



## T-Easic<sup>®</sup> FTS

CLEVER DRY-RUN PROTECTION IN PUMPS

Flow sensors

**SICK**  
Sensor Intelligence.

## ONE FLOW SWITCH, TWO MEASUREMENTS – ANY AMOUNT OF LIQUID

The T-Easic® FTS thermal flow switch offers flow monitoring and temperature measurement in one device. Based on the calorimetric principle of operation, it is the optimal solution for protecting pumps from dry running. It doesn't matter which fluids flow through the monitored system. So although the T-Easic® FTS is optimized for measurement in oil and water, many other liquids can also be calibrated quickly and easily via teach-in.

The T-Easic® FTS solves a whole range of tasks in many different areas in a clever manner:

- Pump protection and monitoring in nearly all industrial sectors
- Flow monitoring and temperature measurement of coolants and lubricants in machine tools
- Flow monitoring of cleaning agents and detergents in industrial washing machines
- Oil flow monitoring in hydraulic systems, e.g. in windmills
- Performance measurement in centralized lubricant systems
- Simple flow detection in CIP cleaning systems



### + Flexible and cost-saving thanks to reduced number of variants

The T-Easic® FTS is available in two variants. So, depending on the intended purpose, an optimally-aligned flow switch is available. The stainless steel hygienic variant withstands the challenging CIP (cleaning-in-place) and SIP (sterilization-in-place) conditions which prevail in the food and pharmaceutical industries, for example. The industrial version packaged in a rugged VISTAL® housing is also tough enough to handle intensive cleaning processes. In addition, an OLED display and operating buttons make it possible to read out measured values directly on-site.

### + Productivity through maintenance-free design

The T-Easic® FTS has no moving and high-maintenance components. This considerably increases the availability of the flow switch, thereby guaranteeing consistent productivity with fewer downtimes.



**+ Saves time with IO-Link interface**

Thanks to its IO-Link 1.1 interface, the T-Easic® FTS allows for quick and user-friendly adjustment of the configuration setting and process monitoring at any time. Elaborate wiring is not necessary, which saves lot of time and money.

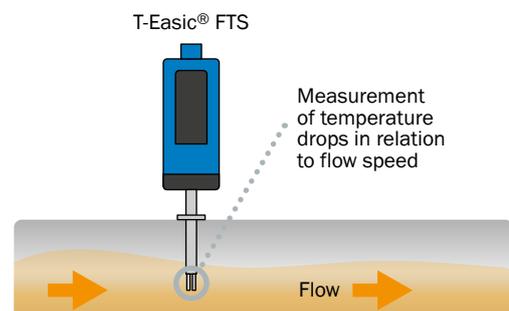
**IO-Link**

**+ Practical – the all-in-one solution**

One sensor, two measurements: The T-Easic® FTS reliably detects the flow of a wide range of liquids as well as their temperature. This not only reduces device costs, but also lowers any existing hygiene risks. Only one point is needed for both measurements, which reduces possible contamination to a minimum.

**The calorimetric principle of operation**

The sensor probe is heated up with the calorimetric principle of operation. The medium flowing by the sensor cools the probe during operation. The drop in temperature is proportional to the flow speed, meaning it is higher the faster the liquid flows. The sensor evaluates the detected temperature difference and calculates the values for flow monitoring.



## CLEVER DRY-RUN PROTECTION IN PUMPS



### Product description

The T-Easic® FTS thermal flow switch measures flow and temperature in accordance with the calorimetric principle. With two digital outputs, it monitors the measured values and sends these to a superior control as soon as a set limit value is exceeded or undercut. The parameter settings can be done via IO-Link. As an industrial design, it also offers an OLED display and operating

buttons. Values preset at the factory for media such as oil and water simplify and accelerate commissioning; nearly all liquids can be calibrated quickly and easily. The extremely rugged VISTAL® housing of the industrial design protects the sensor during cleaning processes, the hygienic design also available also withstands CIP/SIP conditions.

### At a glance

- Flow monitoring and temperature measurement in one sensor
- Optimized for water and oil; teach-in option of other liquids
- IP 67/IP 69 enclosure rating and IO-Link 1.1
- Industrial design in VISTAL® housing with 180°-rotatable OLED display
- Stainless steel hygienic variant, completely CIP-/SIP-capable, process temperatures up to 150 °C

### Your benefits

- One sensor, two measurements - reduces costs and hygiene risk thanks to a unique installation point
- Cost savings thanks to speedy installation via mounting adapter
- Time savings due to easy commissioning without calibration for taught-in media
- User-friendly industrial version with intuitive menu guidance and display for fast commissioning
- Reduced storage needs thanks to flexible adjustment to the pipe diameter
- Less wiring is required thanks to IO-Link 1.1 with convenient adjustments as well as integration and cloning functions
- Low downtimes thanks to low-maintenance system



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→ [www.sick.com/T-Easic\\_FTS](http://www.sick.com/T-Easic_FTS)

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



## Detailed technical data

### Features

<b>Measurement principle</b>	Calorimetric measurement process
<b>Medium</b>	Water and oil-based liquids
<b>Pipe diameters</b>	≥ 25 mm <sup>1)</sup>
<b>Operating range</b>	3 cm/s ... 150 cm/s, Water 3 cm/s ... 300 cm/s, Oil
<b>Process temperature</b>	-40 °C ... +150 °C <sup>2)</sup>
<b>Process pressure</b>	≤ 100 bar ≤ 16 bar, with clamp adapter P/N 2093548
<b>Communication interface</b>	IO-Link
<b>Temperature measurement</b>	✓
<b>Indication</b>	✓ / -, OLED + 3 status LEDs

<sup>1)</sup> Place probe tip in the center of the pipe to ensure the highest measurement accuracy.

<sup>2)</sup> For medium temperatures above 100 °C, the distance between the lower side of the housing and the upper side of the mounting adapter must be at least 25 mm. The version with the special length of 60 mm cannot be used at a process temperature of over 100 °C.

### Performance

<b>Minimum flow velocity</b>	≥ 3 cm/s, for water and oil
<b>Maximum flow velocity</b>	≤ 150 cm/s, for water ≤ 300 cm/s, for oil
<b>Inlet zone</b>	5 x DN
<b>Output zone</b>	3 x DN
<b>Accuracy of sensor element</b>	± 10 %, relative to measuring range end value <sup>1)</sup>
<b>Reproducibility</b>	< 1 cm/s <sup>1)</sup>
<b>Resolution</b>	0.01 m/s, speed; 0.1 L/min volume; 0.1% relative (via IO-Link)
<b>Response time</b>	< 2.5 s <sup>2)</sup>
<b>Temperature measurement</b>	
Accuracy (temperature)	± +1 °C
Resolution (Temperature)	< +0.1 °C
Response time (temperature)	< 6 s <sup>3)</sup>
<b>Operating mode</b>	Relative speed (%) Absolute speed Absolute volume Relative teach (%)

<sup>1)</sup> Under reference conditions with water, diameter of inner pipe 25 mm, vertical installation in pipe, probe tip in tube center, fully-filled pipe without air bubbles, speed from 10 cm/s to 100 cm/s, inlet zone > 30 cm, outlet zone > 30 cm, 26 °C ± 1 °C, 2 bar ± 1 bar.

<sup>2)</sup> Filter off.

<sup>3)</sup> Under reference conditions with water, diameter of inner pipe 25 mm, vertical installation in pipe, probe tip in tube center, fully-filled pipe without air bubbles, speed = 100 cm/s, inlet zone > 30 cm, outlet zone > 30 cm, 26 °C ± 1 °C, 2 bar ± 1 bar.

### Mechanics

<b>Process connection</b>	Without process connection (adapter needed for installation)
<b>Wetted parts</b>	Stainless steel 1.4404 / 316L
<b>Housing material</b>	VISTAL® / polyester / Stainless steel 1.4404 / 316L (depending on type)
<b>Enclosure rating</b>	IP67 / IP67 / IP69 (depending on type)
<b>Weight</b>	74 g ... 210 g (depending on type)
<b>Sealing material (only clamp adapter P/N 2093548)</b>	FKM
<b>Probe diameter</b>	8 mm
<b>Probe length</b>	60 mm ... 200 mm (depending on type)

Minimum immersion length	12 mm
Distance to pipe wall	10 mm

### Electronics

Supply voltage	9 V DC ... 30 V DC <sup>1)</sup>
Power consumption	< 2 W at 24 V DC (without load on the outputs)
Initialization time	≤ 5 s ≤ 10 s (IO-Link)
Protection class	III
Connection type	M12 round connector x 1, 4-pin
Output signal	2 x push-pull digital outputs for flow and temperature (Q2 can be selected as digital input)
Output current	< 100 mA <sup>2)</sup>
Signal voltage HIGH	> U <sub>v</sub> - 2 V
Signal voltage LOW	≤ 2 V
Inductive load	1 H
Capacitive load	100 nF (2.5 nF, IO-Link mode)
EMC	EN 61326-1, EN 61326-2-3
Digital input limit	HIGH voltage dependent on U <sub>v</sub> LOW voltage < 4.0 V
MTTF	> 200 years

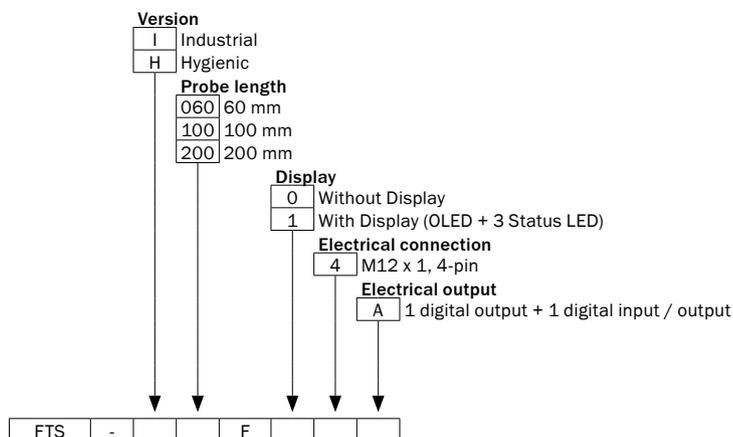
<sup>1)</sup> All connections are reverse polarity and overload protected. Q1 and Q2 are short-circuit protected.

<sup>2)</sup> Per output.

### Ambient data

Ambient operating temperature	-40 °C ... +70 °C
Ambient storage temperature	-40 °C ... +80 °C

### Type code



### Ordering information

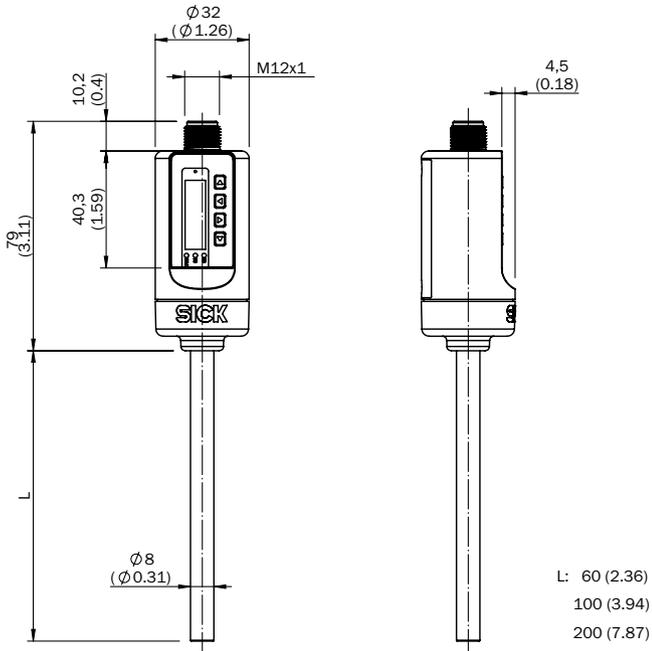
- **Process pressure:** ≤ 100 bar, ≤ 16 bar
- **Maximum flow:** ≤ 150 cm/s, ≤ 300 cm/s
- **Process connection:** Without process connection (adapter needed for installation)
- **Connection type:** M12 round connector x 1, 4-pin

Probe length	Housing material	Display	Type	Part no.
60 mm	VISTAL® / polyester	✓	FTS-I060F14A	1091146

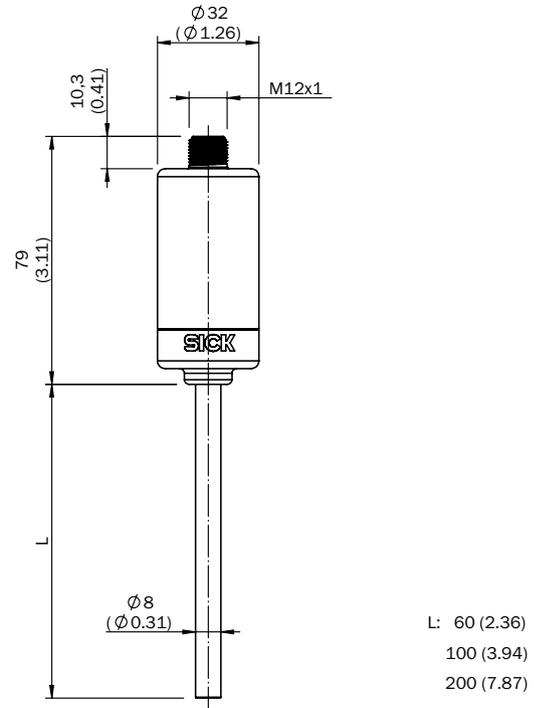
Probe length	Housing material	Display	Type	Part no.
100 mm	VISTAL® / polyester	✓	FTS-I100F14A	1091144
200 mm	VISTAL® / polyester	✓	FTS-I200F14A	1091145
60 mm	Stainless steel 1.4404 / 316L	-	FTS-H060F04A	1091149
100 mm	Stainless steel 1.4404 / 316L	-	FTS-H100F04A	1091147
200 mm	Stainless steel 1.4404 / 316L	-	FTS-H200F04A	1091148

Dimensional drawing (Dimensions in mm (inch))

FTS Industrial



FTS Hygienic



Accessories

Mounting systems

Flanges

Flange plates

Brief description	Type	Part no.
Compression fitting for T-Easic FTS, G ½	BEF-CFSG12-FTS1	5338774
Compression fitting for T-Easic FTS, M18 x 1.5	BEF-CFSM18-FTS1	2104208
Compression fitting for T-Easic FTS, ½" NPT	BEF-CFSN12-FTS1	5338775
Compression fitting for T-Easic FTS, clamp (DIN 32676) DN 25-40 (50.5 mm)	BEF-HA-TCLI10-FTS1	2093548

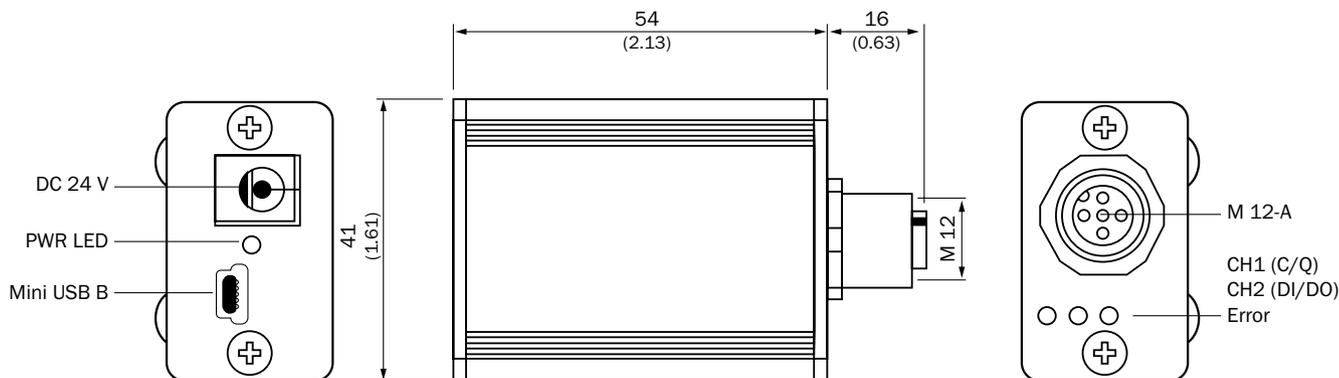
Connection systems

Modules and gateways

Connection modules

	Brief description	Type	Part no.
	IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A	IOLA2US-01101 (SiLink2 Master)	1061790

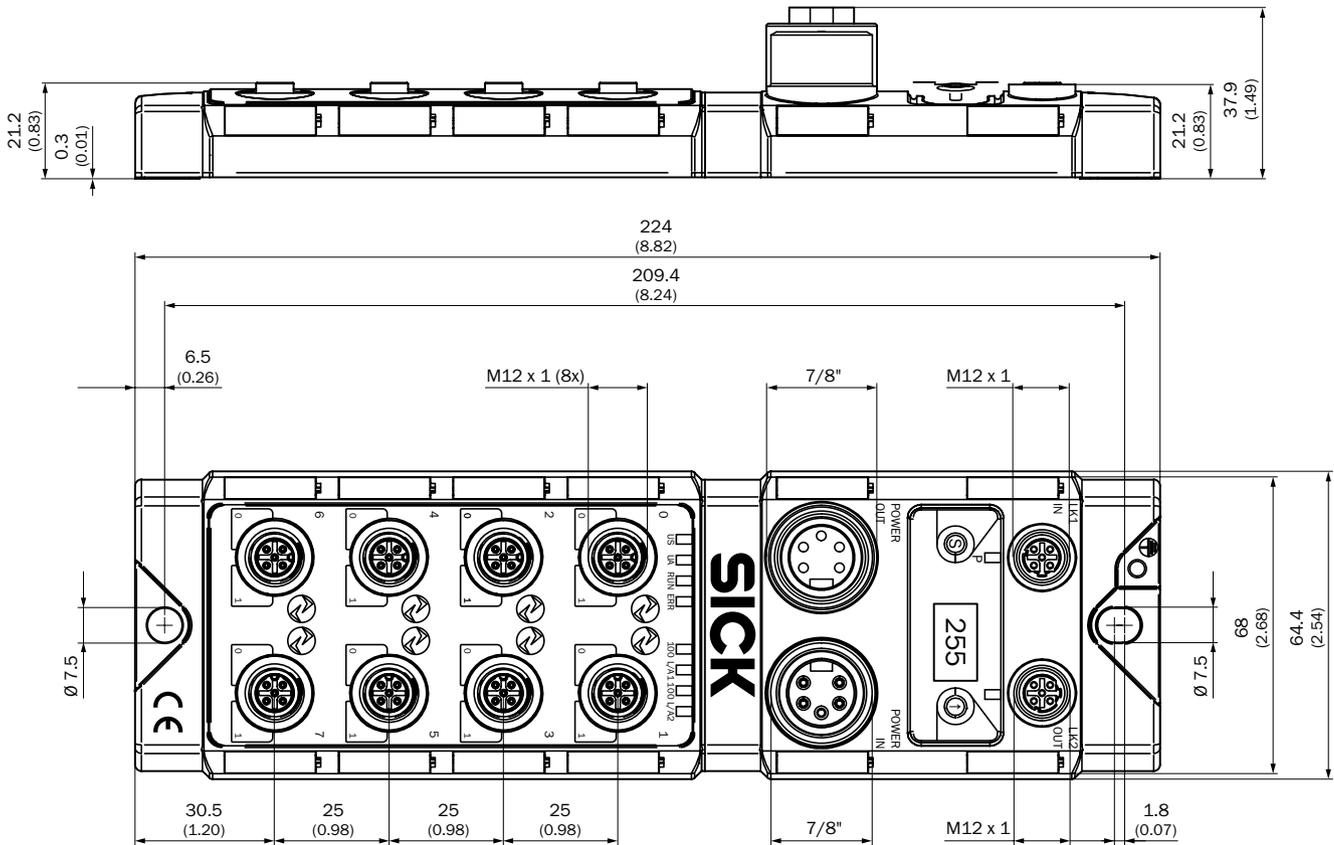
IOLA2US-01101 (SiLink2 Master)



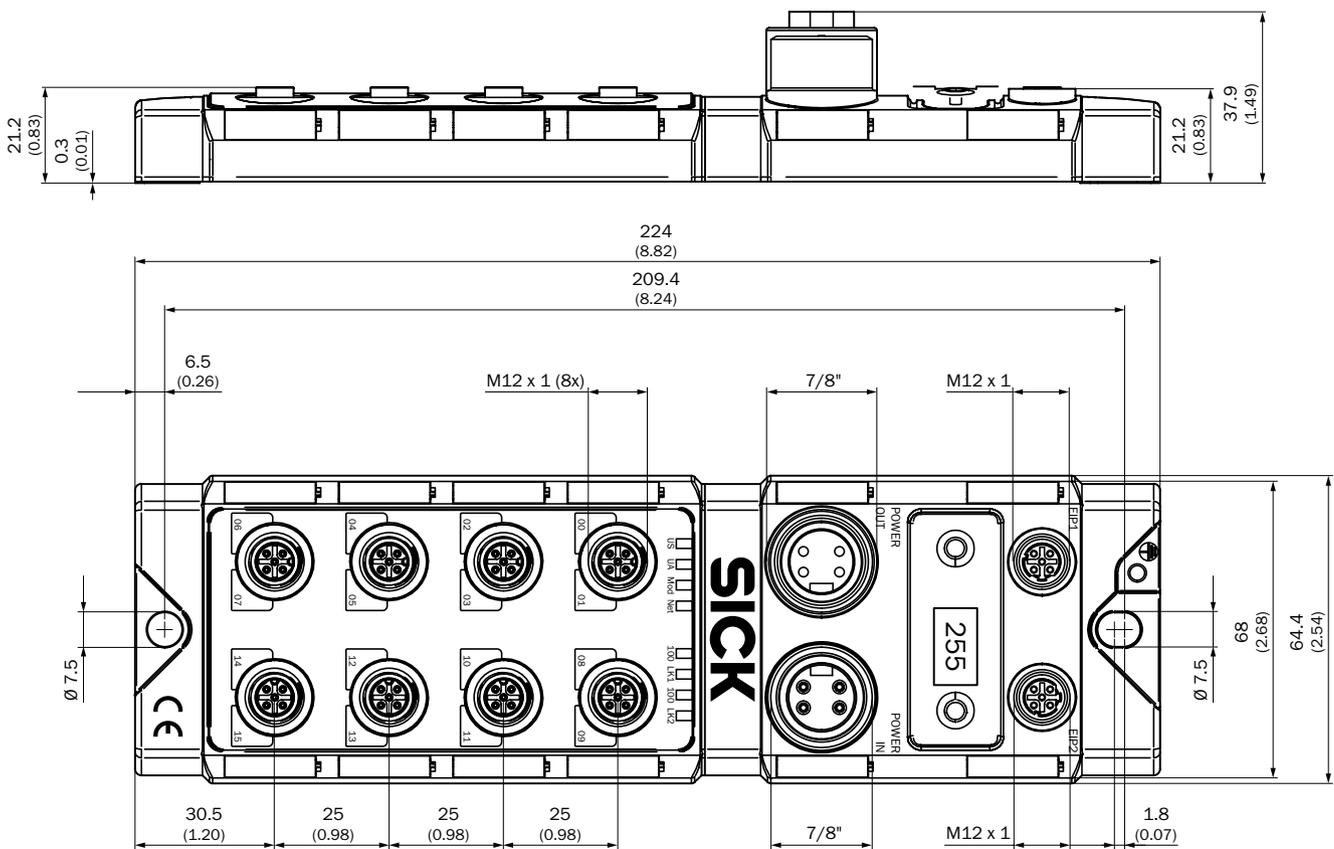
Fieldbus modules

	Brief description	Type	Part no.
 Illustration may differ	EtherCAT IO-Link Master, IO-Link V1.1, Port Class A, power supply via 7/8" cable 24 V / 8 A, fieldbus connection via M12 cable	IOLG2EC-03208R01 (IO-Link Master)	6053254
 Illustration may differ	EtherNet/IP IO-Link Master, IO-Link V1.1, Port Class A, power supply via 7/8" cable 24 V / 8 A, fieldbus connection via M12-cable	IOLG2EI-03208R01 (IO-Link Master)	6053255
	PROFINET IO-Link Master, IO-Link V1.1, Port Class A, power supply via 7/8" cable 24 V / 8 A, fieldbus connection via M12 cable	IOLG2PN-03208R01 (IO-Link Master)	6053253

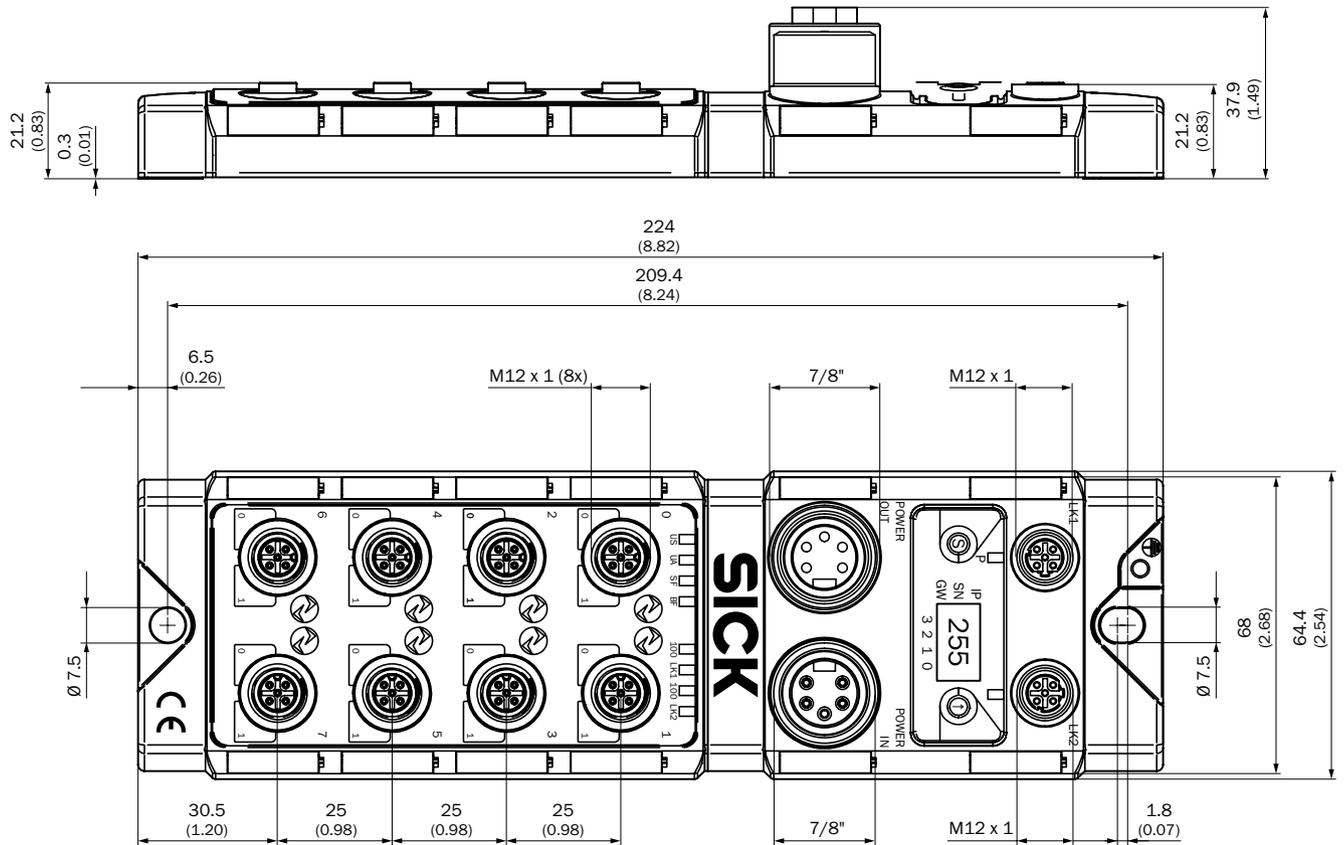
IOLG2EC-03208R01 (IO-Link Master)



IOLG2EI-03208R01 (IO-Link Master)



IOLG2PN-03208R01 (IO-Link Master)



Plug connectors and cables

Connecting cables

	Brief description	Length of cable	Type	Part no.
	Head A: female connector, M12, 4-pin, straight	2 m	DOL-1204-G02MNI	6052613
	Head B: Flying leads	5 m	DOL-1204-G05MNI	6052615
	Cable: PVC, unshielded, 5 mm <sup>1) 2)</sup>	10 m	DOL-1204-G10MNI	6052617

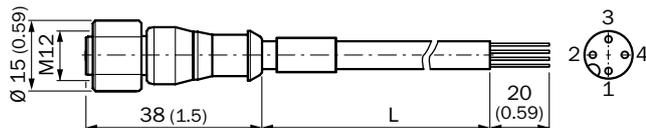
<sup>1)</sup> Tested detergent: P3-topactive DES, P3-topax 19, P3-topax 56, P3-topax 66 and P3-topax 99; Insulating material group: Cat I.

<sup>2)</sup> Insulating material group: Cat I.

DOL-1204-G02MNI

DOL-1204-G05MNI

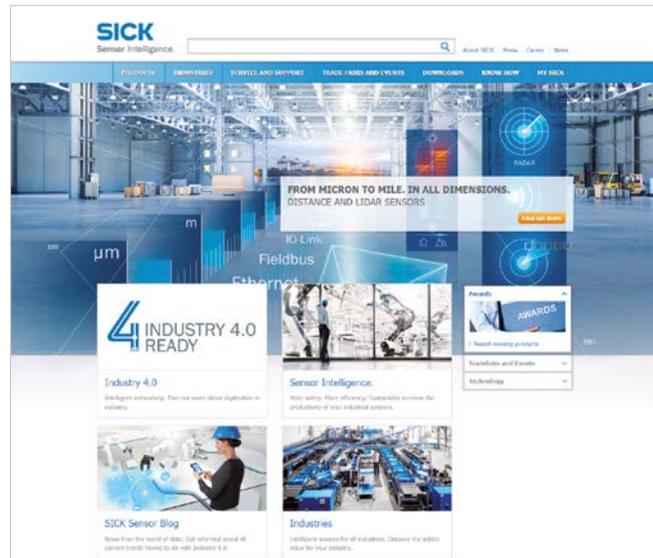
DOL-1204-G10MNI



- ① brn
- ② wht
- ③ blu
- ④ blk

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## SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 8,800 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, SICK is always close to its customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents, and preventing damage to the environment.

SICK has extensive experience in various industries and understands their processes and requirements. With intelligent sensors, SICK delivers exactly what the 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 SICK a reliable supplier and development partner.

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

**That is “Sensor Intelligence.”**

### **Worldwide presence:**

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Hong Kong, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

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