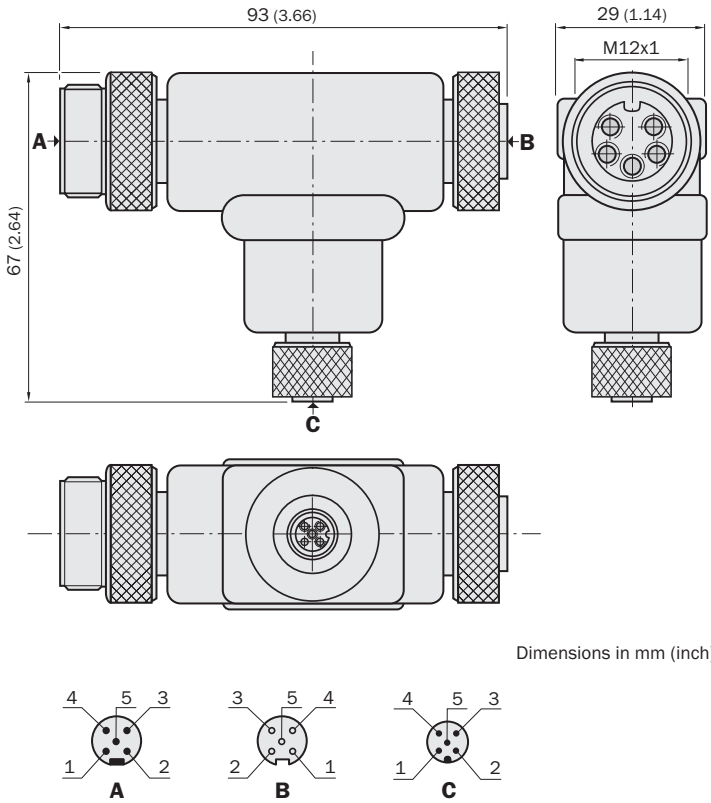
Dimensions in mm (inch)

Type	Order no.	Description
DSL-1205-G06MK	6028327	CANopen extension cable, socket M12, 5-pin, straight – plug M12, 5-pin, straight, dropcable, A-coding, 6 m



Dimensions in mm (inch)

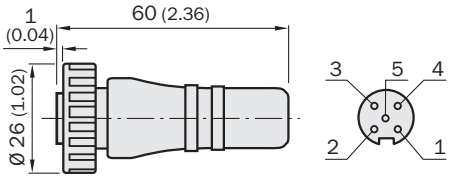
Type	Order no.	Description
SDO-02D78-SF	6028330	CANopen T-junction, socket M12, 5-pin, on plug, socket 7/8", 5-pin



Dimensions in mm (inch)

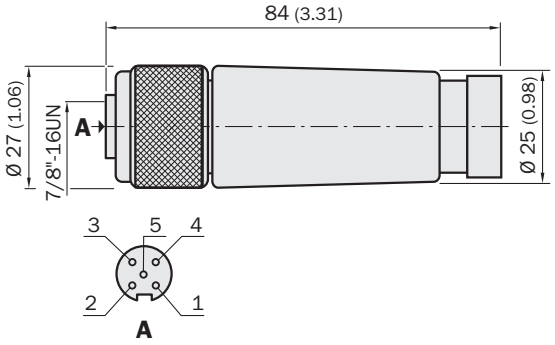
Accessories

Type	Order no.	Description
DOS-7805-GKEND	6028329	CANopen terminating resistor, socket 7/8”, 5-pin, straight



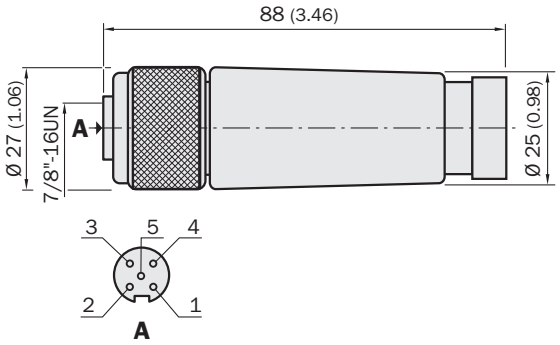
Dimensions in mm (inch)

Type	Order no.	Description
DOS-7805-GK	6028331	CANopen female connector 7/8”, 5-pin, straight, PG16, terminal screwed



Dimensions in mm (inch)

Type	Order no.	Description
STL-7805-GK	6028332	CANopen male connector 7/8”, 5-pin, straight, PG16, terminal screwed

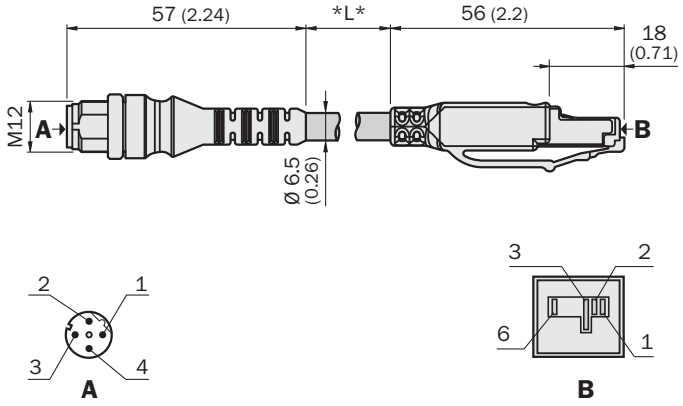


Dimensions in mm (inch)

Type	Order no.	Description
LTG-2804-MW	6028328	CANopen cable, 4 x 0.34 mm^2, leads paired and shielded, with AL-PT-foil shielded, temperature range: in flexible motion –10 °C ... +70 °C; in fixed position –40 °C ... +70 °C, sheath: PUR black Ø 6.8 mm, shield: Cu galvanized

Accessories

Type	Order no.	Description
SSL-2J04G02ME	6034414	Ethernet patch plug connector, M12, 5-pin/RJ45, 2 m
SSL-2J04G03ME	6029630	Ethernet patch plug connector, M12, 4-pin/RJ45, 3 m
SSL-2J04G05ME	6035389	Ethernet patch plug connector, M12, 4-pin/RJ45, 5 m
SSL-2J04G10ME	6030928	Ethernet patch plug connector, M12, 4-pin/RJ45, 10 m
SSL-2J04G25ME	6033555	Ethernet patch plug connector, M12, 4-pin/RJ45, 25 m



Dimensions in mm (inch)

Type	Order no.	Description
Set of sliding nuts	2017550	

Accessories bar code tape

Type	Order no.	Description
Barcode, 30 mm	5322556	Customer-specific length, length in cm of the required tape with start and end numbers in 3 cm steps. Minimum length 500 cm (5 m), maximum length 1,000,000 cm (10,000 m)

Sample order bar code tape 1: 15 m bar code tape from 0 ... 15 m

Type	Order no.	Description
Barcode, 30 mm	5322556	Length: 1,500 cm, 0 cm up to 1,500 cm

Sample order bar code tape 2: 5 m bar code tape from 15 ... 20 m

Type	Order no.	Description
Barcode, 30 mm	5322556	Length: 500 cm, 1,500 cm up to 2,001 cm

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