



SMART
SENSOR
BUSINESS

2017 / 2018

PRODUCT OVERVIEW



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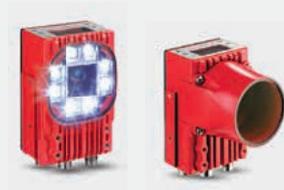
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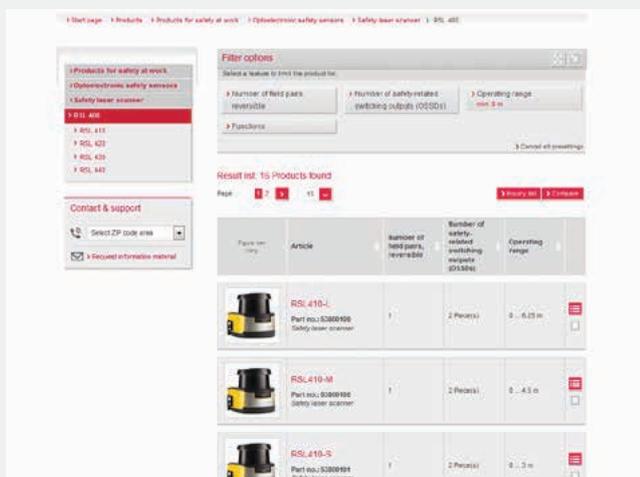
THE BEST FROM PRINTED AND ONLINE PRODUCT

Many of our customers still use our printed product catalog to get an overview of our product range. But when it comes to comparing technical device details, finding suitable accessories or, for example, downloading 3D CAD models, www.leuze.com is the right address.

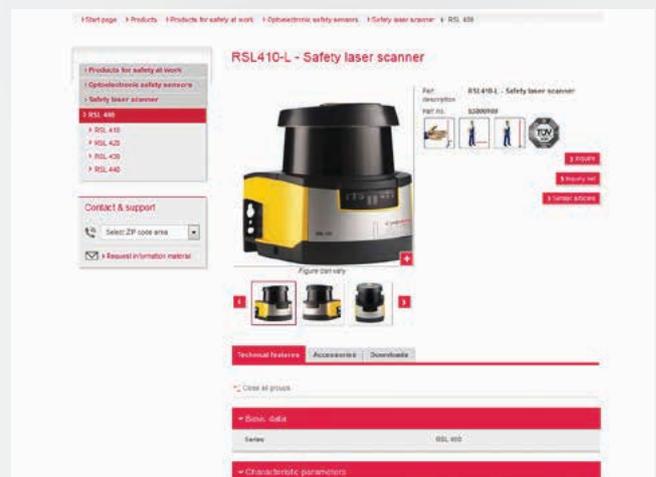
There you will find all detailed product information at a glance, just as clearly arranged as in this catalog. With the product selector, you simply select the desired sensor and send a corresponding query directly to our experts. If you already know what you need, enter the

SIMPLY AND QUICKLY TO THE RIGHT SENSOR, SUITABLE ACCESSORIES AND PRODUCT INNOVATIONS

- Product selector with technical feature selection
- Simple product comparison by selecting feature differences
- Submit a product query with a click of the mouse
- Technical features at a glance
- Display of suitable/necessary accessories
- 3D CAD models, data sheets, technical descriptions, software, drivers and much more.



Product selector



Product detail page

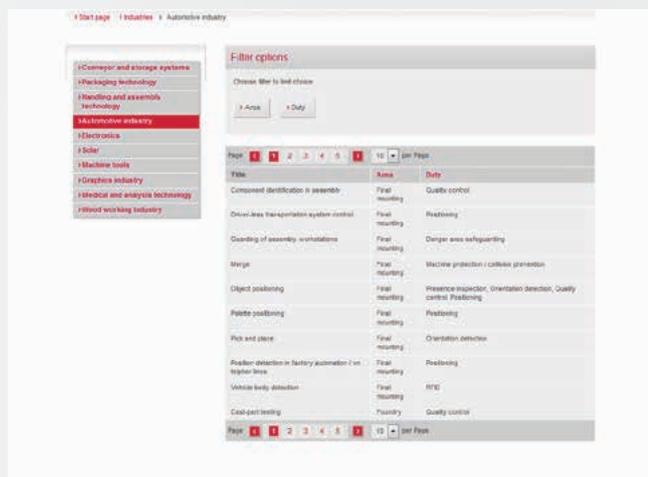
OVERVIEWS DATABASE

part number at www.leuze.com/en/search. There you can open the product detail page from which you can find the appropriate or required accessories. Alternatively, you have the option of finding the right product via an industry overview or our solution area. In all

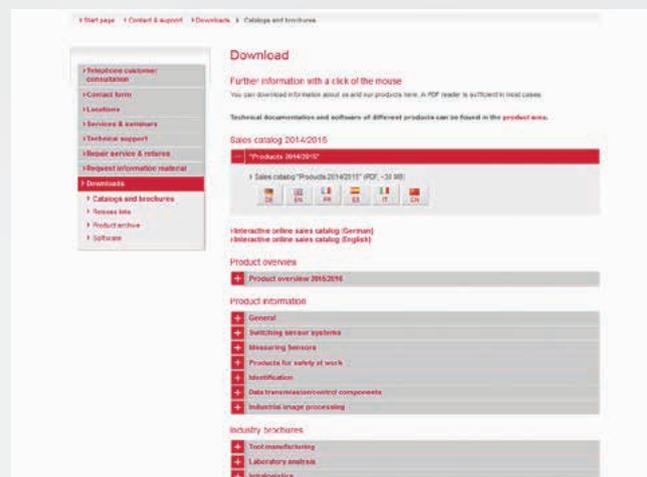
cases, our selectors guide you step-by-step to your sensor solution. You can obtain catalogs, product information, release lists, our product archive or special software in our download area without logging in or entering personal data.

- Industry area with applications and suitable products
- Solution area with practical applications and suitable products

- Product catalogs and extensive informative material
- Manufacturer-specific release lists for selecting appropriate products
- Software for efficient safety engineering and for configuring and parameterizing individual products



Industry and solution area



Download area

ORDERING ONLINE IS EASY FINDING THE RIGHT PROD

SMART IS WHEN WE MAKE IT AS EASY AS POSSIBLE FOR YOU TO PURCHASE SENSORS

You can access Leuze electronic's entire product line around the clock at www.leuze-shop.com. The integrated product selector helps you find

the optimum product for your application. Buying sensors has never been easier! See for yourself.



PRODUCT IS NOW AS WELL!



WHAT THE LEUZE ELECTRONIC WEBSHOP HAS TO OFFER YOU



Use technical features to easily and quickly find the right product – with our convenient product selector



Simple and fast payment with a credit card



Well organized product comparisons with display of the product differences simplify the selection



Many products are already available directly from stock



All technical information and corresponding accessories at the press of a button



The entire product range is available online



Download data sheets, 3D CAD drawings and much more



Profit from periodic special offers in our webshop



WE ARE THE SENSOR PEOPLE

For more than 50 years, Leuze electronic has stood for innovative and efficient sensor solutions in the area of factory automation worldwide. Our range of products extends from switching, measuring and capacitive sensors, identification and data transmission systems to intelligent image processing systems and solutions for safety at work. Our devices operate optically, inductively, with ultrasonics or via RFID, depending on which technology is appropriate for your application.

With 18 of our own subsidiaries and 42 sales partner around the world, our customers can reach us quickly and easily everywhere. To accomplish this, we produce our sensors on four continents and can thereby always guarantee product availability.

Regardless of when and where the competence of the sensor people happens to be needed at the moment. We are the right partner for both standard applications as well as for

18 subsidiaries and 42 sales partners ensure global availability.



custom, high-end solutions. Through an expanded sales and service network, our competent consultation and our reliable customer service, you can count on us to be at your side around the world.

Subsidiaries

- Australia
- Belgium
- Brazil
- China
- Denmark / Sweden
- France
- Germany
- Great Britain
- Hong Kong
- India
- Italy
- Singapore
- South Korea
- Spain
- Switzerland
- The Netherlands
- Turkey
- USA / Canada

You can find other sales partners at
www.leuze.com/en/worldwide

Dr. Albrecht Pfeil,
Head of Product Center
Binary Switching Sensors



OUR **PROMISE** TO YOU

YOUR SENSOR BUSINESS – SIMPLER AND MORE EFFICIENT

Many companies say they are “customer orientated” –
at Leuze electronic, we go a step further.

We offer specific and measurable added value in the areas of
USABILITY, APPLICATION KNOW-HOW and SERVICE – to help
make our customers more successful. These areas are our yard-
stick for new product developments, innovative service offerings
and extensive market expertise.



SMARTER **PRODUCT USABILITY**

With regard to our product developments, we systematically place emphasis on the especially good usability of all devices. To this end, simple mounting and alignment are taken into account – just as the uncomplicated integrability of the sensors in existing field bus systems and easy configuration, e.g. via a web browser, are.

SMARTER **APPLICATION KNOW-HOW**

Whoever can do it all, can do nothing right. Which is why we concentrate on selected target sectors and applications. There, we are specialists and know all aspects inside out. For this purpose, we optimize our solutions and offer a comprehensive product range that makes it possible for our customers to obtain the absolute best solutions from a single source.

SMARTER **CUSTOMER SERVICE**

The technical and personal proximity to our customers, and a skilled, straightforward handling of queries and problems, are among our strengths – and will remain so. Consequently, we will continue to expand our service offerings and, indeed, also forge ahead in new directions to persistently redefine the utmost in customer service. Whether on the phone, on the Internet or on-site with our customers – regardless of when and where the expertise of the sensor people is needed at any time.

Info at: www.leuze.com

Katrin Rieker,
Sales Marketing Processes



WE CREATE REAL ADDED VALUE

FIVE FEATURES TYPICAL OF LEUZE ELECTRONIC

All Leuze electronic products follow our “smarter product usability” principle – this alone guarantees definite added value for use in your

application. We have split this added value into five concrete areas to give you a quick and clear overview of the benefits.



easyhandling.

We give this designation to products that can convince with intelligent ideas for mounting and alignment or clever solutions for reliable and simple operation. This includes, e.g., technologies such as the intelligent **omni**mount fastening concept, the especially large and bright **bright**vision light spot for simple alignment or active ambient light suppression **A**²LS.



powerreserve.

Of what use is the most powerful sensor if just minimal deviations in distance or dirt prevent the device from properly functioning? We use different technologies depending on the device in order to ensure a maximum function reserve in the devices. This improves your flexibility and your processes run more stable.



availabilitycontrol.

System standstills due to soiled sensors need not happen. Devices with this functionality issue a warning message in good time before, for example, there is a loss in performance and sensors fail due to soiling. As a result, the systems can be cleaned in a timely manner and costly system standstills avoided.



thinkmodular.

Are you looking for a device that is as individually tailored to your requirements as possible? With our **think**modular concept, you can choose various equipment features from select devices and thereby assemble the right function range yourself.



integratedconnectivity.

A sensor, irrespective of how it operates, is always just a small part of a complex control system. For this reason, the maximum compatibility with common fieldbus environments is a basic requirement of all of our developments. Product names that include ***integrated***connectivity or the italic "i" designate all devices that are equipped with extensive, integrated interfaces and which greatly simplify implementation for you.



Matthias Göhner,
Industry Management



WE CAN'T DO EVERYTHING. WE DO **RIGHT**

TAILOR MADE FOR OUR FOCUS INDUSTRIES

Sensors have become a fixed part of all areas of factory automation. Without these clever helpers, no robot can orient itself, no high-bay warehouse can transport goods and no bottle can be filled. The requirements of the individual applications and industries vary so widely, however, that a great deal of experience is needed in order to develop the most efficient solutions.

During product development, we therefore concentrate on finding solutions to specific tasks from our focus industries. We know the boundary conditions here exactly and, as a result, can develop devices specifically according to our customers' requirements.



BUT WHAT WE DO,

- Conveyor/storage systems
- Automotive industry
- Packaging industry
- Machine tools
- Medical technology



Thomas Merk,
Head of Application Support +
Service Management



SMARTER **CUSTOMER SERVICE**

OUR MOST IMPORTANT PROFESSIONAL CUSTOMERS

WE ARE YOUR SENSOR PEOPLE

It is for good reason that we are known in the industry as the sensor people. We have always known that a technically demanding business such as the sensor business, in particular, can only function if we are a reliable partner to our customers. Here, it is about much more than technical high performance in the products – it is about a high level of knowledge about

applications and technical interactions and the constant willingness to provide assistance to our customers whenever they need it. Technically competent support is another element, such as the global presence of competent contacts and the 24/7 availability of our customer help desk.



PRODUCT IS MER SERVICE

Training & support

- Product and standards training
- Application consulting
- Safety consulting
- Safety engineering

After sales services

- 24h helpline (in selected countries)
- Inspection Database
- Repairs and device replacement service
- On-site service

Field services

- Technical field service
- Start-up support
- Safety inspections
- Stopping time measurement

Online services

- Web product selector
- Download services
- Webshop



Corinna Klamt,
Order Processing Center

SWITCHING SENSORS



EVERYTHING IN VIEW FOR PROPER SWITCHING

In this area, you will find sensor solutions that detect an object optoelectronically, ultrasonically or inductively and output a robust switching signal. Select here from a large number of different operating principles and designs. In addition to their practicability, our devices also stand out owing to the consistent focus on optimized usability.

Our decades of experience in the area of switching sensors have formed the basis for many technical highlights, for example ...

- The alignment aid **brightvision**.® with a particularly bright and clearly visible light spot and indicators with all-round visibility.
- Our active ambient light suppression feature **A²LS**. This feature almost completely eliminates susceptibility to ambient light.
- A standardized IO-Link interface for the lowest field level for quick and convenient configuration and inspection of sensors directly via the control.



“Especially with switching sensors, smarter product usability can often be a decisive advantage when selecting a supplier. At Leuze electronic, we concentrate on simple mounting and alignment to allow commissioning to be performed as efficiently and as quickly as possible. But even in the event of a product exchange, these factors are becoming increasingly important when it comes to reducing downtimes. In this context, the IO-Link sensor interface is growing in importance, as this interface supplies, e.g., information via the process signal indicating whether the sensor was correctly installed.”

Stefan Ambos,
Head of Product Marketing



RELIABLE DETECTION OF OBJECTS AND FILL LEVELS – THE NEW CAPACITIVE SENSORS!

Capacitive sensors are able to detect different objects and media without contact and regardless of shape. With these sensors, the fill levels of liquids or bulk materials can also be detected in direct contact with the medium or through a

non-metallic container wall, for example. In addition to object positioning, material flow monitoring, overflow protection and leak detection are therefore also important areas of application.

PRODUCT INNOVATION

Does your sensor need to detect reliably even in the event of soiling?

Capacitive sensors with IP67 have the advantage of being insensitive to soiling. In spite of dust or chips, measurement can still be performed in the measurement range. Select from different housing materials (PTFE, metal, plastic) to find the right model for your needs.

Do you want a sensor solution that you can use to detect different materials?

Our capacitive sensors are extremely flexible and are able to detect a wide range of different materials, even in various states (solid, granular, liquid).

Do you want to be able to control your process with IO-Link?

Via IO-Link, the sensor signal – similar to an analog device – can be represented as a process value. It is thereby possible to control your system with a very high level of accuracy.

Do you want a sensor that exactly meets your demands?

Under LCS-1, we offer sensors with very high requirements on performance. Under LCS-2, we have grouped together our capacitive sensors with especially attractive price/performance ratio.



Photoel. sensors / diffuse sensors, cubic housing

Specifications

Dimensions excl. plug, W×D×H

Operating voltage

Switching outputs

Connection type

Degree of protection

Certifications

Housing

Throughbeam photoelectric sensors

Operating range*

Light source

Switching

Switching frequency

Retro-reflective photoelectric sensors

Operating range*

Light source

Switching

Switching frequency

Energetic diffuse sensor

Operating range*

Light source

Switching

Switching frequency

Diffuse sensors with background suppression

Operating range*

Light source

Switching

Switching frequency

Options

Transparent media

Protective sensors category 2

Warning output

Activation input

Active ambient light suppression A²LS

Features

2 series Universal, micro



8 × 23 × 12 mm

10–30 V DC

PNP, NPN

Cable, cable+M8 / M12

IP 67



Thermoelastic elastomer

0–2 m

Red light

Light, dark

385 Hz

0.07–4 m

Red light

Light, dark

700 Hz

Permanently set to 15 mm, 30 mm, 50 mm

Red light

Light, dark

700 Hz

Pin-point LED. Powerful interference suppression. 2 inlaid metal sleeves. Sensor with a laser-like light spot. Polarized retro-reflective photoelectric sensor with glass optics.

3C Series Universal, mini



11 × 32 × 17 mm

10–30 V DC

PNP, NPN

M8, cable, cable+M8 / M12

IP 67, IP 69K



CDRH



Plastic

0–10 m

Red light

Light, antivalent

1,000 Hz

0–7 / 0.02–5.5 / 0–3 m

Red light / infrared / laser (class 1)

Light, dark, antivalent

1,000 / 1,500 / 3,000 Hz

5–600 mm

Red light / laser (class 1)

Light, antivalent

1,000 / 3,000 Hz

X

X

X

X

ECOLAB. Two housings: through holes with metal sleeves or threaded sleeves. Sensor with different light-spot geometry and V-configuration. Laser variants. Teach-in. Bottle detection. Contrast sensors. Devices with IO-Link communication interface.

* Typical operating range limit

5 series
Standard



14 × 33 × 20 mm
10–30V DC
PNP, NPN
M8, cable, cable+M8 / M12
IP 67
CE C UL US
Plastic
0–15 m
Red light
Antivalent
500 Hz
0.02–6 m
Red light
Antivalent
500 Hz
0–1 m
Red light / infrared
Antivalent
500 Hz
0–400 mm
Red light
Light, dark
1,000 Hz
X
X
X

Simple mounting by means of integrated threaded sleeves. Flexible cable outlet to the rear or downward. Fast alignment through *brightvision*. Detection of semitransparent media. Teach variants available.

10 series
TOF, long range laser



25 × 65 × 55 mm
18–30 V DC
Push-pull, IO-Link
Cable+M12, cable, turnable M12 connector
IP 67
CE CDRH
Plastic
50–8,000 mm / 25,000 mm
Red light laser (class 1)
Light
40 Hz
X
X
X

Turnable M12 connector. All devices with IO-Link interface. Light/dark switching via teach button. Window function. Adaptation to the application by means of configurable filters and gain values.

15 series
Standard



15 × 43 × 30 mm
10–30V DC
PNP, NPN
M12, cable, cable+M12
IP 66, IP 67
CE
Plastic
0–35 m
Red light / infrared
Light, dark
500 Hz
0–8 / 0–10 m
Red light
Light, dark
500 Hz
0–1,000 mm
Red light / infrared
Light, dark
500 Hz

Mechanically adjustable scanning range. Sensitivity adjustment. Retro-reflective sensor with large function reserve / for stretch-wrapped containers.

25 LR series
TOF, long range



15 × 43 × 30 mm
10–30V DC
PNP, NPN
M12, cable
IP 67
CE CDRH C UL US
Plastic
50–3,500 mm
Infrared TOF (light propagation time measurement)
Light, dark
40 / 75 Hz
X

Detection of objects with low diffuse reflection > 2%. Two teachable switching points (TOF). Line teach and deactivation. All devices with IO-Link interface for configuration (including adaptation to the application) and process data transfer. Very good fading.

Photoel. sensors / diffuse sensors, cubic housing

Specifications

Dimensions excl. plug, W x D x H

Operating voltage

Switching outputs

Connection type

Degree of protection

Certifications

Housing

Throughbeam photoelectric sensors

Operating range*

Light source

Switching

Switching frequency

Retro-reflective photoelectric sensors

Operating range*

Light source

Switching

Switching frequency

Energetic diffuse sensor

Operating range*

Light source

Switching

Switching frequency

Diffuse sensors with background suppression

Operating range*

Light source

Switching

Switching frequency

Options

Transparent media

Protective sensors category 2/4

Warning output

Activation input

Active ambient light suppression A²LS

Features

25C Series Universal



15 x 43 x 30 mm

10–30 V DC

PNP, NPN

M8 / M8+snap / M12, cable,
cable+M8 / M12

IP 67, IP 69K



Plastic

0–35 m

Red light

Light, antivalent

500 Hz

0–12 / 0–15 m

Red light / laser

Light, dark, antivalent

1,500 / 2,000 Hz

0–650 mm

Red light

Light, dark, antivalent

500 Hz

0–1,000 mm

Red light / infrared

Light, dark, antivalent

1,500 Hz

X

X

X

X

X

ECOLAB. M4 metal threaded sleeves. Sensors with small and long light spot. Sensor for bay positioning / for the detection of broken containers. Focused light spot. Foreground suppression. High function reserve. For stretch-wrapped packages.

28 series Standard, multimount



15 x 47 x 32 mm

10–30 V DC

PNP, NPN

M12, cable, cable+M12

IP 67



Plastic

0–15 m

Red light

Antivalent

500 Hz

0.02–6 m

Red light

Antivalent

500 Hz

0–0.85 m

Red light

Antivalent

500 Hz

X

X

Universal front- and plug-side M18-hole mounting option. Easy through-hole assembly with anti-rotation protection for mounting nuts on the housing. Fast alignment through *brightvision*.

* Typical operating range limit

46C series
Universal, long range



19 × 75 × 43 mm
10–30V DC
PNP, NPN, push-pull
M12, cable, cable+M12
IP 67, IP 69K
CE CDRH C UL US
Plastic

0–150 m
Red light / infrared
Light, dark, antivalent
500 Hz

0.15–30 m
Red light / red light laser (class 1)
Light, dark, antivalent
500 Hz

5–3,000 mm
Red light / infrared / red light laser (class 1/2)
Light, dark, antivalent
250 Hz

X
X
X
X

Teach button. Retro-reflective photoelectric sensor with light-band for objects with openings / irregular shape. Can be used as muting sensor. Roller conveyor sensor. Anti-dust sensor. Parallel-operation photoelectric sensor. Extreme background suppression. Devices with IO-Link interface.

49C series
Universal, current



31 × 110 × 56 mm
10–30V DC / 20–250V AC/DC
PNP, NPN, relay, MOSFET
Cable, terminals
IP 67, IP 69K
CE CDRH C UL US
Plastic

0–150 m
Red light / infrared
Light, dark, antivalent
25 / 150 / 500 Hz

0.05–30 m
Red light / infrared
Light, dark, antivalent
25 / 150 / 500 Hz

5–3,000 mm
Red light / infrared
Light, dark, antivalent
25 / 150 Hz

X
X
X

Photoelectric sensors with a particularly high function reserve. Optional time function and optics heating. Terminal compartment accessible from front. Spring terminals.

8 series
Metal



15 × 48 × 38 mm
10–30V DC
PNP, NPN, push-pull
M12, cable
IP 67, IP 69K
CE CDRH C UL US
Metal, glass

0–20 / 0–100 m
Red light / laser (class 2)
Light, dark, antivalent
1,500 / 2,800 Hz

0–8 / 0–21 m
Red light / laser (class 1)
Light, dark, antivalent
1,500 / 2,800 Hz

5–400 mm
Red light / infrared / laser (class 1/2)
Light, antivalent
1,000 / 1,000 / 2,000 Hz

X
X
X

Luminescence sensors. Foreground suppression. Turnable connector. Foil detection. Bottle detection. ECOLAB.

96 Series
Metal, long range



30 × 90 × 70 mm
18–30V DC / 20–230V AC/DC
PNP, NPN, push-pull, relay
M12, terminals
IP 67, IP 69K
CE CDRH C UL US
Metal

0–39 / 0–150 m
Red light / infrared
Light, dark, antivalent
500 Hz

0–28 / 0.1–18 m
Red light / infrared
Light, dark, antivalent
1,000 Hz

30–700 / 20–1,200 mm
Red light / infrared
Light, antivalent
1,000 Hz / 20 Hz

100–1,200 / 10–2,500 / 50–6,500 / 12,000 / 25,000 mm
Red light / infrared / red light laser (class 1/2) / infrared laser (class 1)
Light, dark, antivalent
300 / 10 Hz

X
X
X
X

Optics heating. Switching delay. Up to 3 switching points. Deactivation. L/D switching. Mechanically adjustable scanning range. Teach-in. Versions for Ex zones 2 and 22 / with window function / for collision protection / feed-through monitoring.

Photoel. sensors / diffuse sensors, cubic + cylindric housing

Specifications

Dimensions excl. plug, W x D x H

Operating voltage

Switching outputs

Connection type

Degree of protection

Certifications

Housing

Throughbeam photoelectric sensors

Operating range*

Light source

Switching

Switching frequency

Retro-reflective photoelectric sensors

Operating range*

Light source

Switching

Switching frequency

Energetic diffuse sensor

Operating range*

Light source

Switching

Switching frequency

Diffuse sensors with background suppression

Operating range*

Light source

Switching

Switching frequency

Options

Transparent media

Protective sensors category 2

Warning output

Activation input

Active ambient light suppression A²LS

Features

18B series
Metal, detection of
transparent objects



15 x 47 x 32.5 mm

10–30 V DC

PNP, NPN, analog

M12, cable

IP 67, IP 69K



Metal

53 series
Stainless steel,
HYGIENE design



14 x 54 x 20 mm

10–30 V DC

Push-pull

M8, cable

IP 67, IP 69K



CDRH



Stainless steel 316L

0–10 m

Red light

Antivalent

1,000 Hz

0–6 m

Red light

Light, dark, antivalent

5,000 / 1,500 Hz

0–5 / 0–3 m

Red light / laser (class 1)

Antivalent

1,000 / 2,000 Hz

5–600 mm

Red light / infrared / laser (class 1)

Antivalent

1,000 / 2,000 Hz

X

X

X

X

X

X

Bottle detection. Foil detection
< 20 µm. Target mark detection.
Aligned optics. Tracking. EasyTune.
User guidance. Trigger function
with reduced signal jitter.
IO-Link interface.

HYGIENE design. CleanProof+.
ECOLAB. EHEDG. Foil detection
< 20 µm. Bottle detection.
Contrast sensors.

* Typical operating range limit
*1 318(B) and 328 Series only

55 series
Stainless steel,
WASH DOWN design



14 × 36 × 25 mm
10–30V DC
Push-pull
M8, cable+M12, cable
IP 67, IP 69K
CE CDRH **C** **UL** **US**
Stainless steel 316L

0–10 m
Red light
Antivalent
1,000 Hz

0–6 / 0–3 m
Red light / laser (class 1)
Antivalent
1,000 / 2,000 Hz

5–600 mm
Red light / infrared / laser (class 1)
Antivalent
1,000 / 2,000 Hz

X

X

X

WASH DOWN-Design.
CleanProof+. ECOLAB.
Foil detection < 20 µm.
Bottle detection. Contrast sensors.
Versions for Ex zone 2 and 22.

412 series
M12, cylindrical



M12 × 55 mm
10–30V DC
PNP
M12, cable
IP 67
CE
Metal

0–8 m
Red light
Light, dark
500 Hz

0.05–1.6 m
Red light
Light, dark
700 Hz

0–400 mm
Red light
Light, dark
700 Hz

318(B) series
328 series
618 Series
M18, cylindrical



M18 × 46 mm, M18 × 60 mm
10–30V DC
PNP, NPN, push-pull
M12, cable
IP 67
CE **C** **UL** **US**¹ CDRH
Full metal, stainless steel, plastic

0–15 / 0–23 / 0–120 m
Red light / infrared / laser (class 1)
Light, dark, antivalent
500 / 1,000 / 5,000 Hz

0–7 / 0.02–6 / 0.1–15 m
Red light / laser (class 1)
Light, dark, antivalent
500 / 5,000 Hz

0–140 / 0–1,000 / 0–300 / 0–280 mm
Red light / infrared / laser
Light, dark, antivalent
500 / 1,000 / 5,000 Hz

1–140 mm
Red light
Antivalent
1,000 Hz

X

X

X

X

Bracket versions. Simple alignment with *omnimount*. Embedded mounting option. Variants with M18 stainless steel sleeve and full-metal version. Variant available with preset scanning range and as label sensor.

Mini sensors



10–30V DC
PNP, NPN, relay
M12, cable
IP 65
CE
Metal, stainless steel, plastic

0–35 m
Infrared
Light, dark
70 / 1,000 Hz

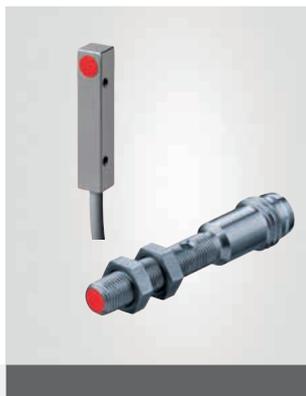
0–1.5 m
Infrared
Light, dark
70 / 1,000 Hz

0–50 mm
Infrared
Light, dark
70 / 1,000 Hz

X

Inductive switches

IS 204
IS 205
IS 206
IS 255
 Miniature sensors



IS 240
IS 244
ISS 244
IS 288
 Standard, cubic



IS 208
IS 212
IS 218
IS 230
 Standard, cylindrical



Specifications

Dimensions

Ø 4.0 × 25 mm
 M5 × 25 mm
 Ø 6.5 × 35 mm
 5 × 5 × 25 mm

Operating voltage

10–30 V DC

Operating range

Up to 1.5 mm
 Up to 1.5 mm
 Up to 3.0 mm
 Up to 1.5 mm

Switching outputs

PNP, NPN
 NO (make-contact),
 NC (break-contact)

Switching frequency

Up to 3,000 Hz
 Up to 3,000 Hz
 Up to 5,000 Hz
 Up to 3,000 Hz

Connection type

M8, cable, cable+M8

Degree of protection

IP 67

Certifications

CE C_{UL} US

Housing

Metal, plastic

Features

Miniature housing.
 Increased scanning ranges.

40 × 12 × 26 mm
 40 × 40 × 67 mm
 40 × 40 × 120 mm
 8 × 8 × 35 mm

10–30 V DC

Up to 8 mm
 Up to 40 mm
 Up to 3 mm
 Up to 20 mm

PNP, NPN
 NO (make-contact),
 NC (break-contact)

Up to 1,400 Hz
 Up to 150 Hz
 Up to 5,000 Hz

M8, M12, cable, connection terminals

IP 67, IP 69K

CE C_{UL} US

Metal, plastic

Bright status display.
 Complementary switching outputs (NO+NC).
 5-way sensor.
 Increased scanning ranges.
 Clamp connection.
 M12 plug, turnable 270° and thus very advantageous even for angled connection cables
 360° visibility through 4-way LED indicator on the sensor head.
 Cubic miniature housing.

M8 × 45 mm
 M12 × 45 mm
 M18 × 64 mm
 M30 × 64 mm

10–30 V DC

Up to 4 mm
 Up to 10 mm
 Up to 12 mm
 Up to 20 mm
 Up to 40 mm

PNP, NPN
 NO (make-contact),
 NC (break-contact)

Up to 5,000 Hz
 Up to 3,000 Hz
 Up to 2,000 Hz
 Up to 1,200 Hz

M8, M12, cable+M8, cable

IP 67

CE C_{UL} US

Metal, plastic

Short designs.
 Increased scanning ranges.
 Stainless steel for the food industry.
 AC/DC device versions.
 Material independence (correction factor 1).

IS 212
IS 218
IS 230
 Stainless steel



M12 × 60 mm
 M18 × 64 mm
 M30 × 64 mm

10–30V DC

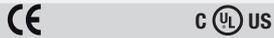
Up to 10 mm
 Up to 20 mm
 Up to 40 mm

PNP, NPN
 NO (make-contact),
 NC (break-contact)

Up to 600 Hz
 Up to 300 Hz
 Up to 100 Hz

M12

IP 67, IP 68, IP 69 K



Stainless steel (V4A)

Suitable for hygiene applications through stainless steel 316L (ECOLAB).

V4A full-metal housing.

Pressure resistance.

Short designs.

Resistant against vibration and pressure shocks.

Mechanically resistant against impacts on the active surface.

Capacitive sensors

Specifications

Dimensions

Operating voltage

Operating range

Switching frequency

Switching function

Types of installation

Housing

Connection

Certifications

Degree of protection

IO-Link

Features

LCS
 Capacitive sensors,
 cylindrical



M12: length 53–75 mm
 M18: length 70–87.3 mm
 M30: length 66.5–98 mm

10–30V DC / 12–35V DC

1–30 mm

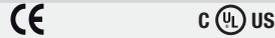
100 Hz (10 Hz with IO-Link)

PNP, NPN
 NO (make-contact),
 NC (break-contact)
 Partially reversible

Embedded / non-embedded

Steel / plastic / Teflon (PTFE)

M12 connector / PUR cable 2 m /
 PTFE cable 2 m



IP 67

M18 and M30 version

Adjustable switching distances.
 Versions with potentiometer or teach buttons.
 PTFE for rough environmental conditions.
 Analog and IO-Link interfaces.

LCS
 Capacitive sensors,
 cubic



54 × 20.3 × 5.5 mm
 40 × 40 × 10 mm

10–30V DC

1–20 mm

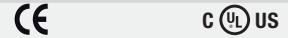
100 Hz

PNP, NPN
 NO (make-contact),
 NC (break-contact)

Embedded

Plastic

PUR cable 2 m / PUR cable 0.3 m
 with M8



IP 67

Switching distances adjustable by means of potentiometer.
 Compact and flat design.

Fiber optic sensors

Ultrasonic sensors



LV46x

Fiber optic amplifiers



Specifications

Dimensions excl. plug, W x D x H

Operating voltage

10–30 V DC

Switching outputs

PNP, NPN, IO-Link

Connection type

M8, cable, cable+M8, cable+M12

Degree of protection

IP 65

Certifications



Housing

Plastic

Throughbeam sensors

Operating range*

Transmitter

Red light, infrared

Switching

Light, dark

Switching frequency

250 Hz ... 50 kHz

Retro-reflective sensors

Operating range*

Transmitter

Switching

Switching frequency

Energetic sensors

Operating range*

Transmitter

Red light, infrared

Switching

Light, dark

Switching frequency

250 Hz ... 50 kHz

Sensor with background suppression

Operating range*

Transmitter

Switching

Switching frequency

Options

Transparent media

X

Protective sensors category 2

Warning output

Activation input

X

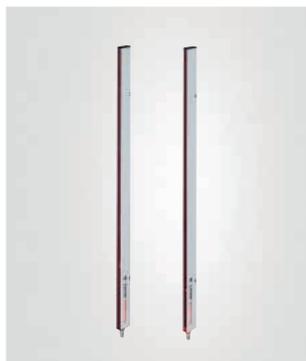
Active ambient light suppression A²LS

Features

For glass fiber and plastic fiber optics. High-speed or long-range amplifier. Teach-in. Sensitivity adjustment. Time functions. Multifunction input. IO-Link.

Light curtains

CSL 505 Switching



CSL 710 Switching



CSR 780 Switching



Specifications

Function

Throughbeam principle

Throughbeam principle

Reflection principle

Dimensions excl. plug,
W x D x H

10 x 27 x 150 ... 3,180 mm
12 x 58 x 120 ... 480 mm

29 x 35 x 168 ... 2,968 mm

28.6 x 34.2 x 142.8 ... 478.8 mm

Operating voltage

24 V DC

18–30 V DC

18–30 V DC

Outputs

2x outputs / push-pull

4 I/Os (configurable) + IO-Link

Push-pull

Connection type

M8

M12

M12

Degree of protection

IP 65

IP 65

IP 65

Certifications

CE C SP US

CE C SP US

CE C UL US C SP US

Operating range*

Up to 7,000 mm

Up to 8,000 mm

700 mm

Light source

Infrared

Infrared

Infrared

Cycle time

1 ms per beam

30 ms per beam

> 2 ms (depending on measurement field length)

Measurement field length

35–3,100 mm

160–2,960 mm

96 / 432 mm

Resolution

5, 12.5, 25, 50, 100 mm

5, 10, 20, 40 mm

1 mm

No. of beams

Max. 160

Max. 592

Operation

Autocalibration,
configuration software,
configuration by means of pin
assignment

Display in 5 languages,
configuration software

Status displays for detection /
interruption of first and last beam

Features

2 switching ranges.
Narrow profile.
Through holes.
Blind holes with thread.
Suitable for low-temperature
applications down to –30 °C.

8 switching ranges.
Simple area splitting.
4 switching outputs + 1 IO-Link.
Sturdy metal housing.
Extremely fast cycle time.
Display for diagnosis and
alignment.
Suitable for low-temperature
applications down to –30 °C.

Detection of extremely small
objects (1 mm).
Warning output for contamination
display.
High object speed (<3.5 m/sec for
1 x 10 x 10 mm).
Sturdy metal housing.
Optimal setting using reference
teach, indicator LED.
Reflective tape as reflector.

* Typical operating range limit

Forked sensors

(I)GSU 14D
GSU 06
GK 14
 Label detection,
 ultrasonics / capacitive



(I)GS 63B
GS 61
 Label detection, optical



GS (L) 04
 Optical



Specifications

Operating voltage

10–30V DC / 12–30V DC

Switching outputs

Push-pull

Connection type

M8, M12, cable

Degree of protection

IP 62 / IP 65

Certifications

CE **UL US***

Housing

Metal

Throughbeam sensors

Mouth width

4 mm; 1 mm

Light source

Ultrasonics

Switching

Light, dark, antivalent

Switching frequency

Up to 5,000 Hz

Options

Operation

Teach

Warning output

X

Features

Detection of transparent media and paper labels.
 Automatic tracking of the ALC switching threshold.
 Teach-in.
 Model with mechanical tape guide.
 Splice inspection.
 Multiple-track label detection of the VSU 15.

10–30V DC / 24V DC

Push-pull

M8, cable, cable+M12

IP 65

CE **UL US****

Metal, plastic

3 mm

Infrared

Light, dark, antivalent

10,000 Hz

Teach / potentiometer

X

Detection of paper labels.
 Automatic tracking of the switching threshold ALC function.
 Storage of up to 10 teach values in the sensor.
 Removable operating head on potentiometer version.

10–30V DC

PNP, NPN

M8

IP 65

CE **CDRH** **UL US**

Metal

20 / 30 / 50 / 80 / 120 / 220 mm

Red light / laser (class 1)

Light, dark

1,500 / 5,000 Hz

Potentiometer

Detection of small objects.
 Light/dark switching on device.

*1 (I)GSU 14D and GSU 06 only

**2 (I)GS 63, GS 61 only

Special sensors

KRT 20
KRT 21
KRT 55
KRT 18B
KRT 3B
 Contrast sensors



CRT 20B
CRT 448
 Color sensors



LRT 8
 Luminescence sensors



Specifications

Function

Dimensions excl. plug,
 W×D×H

Operating voltage

Outputs

Connection type

Degree of protection

Certifications

Operating range*

Light source

Switching frequency

Transmitter color

Light beam gate

Light spot shape

Light spot position

Operation

Features

Contrast distinction

31 × 53 × 80 mm
 15 × 47 × 33 mm
 14 × 36 × 25 mm
 11 × 32 × 17 mm

10–30V DC / 12–30V DC

PNP, NPN, push-pull
 Analog, IO-Link

M12, M8, cable+M8, cable,
 cable+M12

IP 67, IP 69K

CE cUL US

13–80 mm

LED, laser (class 1)

2,500–50,000 Hz

RGB / white / red laser

Lateral or frontal

Round / rectangular

Lengthwise, sideways

Teach-in, EasyTune, IO-Link,
 potentiometer

Tracking function for faded marks.
 Display for optimum adaptation to
 the application.
 Automatic luster suppression.
 Temperature compensation.
 Pulse stretching.
 Light/dark switching.
 Reversible switching threshold.
 ECOLAB.
 IO-Link process data.
 IO-Link configuration.
 IO-Link diagnostics.

Color detection

30 × 82 × 53 mm
 17 × 46 × 50 mm

10–30V DC / 24V DC /
 12–28V DC

1 × PNP / 4 × PNP or
 1 × NPN / 4 × NPN or
 3 × PNP / 3 × NPN

M12

IP 67

CE cUL US

12 mm
 60 mm
 32 mm

LED

6,000 / 1,500 / 500 Hz

RGB / white

Lateral or frontal

Round / rectangular

Lengthwise

Teach-in

Small construction.
 Glass optics.
 Turnable M12 connector.
 ECOLAB.

Luminescence detection

15 × 48 × 38 mm

10–30V DC

PNP, NPN

M12

IP 67

CE

0–400 mm

LED

1,500 Hz

UV / blue

Front

Round

Potentiometer

Small construction.
 Sensitivity adjustment.
 ECOLAB.
 Detection of any kind of
 luminescence.
 Detection of white paper.
 Detection of printed luminescence
 marks.
 Detection of luminescence marks
 on wood.

* Typical operating range limit

DB 12B / 112B / 14B, GSU 710 / 712

Double sheet monitoring

VSU 12, IGSU 14C / 14D

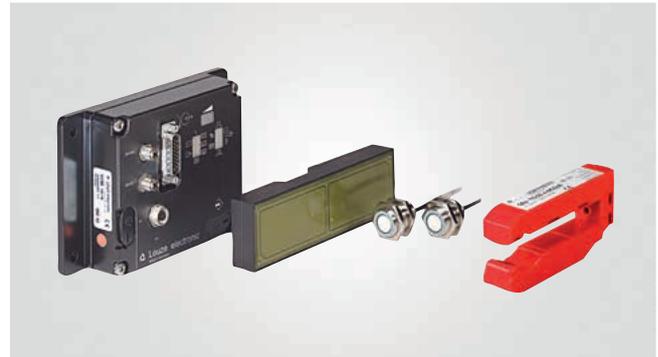
Splice detection

Double sheet monitoring Splice detection

Description

Typical applications

Technical information



The double-sheet monitoring systems reliably prevent the infeed of multiple sheets. This helps reliably prevent damage and the creation of scrap in machines that process paper and cardboard stacks. The systems operate on the basis of various physical principles and are thus able to cover nearly the entire range of applications.

Double sheet detection of

- Paper sheets
- Cardboard sheets
- Films

Splice detection, e.g. on

- Paper rolls

Physical principles:

- Capacitive
- Ultrasonics (\varnothing 12 mm or 18 mm, short construction)

Working ranges:

- From 20 g/m²... 1,200 g/m² (cardboard thickness 2 mm)
- Detection of 1/2 or 2/3 plies
- Outputs for single or double sheets
- Configuration facility

Models:

- Individual components (M12, M18)
- Compact fork designs

MEASURING SENSORS

INTELLIGENT MONITORING AND CONTROL THROUGH MEASURING SENSORS



Measuring sensors can actively check distances, position system parts and monitor other parameters in order to intelligently and independently initiate actions and, e.g., intervene in processes for control purposes. Here, you will find a large selection of technologies and designs for as efficient and fault-free system operation as possible.

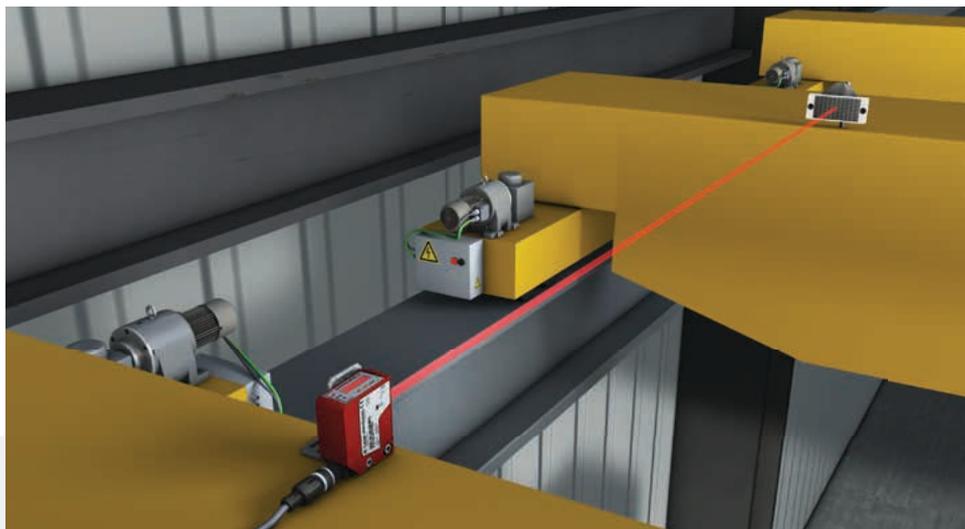
Our claim to be one of the technology drivers in the area of measuring sensors is founded on a whole range of outstanding product features, for example ...

- A wide variety of integrated interfaces which allow our devices to communicate with all commonly used fieldbus systems without problem.
- The absolute positioning of moving objects with millimeter precision thanks to innovative bar code positioning systems with operating ranges up to 10,000 m.
- A laser distance measurement system that measures with millimeter precision up to 300 m with PTB calibration standard.



“Measuring sensors are suitable for a wide variety of complex detection tasks. In addition to classic features, such as high accuracy, resolution or operating range, our sensors feature characteristics such as the integration of intelligent data evaluations and various interface technologies, easy operation and simple mounting. These make the sensors from Leuze electronic especially attractive for a given task.”

Tilo Wolf,
Technical Head of Product Center
Measuring Sensors



EXTREMELY TOLERANT DISTANCE SENSOR – THE 10 SERIES

The ODS 10 is an optical distance sensor that measures distance against a non-cooperating target and makes the information available as a measurement value. The operating range of the device is 8,000 mm, whereby an accuracy in

the millimeter range can be achieved. Against a reflector, operating ranges of up to 25,000 are achieved. The accuracy is nearly fully independent of the material and angle.

Do you want to reliably detect dark or light surfaces without needing to readjust?

The new ODS 10 distance sensors have very high tolerance with respect to various surfaces and detection angles.

Do you want to be able to operate and monitor your distance sensors with ease?

With the display on the top, large control buttons and LED status displays that are visible from a distance, handling and monitoring of the sensors is very straightforward and intuitive.



Does your sensor also need to be suitable for constrained spaces?

A very compact housing, the integrated recesses for the screws as well as flexible connections make simple use possible even when space is at a premium.

Your sensor doesn't need to do everything, but rather just what you need?

Measuring or switching? The choice is yours. The modular range of functions, which can be tailored exactly to your needs, offers you precise detection and easy operation at an attractive price.

Find the right 10 Series with ease: www.leuze.com/en/br10



Distance sensors

ODSL 8 Optical distance sensors



Distance measurement, optical

15 × 48 × 38 mm

18–30 V DC

4–20 mA
1–10 V
2 × push-pull

M12

IP 67, IP 69K

CE CDRH

20–500 mm

Optical / LED / laser (class 2)

2–7 ms

0.03–0.5 mm

Teach-in

Compact metal housing.
Turnable M12 connector.

ODSL 9 Optical distance sensors



Distance measurement, optical

21 × 50 × 50 mm

18–30 V DC (analog, IO-Link)

4–20 mA
1–10 V, 0–10 V
RS 232 / RS 485
Push-pull
IO-Link

M12

IP 67

CE CDRH C UL US

50–650 mm

Optical / laser (class 1, 2)

2 ms

0.01–0.5 mm

Teach-in
Configuration software
Display

Display for measured value display and configuration.
Turnable M12 connector.

ODS 10 Optical distance sensors



Distance measurement, optical

25 × 65 × 55 mm

18–30 V DC (analog, IO-Link)

4–20 mA
1–10 V, 0–10 V
Push-pull
IO-Link

M12

IP 67

CE CDRH C UL US

50–8,000 mm
100–25,000 mm (against reflective tape)

Optical / laser (class 1)

3,4–1,020 ms (adjustable)

1 mm

Buttons on the foil display or
SensorStudio

Display for measured value display and configuration.
Turnable M12 connector.
All devices with IO-Link interface

Specifications

Function

Dimensions excl. plug, W × D × H

Operating voltage

Outputs

Connection type

Degree of protection

Certifications

Measurement range

Measurement principle

Measurement time

Ultrasonic frequency

Resolution

Operation

Features

* Typical operating range limit

ODSL 30
Optical distance sensors



Distance measurement, optical
79 × 69 × 149 mm
10–30V DC 18–30V DC (analog)
4–20 mA 1–10V RS 232/RS 485 1 × PNP, 2 × PNP, 3 × PNP
M12, cable
IP 67
CE CDRH C UL US
200–65,000 mm
Optical / laser (class 2)
30–100 ms
1 mm
Teach-in Display

Metal housing.
Display for measured value display and configuration.
M12 plug.
Ex devices are also available.

ODSL 96B
Optical distance sensors



Distance measurement, optical
30 × 90 × 70 mm
10–30V DC 18–30V DC (analog, IO-Link)
4–20 mA 1–10V, 0–10V RS 232 / RS 485 Push-pull IO-Link
M12, cable
IP 67, IP 69K
CE C UL US TUV ECOLAB
60–25,000 mm
Optical / LED / laser (class 1, 2)
1–100 ms
0.1–3 mm
Teach-in Configuration software Display

Sturdy metal housing.
Display for measured value display and configuration.
M12 plug.
Ex devices are also available.

300 Series
Measuring ultrasonic sensors



Distance measurement, ultrasonics
M18 × 46.3 / 74.3 / 77.6 mm M30 × 88.8 mm
10–30V DC 12–30V DC
4–20 mA 1–10V PNP (NPN)
M12
IP 67, IP 65
CE C UL US
50–400 / 80–1,200 / 150–1,600 / 250–3,500 / 350–6,000 mm
Ultrasonics
1 / 2 / 5 / 8 / 10 Hz
310 kHz / 200 kHz
1 mm
Teach-in

Both outputs can easily be taught using a button.
Teachable.
Stable plastic design.
3 operating modes: scanning, synchronous, multiplex operation.
Temperature-compensated scanning range and measurement range.
Function largely independent of surface properties, ideal for detection of liquids, bulk materials, transparent media, etc.
Small dead zone at long scanning range.

400 Series
Measuring ultrasonic sensors



Distance measurement, ultrasonics
M18 × 51.8 / 75 / 82.8 mm M30 × 75 / 142.5 mm
15–30V DC
4–20 mA 1–10V PNP (NPN) IO-Link
M12
IP 67, IP 65, IP 68
CE C UL US
25–400 / 150–1,300 / 300–3,000 / 600–6,000 mm
Ultrasonics
1 / 4 / 7 / 8 Hz
200 kHz
1 mm
Teach-in IO-Link

Both outputs can easily be taught using a button.
Teachable.
Stable, all-metal design.
Process data and configuration via IO-Link interface.
Five operating modes: scanning, synchronous, multiplex, activation and throughbeam operation.
Temperature-compensated scanning range and measurement range.
Function largely independent of surface properties, ideal for detection of liquids, bulk materials, transparent media, etc.
Small dead zone at long scanning range.

Sensors for positioning



AMS 300i
Optical laser distance sensors



BPS 8
Bar code positioning systems



BPS 300i
Bar code positioning systems



Specifications

Function
Operating range
Working range
Interfaces

Distance measurement, optical
40 / 120 / 200 / 300 m
Integrated: PROFIBUS and SSI PROFINET PROFINET and SSI DeviceNet EtherCAT EtherNet/IP CANopen Ethernet TCP/IP, UDP Interbus-S RS 232, RS 422, RS 485

Position detection, optical
10,000 m
60 ... 120 mm, 80 ... 140 mm
Integrated: RS 232

Position detection, optical
10,000 m
50 ... 170 mm
Integrated: PROFINET PROFIBUS SSI RS 422 RS 232 RS 485

Connectivity

With MA 8-01 connection unit
RS 485

With MA 200i connection unit
PROFINET IO/RT, PROFIBUS, Ethernet TCP/IP, UDP, IP, EtherCAT, DeviceNet, CANopen

Functional principle
Measurement value output
Reproducibility
Accuracy
Degree of protection
Light source
Supply voltage
Operating temperature

Against reflector
1.7 ms
±0.9 / 1.5 / 2.1 / 3 mm (3 sigma)
±2 / 2 / 3 / 5 mm
IP 65
Red light laser (class 2)
18–30 V DC
–5 °C ... +50 °C (–30 °C ... +50 °C with heating)

Against bar code tape
3.3 ms
±1 mm (3 sigma)
IP 67
Red light laser (class 2)
5V DC (24 V DC via MA 8-01)
0 °C ... +40 °C

Against bar code tape
1 ms
±0.15 mm (3 sigma)
IP 65
Red light laser (class 2)
18–30 V DC
–5 °C ... +50 °C (–35 °C ... +50 °C with heating)

Options
Certifications

Speed measurement and monitoring
CE CDRH C UL US

Customer-specific configuration facility
CE CDRH C UL US

Speed measurement and monitoring
CE CDRH C UL US

Features

Absolute measurement system with very high accuracy, tested by the Physikalisch Technische Bundesanstalt (German Metrology Institute). Simultaneous use of the PROFIBUS and SSI; alternatively, PROFINET and SSI interface. Easy programming via extensive configuration file. Optionally with heating. Multiple language menu-driven display.

Distance measurements of up to 10,000 m, also for curves, gradients and track switches. Curve-going, horizontally and vertically. Compact metal housing. Turnable M12 connector. Large selection of different protocols via external connection units.

Positioning on curves, gradients and track switches. Curve-going, horizontally and vertically. Metal housing. 3 selectable connection systems. Fast, secure and position-neutral installation using special mounting device. Extensive diagnostic options. Easy programming via GSD file. Optionally with heating or display.

3D sensors

LPS 36 / LPS 36 HI LES 36 / LES 36 HI LRS 36 Light section sensors

ROD 4 (plus) Area scanning Laser distance sensors



Specifications

Function

Dimensions excl. plug,
W × D × H

Operating voltage

Outputs

Connection type

Degree of protection

Certifications

Operating range*

Measurement principle

Measurement time

Measurement field
width/Scanning angle

Resolution

Mouth width

Number of inspection
tasks

Operation

Features

Distance measurement,
light section, optical

56 × 74 × 160 mm

18 – 30 V DC

4 – 20 mA
1 – 10 V
Ethernet
4 × push-pull
PROFIBUS

M12

IP 67

CE CDRH C UL US

200 – 800 / 200 – 600 mm

Optical / laser (class 2M)

10 ms

Max. 600 mm / max. 140 mm

0.1 – 6 mm

16

Configuration software
Display

LPS 36: light section sensor for
2D/3D object measurement.

LPS 36 HI: highly precise with a
resolution of 0.1 mm.

LES 36: light section sensor for
width/height and position
measurement.

LRS 36: light section sensor for
object detection in up to
16 detection fields.

Alignment aid with OLED display.

Inputs: activation, cascading,
trigger.

Optional: encoder port.

Distance measurement,
scanner, optical

140 × 148 × 133 mm
141 × 167 × 168 mm

24 V DC

Ethernet / RS 232 / RS 422
4 × PNP,
8 reversible detection field pairs

Sub-D, M12, M16

IP 65

CE CDRH C UL US

0 – 65,000 mm

Optical / laser (class 1)

20 – 40 ms/scan

190°

5 mm

7

Configuration software

ROD4: laser scanner for object
detection.

ROD4 plus: laser scanner for
2D/3D object measurement.

Optional: heating.
Dust suppression.

* Typical operating range limit

Light curtains Forked sensors

CML 700i Measuring



CML 720i EX Measuring



GS 754(B) CCD forked sensors



Specifications

Function

Size/contour detection,
optical

Size/contour detection,
optical

Edge/diameter measurement,
optical

Dimensions excl. plug, W×D×H

29 × 35 × 168 ... 2,968 mm

29 × 35 × 168 ... 2,968 mm

19.4 × 81.5 × 91 mm
20 × 155 × 91.5 mm

Operating voltage

18–30 V DC

18–30 V DC

10–30 V DC (digital)
18–30 V DC (analog)

Outputs

Analog, CANopen, IO-Link,
PROFIBUS
PROFINET
RS 485 (MODBUS)

CANopen, IO-Link,
2 to 4 I/Os (configurable)

2 × 4–20 mA
2 × 0–10 V
RS 232 / RS 422 / RS 485
1 × PNP, 2 × PNP

Connection type

M12

M12

M12

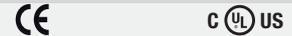
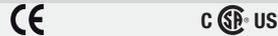
Degree of protection

IP 65

IP 54

IP 67

Certifications



Operating range*

Up to 10,500 mm

Up to 10,500 mm

Light source / Measurement principle

Infrared

Infrared

Optical / LED

Cycle time / Measurement time

10 / 30 µs per beam / 1 ms

30 µs per beam / 1 ms

Min. 2.5 ms

Measurement field length / Scanning angle

160–2,960 mm

130–2,870 mm

25 mm

Resolution

5, 10, 20, 40 mm

5, 10, 20, 40 mm

14 µm

No. of beams

Max. 592

Max. 592

Mouth width

27 mm / 98 mm

Mouth depth

42 mm

Operation

Display in 5 languages
Configuration software

Display in 5 languages
Configuration software

Terminal program

Features

Short cycle times of 30 µs per beam.
CML 730i: cycle times of 10 µs per beam, detection of transparent media.
Display for diagnosis and alignment.
Standard profile for simple mounting.
Sturdy metal housing.
Suitable for low-temperature applications down to –30 °C.

Certified for applications in potentially explosive areas of group II, category 3, zone 2 (gas) and zone 22 (dust).
Display for diagnosis and alignment.
Standard profile for simple mounting.
Sturdy metal housing.

Detection of transparent media.
Foil detection > 0.1 mm.
Turnable M12 connector.

* Typical operating range limit

PRODUCTS FOR SAFETY AT WORK



SAFEGUARDING MACHINES MEANS PROTECTING PEOPLE

As one of the technology leaders in the area of optoelectronic safety sensors for industrial automation, we offer effective personnel protection devices in accordance with international safety standards. Thanks to our global presence we are able to offer our product line quickly and efficiently worldwide.

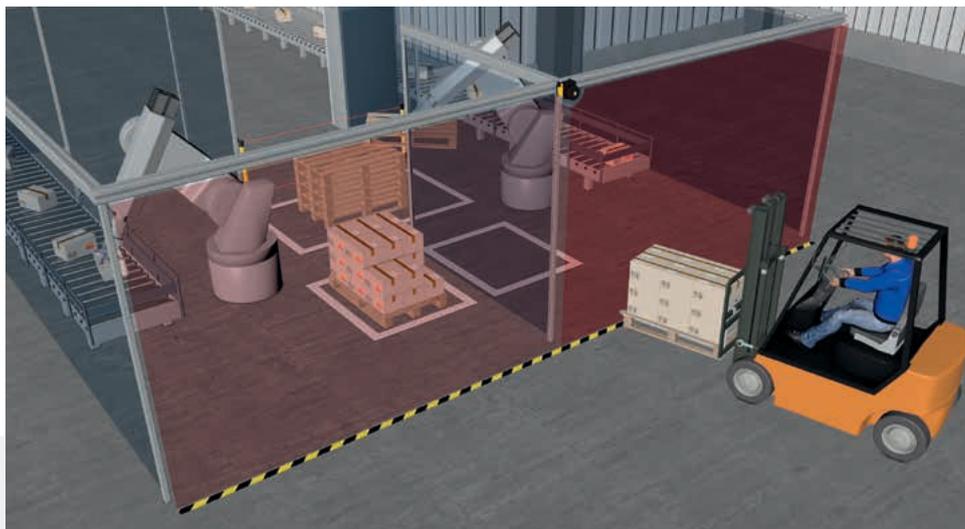
Apart from extensive application know-how and sound knowledge of technical standards and guidelines regarding automation and safety at work, we in particular offer quality products with outstanding functional features, such as ...

- Integrated alignment aids that help reduce setup times considerably.
- The uncomplicated setting of muting operating modes directly at the device without additional tools such as a PC or software.
- Integrated AS-i interfaces for efficient integration of the devices in your safety bus.



"In addition to reliability, the ideally fault-free integration of a solution in the processes is also decisive for practical use. This is precisely the focus of our products, service and consultation."

Alexander Mielchen,
Product Management Safety



AREA PROTECTION AND ACCESS GUARDING WERE NEVER SO SIMPLE AND EFFICIENT – THE RSL 400

With the RSL 400 safety laser scanner, we have set a new standard worldwide in the supreme discipline of safety sensor technology. With our decades of experience, we have succeeded in

developing a device which, as a result of clever detailed solutions, can in many cases perform two tasks where previously two laser scanners were required.



You need to guard two areas simultaneously and independently?

The device offers two independent protective functions and thereby acts as two single laser scanners.

You save yourself one device.

Your laser scanner must reliably monitor an extremely wide and deep field?

With a scanning angle of 270° and a range of 8.25 m, this scanner enables reliable safeguarding of large areas, even around corners. As a result, a second laser scanner is not needed in many cases.



You would like to be able to replace or upgrade the device without electronic and mechanical realignment?

The intelligent, easy-to-install and easy-to-align connection unit with integrated cable management remains fixed in position when the device is being replaced. This makes realignment unnecessary.



Safety laser scanners

RSL 410 Type 3 safety laser scanners



RSL 420 Type 3 safety laser scanners



RSL 430 Type 3 safety laser scanners



Specifications

Type in accordance with EN IEC 61496

SIL in accordance with IEC 61508 and EN IEC 62061 (SILCL)

Performance Level (PL) in accordance with EN ISO 13849-1

Resolution (adjustable)

Operating range

Scanning angle

Number of field pairs/quads

Dimensions, W x H x D

Safety-related switching outputs (OSSDs)

Connection type

Certifications

Functions

Features

Type 3

SIL 2

PL d

30 / 40 / 50 / 60 / 70 / 150 mm

3 / 4.5 / 6.25 / 8.25 m

270°

1 / 1

140 x 149 x 140 mm

2 PNP transistor outputs

M12 connector, configuration via Ethernet TCP/IP, Bluetooth



Selectable functions: resolution, dynamic contactor monitoring (EDM), start/restart interlock (RES). Vertical access guarding with reference boundary monitoring. Four-field mode

Any type of protective/warning field contours (1 field pair/quad). Basic functions such as automatic start/restart, start/restart interlock (RES), contactor monitoring (EDM) can be selected. Optimum handling by means of separate intelligent connection unit with integrated configuration memory and large, plain-text display with integrated electronic spirit level. Ethernet TCP/IP and Bluetooth interface for simple and convenient configuration and diagnosis. 3 configurable signal outputs.

Type 3

SIL 2

PL d

30 / 40 / 50 / 60 / 70 / 150 mm

3 / 4.5 / 6.25 / 8.25 m

270°

10 / 10

140 x 149 x 140 mm

2 PNP transistor outputs

Cable, 16-wire, configuration via Ethernet TCP/IP, Bluetooth



Selectable functions: resolution, dynamic contactor monitoring (EDM), start/restart interlock (RES). Vertical access guarding with reference boundary monitoring. Four-field mode. E-stop linkage

Any type of protective/warning field contours (10 field pairs/quad). Basic functions such as automatic start/restart, start/restart interlock (RES), contactor monitoring (EDM) can be selected. Optimum handling by means of separate intelligent connection unit with integrated configuration memory and large, plain-text display with integrated electronic spirit level. Ethernet TCP/IP and Bluetooth interface for simple and convenient configuration and diagnosis. Monitored changeover of 10 field pairs/quads. 4 configurable signal outputs.

Type 3

SIL 2

PL d

30 / 40 / 50 / 60 / 70 / 150 mm

3 / 4.5 / 6.25 / 8.25 m

270°

10+10 / 10

140 x 149 x 140 mm

2 x 2 PNP transistor outputs

Cable, 29-wire, configuration via Ethernet TCP/IP, Bluetooth



Selectable functions: resolution, dynamic contactor monitoring (EDM), start/restart interlock (RES). Vertical access guarding with reference boundary monitoring. Four-field mode. E-stop linkage. Safe time delay, internal. Data output, configurable

Any type of protective/warning field contours (10 + 10 field pairs/quad). Two independent protective functions and OSSD pairs. Basic functions such as automatic start/restart, start/restart interlock (RES), contactor monitoring (EDM) can be selected. Optimum handling by means of separate intelligent connection unit with integrated configuration memory and large, plain-text display with integrated electronic spirit level. Ethernet TCP/IP and Bluetooth interface for simple and convenient configuration and diagnosis. Monitored changeover of 10 + 10 field pairs/quads. 9 configurable signal outputs. Safe, internal switch-off delay (Stop 1).

RSL 440
Type 3 safety laser scanners



Type 3

SIL 2

PL d

30 / 40 / 50 / 60 / 70 / 150 mm

3 / 4.5 / 6.25 / 8.25 m

270°

100 / 50

140 × 149 × 140 mm

2 x 2 PNP transistor outputs

Cable, 29-wire, configuration via Ethernet TCP/IP, Bluetooth



Selectable functions: resolution, dynamic contactor monitoring (EDM), start/restart interlock (RES). Vertical access guarding with reference boundary monitoring. Four-field mode. E-stop linkage. Safe time delay, internal. Data output, configurable

Arbitrary protective/warning field contour (100 field pairs/50 quads). Two independent protective functions and OSSD pairs. Basic functions such as automatic start/restart, start/restart interlock (RES), contactor monitoring (EDM) can be selected. Optimum handling by means of separate intelligent connection unit with integrated configuration memory and large, plain-text display with integrated electronic spirit level. Ethernet TCP/IP and Bluetooth interface for simple and convenient configuration and diagnosis. Up to 10 independent sensor configurations, ideal for mobile applications. Monitored changeover of 100 field pairs/50 quads. 9 configurable signal outputs. Safe, internal switch-off delay (Stop 1).

RS4-4
Type 3 safety laser scanners



Type 3

SIL 2

PL d

70 / 150 mm

4.0 m

190°

4

140 × 148 × 135 mm

2 PNP transistor outputs

Sub-D15, Sub-D9 for configuration



Start/restart interlock (RES), selectable.

Any type of protective/warning field contours (4 field pairs). Automatic configuration on device exchange with intelligent ConfigPlug.

RS4-2E/4E/6E
Type 3 safety laser scanners



Type 3

SIL 2

PL d

30 / 40 / 50 / 70 / 150 mm

2.15 / 4.0 / 6.25 m

190°

8

140 × 148 × 135 mm

2 PNP transistor outputs

Sub-D15, Sub-D9 for configuration



Start/restart interlock (RES), selectable.
Function package Extended
Vertical access guarding with reference boundary monitoring

Any type of protective/warning field contours (8 field pairs). Automatic configuration on device exchange with intelligent ConfigPlug.

RS4-2M/4M/6M
Type 3 safety laser scanners



Type 3

SIL 2

PL d

30 / 40 / 50 / 70 / 150 mm

2.15 / 4.0 / 6.25 m

190°

8

140 × 148 × 135 mm

2 PNP transistor outputs

Sub-D15, Sub-D9 for configuration



Start/restart interlock (RES), selectable.
Function package MotionMonitoring
Movement monitoring of side-tracking skates

Any type of protective/warning field contours (8 field pairs). Automatic configuration on device exchange with intelligent ConfigPlug.

Safety light curtains

MLC 310 Type 2 safety light curtains

MLC 320 Type 2 safety light curtains



Type 2

Type 2

SIL 1

SIL 1

PL c

PL c

20 / 30 / 40 / 90 mm

20 / 30 / 40 / 90 mm

15 / 10 / 20 / 20 m

15 / 10 / 20 / 20 m

150 ... 3,000 mm

150 ... 3,000 mm

29 x 35 mm

29 x 35 mm

2 PNP transistor outputs

2 PNP transistor outputs

M12



M12



Transmission channel changeover.
Range reduction.

Transmission channel changeover.
Range reduction.
Start/restart interlock (RES).
Contactor monitoring (EDM).
7-segment display.

Configuration by wiring –
automatic transfer to replacement
device after device exchange.

Configuration by wiring –
automatic transfer to replacement
device after device exchange.

Specifications

Type in accordance with
EN IEC 61496

SIL in accordance with
IEC 61508 and
EN IEC 62061 (SILCL)

Performance Level (PL)
in accordance with
EN ISO 13849-1

Resolution

Operating range
(depending on resolution)

Protective field height
(type-dependent)

Profile cross-section

Safety-related switching
outputs (OSSDs)

Connection type

Certifications

Functions

Features



MLC 510
Type 4 safety light curtains



Type 4

SIL 3

PL e

14 / 20 / 30 / 40 / 90 mm
6 / 15 / 10 / 20 / 20 m

150 ... 3,000 mm

29 × 35 mm

2 PNP transistor outputs
AS-i Safety interface

M12



Transmission channel changeover.
Range reduction.

Configuration by wiring – automatic transfer to replacement device after device exchange. Extra impact-resistant models available.

MLC 520
Type 4 safety light curtains



Type 4

SIL 3

PL e

14 / 20 / 30 / 40 / 90 mm
6 / 15 / 10 / 20 / 20 m

150 ... 3,000 mm

29 × 35 mm

2 PNP transistor outputs

M12



Transmission channel changeover.
Range reduction.
Start/restart interlock (RES).
Contactor monitoring (EDM).
7-segment display.

Configuration by wiring – automatic transfer to replacement device after device exchange. Extra impact-resistant models available.

MLC 530
Type 4 safety light curtains



Type 4

SIL 3

PL e

14 / 20 / 30 / 40 / 90 mm
6 / 15 / 10 / 20 / 20 m

150 ... 3,000 mm

29 × 35 mm

2 PNP transistor outputs

M12



Transmission channel changeover.
Range reduction.
Start/restart interlock (RES).
Contactor monitoring (EDM).
7-segment display, linkage.
Fixed and floating beam blanking.
Reduced resolution. Timing controlled 2-sensor muting.
Muting-timeout extension.
Partial muting.

Configuration by wiring – automatic transfer to replacement device after device exchange. Linkage with safety devices via contact or OSSD output saves effort in downstream evaluation circuit.

Multiple scanning and reduced resolution for operation which is immune to interference. Integrated muting and blanking function can be activated during operation. Extra impact-resistant models available.

MLC 530 SPG
Type 4 safety light curtains



Type 4

SIL 3

PL e

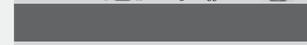
30 / 40 / 90 mm
10 / 20 / 20 m

150 ... 3,000 mm

29 × 35 mm

2 PNP transistor outputs

M12



Transmission channel changeover.
Range reduction. Start/restart interlock (RES). 7-segment display. Fixed blanking. Integrated muting function with control via PLC signal (no muting sensors necessary).

Configuration by wiring – automatic transfer to replacement device after device exchange. Configuration by wiring – automatic transfer to replacement device after device exchange.

Efficient access guarding without muting sensors: high level of availability and protection against tampering with a very compact system design.

Safety light curtains

Specifications

Type in accordance with EN IEC 61496

SIL in accordance with IEC 61508 and EN IEC 62061 (SILCL)

Performance Level (PL) in accordance with EN ISO 13849-1

Resolution

Operating range

Protective field height (type-dependent)

Profile cross-section

Safety-related switching outputs (OSSDs)

Connection type

Certifications

Functions

Features



The external MLC alignment aid is a practical tool with which the transmitter can be precisely aligned more quickly.

MLC 511 AIDA
Type 4 safety light curtains



Type 4

SIL 3

PL e

14 / 30 mm

6 / 10 m

300 ... 1,800 mm

29 × 35 mm

2 PNP transistor outputs

M12



Transmission channel changeover. Range reduction. Automaticstart/restart.

Plug connection with AIDA-compliant M12 pin assignment (4-pin) (Automatisierungs-Initiative deutscher Automobilisten (AIDA) = Automation initiative of German automobile manufacturers). Configuration by wiring – automatic transfer to replacement devices after device exchange.

MLC 520
Host-Guest
Type 4 safety light curtains



Type 4

SIL 3

PL e

14 / 20 / 30 / 40 / 90 mm

6 / 15 / 10 / 20 / 20 m

300 ... 1,800 mm

29 × 35 mm

2 PNP transistor outputs
AS-i Safety interface

M12



Transmission channel changeover. Range reduction. Start/restart interlock (RES). Contactor monitoring (EDM). 7-segment display.

Host, middle-guest and guest devices combine point of operation guarding with area protection. Configuration by wiring – automatic transfer to replacement device after device exchange.

MLC 520 EX2
Type 4 safety light curtains



Type 4

SIL 3

PL e

20 / 30 mm

15 / 10 m

600 ... 1,500 mm

29 × 35 mm

2 PNP transistor outputs

M12



Transmission channel changeover. Range reduction. Start/restart interlock (RES). Contactor monitoring (EDM). 7-segment display.

Certified for applications in potentially explosive areas of group II, category 3, zone 2 (gas) and zone 22 (dust). Configuration by wiring – automatic transfer to replacement device after device exchange.

MLC 510
IP 67/69K
Type 4 safety light curtains



Type 4

SIL 3

PL e

14 / 30 mm

4.8 / 8 m

300 ... 1,200 mm

∅ 52.5 mm

2 PNP transistor outputs

Cable, 15 m



Transmission channel changeover. Range reduction.

The configuration is simply performed by means of wiring. Pre-mounted in transparent, encapsulated tube.

Multiple light beam safety devices

Specifications

Type in accordance with EN IEC 61496

SIL in accordance with IEC 61508 and EN IEC 62061 (SILCL)

Performance Level (PL) in accordance with EN ISO 13849-1

Number of beams/
beam distance

Operating range

Profile cross-section

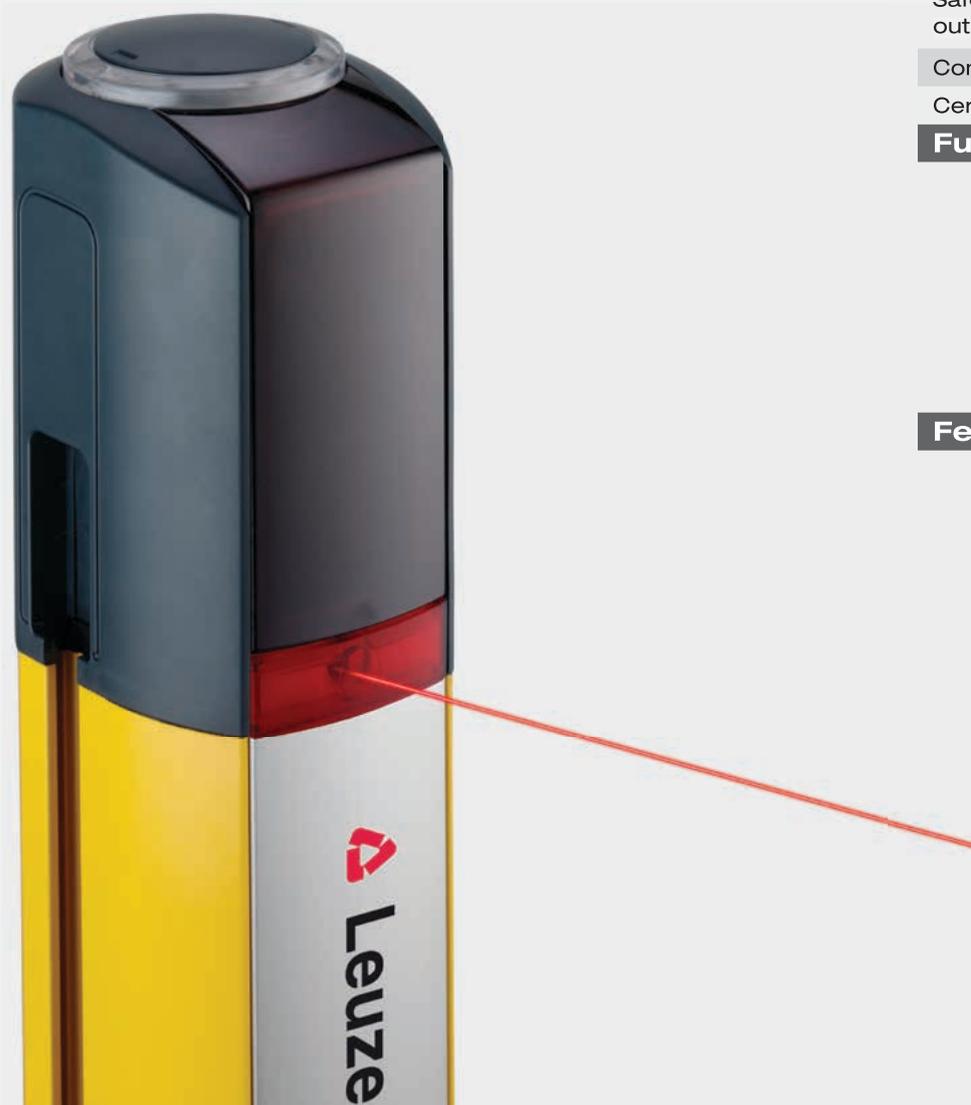
Safety-related switching outputs (OSSDs)

Connection type

Certifications

Functions

Features



MLD 310/510
Type 2 / 4 multiple light beam safety devices



Type 2 / Type 4

SIL 1 / SIL 3

PL c / PL e

2 / 500 mm
3 / 400 mm
4 / 300 mm

0.5 ... 50 m or 20 ... 70 m
(transmitter-receiver systems)
0.5 ... 8 m (transceiver systems)

52 × 65 mm

2 PNP transistor outputs
AS-i Safety interface

M12



Automatic start/restart.

Version available as 2- or 3-beam transceiver.

The configuration is simply performed by means of wiring, i. e. no software, PC or DIP switch are necessary.

The use at ambient temperatures as low as -30°C is possible.

Options: integrated laser alignment aid (with transmitter-receiver systems), integrated status indicator.

MLD 320/520
Type 2 / 4 multiple light beam safety devices



Type 2 / Type 4

SIL 1 / SIL 3

PL c / PL e

2 / 500 mm
3 / 400 mm
4 / 300 mm

0.5 ... 50 m or 20 ... 70 m
(transmitter-receiver systems)
0.5 ... 8 m (transceiver systems)

52 × 65 mm

2 PNP transistor outputs

M12



Automaticstart/restart. Start/restart interlock (RES), selectable. Contactor monitoring (EDM), selectable. Configurable operating modes.

Version available as 2- or 3-beam transceiver.

The configuration is simply performed by means of wiring, i. e. no software, PC or DIP switch are necessary.

The use at ambient temperatures as low as -30°C is possible.

Options: integrated laser alignment aid (with transmitter-receiver systems), integrated status indicator.

MLD 330/530
Type 2 / 4 multiple light beam safety devices



Type 2 / Type 4

SIL 1 / SIL 3

PL c / PL e

2 / 500 mm
3 / 400 mm
4 / 300 mm

0.5 ... 50 m or 20 ... 70 m
(transmitter-receiver systems)
0.5 ... 8 m (transceiver systems)

52 × 65 mm

2 PNP transistor outputs

M12



Start/restart interlock (RES), selectable. Contactor monitoring (EDM), selectable. 2-sensor muting (timing controlled, sequence controlled). Muting-timeout extension to up to 100 hours. Configurable operating modes. 7-segment display.

Version available as 2- or 3-beam transceiver.

Integrated muting function, no additional muting module is necessary.

The configuration is simply performed by means of wiring, i. e. no software, PC or DIP switch are necessary.

The use at ambient temperatures as low as -30°C is possible.

Options: integrated laser alignment aid (with transmitter-receiver systems), integrated muting and status indicator.

MLD 335/535
Type 2 / 4 multiple light beam safety devices



Type 2 / Type 4

SIL 1 / SIL 3

PL c / PL e

2 / 500 mm
3 / 400 mm
4 / 300 mm

0.5 ... 50 m or 20 ... 70 m
(transmitter-receiver systems)
0.5 ... 8 m (transceiver systems)

52 × 65 mm

2 PNP transistor outputs

M12



Start/restart interlock (RES), selectable. Contactor monitoring (EDM), selectable. 2-sensor muting (timing controlled, sequence controlled), 4-sensor muting (timing controlled). Muting-timeout extension to up to 100 hours. Configurable operating modes. 7-segment display.

Version available as 2- or 3-beam transceiver.

Integrated muting function, no additional muting module is necessary.

The configuration is simply performed by means of wiring, i. e. no software, PC or DIP switch are necessary.

The use at ambient temperatures as low as -30°C is possible.

Options: integrated laser alignment aid (with transmitter-receiver systems), integrated muting and status indicator.

Protective sensor sets and accessories

Description

Features



UDC / DC Device columns



The **UDC / DC** device columns enable the stable, freestanding mounting of protective sensors and safety light curtains on the floor. The **robust profile construction in high-quality design** will win you over with simple device mounting and the quick vertical and axial alignment in just a few steps.

Simple, stepless mounting and height adjustment of the installed devices by means of supplied mounting brackets.
 Design with closed or open top by means of simple, snap-in column cover.
 Protection against device contamination and damage by means of easy-to-replace protective screens.
 Automatic resetting after mechanical impacts with special spring elements (UDC).
 Complete mounting set for floor fixing included with delivery (UDC).

UMC Mirror columns



By combining **UMC** mirror columns with protective sensors or safety light curtains, **cost-effective, multiple-side danger zone guarding** can be realized. Robust design and simple handling also increase the effectiveness of the safety device.

Individual mirror, adjustable separately in height and alignment, for beam deflection with multiple light beam safety devices.
 Axially adjustable continuous mirror surface for beam deflection with safety light curtains.
 Automatic resetting after mechanical impacts with special spring elements.
 Complete mounting set for floor fixing included with delivery.



MLC-UDC Protective sensor sets



In addition to the MLC 500 safety light curtain as an optical protective device, these sets also include device columns in which the safety sensor is pre-mounted in such a manner that it can very easily be height-adjusted.

Transmitter-receiver system with safety light curtain MLC 500. Set for access guarding with hand/finger detection. Optimally matched mechanically; pre-mounted and pre-aligned. Device column with complete mounting kit for exact floor alignment; automatic resetting after mechanical impacts thanks to special spring elements.

MLD-UDC Protective sensor sets



In addition to the MLD 500 multiple light beam safety device as an optical protective device, these sets also include device columns in which the safety sensor is pre-mounted in such a manner that it can very easily be height-adjusted.

2-beam complete Plug & Play solutions, optionally as transceiver or transmitter-receiver system. Set for access guarding, i.e. pre-mounted transmitter / receiver or transceiver / deflecting mirror in device column. Optimally matched mechanically; pre-mounted and pre-aligned. Device column with complete mounting kit for exact floor alignment; automatic resetting after mechanical impacts thanks to special spring elements.

Set-AC-M Muting sensor sets



The **Set-AC-M** muting sensor sets for protective sensors and safety light curtains simplify the setup and operation of muting solutions. The sets are **optimally tailored to modern machines and systems** both mechanically and electrically and through their innovative design.

Pre-mounted and aligned muting sensors with complete configuration for direct connection to the safety sensors. 2-sensor muting (timing controlled & sequential); 4-sensor muting (timing controlled). Simple lateral mounting on device columns as well as on protective sensors and safety light curtains. Optimally matched to transceiver systems through the use of retro-reflective photoelectric sensors (only one-sided wiring). Fast start-up through immediately ready-to-use, turnkey design.

MLDSET Protective sensor sets



The **MLDSET** protective sensor sets ensure efficient installation and quick and easy start-up of **complete solutions for guarding machine systems**. A variety of Plug & Play models offer application options ranging from access guarding to complex muting tasks.

Pre-mounted and aligned protective sensor systems in device columns for direct integration in machine and system controls. 2-sensor muting (timing controlled & sequential); 4-sensor muting (timing controlled). Simple logistical handling through individual complete solutions in a single set. Fast start-up of the complete system through immediately ready-to-use, turnkey design with pluggable connections.



Single light beam safety devices



Specifications

Type in accordance with EN IEC 61496

Operating range

Operating voltage U_B

Operating temperature

Dimensions, W x H x D

Housing

Light source

Switching outputs

Connection type

Certifications

Functions

Features

MLD 500
Type 4 single light beam safety devices



Type 4 (self-monitoring)*

0.5 ... 70 m
20 ... 100 m

+24 V DC \pm 20 %

-30 ... +55 °C

52 x 65 x 193 mm

Metal

Infrared

2 PNP transistor outputs (OSSDs)

M12
AS-i Safety interface



Automaticstart/restart. Start/restart interlock (RES), selectable. Contactor monitoring (EDM), selectable. Timing controlled 2-sensor muting. Sequence controlled 2-sensor muting. Configurable operating modes.

The use at ambient temperatures as low as -30°C is possible. Degree of protection IP 67. Optional: integrated laser alignment aid. The configuration is simply performed by means of wiring, i. e. no software, PC or DIP switch are necessary.

SLS 46C
Type 4 single light beam safety devices



Type 4 in combination with a MSI-TRM safety relay

0.5 ... 40 m
5 ... 70 m

24 V DC, \pm 20 %
(incl. residual ripple)

-30 ... +60 °C

20.5 x 77 x 44 mm

Plastic

Red light / infrared

2 push-pull transistor outputs

Cable 2 m
M12



LED indicators. Activation input for test and series connection. Active ambient light suppression (A²LS). Diagnostic output.

Single beam safety device with high function reserve. Compact plastic housing with degree of protection IP 67. Clearly visible alignment indicator in the front screen. ECOLAB.

SLS 518
Type 4 single light beam safety devices



Type 4 in combination with a MSI-TRM safety relay

0 ... 8 m (infrared LED)
0 ... 40 m (red light laser)

+24 V DC ± 15 %
(incl. residual ripple)

-25 ... +55 °C (infrared LED)
-10 ... +50 °C (red light laser)

M18 × 91 mm

Plastic

Infrared LED, red light laser

PNP transistor output

M12



LED indicators. Activation input for test and series connection. Diagnostic output.

Compact plastic housing with degree of protection IP 67.
Compact, cylindrical M18 construction for use in limited spaces

SLS 46C
Type 2 single light beam safety devices



Type 2 in combination with a safety monitoring device

0.5 ... 40 m
5 ... 70 m

24 V DC, ± 20 %
(incl. residual ripple)

-30 ... +60 °C

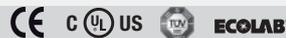
20.5 × 77 × 44 mm

Plastic

Red light / infrared

2 push-pull transistor outputs

Cable 2 m
M12



LED indicators. Activation input for test and series connection. Active ambient light suppression (A²LS). Diagnostic output.

Single beam safety device with high function reserve.
Compact plastic housing with degree of protection IP 67.
Clearly visible alignment indicator in the front screen.

SLSR 25B
Type 2 single light beam safety devices



Type 2 in combination with a safety monitoring device

0.5 ... 20 m

10 ... 30 V DC
(incl. residual ripple)

-30 ... +55 °C

15 × 51.3 × 28.8 mm

Plastic

Red light

2 push-pull transistor outputs

Cable 2 m
M8
M12
Cable+M12



LED indicator, activation input for test and series connection. Active ambient light suppression (A²LS).

Single beam safety device with high function reserve.
Compact plastic housing with degree of protection IP 67.
Wide voltage range 10 to 30 V.
All common connection variants.

SLS 318
Type 2 single light beam safety devices



Type 2 in combination with a safety monitoring device

0 ... 10 m

10 ... 30 V DC

-25 ... +65 °C

Cylindrical construction, M18 × 1

Plastic
Metal housing on request

Red light

PNP transistor output

Cable 2 m
M12



LED indicators. Activation input for test and series connection.

Degree of protection IP 67.
2 antivalent push-pull switching outputs for light/dark switching and as control function.
Visible red light in straight optics.
Switching frequency 1,000 Hz.
Adjustable sensitivity.

AS-i-safety product range

Specifications

Type in accordance with EN IEC 61496

SIL in accordance with IEC 61508 and EN IEC 62061 (SILCL)

Performance Level (PL) in accordance with EN ISO 13849-1

AS-i profile

Slave address

Connection type

Current consumption from AS-i circuit

Sensor response time

Restart delay time

Certifications

Function extension with ASM1/ASM1E safety monitor

Features

MLC 510 / AS-i Type 4 safety light curtains



Type 4

SIL 3

PL e

Safe slave

1 ... 31, programmable (factory setting = 0)

M12

50 mA (transmitter)
150 mA (receiver)

3 ... 39 ms (type-dependent)

100 ms or 500 ms



Start/restart interlock. Contactor monitoring (EDM), selectable.

Integrated AS-i interface for direct M12 connection to the AS-interface network.
Safe data transfer of the OSSD signals via AS-interface.
Device swap-out without PC via SERVICE function of the AS-i safety monitor.
Direct control without unique AS-i address possible.
Also available as host/middle-guest/guest variants.

MLD 500 / AS-i Type 4 multiple light beam safety devices



Type 4

SIL 3

PL e

Safe slave

1 ... 31, programmable (factory setting = 0)

M12

50 mA (transmitter)
Max. 140 mA (receiver, type-dependent)

25 ms

100 ms or 500 ms



Start/restart interlock. Contactor monitoring (EDM), selectable.
Timing controlled 2- or 4-sensor muting. Sequence controlled 2-sensor muting. Muting-timeout extension.

Integrated AS-i interface for direct M12 connection to the AS-interface network.
Safe data transfer of the OSSD signals via AS-interface.
Device swap-out without PC via SERVICE function of the AS-i safety monitor.
Integrated muting indicator, integrated status indicator, direct control without unique AS-i address possible.

MLD 500 / AS-i Type 4 single light beam safety devices



Type 4

SIL 3

PL e

Safe slave

1 ... 31, programmable (factory setting = 0)

M12

50 mA (transmitter)
Max. 140 mA (receiver, type-dependent)

25 ms

100 ms or 500 ms



Start/restart interlock. Contactor monitoring (EDM), selectable

Integrated AS-i interface for direct M12 connection to the AS-interface network.
Safe data transfer of the OSSD signals via AS-interface.
Device swap-out without PC via SERVICE function of the AS-i safety monitor.
Direct control without unique AS-i address possible.

ASM1 / ASM1E

AS-i safety monitors
category 4

ASM2 / ASM2E

AS-i safety monitors
category 4



Specifications

SIL in accordance with IEC 61508 and EN IEC 62061 (SILCL)

Performance Level (PL) in accordance with EN ISO 13849-1

Safety category in accordance with EN ISO 13849-1

Stop category in accordance with EN IEC 60204-1

Supply voltage

System reaction time

Degree of protection

Number of safety monitors per AS-interface network

Certifications

Functions

Features

SIL 3

PL e

4

0 and 1

24 V DC, $\pm 15\%$

Max. 40 ms (monitor without sensor reaction time)

IP 20

4 (with maximum 31 integrated AS-i slaves)

CE  c  US

E-Stop monitoring functions. Start/restart interlock. Dynamic contactor monitoring (EDM). Muting. Timing controlled 2-sensor muting. Sequence controlled 4-sensor muting. 1 and 2-channel OSSD relay outputs. Status LED indicator. System signal output.

Up to 31 safe AS-i slaves can be connected.
Freely selectable assignment (Drag&Drop) of the sensors to OSSDs with "asimon" PC software.
32 logic devices (e.g. OR, AND, FLIPFLOP) and turn on/off delays can be configured for the monitoring devices.
RS 232 interface for PC-supported system configuration and system diagnostics as well as configuration data transfer to replacement device.
Immediate switch-off STOP 0 and delayed switch-off STOP 1 of the OSSDs can be configured.
Teach-in SERVICE button for automatic system integration of AS-i sensors on sensor exchange.

SIL 3

PL e

4

0 and 1

24 V DC, $\pm 15\%$

Max. 40 ms (monitor without sensor reaction time)

IP 20

4 (with maximum 31 integrated AS-i slaves)

CE  c  US

E-Stop monitoring functions. Start/restart interlock. Dynamic contactor monitoring (EDM). Muting. Timing controlled 2-sensor muting. Sequence controlled 4-sensor muting. 1 and 2-channel OSSD relay outputs. Status LED indicator. System signal output.

Safe activation of safe AS-i actors with the same safe AS-i address.
Primary start and E-Stop functions via safe coupling of neighboring AS-i networks.
48 logic devices (e.g. OR, AND, FLIPFLOP) and turn on/off delays can be configured for the monitoring devices.
Auxiliary signals for start/restart interlock.
Error reset of the AS-i actor.
In addition, all functions and features of the ASM1E safety monitor are available.



Safety switches and safety locking devices

S20, S200 Safety switches



S300 Safety position switch



S400, S410 Safety hinge switches



Specifications

Type

Locking device without guard interlocking in acc. with EN ISO 14119

Locking device without guard interlocking in acc. with EN ISO 14119

Locking device without guard interlocking in acc. with EN ISO 14119

Housing / Degree of protection

Glass fiber reinforced plastic (S20) or metal (S200) / both IP 67

Glass fiber reinforced plastic or metal, both IP 67

Metal, IP 67 / IP 69K

Actuators

Series (S20: AC-ANxx, S200: AC-AHxx), external: straight, angular, resilient, alignable

Plunger, roller, lever, porcelain lever

Safety switch in hinge, internal, encapsulated

Actuation

1 × above, 4 × side (90°)

1 × above, 4 × side (90°), 360°, switching direction left-right one side, both sides

Actuation angle 180°

Locking type, -force

10 N, 30 N

Connection type

Cable entry M20 × 1.5 (S20: optional 3-way), M12

Cable entry M20 × 1.5 (1- or 3-way), M12

Cable or M12, top, bottom, at wall side

Certifications



Functions

Integration in control circuits up to category 4 in accordance with EN ISO 13849-1.

Integration in control circuits up to category 4 in accordance with EN ISO 13849-1, stop command with automatic or manual forced actuation.

Integration in control circuits up to category 4 in accordance with EN ISO 13849-1. Mechanical hinge with integrated safety switch.

Features

Easy mounting with standard construction.
Universal use with 5 actuator approach directions.
Various actuators for different installation conditions and applications from normal duty (S20) to heavy duty (S200).
Self-centering with funnel-shaped entry opening.
Large double-bridge contacts for long life expectancy (S200).

Metal housing for "heavy duty" applications.
Switching direction selectable.
Universal use with individually set actuator approach directions and angles in 10° grid.
Actuator extremely durable / robust.

Maximum protective device opening angle of 180°.
Repeatable setting (switching angle alignment) with misaligned doors.
Compact, rounded-off construction design in robust metal version.
Encapsulated, internal actuator guarantees proper functioning, even under difficult environmental conditions.
Extremely manipulation-safe with covered screws (unobtrusive sturdy design with rear-side mounting).
S410 model with wider fork dimensions for special materials.

S420
Safety hinge switches



Locking device without guard interlocking in acc. with EN ISO 14119

Stainless steel, IP 67 / IP 69K

Safety switch in hinge, internal, encapsulated

Actuation angle 180°

Cable or M12, at wall side



Two models:
– Contact allocation
– Two safety-related switching outputs (OSSDs). On-site diagnostics via 4 multi-color LEDs. Two electronic inputs, +E13 signal output. Integration in control circuits up to category 4 in accordance with EN ISO 13849-1.

Maximum protective device opening angle of 180°. Repeatable setting (switching angle alignment) with misaligned doors. Compact, rounded-off construction design in robust metal version. Encapsulated, internal actuator guarantees proper functioning, even under difficult environmental conditions. Extremely tamperproof through covered screws (unobtrusive, sturdy design with rear mounting), stainless steel housing for use in areas with extremely high hygienic requirements. Can support loads of up to 2,000 N.

L10
Safety locking devices



Locking device with guard interlocking in acc. with EN ISO 14119

Glass fiber reinforced plastic or metal / both IP 67

Series (AC-AHxx), external: straight, angular, resilient, adjustable

1 × above, 4 × side (90°)

Cable entry M20 × 1.5



Integration in control circuits up to category 4 in accordance with EN ISO 13849-1. Mechanical guard interlocking with manual locking and unlocking.

Universal use with 5 actuator approach directions. Multiple heavy-duty actuator series AC-AHxx for a wide range of installation conditions. Self-centering with funnel-shaped entry opening. Reduced wiring through manual locking and releasing, optionally with knurled nut or key. Economical locking device with compact construction.

L100, L200
Safety locking devices



Locking device with guard interlocking in acc. with EN ISO 14119

Glass fiber reinforced plastic / IP 66 (L100), metal / IP 67 (L200)

Series (L100: AC-AHxx, L200: AC-AHLxx), external: straight, angular, resilient, adjustable

1 × above, 4 × side (90°)

Cable entry M20 × 1.5 (3-way)



Integration in control circuits up to category 4 in accordance with EN ISO 13849-1. Mechanical guard interlocking (spring-force). Electro-magnetic guard interlocking (magnet-force). Auxiliary release, escape release button (L200). Illuminated displays for magnet activation (L200)

Universal use with 5 actuator approach directions. Multiple heavy-duty actuators for a wide range of installation conditions. Self-centering with funnel-shaped entry opening. Adjustable switch-on power reduction (L100). "Heavy duty" use, including under tough, harsh ambient conditions and external mechanical stresses (L200). Ergonomically optimized panic button, selectable position (L200).

L300
Safety locking devices



Locking device with guard interlocking in acc. with EN ISO 14119

Metal, IP 67 / IP 69K

Series (AC L300, RFID), external: straight, easy to center

4 × side (90°)

Cable entry M20 × 1.5 (3-way), M12 (8-pin)



Integration in control circuits up to category 4 / Performance Level PL e in accordance with EN ISO 13849-1. Contactless actuator with RFID technology. High coding level in accordance with EN ISO 14119. Two safety-related switching outputs (OSSDs). On-site diagnostics via 5 LEDs. Auxiliary release with/without lock. Escape release button.

Universal use with 4 actuator approach directions, actuator is easy to center. Interlocking with dirt-resistant bushing for actuator. "Heavy duty" use, including under tough, harsh ambient conditions and external mechanical stresses. Ergonomically optimized panic button, selectable position. Optional: safety door handle, lock-out protection

Safety proximity sensors



Specifications

Type

Category in accordance with EN IEC 13849-1

Performance Level (PL) in accordance with EN ISO 13849-1

Dimensions (housing)

Assured switching distances (Sao, Sar)

Switching tolerance

Contact type

Code type

Connection type

Min. approach speed of actuator towards sensor

Response time

Certifications

Functions

Features

MC 300

Magnetically coded sensors



Locking device with proximity switches in acc. with EN ISO 14119

Up to 4 (depending on the number of sensors)

Up to e (depending on the number of sensors)

M30 × 36 mm (MC 330)
36 × 26 × 13 mm (MC 336)
88 × 25 × 13 mm (MC 388)

< 6 mm, > 14 mm (MC 330)
< 3 mm, > 11 mm (MC 336)
< 6 mm, > 30 mm (MC 388)

± 1 mm

1NO / 1NC, 2NO

M8, M12, cable, cable+M12

50 mm/s

3 ms



Safety system in combination with a suitable Leuze electronic evaluation unit (see safety relays) or the MSI 400 safety control. Integration in control circuits up to category 4 in accordance with EN ISO 13849-1. Type 4 position switches, proximity switches with low encoding level.

Not sensitive to dust, humidity and the like (dirt level 3 in accordance with EN 60947-1).

Highly tamperproof.

Approach actuation directions lengthwise, high, deep.

Flexible connection via M8 plug, PVC or PUR connection cable (2 m, 5 m, 10 m), each firmly integrated in the housing.

Integrated compact design.

Large switching hysteresis (tolerant in event of vibrations or warped doors).

Delivery contents including actuator and screws / lock ring.

RD 800

Safety transponders



Locking device with proximity switches in acc. with EN ISO 14119

4

e

87.5 × 25 × 18 mm (sensor)
45 × 25 × 18 mm (actuator)

12 mm, 10 mm

Standard code, unique code

M12

7 ms (typical), 12 ms (max.)



Start/restart interlock, contactor monitoring (EDM) selectable, additional control output. Type 4 position switches, proximity switches with high encoding level.

Compact housing with high degree of protection (IP 67, IP 69K).

Pre-programmed or teach-in function.

Individual or multiple application (series connection).

Diagnosis via 4 multi-color LEDs.

Safety command devices



Specifications

Type

Housing / Degree of protection

Actuators

Actuation

Mounting

Connection type

Certifications

Functions

Features

ERS 200 E-Stop rope switch



E-Stop command device in accordance with EN ISO 13850, EN 60947-5-5

Metal, IP 67

Stainless steel bolt, red, steel rope with sheathing

Position-independent per rope (pull: 83 N / 235 N, slacken: 63 N / 147 N). Pull on forced separation: 90 N / 250 N.

Straight, angular

Cable entry M20 × 1.5 (1- or 3-way), M12

CE  c 

Integration in control circuits up to category 4 in accordance with EN ISO 13849-1. Position-independent E-Stop command input. Reset function (reset button with indicator). Rope head with alignment indicator.

Machine is stopped by pulling the rope or on rope breakage.
Simple rope adjustment by means of switching point indicator.
Clicks in on both sides with friction-locking contacts.
Compact metal housing.
Use even under difficult conditions.
Precise bolt guide.

ESB 200 E-Stop button



E-Stop command device in accordance with EN 60947-5-5 and EN ISO 13850

UV-resistant, impact-resistant plastic, IP 67, IP 69K

Button, 40 mm diameter, red, self-locking

Position-dependent, manual, per button (25 N)

Structure

Cable entry M20 × 1.5, M16 × 1.5 M12

CE  c 

Integration in control circuits up to category 4 in accordance with EN ISO 13849-1. Position-dependent E-Stop command input. Reset function (via rotary knob or key).

2 safety circuits, 1 signal circuit.
Either screw terminals or M12 connection.
Sturdy housing with "STOP" signal ring.
Protected screw fitting.
Ergonomically optimized.

Safety relays

MSI-SR-2H1 MSI-SR-2H21



MSI-SR-ES20 MSI-SR-ES31



MSI-MC310 MSI-MC311



Specifications

Device type/function

Evaluation unit

Evaluation unit

Evaluation unit

Category/Performance Level (PL) in accordance with EN ISO 13849-1

1/PL c
4/PL e

3/PL d
4/PL e

4/PL e

SIL in accordance with IEC 61508 and EN IEC 62061 (SILCL)

SIL 1/SIL_{CL} 1
SIL 3/SIL_{CL} 3

SIL 2/SIL_{CL} 2
SIL 3/SIL_{CL} 3

–

Number of release contacts (NO contact)

1 (change-over contact)
2

2
3

2
2

Number of signal contacts (NC contact)

1 (change-over contact)
1

–
1

1
–

Start/restart

Through synchronous actuation

Automatic, manual

Automatic, manual

Contactor monitoring (EDM)

–
X

X
X

X
X

Regression delay

20 ms
50 ms

70 ms
60 ms

20 ms
20 ms

Max. continuous current per path

5 A
6 A

6 A
8 A

3 A
3 A

Ambient temperature, operation

–25 ... +55 °C

–25 ... +55 °C

MC 310: 0 ... +55 °C
MC 311: –5 ... +55 °C

Dimensions with screw terminals (W × H × D)

96.5 × 22.5 × 91.5 mm
96.5 × 22.5 × 114.1 mm

96.5 × 22.5 × 91.5 mm
96.5 × 22.5 × 107.6 mm

96.5 × 22.5 × 113.6 mm

Certifications

CE cULUS CE cULUS DGV

CE cULUS CE cULUS DGV

CE cULUS

Sensors/ application

Two-hand operating units
2H1: type III A, EN 574
2H21: TYP III C, EN 574

E-Stop
Safety switches
with relay contacts

Safety solenoid switches
Inputs: MC 310: 1 NC contact,
1 NO contact; MC 311: 2 NC
contacts

Features

**MSI-SR-LC21
MSI-SR-LC21M**



Evaluation unit

4/PL e

SIL 3/SIL_{CL} 3

2

1

Automatic, manual

X

25 ms

6 A

-25 ... +55 °C

96.5 × 22.5 × 114 mm



E-Stop

safety switches:

- with relay contacts
- with OSSD outputs
- with magnetic contacts

Safety light barrier

Safety laser scanner

LC21M: 4-conductor PS mat

**MSI-SR-LC31AR
MSI-SR-LC31MR**



Evaluation unit

4/PL e

SIL 3/SIL_{CL} 3

3

1

Automatic (AR), manual (MR)

X

10 ms

8 A

-25 ... +55 °C

96.5 × 22.5 × 114 mm



E-Stop

safety switches:

- with relay contacts
- with OSSD outputs
- with magnetic contacts

Safety light barrier

Safety laser scanner

**MSI-SR4
MSI-SR5**



Evaluation unit

4/PL e

SIL 3/SIL_{CL} 3

3

2

Automatic, manual

X

10 ms

3 A

2 A

0 ... +55 °C

99.5 × 22.5 × 111.5 mm



E-Stop

safety switches:

- with relay contacts
- with OSSD outputs
- with magnetic contacts

Safety light barrier

Safety laser scanner

SR5: 2 inputs (1- or 2-channel) for parallel evaluation of 2 sensors.

**MSI-SR-LC21DT03
MSI-SR-LC21DT30
MSI-DT30**



Evaluation unit with time delay

4/PL e

LC21: 3/PL d for delayed contact

SIL 3/SIL_{CL} 3

2/SIL_{CL} 2 for delayed contact

LC21: 2 + 1 delayed

2 + 2 delayed

Automatic, manual

X

LC21: 25 ms

20 ms

6 A

6 A

-25 ... +55 °C

-20 ... +55 °C

96.5 × 22.5 × 114 mm

96.5 × 22.5 × 111.5 mm



E-Stop

safety switches:

- with relay contacts
- with OSSD outputs

Safety light barrier

Safety laser scanner

Delay 0.15 – 3 s (MSI-SR-LC21DT03).

Delay: 1.5 – 30 s. (MSI-SR-LC21DT30).

Delay: 0.1 – 30 s. (MSI-DT-30).

Safety relays

MSI-RM2 MSI-SR-CM32



MSI-SR-CM42R



MSI-SR-CM43 MSI-SR-CM43DT03



Specifications

Device type/function

Output extension for OSSDs

Contact extension

Contact extension,
contact extension with time delay

Category/Performance Level (PL) in accordance with EN ISO 13849-1

4 / PL e

4 / PL e

3 / PL d

SIL in accordance with IEC 61508 and EN IEC 62061 (SILCL)

SIL 3 / SIL_{CL} 3

SIL 3 / SIL_{CL} 3

SIL 2 / SIL_{CL} 2

Number of release contacts (NO contact)

2 (change-over contact)
3

2 × 2

4

Number of signal contacts (NC contact)

1
2

2 × 1

3

Start / restart

Automatic

Automatic

Automatic

Contact monitoring (EDM)

Regression delay

10 ms
20 ms

15 ms

40 ms
3 s

Max. continuous current per path

3 A
6 A

6 A

6 A

Ambient temperature, operation

0 ... +50 °C
-25 ... +55 °C

-25 ... +65 °C

-25 ... +55 °C

Dimensions (with screw terminals)

99 × 17.5 × 111.5 mm
96.5 × 22.5 × 114 mm

96.5 × 22.5 × 114 mm

96.5 × 22.5 × 114 mm

Certifications

CE cULUS TÜV CE cULUS DGUV

CE cULUS TÜV

CE cULUS DGUV

Sensors/ application

Safety light barrier
Safety laser scanner
Safety switch with OSSD outputs
Additionally for CM 32: extension for safety PLCs

Extension for safety relays and safety PLCs

Extension for safety relays and safety PLCs

Features

2 extensions in one device

Fixed delay: 3 s (DT03).

MSI-CM52



Contact extension

4 / PL e

SIL 3 / SIL_{CL} 3

5

2

Automatic

20 ms

6 A

-20 ... +55 °C

96.5 × 22.5 × 114.5 mm



Extension for safety relays and safety PLCs

MSI-SR-SM420S



Monitoring of standstill and low speed

4 / PL e

SIL 3 / SIL_{CL} 3

2 (semiconductor)

2 (semiconductor)

Automatic, manual
X

12 ms + 1,6 / f_{ST}

2 A

-25 ... +55 °C

96.5 × 22.5 × 121 mm



Proximity switch, A/B incremental transmitter, HTL

Speed limit / monitoring frequency
0.5 – 99 Hz

MSI-TR1/2/S MSI-TRM



Evaluation unit for periodic testing

4 / PL e

SIL 3 / SIL_{CL} 3

2

2 (semiconductor)

Automatic, manual
X

20 ms
130 ms

3 A

-30 ... +60 °C
-25 ... +55 °C

99 × 22.5 × 111.5 mm



Testable optoelectronic protective devices of type 2 (MSI-TR1/2/S)
Testable optoelectronic protective devices of type 4 (MSI-TRM)

1 or 2 input circuits, up to 3 sensors each
Fixed delay: 0.6 s (TRS)
Filter time 130 ms (TR2)

MSI-MD-FB



Muting controller

4 / PL e

SIL 3 / SIL_{CL} 3

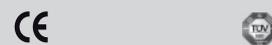
OSSD pair

–

Manual

-30 ... +60 °C

225 × 60 × 37 mm



Safety light barrier, safety multiple light beam devices, additional muting sensors

Programmable safety controls

MSI.designer

- Easy hardware configuration
- Simple logic programming
- Simulation and logic analysis for testing the safety function right from a PC
- Force mode for detailed function tests
- Configurable report for professional and well-organized documentation
- Online diagnosis for a fast state overview, including remote maintenance



MSI 410



Specifications

Device type/function

Safety control base module

Category / Performance Level (PL) in accordance with EN ISO 13849-1

4 / PL e

SIL in accordance with IEC 61508 or EN IEC 62061 (SILCL)

3

Inputs / outputs / Inputs or outputs, configurable

20 / 4 / -

Maximum switching power per output

4 A

Test outputs / signal generators

4 / 4

Interfaces

USB mini

Fieldbus protocols

Supply voltage

16.8 ... 30 V DC

Ambient temperature, operation

Dimensions

45 × 96 × 115 mm

Certifications



Functions

40 certified function blocks. Version with special function blocks for controlling presses. Expandable to up to 116 safe inputs / 56 safe outputs and up to 2 gateway modules.

Features

Configuration via MSI.designer configuration software (license-free): supports up to 300 function blocks in one project, integrated simulation with logic analyzer, configurable range, online diagnostics. Removable program memory in SD card format, 512 MB. Designs with screw or spring-cage terminals.

**MSI 420
MSI 430**



Safety control base module

4 / PL e

3

16 / 4 / 4

4 A

4 / 4

USB mini,
Ethernet TCP/IP

MSI 430: Profinet IO,
EtherNet/IP and
Modbus TCP integrated

16.8 ... 30 V DC

45 × 96 × 115 mm



40 certified function blocks. Version with special function blocks for controlling presses. Expandable to up to 116 safe inputs / 56 safe outputs and up to 2 gateway modules.

Configuration via MSI.designer configuration software (license-free): supports up to 300 function blocks in one project, integrated simulation with logic analyzer, configurable range, online diagnostics. Removable program memory in SD card format, 512 MB. Designs with screw or spring-cage terminals.

**MSI-EM-I8
MSI-EM-I084**



Safe extension module

4 / PL e

3

8 / - / -
8 / 4 / -

4 A

8 / 2 (EM-I8)
2 / 2 (EM-I084)

16.8 ... 30 V DC

22.5 × 93.7 × 120.8 mm



Safe extension modules. Each base module can be expanded by up to 12 freely selectable extension modules.

MSI-EM-IO84NP



Non-safe extension module

4 / 4 / 4

0.5 A

4 / 4 / 4

0.5 A

16.8 ... 30 V DC

22.5 × 93.7 × 120.8 mm



Non-safe extension modules for economical actuation of non-safety relevant elements (e.g., signal lights). Each base module can be expanded by up to 12 freely selectable extension modules.

**MSI-FB Ethercat
MSI-FB Profibus
MSI-FB Canopen**



Gateway

4 / 4 / 4

0.5 A

4 / 4 / 4

0.5 A

2x RJ45 socket
1x RS485 (Sub-D)
screw terminal, 5-pin

EtherCAT
PROFIBUS-DP
CANopen

Via base module

22.5 × 96.5 × 121 mm



Each base module can be expanded with up to 2 gateway modules.

Machine Safety Services – Always the right service for your process

LEGAL SECURITY AND EFFICIENT SAFETY AT WORK – QUICKLY AND EASILY WITH OUR RANGE OF SERVICES.

For many people, complex planning or engineering tasks or the management of functional safety make the set of issues related to safety at work a closed book. In the area of legal security in particular, information gaps often exist. With our extensive, qualified offer on safety at work, you are on the safe side legally and can fulfill all legal guidelines easily.

We support your service department and, in the event of limited resources, make available the appropriately qualified team. We work with our experts to ensure the safety of your machines and systems. Your production and service team is free to perform its actual tasks. Our offerings are accompanied by an extensive range of training courses tailored to your needs.

OUR SERVICE OFFERINGS INCLUDE



Status check
Safety technology
(MSSC)



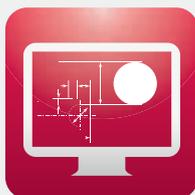
Status check
CE
(MCSC)



Risk analysis /
assessment
(MRAS)



Conformity assess-
ment of machines
(MCMS)



Development
support for
machine safety
(MSEN)



Safety inspection
(MSIN)

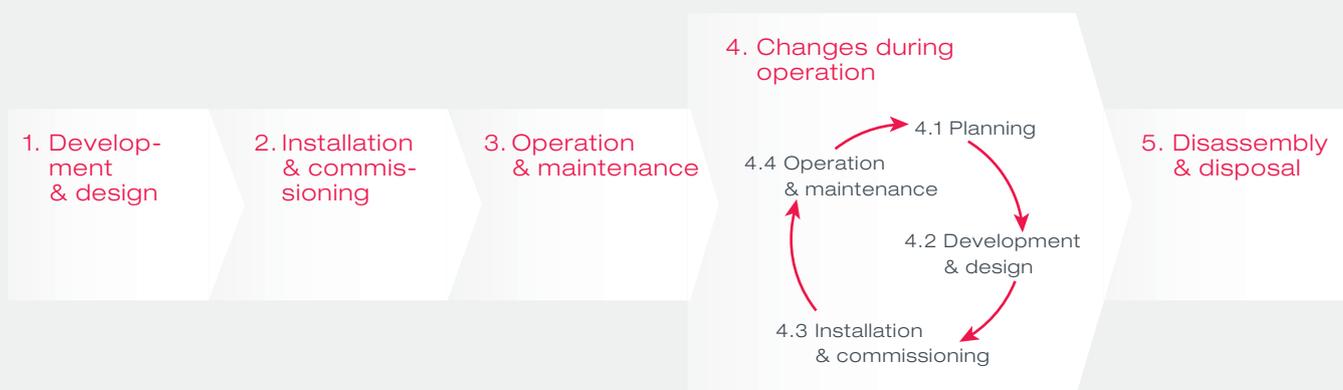


Functionality
of protective
devices
(MSPT)



Validation and
verification of
safety functions
(MSVV)

STAGES OF A MACHINE LIFE CYCLE



THE RIGHT SERVICES AT A GLANCE

Services	1. Development & design	2. Installation & commissioning	3. Operation & maintenance	4.1 Planning	4.2 Development & design	4.3 Installation & commissioning	4.4 Operation & maintenance	5. Disassembly & disposal
Status check Safety technology		●	●				●	
Status check CE	●		●		●	●	●	
Risk analysis / assessment	●		●	●	●		●	●
Conformity assessment of machines	●			●	●			
Development support Machine safety	●				●			
Safety inspections		●	●			●	●	
Functionality of protective devices		●	●			●	●	●
Validation and verification of safety functions		●				●		

IDENTIFICATION

CODES SIMPLIFY COMMUNICATION IN AUTOMATION



The identification of bar codes, 2D-codes and RFID transponders is among our core competencies. Together with other identification systems, this range of perfectly matched products offers the highest level of flexibility. At the same time, the devices ensure absolute reliability and maximum availability for systems of all types.

The usability of the devices also plays a major role in the case of code reading. We therefore attach great importance to this during development and offer e.g. ...

- A wide variety of integrated interfaces which allow our devices to communicate with all commonly used fieldbus systems without problem.
- The innovative code reconstruction technology which allows even soiled or damaged codes to be detected reliably.
- A convenient webConfig software tool for browser-based, computer-independent sensor configuration via Ethernet.



"Identification in automation means not only detecting certain code information but also reliably detecting even the smallest deviations. We therefore equip our sensors with a multitude of technical solutions in order to provide the largest possible function reserves."

Sven-Philipp Abraham,
Product Management –
Product Center Ident + Vision



CAMERA-BASED CODE READER FOR FAST AND EASY 1D- AND 2D-CODE READING – THE **DCR 200i**

For gapless product traceability in the packaging, pharmaceutical, food or electronics industry, the fast and reliable identification of 1D- and 2D-codes is essential.

To this end, the DCR 200i combines simple handling with high reading performance – guaranteed, even with demanding reading tasks.

Are fast commissioning and simple product changes important to you?

With the web-based configuration tool with user-controlled installation wizard, you save a considerable amount of time during commissioning. If the product is changed, the teach functions available directly on the device enable adaptations to be made quickly without the need for a PC.

HIGHLIGHT

Do you need reliable reading quality and high throughput?

Intelligent decoding algorithms, high-performance LED illumination and a high depth of field offer flexible application possibilities.

You place value on uncomplicated fieldbus integration?

Integrated interfaces such as Ethernet TCP/IP, PROFINET and RS 232/422 make commissioning and configuration quick and easy.

Flexibility and modularity play a role?

The modular design of the DCR 200i family means that the product can be adapted to the user's specific application both with regard to price and technology.



inspect
award 2017
winner

Select the DCR 200i directly in the online product selector: www.leuze.com/en/dcr200i



Stationary bar code readers



CR 55 Bar code readers



CR 100 Bar code readers



Specifications

Reading distance
(dependent on version)

50 – 230 mm

15 – 67 mm

Smallest resolution

0.127 mm

0.15 mm

Scanning rate

330 scans/s

700 scans/s

Optics models

M

M

Reading method

Single line scanner

Single line scanner
Deflecting mirror

Inputs/outputs

1 / 1

1 / 1

Interfaces

Integrated:
RS 232
USB

Integrated:
RS 232

Connectivity

Supply voltage

5V DC

5V DC

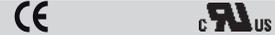
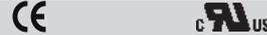
Degree of protection

IP 54

IP 40

Network master

Certifications



Accessories

Optional

MA-CR adapter circuit board

MA-CR adapter circuit board

Mounting devices

Features

Very small construction.
Configurable operating modes,
including – among others – pre-
sentation mode.

Output format selectable.
Alignment mode.
LED indicators.
Large reading field even at close
range.

BCL 8
Bar code readers



40 – 160 mm

0.125 mm

600 / 500 scans/s

N, M

Single line scanner
Deflecting mirror

1 / 1

Integrated:
RS 232

**With MA 8 connection unit
(point to point)**
RS 485

**With MA 200i connection
unit**
PROFINET IO/RT, PROFIBUS,
Ethernet TCP/IP, UDP, Ethernet/IP,
EtherCAT, DeviceNet, CANopen

5V DC
(10 – 30 V DC via MA)

IP 67

MA 31

CE CDRH C UL US

BT 8

Reads all common 1D-codes including Pharmacode.
Robust industrial version in a metal housing – IP 67.
M12 connection type or cable variant.
Reference code comparison.

BCL 20
Bar code readers



50 – 450 mm

0.15 mm

1,000 / 800 scans/s

N, B, M, F

Single line scanner
Raster scanner

1 / 1 or 2 / 2

Integrated:
RS 232
RS 485

**With connection unit
MA 2 / 4**
multiNet

**With MA 200i connection
unit**
PROFINET IO/RT, PROFIBUS,
Ethernet TCP/IP, UDP, Ethernet/IP,
EtherCAT, DeviceNet, CANopen

10 – 30 V DC

IP 65

MA 31

CE CDRH C UL US

BT 20, BT 21

Automatic detection of code type and code quality.
Failsafe storage of parameters.
Integrated multiNet.
12 optics models.

BCL 300i
Bar code readers



20 – 700 mm

0.127 mm

1,000 scans/s

N, M, F, L, J

Single line scanner
Raster scanner
Deflecting mirror
Oscillating mirror
Code reconstruction technology

1 / 1

Integrated:
RS 232 / 485 / 422
multiNet
PROFIBUS
PROFINET IO/RT
Ethernet TCP/IP, UDP
Ethernet IP
EtherCAT

**With MA 200i connection
unit**
DeviceNet, CANopen

18 – 30 V DC

IP 65

MA 31

CE CDRH C UL US

BT 56, BT 59, BT 300 W, BT 300

Integrated fieldbus connectivity.
Code reconstruction technology (CRT).
Available as a front scanner, deflecting mirror and oscillating mirror model.
Simple configuration via USB interface without additional software or GSD/GSDML file.
Modular connection type via M12 hood with integrated connectors, terminal hood or cable hood.
Optional with display and as heating model.

BCL 500i
Bar code readers



200 – 2,400 mm

0.2 mm

1,000 scans/s

N, M, F, L

Single line scanner
Oscillating mirror
Deflecting mirror
Code reconstruction technology

2 / 2

Integrated:
RS 232 / 485 / 422
multiNet
PROFIBUS
PROFINET IO/RT
Ethernet TCP/IP, UDP
Ethernet IP

**With MA 200i connection
unit**
EtherCAT, DeviceNet, CANopen

10 – 30 V DC

IP 65

integrated

CE CDRH C UL US

BT 56, BT 59

"webConfig" software integrated in the device permits configuration via USB interface without additional software. Multiple language menu-driven display.
M12 connection type. Integrated fieldbus connectivity for convenient fieldbus link, networking and configuration via the GSD/GSDML file.
Code reconstruction technology (CRT) for reliable identification of damaged codes.
Optional heating models to –35 °C.

Stationary bar code readers



Specifications	
Reading distance (dependent on version)	
Smallest resolution	
Scanning rate	
Optics models	
Reading method	
Inputs/outputs	
Interfaces	
Connectivity	
Supply voltage	
Degree of protection	
Network master	
Certifications	
Accessories	
Optional	
Mounting devices	
Features	

BCL 600i Bar code readers



300 – 1,500 mm
0.25 mm
800 – 1,000 scans/s
M, F
Single line scanner Oscillating mirror Code reconstruction technology
2 / 2
Integrated: RS 232 / 485 / 422 multiNet PROFIBUS PROFINET IO/RT Ethernet TCP/IP, UDP
With MA 200i connection unit EtherCAT, DeviceNet, CANopen
10 – 30 V DC
IP 65
integrated
CE CDRH c UL US
BT 56, BT 59
“webConfig” software integrated in the device permits configuration via USB interface without additional software. Multiple language menu-driven display. M12 connection type. Integrated fieldbus connectivity for convenient fieldbus link and networking. Code reconstruction technology (CRT) for reliable identification of damaged codes. Optimized for modules from 0.25 to 0.5 mm.

BCL 900i Bar code readers



450 – 1,700 mm
0.33 mm
1,000 scans/s
M
Single line scanner Code reconstruction technology
3 / 2
Integrated: RS 232 / 422 Ethernet TCP/IP, UDP Ethernet IP
With MA 900 connection unit RS 232 / 422, Ethernet TCP/IP, UDP, Ethernet/IP,
With MA 200i connection unit PROFINET IO/RT, PROFIBUS, EtherCAT, DeviceNet, CANopen
10 – 30 V DC
IP 65
MA 31
CE CDRH c UL US
Ext. parameter memory
BT 900
Code reconstruction technology (CRT). Optionally as modular scanner portal (MSP) system.

Stationary 2D-code readers

DCR 50
Stationary
2D-code readers



DCR 80
DCR 85
Stationary
2D-code readers



LSIS 220
Stationary
2D-code readers



Typical applications

Code reading

Sensor / cameras

Resolution (pixel)

Focal point

Interfaces

Connectivity

Digital inputs/outputs

Number of test routines

Configuration / Operating system

Options

Dimensions, W x H x D

Certifications

Features

Data Matrix, bar code, QR code, PDF 417, Aztec, GS1 Databar and others

CMOS (Rolling Shutter)

1280 x 960

85 mm

Integrated:
RS 232

1 / 1

Configuration with the "Leuze Sensor Studio".
Alternatively, via online commands or configuration codes

MA-CR adapter circuit board for test purposes

31.6 x 12.7 x 27.5 mm



Excellent reading and decoding characteristics.
Very small construction.
Integrated illumination.
Blue alignment LED.

Data Matrix, bar code, QR code, PDF 417, Aztec, GS1 Databar and others

CMOS (Rolling Shutter)

960 x 640

91 mm

Integrated:
RS 232

1 / 1

Configuration with the "Leuze Sensor Studio".
Alternatively, via online commands or configuration codes

MA-CR adapter circuit board for test purposes

39 x 27.4 x 25 mm
39 x 25 x 55.5 mm



Excellent reading and decoding characteristics.
Reading of very small, high-density codes.
Large reading field.
Integrated illumination.
Blue alignment LED.

Data Matrix, bar code, QR code, PDF 417, Aztec, GS1 Databar and others

CMOS (Global Shutter)

844 x 640

127 mm

Integrated:
RS 232
USB

With MA 21 connection unit
multiNet

With MA 200i connection unit
PROFINET IO/RT
PROFIBUS
Ethernet TCP/IP, UDP, IP
EtherCAT
DeviceNet
CANopen

1 / 1

Memory capacity for 1 parameter set in the camera

Configuration via bar code or PC with setup program

Optional: connection cables.
Mounting devices: BTU 300M, BT 8-0

47 x 40 x 32 mm



Camera system for omnidirectional reading of bar codes and 2D-codes.
Integrated illumination and decoder.
Degree of protection IP 65.

Stationary 2D-code readers



DCR 200i Stationary 2D-code readers



LSIS 422i Stationary 2D-code readers (C-mount model)



Typical applications

Code reading

Sensor / cameras

Resolution (pixel)

Focal point

Interfaces

Connectivity

Digital inputs/outputs

Number of test routines

Configuration / Operating system

Options

Dimensions, W x H x D

Certifications

Features

CMOS (Global Shutter)

1,280 × 960

N optics: 70 mm
M optics: 105 mm
F optics: 185 mm

Integrated:
Ethernet TCP/IP, UDP
PROFINET IO/RT
RS 232
RS 422

With MA 200i connection unit

PROFIBUS
Ethernet TCP/IP, UDP, IP
EtherCAT
DeviceNet
CANopen

2 / 2

Memory capacity for 1 parameter set in the camera

Configuration via configuration codes, smartphone app or via PC using standard web browser without software to be installed additionally (webConfig tool)

Optional: connection cables. Optical filters. Housing hoods. External illumination. Mounting devices: BTU 320M-D12, BT 320M. MA 150 modular connection unit.

43 × 61 × 44 mm

CE C UL US

Camera system for omnidirectional reading of bar codes, stacked codes and 2D-codes. Integrated illumination and decoder. High object speed of up to 7 m/s. Integrated teach functions for simple adjustments via buttons. Optional robust stainless steel housing.

CMOS (Global Shutter)

752 × 480

50 mm ... ∞ (focal length 8 mm)
75 mm ... ∞ (focal length 16 mm)

Integrated:
Ethernet
RS 232
TCP/IP, UDP

With MA 21 connection unit

multiNet

With MA 200i connection unit

PROFINET IO/RT
PROFIBUS
EtherCAT
DeviceNet
CANopen

8, configurable

Typically 10 to 60, depending on scope of test

Configuration via PC using standard Web browser without software to be installed additionally (webConfig tool)

Reading of directly marked Data Matrix Codes. Multiple code reading. Display of the code content. Evaluation of the code quality of printed codes. Reference code comparison. Image memory. Optional: connection cables, optical filters. Mounting devices: BT 56, BT 59

75 × 113 × 55 mm
75 × 113 × 106 mm

CE C UL US

Camera system for omnidirectional reading of bar codes and 2D-codes. Integrated illumination (depends on type: white, IR or RGBW) and decoder. Degree of protection IP 65 / IP 67. Flexible use through motor-driven focus adjustment.

RFID Systems

RFI 32 Stationary RFID readers



RFM 12 / 32 / 62 Stationary RFID read/write systems



HFM 3500D HFM 3520D Mobile RFID and 1D-code readers



Specifications

Working frequency

125 kHz

13.56 MHz

13.56 MHz

Max. RFID reading distance

80 mm

400 mm

30 mm

Max. bar code reading distance

450 mm

Max. speed

6.0 m/s

6.0 m/s

Interfaces

Integrated:
RS 232

Integrated:
RS 232

Integrated:
RS 232 / USB
Bluetooth

Connectivity

With MA 21 connection unit
multiNet

With MA 21 connection unit
multiNet

With MA 21 connection unit
multiNet

With MA 200i connection unit
PROFINET IO/RT
PROFIBUS
Ethernet TCP/IP, UDP
EtherCAT
DeviceNet
EtherNet/IP
CANopen

With MA 200i connection unit
PROFINET IO/RT
PROFIBUS
Ethernet TCP/IP, UDP
EtherCAT
DeviceNet
EtherNet/IP
CANopen

With MA 200i connection unit
PROFINET IO/RT
PROFIBUS
Ethernet TCP/IP, UDP
EtherCAT
DeviceNet
EtherNet/IP
CANopen

Function

RFID reading

RFID reading / writing

RFID reading / writing
Bar code reading

Possible transponder types

– Disc
– High temperature proof up to 200 °C

– Disc
– High temperature proof up to 220 °C
– Smart label

– Disc
– High temperature proof up to 200 °C
– Smart label

Supply voltage

12–30 V DC

12–30 V DC

5 V DC / 230 V AC (3.7 V DC batt.)

Degree of protection

IP 65

IP 65 / IP 67

IP 54

Certifications



CDRH

Features

Compact RFID reading unit.
High degree of protection IP 67.
Mounting also in between conveyor rollers.

Compact RFID write/read unit.
High degree of protection for tough industrial application.
Mounting also in between conveyor rollers.
RFM 32 is also available as device with Ex certification.

Mobile combination device for transponders and bar codes; designed especially for reading bar code information and subsequently writing this information to a transponder.
Cableless model with Bluetooth available.

Mobile code readers

IT 1300g Bar code hand-held readers



IT 1450g IT 1452g Bar code hand-held readers



IT 1280i IT 3800i IT 3820i Bar code hand-held readers



Specifications

Reading method

Line imager

Area imager

With Bluetooth

Laser/line imager

With Bluetooth

Reading distance

10 – 660 mm

37 – 360 mm

20 – 4,600 mm

Interfaces

Integrated:
RS 232 / USB
Keyboard Wedge PS 2

Integrated:
RS 232 / USB
Keyboard Wedge PS 2

Integrated:
RS 232 / USB
Keyboard Wedge PS 2

Connectivity

With MA 21 connection unit
multiNet

With MA 21 connection unit
multiNet

With MA 21 connection unit
multiNet

With MA 200i connection unit
PROFINET IO/RT
PROFIBUS
Ethernet TCP/IP, UDP
EtherCAT
DeviceNet
CANopen

With MA 200i connection unit
PROFINET IO/RT
PROFIBUS
Ethernet TCP/IP, UDP
EtherCAT
DeviceNet
CANopen

With MA 200i connection unit
PROFINET IO/RT
PROFIBUS
Ethernet TCP/IP, UDP
EtherCAT
DeviceNet
CANopen

Accessories

Cable for: RS 232, USB, Keyboard-Wedge; desktop support, wall support, power supply unit

Cable for: RS 232, USB, Keyboard-Wedge; desktop support, wall support, power supply unit

Cable for: RS 232, USB, Keyboard-Wedge; desktop support, wall support, power supply unit

Supply voltage

4.5 – 5.5 V DC

4.5 – 5.5 V DC 4.5 – 5.5 V DC

4.5 – 5.5 V DC 9V DC

Area of application

Degree of protection IP 41

Degree of protection IP 41

Tough industrial use
Degree of protection IP 54
Degree of protection IP 65 (IT 1280i)

Code types

Bar codes

Bar codes

Bar codes

Certifications



Features

Large reading field for bar code detection.
Ergonomic and robust housing.
Operating temperature
0 °C ... 50 °C.

Large reading field for bar code detection.
Ergonomic and robust housing.
Operating temperature
0 °C ... 45 °C.

Large reading field for bar code detection.
Ergonomic and very robust housing for rough applications.
Operating temperature from
–30 °C ... 50 °C (IT 3800i, IT 1280i).
0 °C ... 50 °C (IT 3820i).

IT 1900g
IT 1902g
Mobile 2D-code readers



Area imager With Bluetooth

0 – 561 mm

Integrated:
RS 232 / USB
Keyboard Wedge PS 2

With MA 21 connection unit
multiNet

With MA 200i connection unit
PROFINET IO/RT
PROFIBUS
Ethernet TCP/IP, UDP
EtherCAT
DeviceNet
CANopen

Cable for: RS 232, USB,
Keyboard-Wedge; holder, power
supply unit, base station

4.5 – 5.5 V DC 4.5 – 5.5 V DC

High-contrast codes
Degree of protection IP 41

Bar codes and 2D-codes



Large reading field for detection
of high-contrast codes.
Ergonomic and robust housing.
Operating temperature
0 °C ... 50 °C.

IT 1910i
IT 1911i
IT 1980i
IT 1981i
Mobile 2D-code readers



Area imager With Bluetooth

25 – 16,000 mm

Integrated:
RS 232 / USB
Keyboard Wedge PS 2

With MA 21 connection unit
multiNet

With MA 200i connection unit
PROFINET IO/RT
PROFIBUS
Ethernet TCP/IP, UDP
EtherCAT
DeviceNet
CANopen

Cable for: RS 232, USB,
Keyboard-Wedge; holder, power
supply unit, base station

4.5 – 5.5 V DC 4.5 – 5.5 V DC

Tough industrial use
High-contrast codes
Degree of protection IP 65

Bar codes and 2D-codes



Large reading field for detection
of high-contrast codes.
Ergonomic and very robust housing
for rough applications.
Operating temperature from
–30 °C ... 50 °C (IT 1910i,
IT 1980i).
–20 °C ... 50 °C (IT 1911i,
IT 1981i).

FIS 6170
HCR 6200
Mobile 2D-code readers



Area imager

0 – 200 mm

Integrated:
RS 232 / USB

With MA 21 connection unit
multiNet

With MA 200i connection unit
PROFINET IO/RT
PROFIBUS
Ethernet TCP/IP, UDP
EtherCAT
DeviceNet
CANopen

Cable for: RS 232, USB;
power supply unit, mounting
bracket

5V DC

Reading of directly marked codes
(laser or matrix printed) with low
contrast
Degree of protection IP 54
(HCR 6200)

Bar codes and directly marked
2D-codes



High resolution for directly marked
parts (laser or matrix printed) and
labels.
Ergonomic and robust housing.
Operating temperature
0 °C ... 50 °C.

HS 6508
HS 6578
Mobile 2D-code readers



Area imager With Bluetooth

0 – 233 mm

Integrated:
RS 232 / USB
Keyboard Wedge PS 2

With MA 21 connection unit
multiNet

With MA 200i connection unit
PROFINET IO/RT
PROFIBUS
Ethernet TCP/IP, UDP
EtherCAT
DeviceNet
CANopen

Cable for: RS 232, USB,
Keyboard-Wedge; holder, power
supply unit, base station

4.5 – 5.5 V DC 9V DC

Tough industrial use
Reading of directly marked codes
(laser or matrix printed) with low
contrast
Degree of protection IP 65

Bar codes and directly marked
2D-codes



High resolution for directly marked
codes.
Display for successful reading with
LED, signal tone and vibration.
Ergonomic and robust housing.
Operating temperature
–20 °C ... 50 °C.

Modular connection units

MA 8 MA 150 Point to Point



MA 2 MA 100 Point to Point multiNet Slave



MA 4 / MA 4D Point to Point multiNet Slave



Specifications

Connection type

1 plug M12, 5 pin
2 sockets M12, 5 pin

1 connector, 4 M12 sockets

Spring terminals, 5 PGs

Spring terminals, 5 PGs

Interfaces

RS 232
RS 485

RS 232
RS 422

RS 232
RS 485

RS 232
RS 422
RS 485
multiNet Slave

RS 232
RS 485
multiNet Slave
Service interface RS 232
9 pin Sub-D

Properties

1 switching input
1 switching output

Decentralized distribution of the signals

2/1 switching input
2/1 switching output
Network address

1 switching input
1 switching output
Network address
Termination

2/1 switching input
2/1 switching output
Network address
Automatic parameter memory

Degree of protection

IP 67

IP 54

IP 54

IP 54

Certifications

CE C UL US

CE C UL US CE C UL US

CE

BCL 8

KB 008 / direct
(MA 8 only)

BCL 21

Direct



Direct



BCL 22

Direct



Direct



BCL 300i

KB 301-3000
(only MA 100)



BCL 500i

KB-500-3000-Y
(only MA 100)



BCL 900i

DCR 200i

Direct
(MA 150 only)



LSIS 222

KB M12A-8P-
MA-3000



LSIS 4x2i

KB JST



RFI / RFM

Direct (MA 2 only)



RFU

Mobile code readers

BPS 8

KB 008 / direct
(MA 8 only)



The red dots denote assignment of the connection units to the relevant devices. See catalog, for more combination possibilities.

= multiNet

MA 900
Point to Point

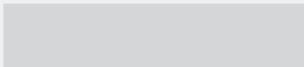
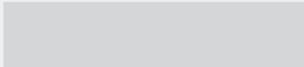
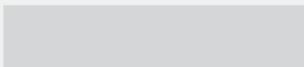
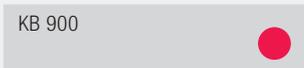
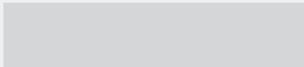
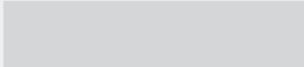
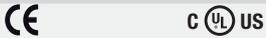


Spring terminals, 8 PGs

RS 232
RS 422
RS 485

3 switching inputs
4 switching outputs
Optional external parameter memory

IP 65



MA 31
multiNet Master

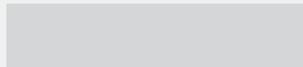
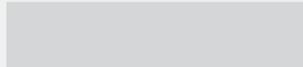
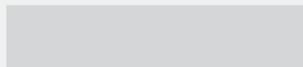
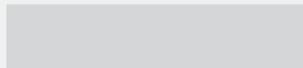
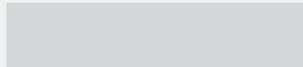
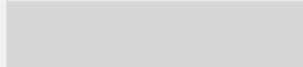


Spring terminals, 5 PGs,
M12 connection sets available
(optional)

RS 232 – or
RS 422 –, TTY – Host
multiNet master RS 485
multiNet Slave
Service interface RS 232
9 pin Sub-D

2 switching inputs
2 switching outputs
Network address
Automatic parameter memory

IP 65



MA 200i
Fieldbus gateway

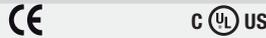


4x M12
1 x connector
RS 232

PROFIBUS
PROFINET IO/RT
Ethernet TCP/IP
EtherCAT
DeviceNet
EtherNet/IP
CANopen

Integrated SWITCH
Volt. IN/OUT
1 switching input
1 switching output

IP 65



KB JST-M12A-5P-3000
connection set



Direct



KB 301-3000-MA200

KB 500-3000-Y

KB M12-8P-
MA-3000



KB JST-M12A-8P-
Y-3000



Direct



KB-JST-3000



KB-JST-HS-300



KB JST-M12-5P-3000



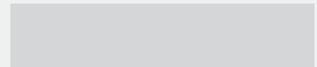
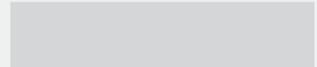
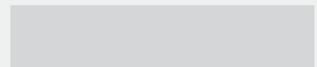
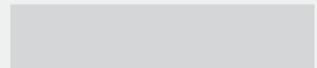
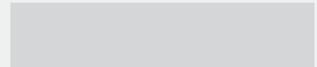
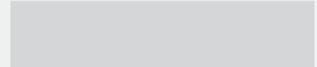
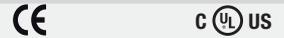
MD 200i
MD 700i
IO-Link master



PROFINET IO-Link master
EtherNet/IP IO-Link master

4 ports, M12
8 ports, terminals, DIN rail
mounting

IP 20 / IP 67



DATA TRANSMISSION



ACCESS DATA QUICKLY AND SIMPLY

In addition to the actual device technology, the transfer of data and the connection of devices in a wide range of fieldbus environments are also given high priority. Our innovative connection concepts and universal configuration solutions will also reveal unexpected efficiency potential in your applications.

Our outstanding application know-how guarantees functional, practice-oriented solutions and is reflected in, for example, ...

- An integrated laser alignment aid for simple alignment even over long distances.
- The patented single-handed adjustment process for mounting and alignment.
- The "Point-to-point" multiNet slave functionality for easy wiring and configuration.

"Accepting technological challenges and integrating these in our optical sensors in dialog with our customers such that a recognizable benefit is gained – that is the focus of our product developments again and again."

Martin Tippmann,
Product Management –
Product Center Measuring Sensors





THE FIRST OPTICAL DATA TRANSCEIVER WITH **INTEGRATED WEB SERVER FOR REMOTE DIAGNOSTICS** – THE NEW **DDLS 500**

Optical data transceivers are the right choice for any application where data needs to be transmitted without cables and without interference. They enable contact-free communication wherever mechanical systems are pushed to their technical limitations.

Unique worldwide, the web server integrated in the DDLS 500 enables remote diagnostics. Furthermore, the DDLS 500 can be detected as a PROFINET participant. That is SMARTER PRODUCT USABILITY like only Leuze electronic offers.

HIGHLIGHT

You wish to access your optical data transceiver independent of location?

The DDLS 500i is the first device worldwide to offer the possibility of remote diagnostics where access or error diagnostics are possible independent of location via Ethernet.



Should mounting be possible by just one person?

With the patented, single-hand adjustment process, the comfortable laser alignment aid and the integrated mounting plate with alignment screws, mounting and alignment are child's play.

Does your data need to be transmitted transparently in real-time?

With 100 Mbit/s, all commonly used Ethernet protocols can be transmitted without time delay up to a range of 200 m.



Combine your DDLS 500: www.leuze.com/en/ddls500



Optical data transmission



DDL S 200
Optical data transmission



DDL S 500
Optical data transmission



Specifications

Operating range
Light source
Transmission rate
Interfaces
Degree of protection
Supply voltage
Operating temperature
Certifications
Features

120, 200, 300, 500 m
Infrared LED
2 Mbit/s
PROFIBUS CAN DeviceNet Interbus Rockwell DH+ or RIO RS 422
IP 65
18–30 V DC
–5 °C ... +50 °C (–30 °C ... +50 °C with heating)

40, 120, 200 m
Infrared laser (laser class 1M)
100 Mbit/s
PROFINET EtherNet IP EtherNet TCP/IP EtherCat UDP
IP 65
18–30 V DC
–5 °C ... +50 °C (–35 °C ... +50 °C with heating)

CE	c UL US
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CE	CDRH	c UL US
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No-contact, wear-free data transmission.
Integrated mounting and alignment plate.
Optionally with heating.
All common internationally used interfaces available.

Transparent, real-time transmission of all TCP/IP- and UDP-based protocols.
Very simple diagnostics of the transmission technology.
Pre-mounted and complete delivery of all mounting and alignment elements.
Integrated laser pointer for simple alignment (available optionally).
Simple remote maintenance via web browser-based user interface (available optionally).
Device models as PROFINET network participants.

INDUSTRIAL IMAGE PROCESSING



BECAUSE SEEING IS SOMETIMES BETTER

In our automated industrial landscape, the use of industrial image processing will increasingly become standard. Even today, modern devices allow camera systems to be used in many standard applications, thereby significantly increasing the reliability and availability of your plant systems.

To this end, our smart cameras offer, for example, ...

- A convenient webConfig software tool for browser-based, computer-independent sensor configuration via Ethernet.
- An integrated illumination for the homogeneous illumination of the field of vision.
- Automated, motor-driven focus and illumination adjustment which makes manual alignment unnecessary in the case of batch changes.



“Always knowing which product is the right one for the task in question requires a great deal of experience as well as a good portion of creativity. Experience because this prevents mistakes in positioning or designing a system being made twice. Creativity because the specific circumstances on site sometimes do not permit a standard installation, making skill and the right ideas necessary to solve the tasks in hand. And knowing this enables us to be extremely helpful to our customers.”

Dr. Falk Hummernbrum
Head of
Application Support Helpline



THE MEASUREMENT FUNCTION IN THE LSIS 462i MAKES POSSIBLE MINIMAL TOLERANCES AND THEREBY REDUCES, E.G., THE SCRAPPING OF GOOD PARTS!

The further development of our LSIS 462i smart camera brings a long-desired addition to the already extensive range of functions. The new version of our top product can now also mea-

sure and is, thus, the best and – thanks to its attractive price – the most efficient solution for many applications.

HIGHLIGHT

You would also like to use your smart camera for measurement applications?

The integrated measurement through edge scanning facilitates efficient use in entirely new applications.

You're looking for a device that doesn't need additional illumination?

The lighting integrated in the device usually makes additional light sources unnecessary and provides extremely homogeneous and flexible illumination over the entire field of view.



A smart camera should be as flexible and versatile as possible?

The LSIS 400i provides three functions in one device (Blob analysis, code reading, measurement through edge scanning), allowing flexible use in many different applications.

Connection, commissioning and operation need to be extremely easy?

Thanks to its user-friendly M12 connection technology, eight inputs and outputs also allowing control without a PC, and the webConfig software for fast and uncomplicated commissioning and fault diagnosis, the smart camera can be set up and used quickly at any location.



Smart cameras



Typical applications

Presence/completeness monitoring

Dimension / position monitoring

Position and type detection

Code reading

Measurement

Compartment fine positioning

Monitoring camera

Sensor / cameras

Resolution (pixel)

Focal point

Interface

Connectivity

Digital inputs/outputs

Fast Ethernet

Optional

Number of test routines

Configuration /
Operating system

Options

Dimensions, W x H x D

Certifications

Features

LSIS 412i
Smart camera



X

X

X

LSIS 462i
Smart camera



X

X

X

Data Matrix, bar code, Pharmacode

X

LSIS 472i
Smart camera



X

LCAM 408i
Industrial IP camera



X

CMOS (Global Shutter)

752 × 480

50 mm ... ∞ (focal length 8 mm)
75 mm ... ∞ (focal length 16 mm)
Depends on lens with C-mount models

Integrated:

EtherNet, RS 232

With MA 200i connection unit

PROFINET IO/RT
PROFIBUS
EtherCAT
DeviceNet
CANopen

8, configurable

Yes

Cables, mounting devices, external illumination

Typically 10 to 60, depending on scope of test

Configuration via PC using standard Web browser (webConfig tool)

75 × 113 × 55 mm

CE

Very well suited for industrial use through glass or plastic window. Metal housing and homogeneous integrated illumination (depends on type: white, IR or RGBW). Degree of protection IP 65 / IP 67. Flexible use through motor-driven focus adjustment.

CMOS (Global Shutter)

752 × 480

50 mm ... ∞ (focal length 8 mm)
75 mm ... ∞ (focal length 16 mm)
Depends on lens with C-mount models

Integrated:

EtherNet, RS 232

With MA 200i connection unit

PROFINET IO/RT
PROFIBUS
EtherCAT
DeviceNet
CANopen

8, configurable

Yes

Cables, mounting devices, external illumination

Typically 10 to 60, depending on scope of test

Configuration via PC using standard Web browser (webConfig tool)

Such as LSIS 422i (s. p. 72)

75 × 113 × 55 mm

CE

Very well suited for industrial use through glass or plastic window. Metal housing and homogeneous integrated illumination (depends on type: white, IR or RGBW). Degree of protection IP 65 / IP 67. Flexible use through motor-driven focus adjustment.

CMOS (Global Shutter)

752 × 480

50 mm ... ∞ (focal length 8 mm)
75 mm ... ∞ (focal length 16 mm)

Integrated:

EtherNet, RS 232

With MA 200i connection unit

PROFINET IO/RT
PROFIBUS
EtherCAT
DeviceNet
CANopen

8, configurable

Yes

Cables, mounting devices, reflectors, heating model to -35°C

Typically 2 to 4

Configuration via PC using standard Web browser (webConfig tool)

Teach function via display

75 × 113 × 55 mm

CE

Very well suited for industrial use through glass window. Metal housing and homogeneous integrated illumination (IR). Degree of protection IP 65 / IP 67. Position output via switching outputs or interface. Flexible use through motor-driven focus adjustment.

Color CMOS

2592 × 1944

500 mm ... ∞

Integrated:

Ethernet

n. a.

Gigabit

Cables, mounting devices, external illumination

n. a.

Configuration via PC using standard Web browser (webConfig tool)

75 × 113 × 55 mm

CE

Very well suited for industrial use through glass window and metal housing. Degree of protection IP 65 / IP 67. 5 megapixel color camera chip for live transmission in MJPEG format.

ALL PRODUCTS FROM A SINGLE SOURCE



FULL PERFORMANCE WITH THE RIGHT ACCESSORIES AND MATCHING COMPONENTS

In addition to device functionality and quality, optimally adapted accessories are necessary for the reliable and efficient use of sensors. No matter if you need easy mounting, uncom-

plicated connection or reliable signal provision; saving on accessories means saving on reliability. www.leuze.com/en/accessories



Cable

Take advantage of the connection and interconnection cables with M8, M12 and M23 connectors, straight or angled, optionally with or without LED.



Connection units

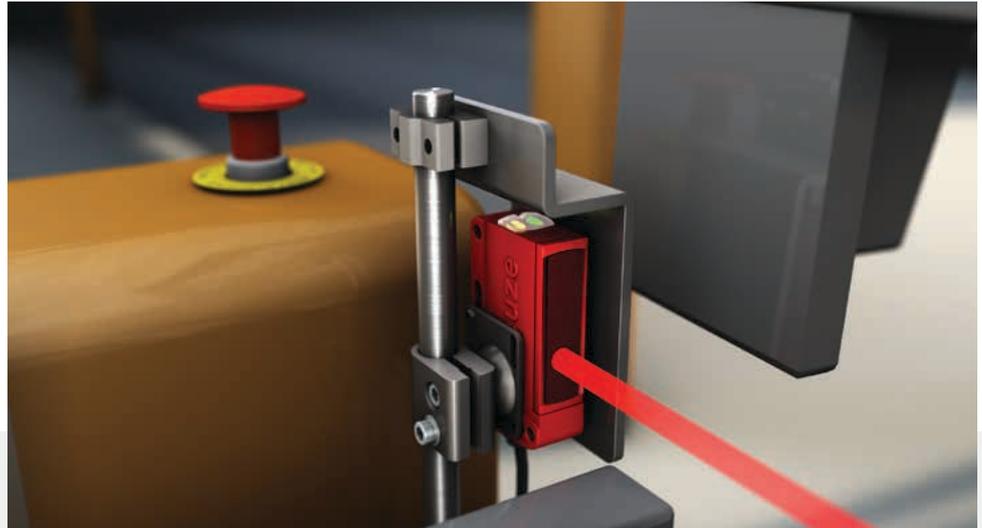
Today, sensors, safety switches and cameras are linked together for more flexibility and transparency in the installation of active or passive sensor distribution boxes with fieldbus interfaces from our product range.



Power supply

A reliable and machine-independent power supply with 1- and 3-phase power supplies is an elementary part of an optimum and efficient sensor system. For this reason, we also offer load circuit monitoring modules to ensure a higher level of safeguarding against failure.





Mounting accessories

We place great emphasis on our products being easy to mount and simple to align. For this reason, you will find specially-attuned mounting systems in our product range such as mounting brackets, rod holders or device columns.



Reflectors

For retro-reflective photoelectric sensors, the reflectors directly influence the reliability of detection. That is why we offer a variety of solutions made of plastic, film and glass for all conceivable conditions.



Signal elements

For signaling in automated systems, we offer an extensive product range of single- and multi-colored transducers in order to ensure productivity and efficiency.



Switching Sensors

Optical Sensors
Ultrasonic Sensors
Fiber Optic Sensors
Inductive Switches
Forked Sensors
Light Curtains
Special Sensors

Measuring Sensors

Distance Sensors
Sensors for Positioning
3D Sensors
Light Curtains
Forked Sensors

Products for Safety at Work

Optoelectronic Safety Sensors
Safe Locking Devices, Switches and Proximity Sensors
Safe Control Components
Machine Safety Services

Identification

Bar Code Identification
2D-Code Identification
RF Identification

Data Transmission / Control Components

MA Modular Connection Units
Data Transmission
Safe Control Components
Signaling Devices
Connection Technology and Passive Distribution Boxes

Industrial Image Processing

Light Section Sensors
Smart Camera

Leuze electronic GmbH + Co. KG
In der Braike 1
D-73277 Owen / Germany
Phone +49 7021 573-0
Fax +49 7021 573-199
info@leuze.com
www.leuze.com