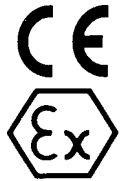
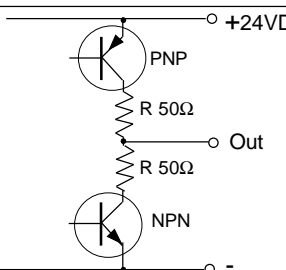
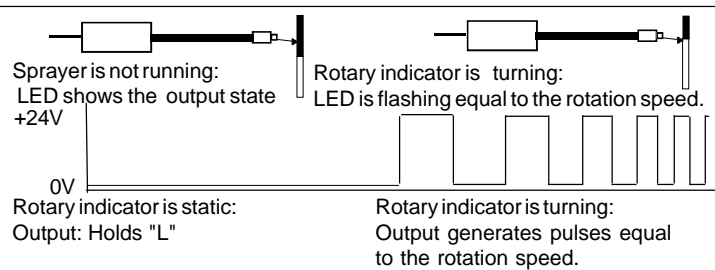



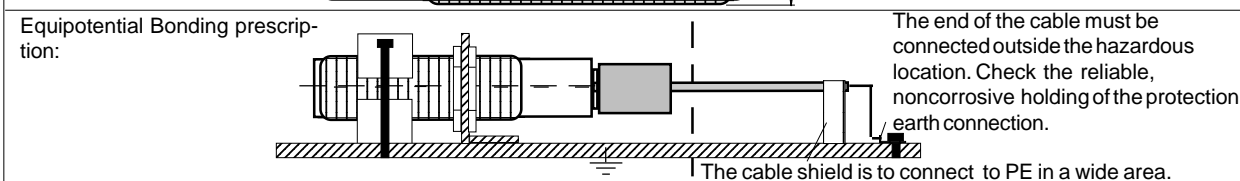
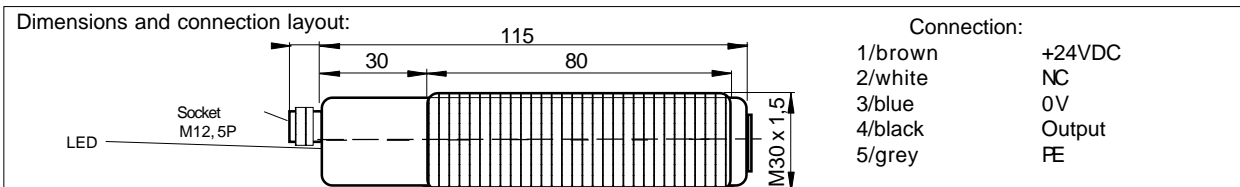
Original Operating Manual:
Rotation Speed Control Sensor type IRN-LTD-GFO-OP-S230
Housing M30



II 3G Ex nA op is IIB T4 Gc

- Well applicable with plastic and glass fibre optics
- Laser-emitter, red light 650nm
- Applicable in Ex Zone 2
- Speed control up to 100'000 RPM
- Very high reliability (EMC)

Technical Data	Type	IRN-LTD-GFO-OP-S230
Type of Ex protection, Gas, at 94/9/EC		II 3G Ex nA op is IIB T4 Gc
Type of Ex protection, Dust, at 94/9/EC		NONE
Applicable in Ex Zones		2
Laser class		Class II, 650nm visible red, Po <= 1mW
Maximum optical irradiance		<=5mW/mm ²
Maximum radiated optical power		< 1mW
Switching frequency		0,1kHz - 10kHz ^{Note1}
Rise time		<= 2us
Power up delay time		2sec
Supply voltage		24VDC +10%
Absolute maximum input voltage Um		30VDC
Current consumption		60mA
Power dissipation		maximum 1.68W
Output		1 x Push-Pull, short circuit protected, maximum 10mA
Output impedance		max.50Ω
Housing		M30, brass, nickel plated
Enclosure rating at EN 60529		IP 65
Vibration shock resistance		Vibration: 30g over 20Hz to 2kHz. Shock: 100g for 3ms
Ambient working temperature range Tamb		0°C up to +50°C
Storage temperature range		-20°C ... +70°C
Relative humidity		15% ... 90%, noncondensing
Pollution degree, at EN 60664-1:2007		4
Ambient illumination		only for using in enclosed ambients
Device designation, at EN 60947-5-2		D3A30CS2
Electrical connection		Socket, M12, 5 terminals --
Optical fibre connection		Matrix connection, applicable with certificated fibre optics
Accessories, included all types		-2xNuts M30 -1x Safety lock device, mount at the cable connection, for locking the connection. (black synthetic device) - 1xWarning plate "Do not separate when supply voltage connected", self-sealing, for gluing on the cable connector. - 1xProtection cap for the sensor connector.
Accessories, not included		- Single ended cordset, straight type: RKTS 5-298/xx or right angle type: RKWTH 5-298/xx , Lumberg M12/5P - Different types of Ex certificated optical fibres, on demand - Fast fixing adapter for fibre optics. Type: LWL-Adapter V2A-2,2-6x8
Options		--
Output Function:		
ATEX related designations:		
CE 0158		
Type IRN-LTD-GFO-OP-S230:  Manufacturer with address		Electrical data according to the chart
Tamb: 0°C < Tamb < +50°C Date of production:		Declaration by manufacturer at 94/9/EC
(X designation of the certification number: Fibre optics must only be applicated with sensors with certificated limited optical power)		Numerals 5 to 8 of the serial number (Year/Week)
Note 1: The real reachable switching/rotary frequency is dependent on the condition and type of the marking disc (2 or 4 sectioning) and the careful working up of the optical fibres.		



Operating Manual / EC - Declaration of Conformity:

Operating Manual:

General prescriptions for all Ex protection:

It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). The maximum input voltage $U_m=30VDC$ must not be exceeded. The local equipotential bonding have to be done. The protective earth (PE) terminal is solid connected with the housing. The cable have to be protected against damages. To connect cables inside hazardous locations only use certificated Ex 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.

Type IRN-LTD-GFO-OP-S230: Only applicable in Ex zone 2. The limited optical radiation can operate into hazardous location 2. 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 at the cable connector. The additional adhesive warning label must be fixed to the connector housing at the connection cable. Lumberg cordsets RKTS 5-298/xx (Straight type) or RKWTH 5-298/xx (Right angle type) are allowed ONLY. It is necessary to take into consideration the mounting prescription of the connector manufacturer. In dusty locations, the socket protection cap must be fitted, when the connection cable is not connected.

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 the protection earth, large-surfaced. Connection cables must not be installed parallel to high voltage cables.

Function:

The sensor can only be used with connected fibre optics. Light reflection alterations, generated by the turning marking disc of the spraying apparatus, will be amplified and formed. If the generated signals are not plausible, the output will be blocked for 40ms.

Using the fibre optics

The sensor IRN-LTD-GFO-OP-S230 must not go into operation without certificated fibre optics. The fibre optics must be handled careful. The functional safety of the sensor is given by the condition of the marking disc and the careful working up of the optical fibres. The fibre optics must not be buckled or laid with a small radius. Buckled or bad laid fibre optics results to a strong decrease of performance. Avoid performance decreasing and failures caused by wear, by a functional mounting of the fibre optics.

Maintenance

Protect the fibre optic adaptor of the sensor and the

optical fibres against pollution. If the fibre optic adapter is contaminated, clean with alcohol. Do not use aggressive solvents. Plastic optical fibres can be destroyed by strong solvents. Equipment must only be repaired or serviced by the manufacturer.

Safety regulations for Laser devices

By the installation, the going into operation and the application, it is necessary to take into consideration the valid rule EN 60825-1/-2 (Parts 12.5.1/12.6.2). Laser Class 2 without connected fibre optics. Do not stare into the beam!

General safety instructions

Series IRN-LTD-GFO-OP-S230: "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 meets the requirements of:

IEC/EN 60079-0:2009, EN 60079-15:2010, IEC/EN 60079-28:2007, EN 60825-1:2006, EN 60825-2:2004, EN 60529:2000, EN 60950-1:2006; EN 61000-4-2 to EN 61000-4-6, EN 61000-6-1/-2, EN 61000-6-4, ATEX directive: 94/9/EC, Machine directive: 2006/42/EC, EMC: 2004/108/EC, 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 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.

EC-Declaration of conformity

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:

Hans Bracher, Matrix Elektronik AG

IRN-LTD-GFO-OP-S230_e2/2014-03-19/HB

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