LAM 60 Ex d

DATASHEET

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LAM 60 Ex d

Explosion proof laser distance meter

The SP LAM 60 Ex d is an explosion proof industrial laser distance meter. It is intended to use in explosion hazardous environments providing reliable and accurate non-contact distance measurements. The sensor is certified in accordance with the ATEX / IECEx directive and it's harmonized standard IEC 60079. The sensor can be used up to Zone 1 (gas) and Zone 21 (dust) environments.

The SP LAM 60 Ex d measures medium to long range distances of static and moving objects and targets up to 100 meter on natural surfaces and diffuse targets. To a target board or reflector the sensor can measure up to 500 meter. The sensor measures with a frequency up to 100 Hz and the measurement accuracy lays within the millimetre range. The sensor offers multiple output signals and interfaces.

The SP LAM 60 Ex d is a versatile IECEx certified explosion proof laser distance meter, combining powerful specifications with a very robust housing. Even in the most demanding and challenging environments the SP LAM 60 Ex d stands out from the crowd. The SP LAM 60 Ex d is available with many different features and interfaces to be configured according your specific application requirements.

Scan ocean surface in offshore boat landing and oil rig levelling systems

Positioning ship in berthing and mooring applications

Presence detection of helicopters on (offshore) helipads

Gangway positioning at (offshore) wind farms

Distance and anti-collision measurements for (overhead) cranes

Level or height measurements of bulk goods inside silo's and storage bunkers

Specifications

Measuring range	0.15m ... 500 m
Typical maximun measuring range (1) on target boards on natural surfaces (2)	 500 m 100 m
Measuring accuracy (1)	± 1 mm
Measured value resolution	0.1 mm
Maximum measurement frequency	100 Hz
Laser classification	Class 2, EN 60825-1:2014
Laser properties	P < 1 mW, t < 3 ns
Wavelength	λ = 630-670 nm (visible red)
Laser divergence	0.2 mrad (50% laser energy)
Interface options (depending on specific device configuration)	RS232, RS422, RS485, Ethernet, WLAN (2.4 / 5.0 GHz), Profinet SSI (200 / 250 / 300 kHz), Profibus DP-V0 Slave, 9.6 kBaud, IEC 61158, IEC 61784
Switching output	3x PNP-NO/NC, up to 200mA
Analog output	4 mA ... 20 mA, scalable
Trigger	1x trigger in/out, 3 VDC ... 30 VDC
Connectors (internal)	standard: 1x 12-pole M16 | optional: 3x 5-pole M12 (depending on configuration)
Connections (external)	2x IECEx approved cable glands (positioned at the back-end of the housing)
Power supply	10 VDC ... 30 VDC
Power consumption (max.)	< 10 W | <42 W (in heating mode, 24 V)
EMC	EN 61326-1
Operating temperature (3)	-50 °C ... +60 °C (depending on configuration)
Storage temperature	-40 °C ... +70 °C
Humidity	15 % ... 90 %
Dimensions (L x W x H)	385 mm x 175 mm x 156 mm
Weight	aprox 9000 g (depending on configuration)
Housing material	RVS 316L
Ingress protection class	IP66 (in accordance with IEC 60079-0 & IEC60529)
EMC	EN 61326-1
EX classification	Gas: Ex II 2G, zone 1, 2 Dust: Ex II 2D, zone 21, 22
Type of protection	d, e, op is, tb
Applied standards	IEC 60079-0, IEC 60079-1, IEC 60079-28, IEC 60079-31
IECEx certificate	IECEx DEK 15.0056X
Ex marking	Gas Zone 1 & 2: Ex d e op is IIC T4 ... T6 Gb Gas Zone 1 & 2: Ex d op is IIC T4 ... T6 Gb Dust Zone 21 & 22: Ex tb IIIC T135 °C ... T85°C Db

1. Measurement range and accuracy depending on measuring frequency, target reflectivity, stray light and environmental conditions.
2. On natural surfaces applies for natural, diffuse reflecting objects, targets and surfaces which could not be considered as a target board or a reflector with defined reflective properties.

Model selection

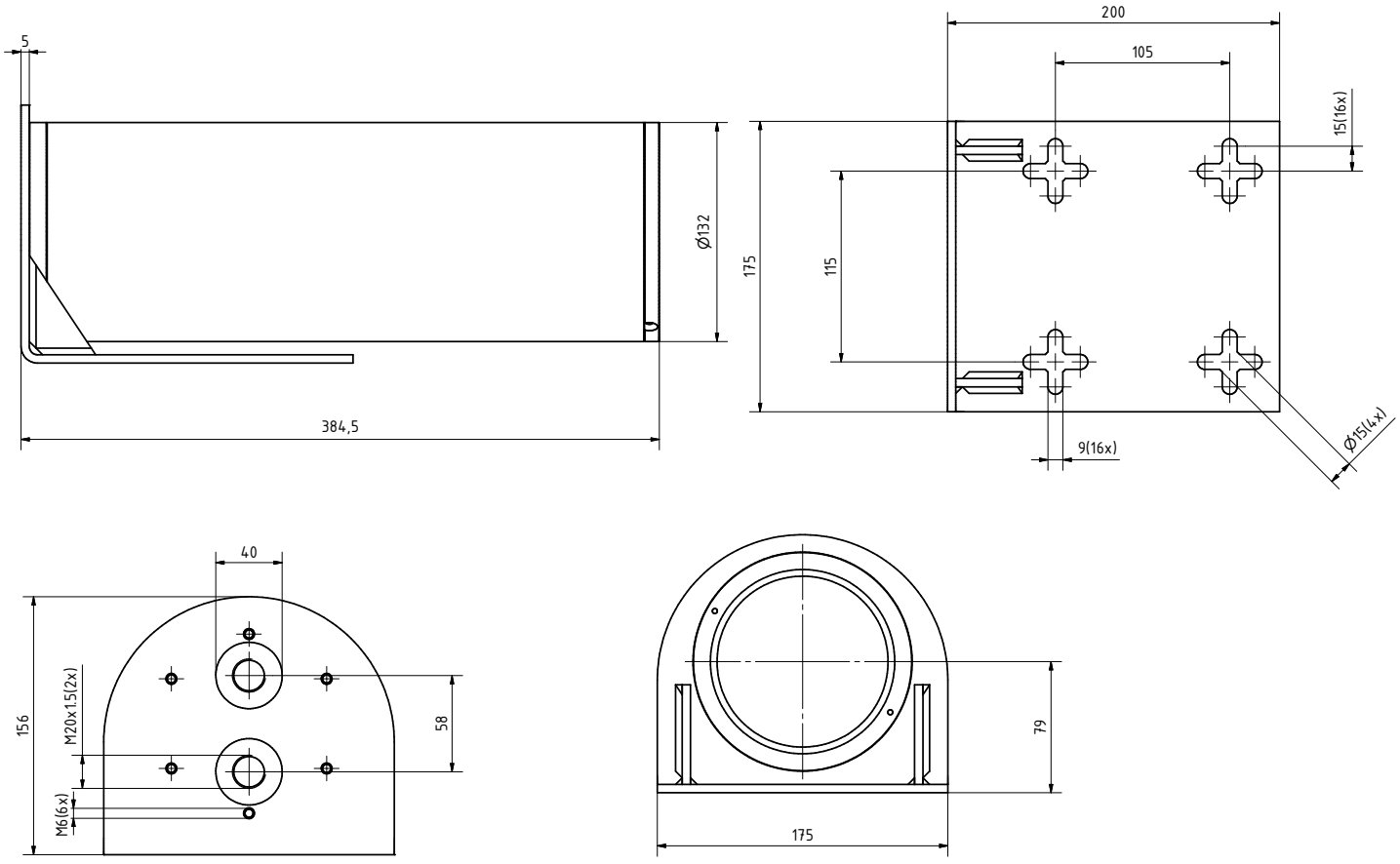
Model	Communications & Interfaces, Extra Options
SP LAM 61.1 Ex d	RS232/422/485
SP LAM 61.2 Ex d	RS232/422/485 + SSI
SP LAM 62.1 Ex d	RS232/422/485 + Ethernet
SP LAM 62.2 Ex d	RS232/422/485 + WLAN
SP LAM 63.1 Ex d	RS232/ 422/ 485 + Profibus
SP LAM 63.2 Ex d	RS232/ 422/ 485 + Profibus + SSI
SP LAM 62.3 Ex d	RS232/422/485 + Profinet
SP LAM 61.11 Ex d*	RS232/422/485 + Heater
SP LAM 61.21 Ex d*	RS232/422/485 + SSI + Heater
SP LAM 62.21 Ex d*	RS232/422/485 + Ethernet + Heater
SP LAM 63.11 Ex d*	RS232/422/485 + WLAN + Heater
SP LAM 63.21 Ex d*	RS232/ 422/ 485 + Profibus + Heater
SP LAM 63.31 Ex d*	RS232/422/485 + Profibus + SSI + Heater
SP LAM 63.21 Ex d*	RS232/ 422/ 485 + Profibus + Heater

* Sensor with integrated heater may not be suitable for all Ex zones and classes.
Contact manufacturer for more information.

Optional Accessories

Position	Description
1	Light and Dust protector LAM 60 series
2	Light and Air-Purge Dust protector LAM 60 series
3**	Ex-interface cable, shielded, 12 x 0.25 mm^2
4**	Interface cable with straight connector
5**	Interface cable with right angled connector
6**	SSI cable with straight connector
7**	SSI cable with right angled connector
8**	ProfiBus In/Out cable, straight connectors
9	ProfiBus In cable, right angled connector
10	ProfiBus Out cable, right angled connector
11	ProfiBus Terminating resistor, M12
12	Screw cap for ProfiBus In, SSI connector
13	Screw cap for ProfiBus Out, SSI connector
14	ProfiBus Toolkit, USB to ProfiBus convertor with service software
15	Industrial Opto-Isolated USB to RS422/RS485 converter
16	Standard target board, 250 x 300 x 3 mm, white
17	3M Oralite 5200 target board, 250 x 300 x 3mm, grey
18	3M Oralite Special target board, 250 x 300 x 3mm, anthracite

Dimensions (in mm)



The mounting bracket as shown in the pictures above is not included with the LAM 60 Ex d and should be bought seperatly.

For mounting and installation instructions of the instrument housing, making the external wiring connection into the housing, as well as connecting the internally mounted laser sensor to the external wiring, please refer to the instruction manual provided by the manufacturer of the laser distance meter. The instructions in the manual must be followed stringently. Only properly educated and authorized personnel having extensive knowledge of the application and products are allowed to handle this sensitive equipment. In case of installing, connecting and normal maintenance authorized personnel may perform work on the laser distance meter. Repairs, overhauls and revisions however are prohibited to be performed by any other party than the manufacturer of the laser distance meter. Contact the manufacturer for more information.

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