

Photoelectric Sensor with Analog Output IRD-A / IRS-U-A Housing M30

CE 0158

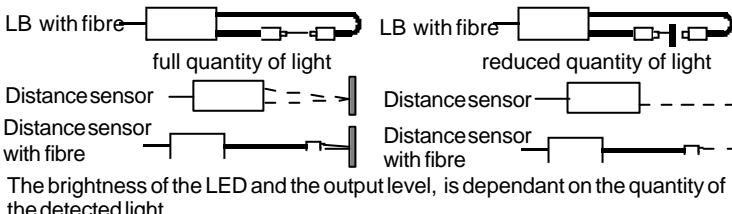
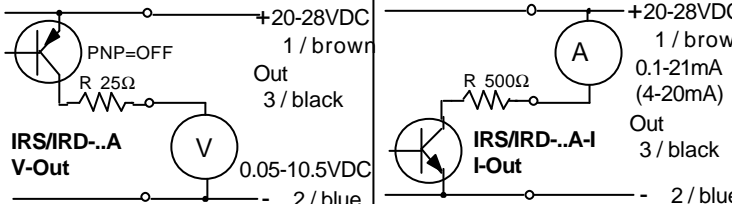
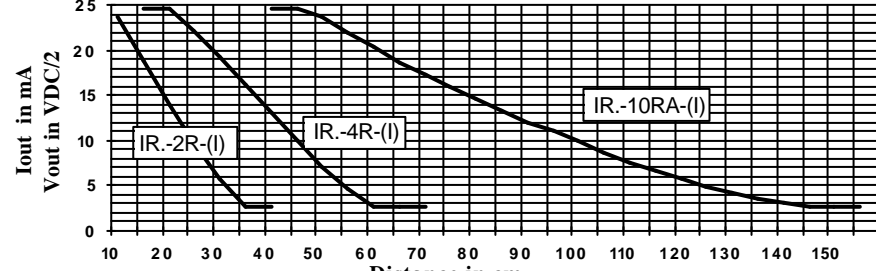


EEx d IIC T6

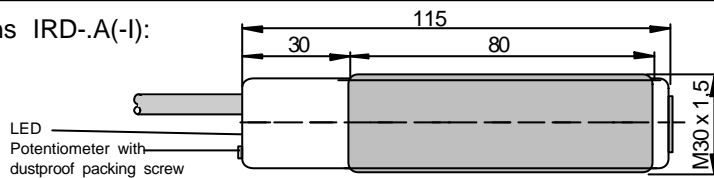
II 2 G

II 1/2 D IP67 T90°C

- with voltage or current loop output available
- also for using with different types of fibre optics
- usable for range measurement
- usable as turbidimeter
- usable for position detection
- Types IRD-... applicable in Ex zones 1, 2 +20/21, 22

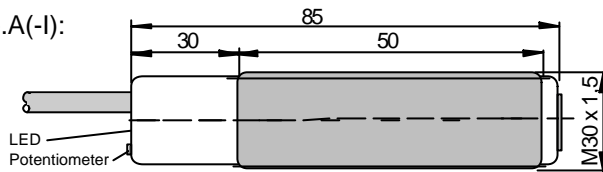
Types EEx d IIC T6:	V-Out I-Out	IRD-2A IRD-2A-I	IRD-4A IRD-4A-I	IRD-10RA IRD-10RA-I
Types Standard:	V-Out I-Out	IRS-U-2A IRS-U-2A-I	IRS-U-4A IRS-U-4A-I	IRS-U-10RA IRS-U-10RA-I
Technical Data				
Output range	V-Out I-Out	0.05VDC - 10.5VDC(Ripple: 40mV) 0.1mA - 21mA (Ripple: 80uA), (4mA - 20mA optional)		
Detection range, (adjustable) (on white paper 80g, 20cm x 30cm)	V-Out I-Out	5VDC/20cm 10mA/20cm	5VDC/40cm 10mA/40cm	5VDC/100cm 10mA/100cm
Light source		Infrared 880nm		Red 670nm
Supply voltage		20VDC - 28VDC (Ripple max. 10%)		
Current consumption		40mA	50mA	70mA
Maximum power dissipation		1.12W	1.4W	1.96W
Output	Voltage type	PNP, Impedance: appr. 25Ω, Load resistance: 2kΩ to 1MΩ		
	Current loop type	NPN, Impedance: appr. 500Ω, Load resistance: 0Ω to 100Ω		
Response time		8ms		
Housing		M30, yellow brass, nickel plated		
Enclosure protection rating, at EN 60529		IRS-U-(Standard):IP 65, IRD- (Ex d): IP67		
Working temperature range TA		-20°C < TA < +60°C		-20°C < TA < +50°C
Connection cable		3+PE x 0,5mm ² + Shield / L=3m		
Accessories, included all types		2x nuts M30 (or 1x clamp M30, optional)		
Accessories, only types IRD-...		- 1x Spare safety screw with packing ring for potentiometer sealing		
Accessories, only IRS-U-2A S66		- Cable connector housing, Binder M12, series 713		
Options		- IRS-U-2A S66 : Connector Binder 713/4 terminals, cable: 200mm with fixed optic, type DL30 Range 75cm, at 5VDC output voltage - IRD-2A S93 N5 :for special position measurement optical fibres type: QW-.../2,3-50-U-SE - IR-.-A-I4: Current loop output: 4 - 20mA - IRS-U-2A/MT: with multiturn potentiometer for adjustment		
Function and LED indication				
Connection				
Output diagram (measured on white paper, 80g, 20cmx30cm) Potentiometer on MAXIMUM				

Dimensions IRD-A(-I):



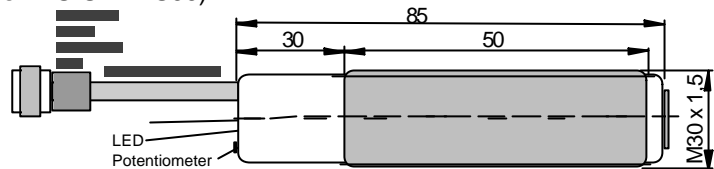
Connection:	
+24VDC	1
0V	2
Output	3
PE	yellow-green

Dimensions IRS-U-A(-I):



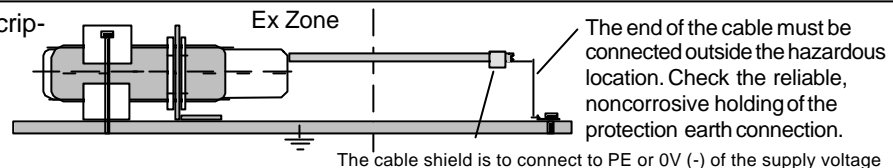
Connection:	
+24VDC	brown
0V	blue
Output	black
PE	yellow-green

Dimensions IRS-U-2A S66):



Connection:	
+24VDC	1
0V	2
Output	3
PE	4

Equipotential Bonding prescription for Ex Devices:



The cable shield is to connect to PE or 0V (-) of the supply voltage

ATEX related designations

CE 0158	Manufacturer with address
Device type	II 2 G, II 1/2 D IP67 T90°C
Certification number:	DMT 99 ATEX E 056/N1/N4
TA: -20° < TA < 50°	Electrical data according to the chart
Date of construction: Numeral 4 and 5 of the serial number	

Operating Manual / EC - Declaration of Conformity:

Mounting prescriptions

Ex Protection:

The sensor type IRD-.. is only applicable in Ex zones 1, 2 and 20/21, 22. For the zones 20/21 only the front part (optical lens) can be mounted inside the zone 20. The rear part with the cable must be in the zone 21. It is necessary to take into consideration the valid international and national rules and regulations. The local equipotential bonding have to be done. The protective earth (PE) is solid connected with the housing. The cable have to be protected against damages. To connect cables inside hazardous locations only use certificated EEx e housings. All cable terminals must be connected outside hazardous locations. Use only original manufactured fibre optics and additional optical lenses, other additional optical lenses are not allowed in hazardous locations. In Ex zones 20/21 and 22, do not operate the sensors without fixed dustproof sealing crew. After adjust the potentiometer, the dustproof sealing crew with undamaged packing ring, must be screwed down. Damaged or lost screws or packing rings must be replaced.

General mounting prescriptions:

Do not exceed the maximum ratings. The electrical connections must be exactly as shown in the connection diagram. The cable shield must be connected short. The cable shield should be connected to PE or 0V(-) of the supply voltage. Connection cables must not be installed parallel to high voltage cables.

Function

Corresponding to the quantity of detected light, the output of the sensor generates an analog output signal. Without fibre optics or with fibres 2in1 type, the sensor is applicable as relative distance detection device or similar applications. With 2-2 type fibres, function as light barrier, the sensor can be used for turbidity measurement or similar applications. Dependent on the selected type, the output generates a voltage signal from 0.1V to 10VDC or a current loop, 0 or 4mA to 20mA. Please check the permissible load for the two different types of outputs. For best measurement results the sensor can be adjusted by the potentiometer.

Nominal range

The nominal range is defined as function "distance measurement" on white paper. At the nominal distance the output level shows the middle of the output range.

The real output level is depended on the color, the form, the dimension, and the surface finish of the object.

Fibre optics

For efficiently detection solutions look for our multiple program of fibre optics, also for high temperature areas.

Maintenance

Protect the sensor and the optional fibre optics against pollution. If the fibre optics or the sensor lenses are contaminated, clean with alcohol. Do not use aggressive solvents. Optical fibres can be destroyed by strong solvents. Equipment must only be repaired or serviced by the manufacturer.

Safety Informations

The analog sensors types IRS-U / IRD must not be used for Accident-Prevention! When installing and operating with the sensor, it is necessary to take into consideration the relevant international and other national regulations. ATEX 118a, ElexV, TRbF, TRD, UVV, EX-RL(BGR104), BetrSichV(ATEX137).

Standards met:

- EN 50014, EN 50018
- EN 60529; EN 61000-6-1/-2, EN 61000-6-3/4 EN; EN 50319
- Ex Protection: 94/9/EG (ATEX 100a)
- Machine directive: 98/37/EG
- Low voltage directive: 73/23/EWG, 93/68/EWG
- EMC: 89/336/EWG, 91/263/EWG, 92/31/EWG, 93/68/EWG

General Notes

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 emit or contain 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.

Declaration of Conformity

Approvals: DMT 99 ATEX E 056/N1/N4/N5

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 with the ATEX module "Production", declares:

Hans Bracher, Matrix Elektronik AG