

# Original Operating Manual: Laser Pointer LP\*-532-\*SS(-OP)-S275

LPD-532-\*SS-OP-S275

Housing M18

LPN-532-\*SS-OP-S275



IECEX BVS 14.0108X

- Green laser light (more visible than red)
- Laser class 3R (**not eye-safe**)
- Series LPD: For use in Ex zones (0), 1, 2
- Series LPN: For use in Ex zones (1), 2
- Series LPO: Optical radiation can operate into Ex zone 2



II 2(1)G

Ex d [op is Ga] IIB T4 Gb

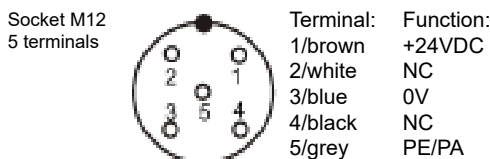
II 3(2)G Ex nA [op is Gb] IIB T4 Gc

Technical data	Type	LPS-532-*SS-S275	LPO-532-*SS-OP-S275	LPN-532-*SS-OP-S275	LPD-532-*SS-OP-S275
Beam, type LP*-532-PSS			point		
Beam, type LP*-532-KSS			cross line		
Type of Ex protection Gas, 2014/34/EU		none	II (3)G [Ex op is IIB T4 Gc]	II 3(2)G Ex nA [op is Gb] IIB T4 Gc	II 2(1)G Ex d [op is Ga] IIB T4 Gb
Type of Ex protection Dust, 2014/34/EU		none	none	none	none
For use in Ex zones		Not for Ex zones	(2)	(1), 2	(0), 1, 2
Light source		Laser, visible green, 532nm, class 3R			
Maximum radiant power		< 2.5mW			
Divergence angle		point (LP*-532-PSS): 1.7 mrad cross line (LP*-532-KSS): 9°			
Supply voltage		10 - 30 VDC	24 VDC ± 10%	24 VDC ± 10%	24 VDC ± 10%
Absolute maximum supply voltage Um		30 VDC			
Current consumption		95mA			
Maximum power dissipation		2.5W			
Maximum ambient working temperature		-20°C < Tamb < +50°C			
Storage temperature range		-20°C ... +70°C			
Housing		M18, brass, nickel plated			
Life time of laser (at 25°C)		5000 hours			
Enclosure rating (EN 60529)		IP65	IP65	IP67	IP67
Vibration and shock resistance		Vibration: 30g over 20Hz to 2kHz. Shock: 100g for 3ms			
Connection cable		2+PE x 0.5mm <sup>2</sup> , TPU jacket, shielded, halgone-free, oil and solvent resistant, cable for trailing			
Cable length		5m	5m	10m	10m
Socket, type LP*-532-*SS(-OP)-S232		Male connector M12, Lumberg RSF 5, 5 terminals			
Accessories, included		- 2 nuts M18 (or optionally one clamp on request) - Additional warning plate "LASER RADIATION. AVOID DIRECT EYE EXPOSURE. CLASS 3R LASER PRODUCT", self-adhesive for gluing near to the sensor.			
Accessories, included only for LPN-532-*SS-OP-S232		- Safety lock device, mount at the cable connection for locking the connection (black synthetic device) - Warning plate "WARNING - Explosion Hazard - Do Not Disconnect While Circuit Is Live Unless Area Is Known To Be Non-Hazardous", self-sealing, for gluing on the cable connector. - Protection cap for the sensor socket.			
Accessories optional, only for LPS/LPN/LPO-532-*SS-S232		- Single ended cordset, straight type: RKTS 5-298/xxM or right angle type: RKWTH 5-298/xxM, Lumberg M12, 5 terminals			
Options		- Cable length: Up to 100m, on request - LPS/LPN/LPO-532-*SS-S232: Socket M12: Lumberg RSF 5, 5 terminals			

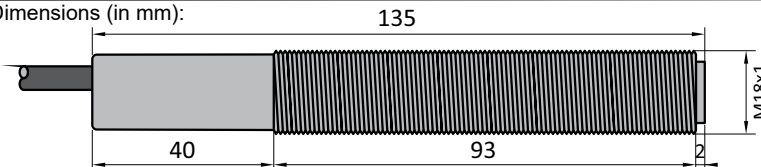
Connection diagram, cable:

Lead No:	Function:
1	+24VDC
2	0V
green-yellow	PE/PA
white	Cable shield

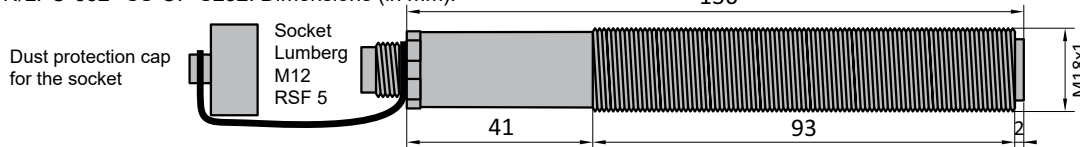
Connection diagram, LPS/LPN/LPO-532-\*SS-S232:



LPD/LPN/LPO-532-\*SS-OP-S275: Dimensions (in mm):



LPN/LPO-532-\*SS-OP-S232: Dimensions (in mm):



Ex related designations

CE 0158

Device type LPD-532-\*SS-OP-S275:

Manufacturer with address  
II 2(1)G Ex d [op is Ga] IIB T4 Gb

Electrical data according to the chart  
ATEX, EC Type Certification, number: BVS 10 ATEX E 130 X  
IECEX certification, number: IECEX BVS 14.0108X  
Declaration by manufacturer according to 2014/34/EU  
Declaration by manufacturer according to 2014/34/EU

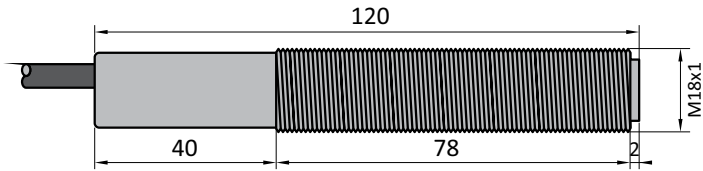
Device type LPN-532-\*SS-OP-S275S232: II 3(2)G Ex nA [op is Gb] IIB T4 Gc

Device type LPO-532-\*SS-OP-S275/S232: II (3)G [Ex op is IIB T4 Gc]

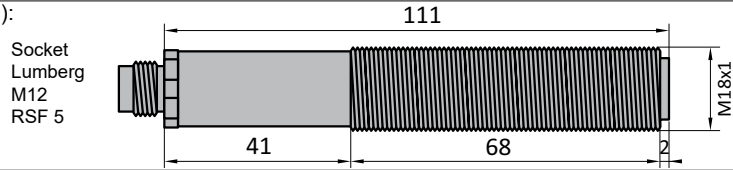
Tamb: -20°C < Tamb < +50°C

Date of production: Numeral 5 to 8 of the serial number (Year / Calendar week)

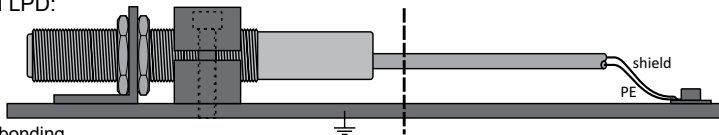
LPS-532-\*SS-S275: Dimensions (in mm):



LPS-532-\*SS-S232: Dimensions (in mm):



Equipotential Bonding for Ex Devices LPN and LPD:



The local equipotential bonding has to be done with conductive corrosion-resistant clamps or nuts M18

Shield connected to PE in a wide area

**Operating Manual / EU - 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 LPD-532-\*SS-OP-S275:** For use in gas Ex zones 1, 2, 21, 22. Its limited optical radiation can operate into hazardous locations 0 or 20.

**Type LPN-532-\*SS-OP-S275:** For use in gas Ex zones 2 and 22. Its limited optical radiation can operate into hazardous locations 1 or 21.

**Type LPN-532-\*SS-OP-S232:** For use in gas 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.

**Type LPO-532-\*SS-OP-S275/S232:** The sensor must be installed out of the explosion risk area! The limited optical radiation can operate into the Ex zone 2.

**General mounting prescriptions**

Mount the laser 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**

Maximally 0.5 s after connecting the power supply the laser beam turns on, displaying a bright green dot (models LP\*-532-PSS) or a green cross (models LP\*-532-KSS). At a distance of 5 m the diameter of the dot is approximately 9 mm and the diameter of the cross approximately 70 cm. Due to the limited life time of the laser (5000 hours at 25°C) it is important that the power is switched off when the laser is not used.

**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 3R laser devices**

The relevant standard is EN 60825-1 "Safety of laser products". It is necessary to take precautions to avoid a direct and prolonged staring into the beam. A direct eye exposure to the beam should be avoided. 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 LPN-532-\*SS-OP-S232: "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, single directive 1999/92/EC.

The sensor and the fibre optic are conform to the following standards: IEC/EN 60079-0:2012 + A11:2013, IEC/EN 60079-1:2007, EN 60079-15:2010, IEC/EN 60079-28:2007, EN 60825-1:2006, EN 60825-2:2004; EN 60529:2014, EN 61000-4-2 to EN 61000-4-6, EN 61000-6-1/-2, EN 61000-6-4. ATEX directive: 2014/34/EU, Machine directive: 2006/42/EC, EMC directive: 2014/30/EU, RoHS directive: 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.

**EU-Declaration of conformity:**

Types LPD: IECEx certification: Ex d [op is Ga] IIC T4 Gb. Certification No. IECEx BVS 14.0108X.

<http://iecex.iec.ch/iecex/iecexweb.nsf/0/FE79714C0BAEF6F5C1257D7E0044F6A9?opendocument>

Types LPD: ATEX certification: II 2(1)G Ex d [op is Ga] IIC T4 Gb. Certification No. BVS 10 ATEX E 130 X, Zertifizierungsstelle, Carl-Beyling-Haus, Dinendahlstrasse 9, D-44809 Bochum, Kennnummer: 0158.

Types LPN: ATEX certification: II 3(2)G Ex nA [op is Gb] IIB T4 Gc. ATEX declaration by manufacturer in accordance to the ATEX directive 2014/34/EU.

Types LPO: ATEX certification: II (3)G [Ex op is IIB T4 Gc]. ATEX declaration by manufacturer in accordance to 2014/34/EU.

ATEX certification of quality type production of Ex devices in accordance to the ATEX directive 2014/34/EU, CE 0158. Certification No: BVS 15 ATEX ZQS / E118, QAR No. DE/BVS/QAR13.0004/01. 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:

Hans Bracher, Matrix Elektronik AG

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