

Reflective Laser Light Barrier ISx-L15P/N-OP

ISD-L15P/N-OP

Housing M30

ISN-L15P/N-OP



II 2(1)G Ex d [op is Ga] IIC T6 Gb
II 2(1)D Ex tb [op is Da] IIIB T100°C Db IP67

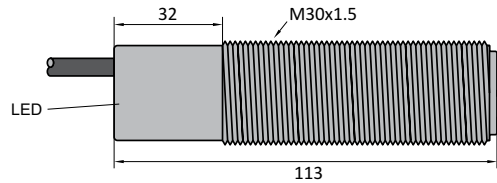
- Long range
- Type ISD: sensor can be in Ex zones 1, 2, 21 or 22, its light can go to Ex zones 0, 1, 2, 20, 21 and 22
- Type ISN: sensor can be in Ex zones 2 or 22, its light can go to Ex zones 1, 2, 21 and 22
- Robust reflective light barrier for industrial applications



II 3(2)G Ex nA [op is Gb] IIB T4 Gc
II 3(2)D Ex tc [op is Db] IIIA T135°C Dc IP67

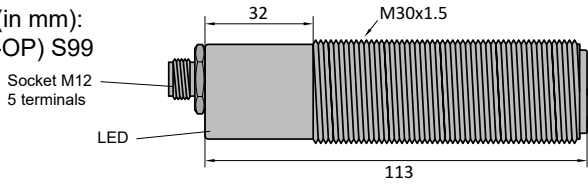
| Technische Daten | Type | ISS-L15P/N | ISN-L15P/N-OP | ISD-L15P/N-OP |
|---|------|--|--|---|
| Designation | | ISx-L15P(-OP) = output P-type / ISx-L15N(-OP) = output N-type | | |
| Type of Ex protection, Gas, at 94/9/EG | | None | II 3(2)G Ex nA [op is Gb] IIB T4 Gc | II 2(1)G Ex d [op is Ga] IIC T6 Gb |
| Type of Ex protection, Dust, at 94/9/EG | | None | II 3(2)D Ex tc [op is Db] IIIA T135°C Dc IP67 | II 2(1)D Ex tb [op is Da] IIIB T100°C Db IP67 |
| Applicable in Ex Zones | | None | Zones (1), 2, (21), 22 | Zones (0), 1, 2, (20), 21, 22 |
| Range (on reflector D = 83mm) | | working between 0.3m and 15m | | |
| Light source | | Laser, red, 650nm | | |
| Maximal optical power | | Po < 1mW, Laser class 2 | | |
| Beam divergence (at a distance of 2m) | | < 0.2° | | |
| Supply voltage | | 24VDC ±15% | | |
| Current consumption | | max. 60mA | | |
| Response time | | 5ms (100Hz) | | |
| Max. power dissipation | | 1.66W | | |
| Output | | Push-Pull, short circuit protected, maximum 100mA | | |
| Housing | | M30, nickel plated brass | | |
| Enclosure rating, at EN 60529 | | IP67 | | |
| Shock and vibration resistance | | Vibration: 30g at 20Hz until 2kHz. Shock: 50g in all directions (X, Y, Z) | | |
| Operating temperature Tamb | | 0°C < Tamb < +50°C | | |
| Connection cable | | 3+PE x 0.5mm², TPU, shielded, leads number-marked, Length: 3m | | |
| Socket, only ISS/ISN-.. S99 | | Socket M12, Lumberg type RSF 5 with 5 terminals | | |
| Accessories (included), all types | | - 2 nuts M30 (or 1 clamp, on request) | | |
| Accessories (included), ISN-.. S99 | | - 1x safety lock device, in synthetic material, to mount at cable connection to prevent being opened while circuit is live - 1x warning plate "WARNING - Explosion Hazard - Do Not Disconnect While Circuit Is Live Unless Area Is Known To Be Non-Hazardous", self-adhesive, for gluing on the cable connector | | |
| Accessories (not included), ISS/ISN S99 | | - Cable set Lumberg RKTS 5-298/xx (straight type), or RKWTH 5-298/xx (right-angled type) | | |
| Options | | - ISS/ISN-.. S99 : Socket M12: Lumberg RSF 5 with 5 terminals - ISx-..-DI: With emitter disable input | | |
| Function Output and LED indication | | <p>Light beam reflected by reflector LED on</p> | | <p>Light beam interrupted LED off</p> |
| ISx-L15P Output type P | | <p>+24VDC output PNP=ON NPN=OFF 0V</p> | | <p>+24VDC output PNP=OFF NPN=ON 0V</p> |
| ISx-L15N Output type N | | <p>+24VDC output PNP=OFF NPN=ON 0V</p> | | <p>+24VDC output PNP=ON NPN=OFF 0V</p> |
| ATEX related designations for type ISD: | | Date of production (year/calendar week): | | |
| CE 0158 | | Manufacturer with address | | Digits 5 to 8 of the serial number |
| Type ISD-L15P/N-OP: | | II 2(1)G Ex d [op is Ga] IIC T6 Gb | | EC certification number: BVS 10 ATEX E 130 X |
| Tamb: 0°C < Tamb < +50°C | | II 2(1)D Ex tb [op is Da] IIIB T100°C Db IP67 | | (X in certification number: Fibre optics ca only be applied with sensors with certificated limited optical power) |
| | | Electrical data according to table | | |
| ATEX related designations for type ISN: | | Date of production (year/calendar week): | | |
| CE | | Manufacturer with address | | Digits 5 to 8 of the serial number |
| Type ISN-L15P/N-OP: | | II 3(2)G Ex nA [op is Gb] IIB T4 Gc | | Declaration by manufacturer according to 94/9/EG |
| Tamb: 0°C < Tamb < +50°C | | II 3(2)D Ex tb [op is Db] IIIA T135°C Db IP67 | | |
| | | Electrical data according to table | | |

Dimensions (in mm):
ISx-L15P/N(-OP)



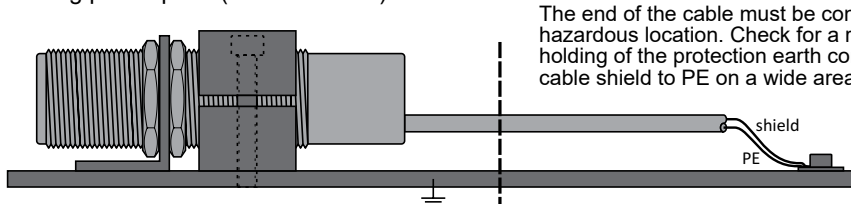
Wiring diagram ISx-L15P/N(-OP):
Cable: Function:
1 +24VDC
2 0V
3 Output
4 (if present) DI (optional)
yellow-green PE
white Cable shield

Dimensions (in mm):
ISx-L15P/N(-OP) S99



Wiring diagram ISx-L15P/N(-OP) S99:
Pin Nr: Cable color: Function:
1 brown +24VDC
2 white DI (optional)
3 blue 0V
4 black Output
5 grey PE

Equipotential bonding prescription (for Ex devices):



The end of the cable must be connected outside the hazardous location. Check for a reliable, noncorrosive holding of the protection earth connection. Connect the cable shield to PE on a wide area.

Operating Manual / EC-Declaration of Conformity:

Mounting prescriptions

Ex Protection:

It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). Do not exceed the maximum input voltage $U_m=30VDC$. Additional optical lenses are not allowed in hazardous locations. The local equipotential bonding has to be applied. The protective earth (PE) is connected to the housing inside the sensor. The cable has to be installed and protected against damages. All cable terminals must be connected outside hazardous locations or in a Ex e housing.

Type ISD-L15P/N-OP: Applicable in Ex zones 1, 2, 21, 22. Its limited optical radiation can operate into hazardous locations 0 or 20.

Type ISN-L15P/N-OP: Applicable in Ex zones 2 and 22. Its limited optical radiation can operate into hazardous locations 1 or 21.

Type ISN-L15P/N-OP S99: Applicable in Ex zones 2 and 22. Its limited optical radiation can operate into hazardous locations 1 or 21. Do not separate the connector when the supply voltage is connected to the cable. When installing the sensor, the safety lock device must be fitted to the cable connector. The additional adhesive warning label must be fixed to the connector housing at the connection plug. Lumberg cordsets RKTS 5-298/xxM (straight type) or RKWTH 5-298/xxM (right-angled type), are allowed ONLY. It is necessary to take into consideration the mounting prescription of the connector manufacturer. In dusty locations, if no connection cable is connected, the sensor socket has to be covered with the protection cap.

General mounting prescriptions

Since the angle of beam spread is relatively small, the sensor has to be mounted stable and vibration-free. The electrical connections must be exactly as shown in the connection diagram. The cable shield must be connected as short as possible. The cable shield should be connected to the protection earth, large-surfaced. Do not exceed the maximum ratings or install the connection cables parallel to high voltage cables.

Function

The sensor can only be used with a retroreflector (triple mirror), since only light beams reflected three times are detected. If properly reflected light is detected, the LED lights up and the output switches to +24V (P-switching) or 0V (N-switching). If the light path between the sensor and the retroreflector is interrupted, the LED turns off and the output switches to 0V (P-switching) or +24V (N-switching). The load can be connected to plus or minus.

Maintenance

No special maintenance is required. For a high reliability hold the sensor eyes and the mirror free from sediments. They should be cleaned only with a non-aggressive cleaning liquid. Equipment should only be repaired by the manufacturer.

Safety considerations for Class 2 laser devices

The relevant standard is EN 60825-1 "Safety of laser products", see paragraphs 12.5.1 and 12.6.1. It is only necessary to take precautions to avoid a direct and prolonged staring into the beam. A direct look into the beam is not considered hazardous if the normal eye reflex limits it to a short duration (max. 0.25 s). The laser beam path should be blocked at the end of its useful path when this is reasonably practicable. Additionally, the laser should not be directed at people.

General safety instructions

Series ISN-XC-OP S99: "WARNING - EXPLOSION HAZARD - WHEN IN HAZARDOUS LOCATIONS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES. DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS". The mounting of the sensor in dusty locations without fixed cordset or protection cap results in a high ignition risk. The sensors must not be used for Accident-Prevention! In worst case the output can change to any state! When installing and operating with the sensor, it is necessary to take into consideration the relevant international and other national regulations:

EN 60079-14, ATEX 118a, single directive 1999/92/EC.

The sensor and the fibre optic are conform to the following standards: EN 60079-0:2009, EN 60079-1:2007, EN 60079-15:2010, EN 60079-28:2007, EN 60079-31:2010, EN 60825-1:2006, EN 60825-2:2004; EN 60529; EN 61000-4-2 to EN 61000-4-6, EN 61000-6-1/-2, EN 61000-6-4. Ex protection: 94/9/EC (ATEX 100a), Machine directive: 2006/42/EC, EMC: 2004/108/EC, RoHS: 2011/65/EU.

General Notes, disposal

We reserve the right to modify our equipment. Our equipment is designed such way, that it has the least possible adverse effect on the environment. It neither emits nor contains any damaging or siliconized substances and use a minimum of energy and resources. No longer usable or irreparable units must be disposed of in accordance with local waste disposal regulations.

EC-Declaration of conformity

Model ISD: EC-Certification No. BVS 10 ATEX E 130 X. DEKRA. Model ISN: ATEX declaration by manufacturer at 94/9/EC ATEX certification of quality type production of Ex devices at the directive 94/9/EC, CE 0158. Certification No: BVS 12 ATEX ZQS / E118. The conformity of the devices with the EC standards and directives and the EC-type examination certificate and the observation of the Quality Safety System ISO 9001:2008 with the ATEX module "Production", declares:

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