

LASER DISTANCE SENSORS

Zones 1, 2, 21, 22

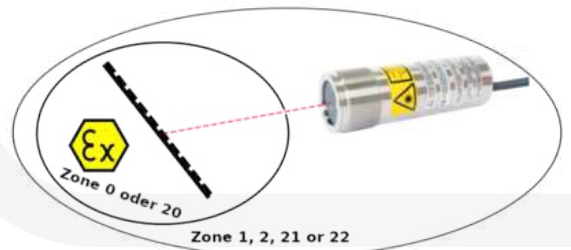
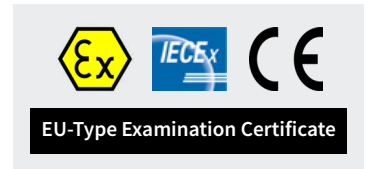
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ATEX INSTRUMENTATION

ZONES 1, 2 (gas) & 21, 22 (dust)

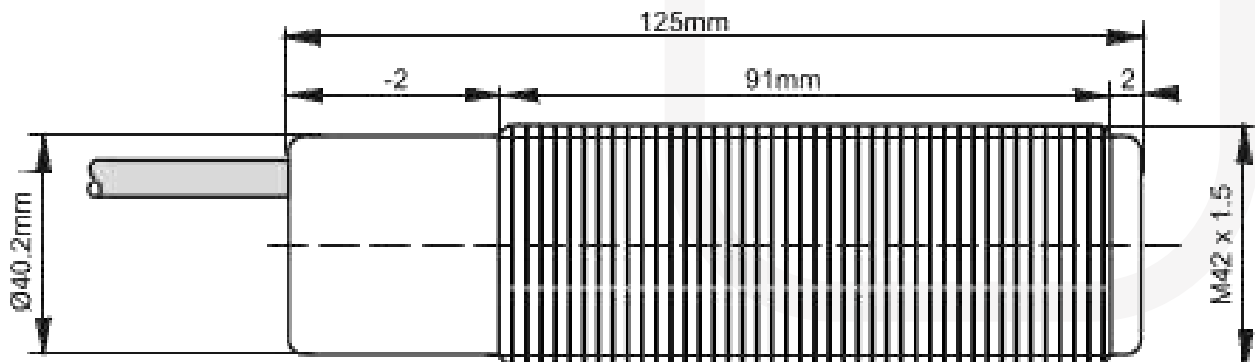
ATEX/IECEx certified Laser Distance Sensors designed to measure distances within potentially explosive atmospheres in Ex Zones (0), 1, 2, (20), 21, 22.

- Exact, precise and millimeter-accurate measurement by means of time-of-flight measurement.
- Easy alignment through visible red light laser.
- Measurement range digital output: 0.05m to 30m.
- Suitable for matt, shiny and different colored (also black) objects.
- Explosion-proof, robust stainless steel housing M42x1,5 in flameproof enclosure Ex "d".
- Analog output signal 4mA to 20mA and serial data interface RS-485.
- Optical power limitation - sensors are allowed to radiate in zone 0 and 20.



ITEM REFERENCES



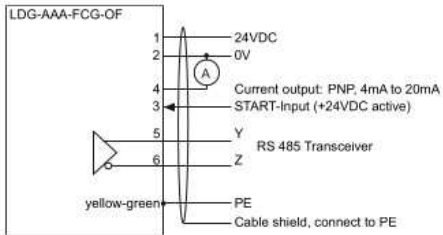
Designation:	Measurement range analog output:	Measurement range digital output:	Item No.:
LDG-AAA-FCG-OF	0.05m to 30m	0.05m to 30m	9D0101
LDG-AAB-HBA-OF	50mm to 4000mm	0.05m to 30m	9D0102
If the analog output is used: LDG-AAA-FCG-OF: The connection kit is needed to make the settings (example: 0.05m to 2m), and then the converter can be removed. LDG-AAB-HBA-OF: The analog output is direct from 0.05m to 4m. Expected values: 50mm=4mA to 2000mm=12mA.			
If the RS485 digital output is used: The connection kit is always needed			
Connection kit: - Software / - MOXA UPORT 1130 Converter / - MINI DB9F-TU-TB Adaptor			9D0103



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TECHNICAL SPECIFICATIONS		
	LDG-AAA-FCG-OF	LDG-AAB-HBA-OF
Marking:	 II 2(1)G Ex db [op is Ga] IIA T4 Gb  II 2(1)D Ex tb [op is Da] IIIC T135°C Db	
Certificate:	EU-Type Examination Certificate	
Housing / Fixing brackets:	Stainless steel AISI 316L	
Operating temperature:	-10°C up to +35°C ¹ / -10°C up to +50°C ² ¹ For a longer life time of the laser diode, the housing temperature of +35°C must not be exceeded ² For housing temperature larger than +35°C use the sensor in pulse mode. See please document "Datasheet supplement"	
Storage temperature range:	-20°C up to +70°C	
Relative humidity:	15% ... 80%	
Ingress protection:	IP67	
Measurement methods:	Time-of-flight measuring	
Light Source:	Laser Class 2, in accordance with EN 60825-1	
Maximum optical radiant intensity:	<=1mW, wave length: 650nm	
Response time:	minimum 0.05s, maximum 4.5s	minimum 0.1s, maximum 4.5s
Pollution degree:	4	
Utilization category:	D3A42AP1	
Supply voltage, Ue:	24VDC	
Absolute maximum supply voltage, Um:	30VDC	
Current consumption:	70mA	
Maximum power dissipation:	2.4W	
Typical measurement tolerance:	Up to 10m: +-1mm, applies for 100% target reflectivity, in low-light ambient, T _{amb} : 25°C	
Maximum measurement tolerance:	Up to 10m: +-2mm, applies for 10% to 500% target reflectivity, in strong light ambient	
Distance dependent increase of measurement tolerance:	<=0.15mm/m	
Analog current output, type:	PNP, 4mA to 20mA, short circuit protected	
Analog current outputs, operating range:	0.05m to 30m (0.05m = 4mA, 30m = 20mA)	50mm to 4000mm (50mm = 4mA, 4000mm = 20mA)
Analog current output, error indication:	3.5mA: Measurement invalid 20.5mA: Object out of measurement range	
Analog current output, resolution:	1mm = 0,0005mA	1mm = 0,004mA
Analog current output, load range:	500R <= R _L <= 1000R	
Serial interface, type:	RS 485, Format: 9600 baud, 8 data bits, 1 stop bit, Parity none, Handshaking none	
Serial interface, range:	0.05m to 30m	
Serial interface, resolution:	1mm	
Input type:	START Input, PNP compatible	
Input function:	"H" +24VDC: Starts measurement, "L" 0V: Stops measurement	
Power up delay time:	500ms	
Housing:	M42, Material: Stainless steel 1.4404	
Laser lifetime:	Appr. 30'000h, typically, at a housing temperature of +20°C. During continuous operation, urgent recommendation: Apply 0V to the START-input, when no measurement is necessary	
Connection cable:	Length: 5m, PUR jacket, 6+PE x 0.5mm ² , shielded, non-halogen, leads numbering marked, good chemical resistance, drag chain suitable	Length: 10m, PUR jacket, 6+PE x 0.5mm ² , shielded, non-halogen, leads numbering marked, good chemical resistance, drag chain suitable
Options:	Cable length: Up to 100m, upon request	
Accessories:	2 nuts M42 (included)	
Electrical connection:		
Wire number	Function	
1	24VDC	
2	0V	
3	START-Input (+24VDC active)	
4	Current output: PNP, 4mA to 20mA	
5	RS 485 - Y	
6	RS 485 - Z	
yellow-green	PE	
white	Cable shield	