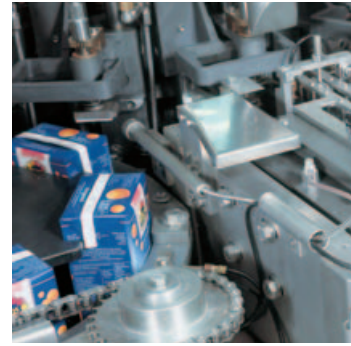




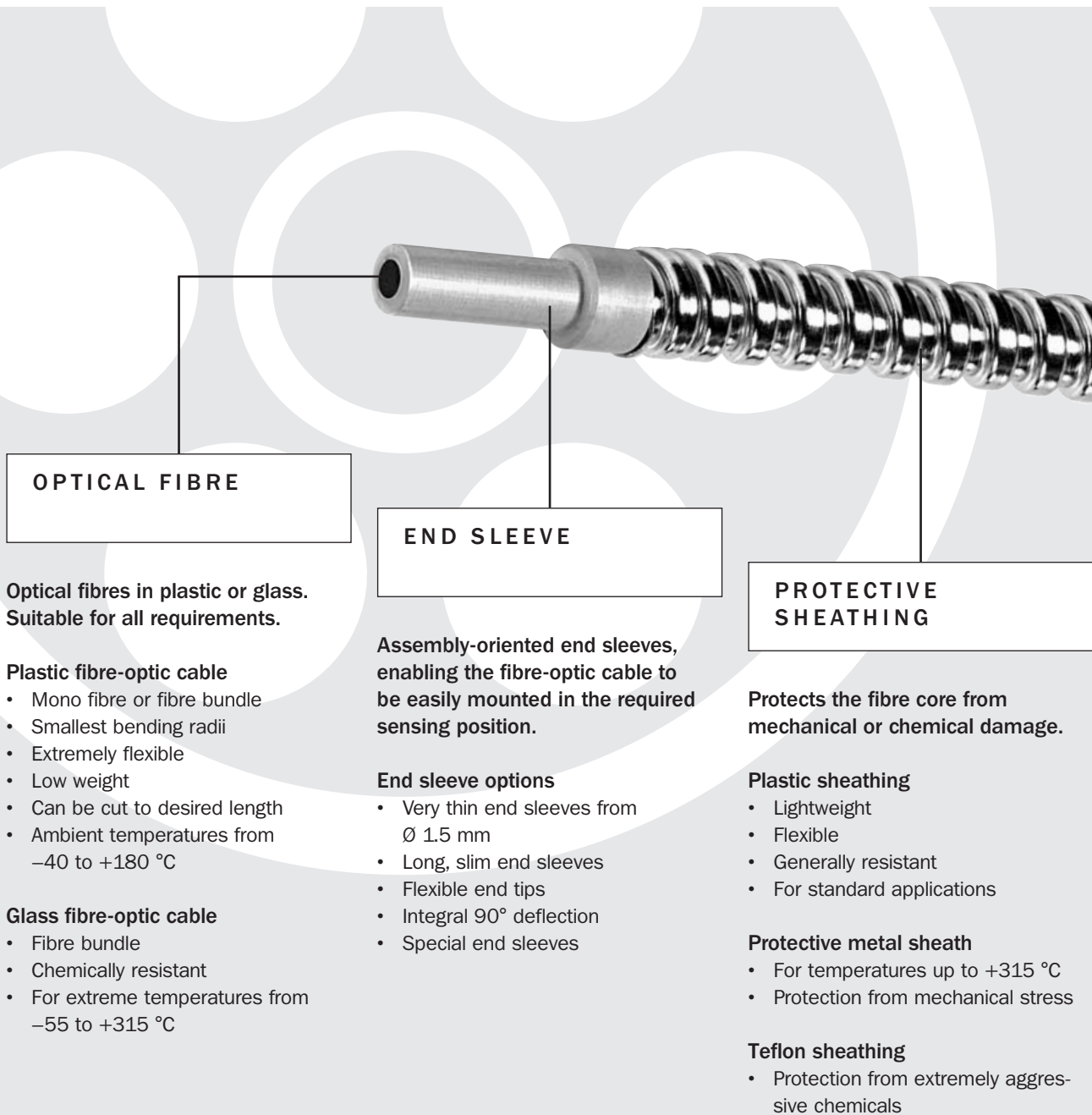
Fibre-optic cables

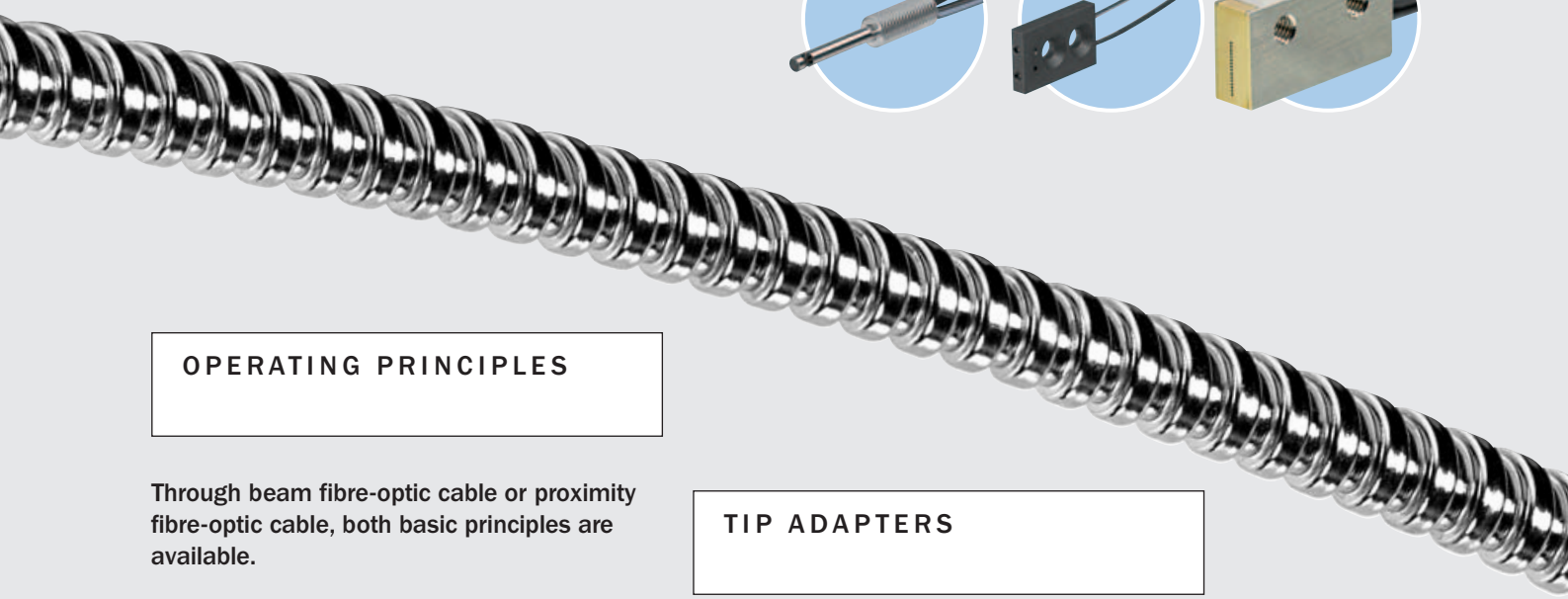
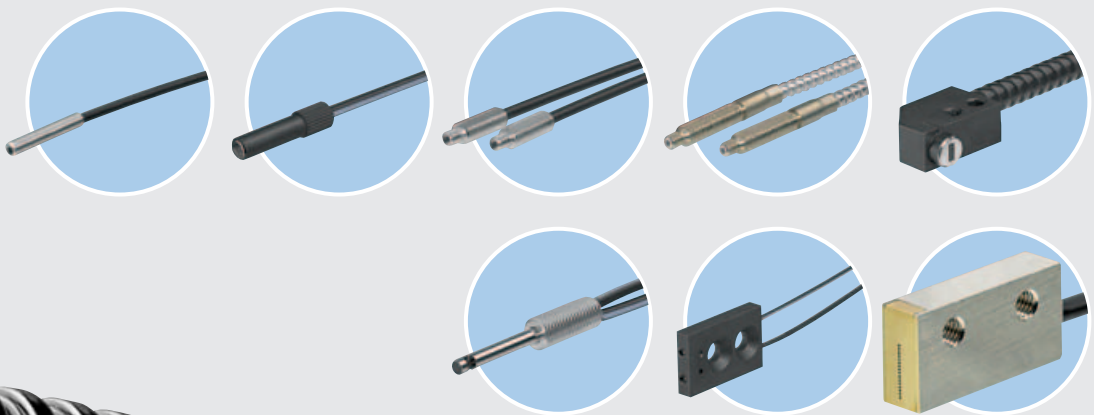
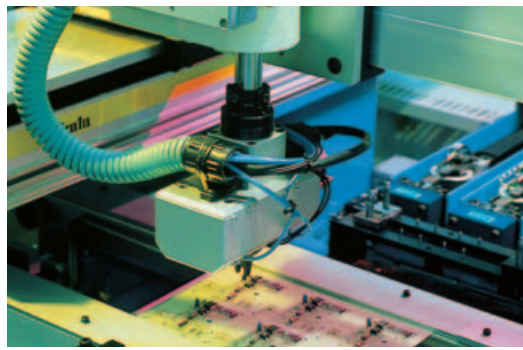
Solving automation problems.

Fibre-optic cables – solving automation problems.



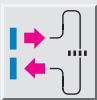
Fibre-optic cables provide “slimline” and flexible connection between the sensor and the sensing target. They are key to sensing solutions and often the only way to detect inaccessible objects, details, and printed marks.





OPERATING PRINCIPLES

Through beam fibre-optic cable or proximity fibre-optic cable, both basic principles are available.



Through beam principle

- Sender and receiver fibre are mounted separately
- Very long ranges (up to 4 m)
- For accurate positioning
- Detection of smallest objects
- Standard applications



Proximity principle

- Sender and receiver fibres are sheathed and mounted together
- Easy mounting
- Standard applications
- Ideal for colour and printed marks

TIP ADAPTERS

Tip adapters extend the functionality. They bundle, focus and deflect.

Tip adapters for through beam fibre-optic cables

- Light spot control
- Very long ranges (up to 4 m)
- 90° deflection, plus long ranges

Tip adapters for proximity fibre-optic cables

- Precise, focussed light spot
- Detection of very small parts
- Detection of colour and printed marks
- Blanking of background interferences

Fibre-optic cables – suitable for every environment.

Fibre-optic cables solve automation problems. Their physical and chemical properties provide solutions where other sensor options have proved unsuitable.

TEMPERATURE



Without equal at higher ambient temperatures.

At high temperatures, fibre-optic cables are often the only sensor option:

- Plastic fibre-optic cables up to +70 °C
- Plastic fibre-optic cables up to +180 °C (optional)
- Glass fibre-optic cables up to +315 °C

Uses:

- Drying systems
- Heat treatment in finishing processes
- Furnaces

VIBRATION/SHOCK



Vibration and shock proof.

Vibration and shock proof fibre-optic cables through matching combinations of optical fibres and flexible protective sheathing. Protection from the effects of:

- Vibration loading
- Shock loading
- Impact loading

Uses:

- Assembly and handling systems
- Conveying systems
- Material handling

CHEMICALS



Resistant to chemical stresses.

Fibre Optic cables, resistant to damage from substances ranging from mild detergents to aggressive chemicals:

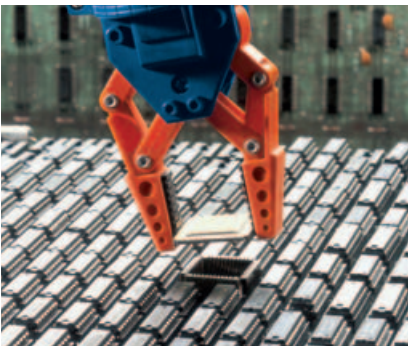
- Plastic fibre-optic cables
- Glass fibres protected by a protective plastic/metal sheath
- Fibre-optic cables fully encapsulated in a protective Teflon sheath

Uses:

- Food processing
- Picking and handling of chemicals

Fibre-optic cables – slimline solutions for challenging mechanical situations.

SMALL



Slimline end sleeves simplify access to objects.

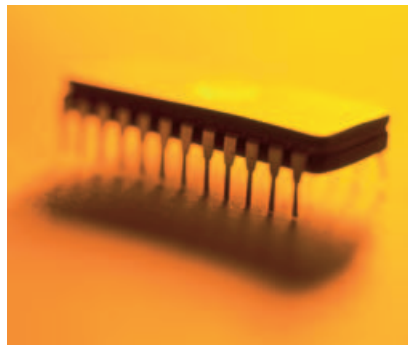
Fibre-optic cables provide solutions where space is limited. Fibre-optic cables are perfect where discrete sensors are too big:

- End sleeves from \varnothing 1.5 mm
- Integral 90° deflection
- Long, thin end sleeves
- Flexible end sleeves
- Special end tips

Uses:

- Special purpose machinery
- Assembly and handling systems
- Semiconductor and electronic industries

LIGHTWEIGHT



Plastic fibres offer a lightweight solution.

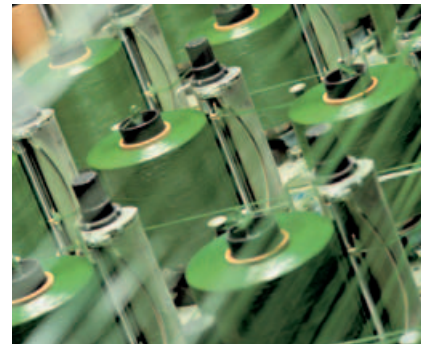
Ideal for automation tasks where weight of components is a factor:

- Lightweight plastic fibres
- Can be cut to desired length
- Small end sleeves

Uses:

- Robotics
- Pick and place systems
- Assembly robots

FLEXIBLE



Seeing around corners.

Plastic fibre-optic cables with thin fibre bundles offer smallest bending radii providing a flexible sensing solution where space and access is limited:

- Bending radii from 2 mm
- Bending radii and ranges in optimised fibre combinations

Uses:

- Semiconductor and electronic industries
- Special purpose machines
- Packaging machinery

Fibre-optic cables + photoelectric switches = solving automation problems.

The ideal partner for each fibre-optic cable series:
Both components, SICK fibre-optic cables and SICK photoelectric switches, are matched and form a functional unit.

LL3

LL3 series
Plastic fibre-optic cables

Through beam systems
Sensor systems

70 variants approx.
Optical fibres/sheathing and end sleeves are optimised according to application:

- Standard versions
- Long ranges
- Most can be freely cropped
- Standard length 2 m (optional 10 m)
- 70 different end sleeves
- Bending radius from 2 to 30 mm
- Temperature-resistant up to +300 °C (Special versions)
- Tip adapters, accessories

The matching sensors:

- WLL 170
- WLL 190T
- WLL 12
- VLL 18

LBS/LIS

LBS/LIS series
Glass fibre-optic cables with stainless steel protective sheaths

LIS: Through-beam systems

LBS: Proximity systems

Robust glass fibre-optic cables in stainless steel protective sheaths for harsh environmental conditions:

- Glass fibre
- Stainless steel protective sheath
- Different end sleeves for individual mounting requirements
- For ambient operating temperatures from -58 to +315 °C

The matching sensors:

- WLL 260

LM/LT

LM/LT series
Glass fibre-optic cables with protective metal sheath

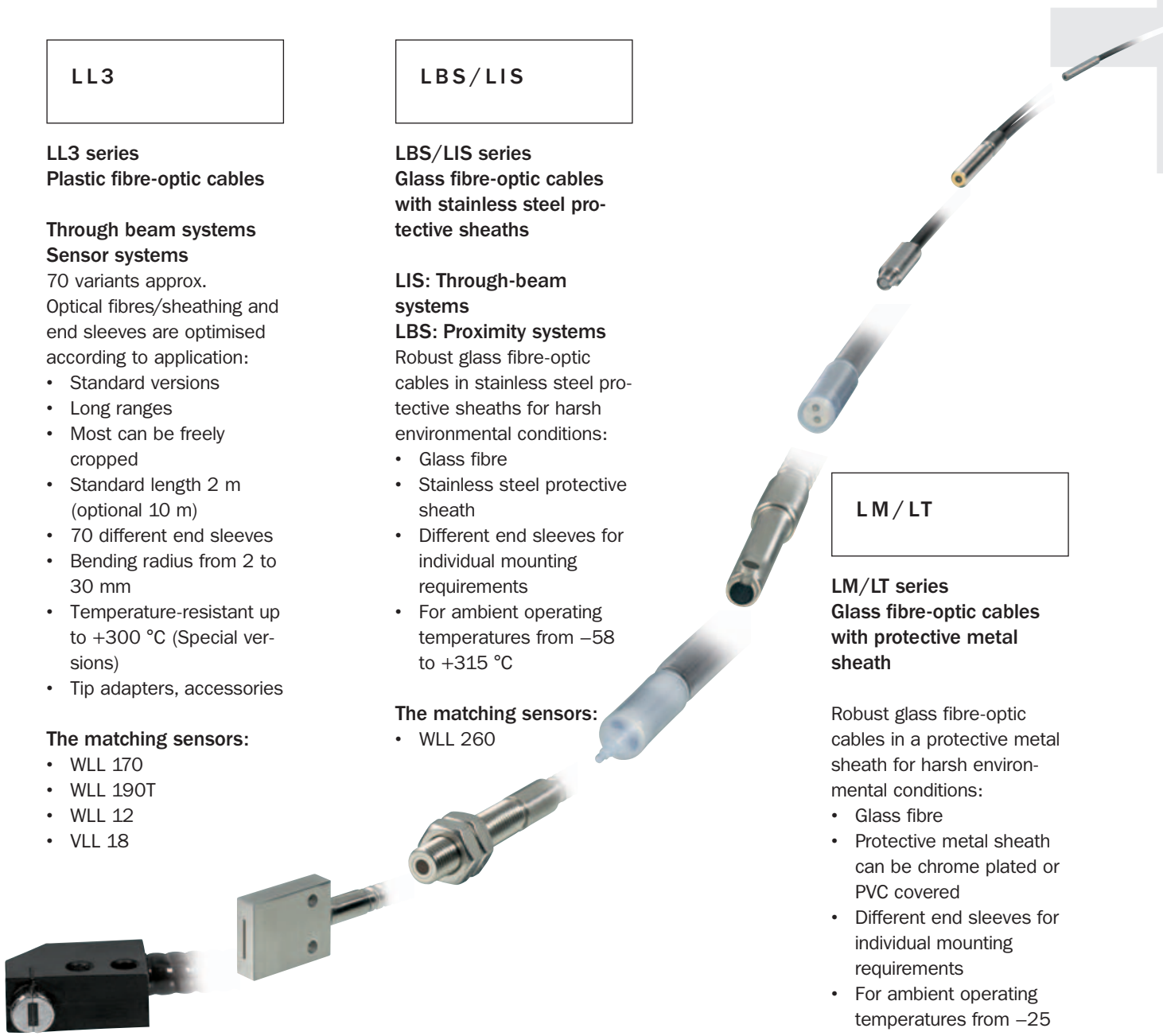
Robust glass fibre-optic cables in a protective metal sheath for harsh environmental conditions:

- Glass fibre
- Protective metal sheath can be chrome plated or PVC covered
- Different end sleeves for individual mounting requirements
- For ambient operating temperatures from -25 to +250 °C

The matching sensors:

- WLL 12

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WLL 190T

Advanced Sensor

Easy handling, flexible for all problem solutions:

- Din rail mounting
- Monitoring: Numeric displays for menu-driven, interactive prompts and visual feedback
- 16-way block mounting for 8-way anti-interference and 16-way wire saving
- Long ranges/high switching frequency
- Sender LED red or green
- Sensitivity setting via teach-in
- IP 66
- V_S : 10 ... 30 V/NPN/PNP
- Cable; Connector M8, 4-way; M8, 3-way

WLL 170(T)

Standard Sensor

Functional, application-oriented basic versions:

- Din rail mounting
- Longest ranges
- Standard version
- High speed 10 KHz
- Analogue output
- Sender LED red or green
- Sensitivity setting at the touch of a button via teach-in or manually via potentiometer
- IP 66
- V_S : 10 ... 30 V/NPN/PNP
- Cable; Connector M8, 4-way; M8, 3-way

WLL 12

Compact Sensor

Mounting compatibility with the W 12 photoelectric switch series:

- "Dovetail" mounting/standard mounting
- For standard applications
- Sender LED red, green, IR
- IP 67
- V_S : 10 ... 30 V/NPN/PNP
- Cable; Connector M12, 5-way

WLL 260

Standard Sensor

Compatibility with the W 260 photoelectric switch series:

- For standard applications in harsh environments
- Sender LED red
- IP 66
- V_S : 10 ... 30 V/NPN/PNP
- V_S : 24 ... 240 UC, relay SPDT
- Terminal chamber; Connector M12, 4-way

VLL 18

Basic Sensor

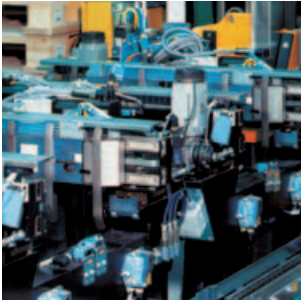
Cylindrical housing for single-hole mounting:

- M18; single-hole mounting
- For standard applications
- Sender LED red
- IP 67
- V_S : 10 ... 30 V/NPN/PNP
- Cable; Connector M12, 4-way

RANGE OF EXPERTISE

INDUSTRIAL SENSORS

Our complete range of sensors provides answers to suit any application in the field of automation. Even under rugged ambient conditions objects are reliably detected, counted and positioned in respect of their form, location and surface finish, as well as their distances established with pin-point accuracy.



INDUSTRIAL SAFETY SYSTEMS

Comprehensive safeguarding of both personnel and machinery! As specialists in Sensor Technology, SICK develops and manufactures pioneering products for providing protection in hazardous zones, dangerous locations and for safeguarding access points. By providing services, which encompass all aspects of machine safety and security, SICK is setting new standards in Safety Technology.



AUTO IDENT

Whether the tasks involve identification, handling, classification or volume measurement, innovative Auto Ident systems and laser measuring systems function extremely reliably, even under rapid cycle times. They conform to the latest Standards and can be simply and speedily integrated in all industrial environments and external applications.



ANALYZERS AND PROCESS INSTRUMENTATION

System control, maintaining setpoints, optimising process control and monitoring the flow of materials – the instruments and services for Analysis and Process Measurement, supplied by SICK MAIHAK, are setting the standards for these applications in terms of Technology and Quality.



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