

Data Processing Receiver for pressure sensors with current output 4 - 20mA, PNP type

ORN-G-AO-LWL
Housing M18

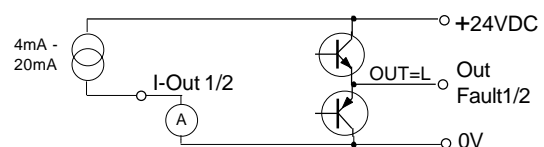
II 3 G EEx nA IIB T4

- for data processing with optical inputs for fibre optics
- 2 independent receivers inside
- simple connection of synthetic fibre optics without special tools
- short response time and very high sensitivity
- 2 x current outputs 4mA-20mA and 2 x fault indication outputs

Technical data	Type	ORN-G-AO-LWL / E34010029
Type of Ex protection		EEx nA IIB T4
Applicable in Ex zone		Zone 2
Category / Grouping		II 3 G
Number of receivers		2
Minimum pulse width at the inputs		$\geq 2\mu s$
Minimum optical input power		$\geq 0.2\mu W$ (LWL, L:10m, D:1mm; pulse with $\geq 2\mu s$)
Supply voltage		20VDC to 28VDC
Absolute maximum supply voltage U_m		$U_m = 30VDC$
Current consumption		50mA
maximum power dissipation		1.4W
Analog current outputs		2 x PNP-current outputs, 4mA to 20mA (P/T,PNP)
Supply voltage for current outputs		over main supply voltage, terminal 1
Tolerance current output signal		+2.5% at 4mA, +2% at 20mA
Ripple on the output current		<2%
External load resistance		RL: 0Ω to 500Ω
Fault indication outputs		2 x Push-Pull, short circuit protected, maximum 10mA
Output impedance, fault indication output		maximum 150Ω , RL: 1500Ω to $10k\Omega$
Inputs		2 x optical for synthetic fibre optics, 2.2mm, core 1mm
Housing		M18, yellow brass, nickel plated
Enclosure rating at EN 60529		IP 67 (with fitted POF and fitted cable connector)
Ambient operating temperature TA		$-20^\circ C < TA < +50^\circ C$
Sensor socket		Lumberg, M12 male receptacle, type RSF 8 contacts
Fibre optics fitting		screwed connection, without additional parts or special tools
Maximum length of fibre optics (Core=1mm)		1m to 10m
Accessories included		- 2x nuts M18 - 1x Safety lock device, mount at the cable connection, for locking the connection. (black synthetic device) - 1x 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.
Accessories optional		- Single ended cordset, straight type: RKTS 8-186/xx or right angle type: RKWTH 8-186/xx , Lumberg M12/8P
ATEX related designations		CE Device type TA: $-20^\circ C < TA < +50^\circ C$ Date of construction: Numeral 4 to 7 of the serial number

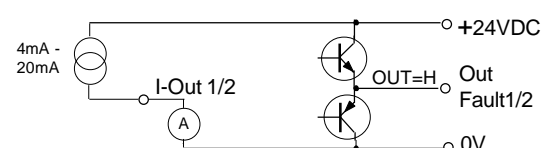
Function:
 Pressure 0 - 25 Bar
 Battery OK:
 - Current out: 4mA to 20mA
 - Fault out: Low

Current out 1 or 2 = 4mA-20mA Fault out 1 or 2 = 0V



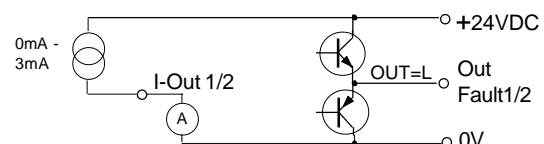
Pressure 0 - 25 Bar
 Battery discharged:
 - Current out: 4mA to 20mA
 - Fault out: High

Current out 1 or 2 = 4mA-20mA Fault out 1 or 2 = +24V



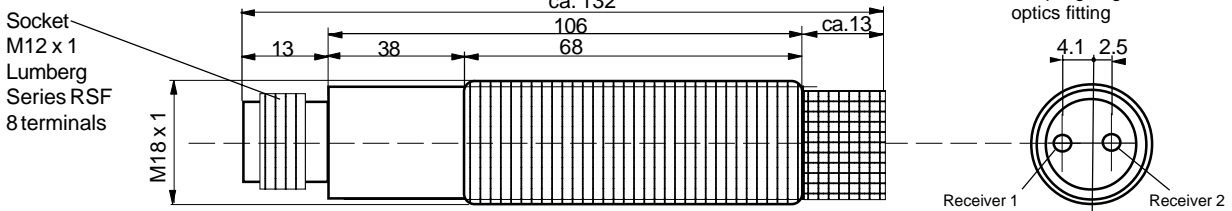
no optical input signal
 or no fibre optic connected:
 - Current out: $\leq 3mA$
 - Fault out: Low

Current out 1 or 2 < 3mA Fault out 1 or 2 = 0V



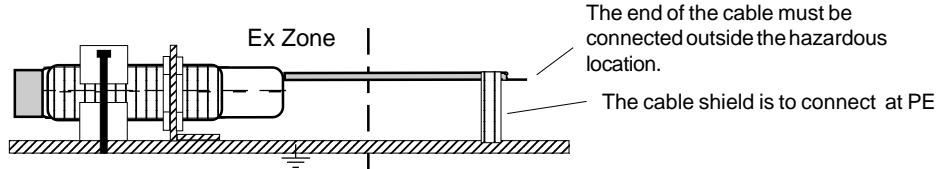
Connection diagram ORN-G-AO-LWL:		1 white +24VDC	5 grey +24VDC
(wire colors at DIN 47100		2 brown 0V	6 pink Current out 2, 4-20mA
Connection layout at EN 50044)		3 green +24VDC	7 blue Fault out 1
		4 yellow Current out 1, 4-20mA	8 red Fault out 2
		⊥ Protection earth PE at the housing M18	

Dimensions ORN-G-AO-LWL:



Equipotential Bonding prescription:

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



Operating Manual / EC - Declaration of Conformity:

Mounting prescriptions

Ex Protection:

It is necessary to take into consideration the valid international and national rules and regulations. The local equipotential bonding have to be done. Connect the housing reliable and noncorrosive to the general Protection earth by using the nuts M18. If cables, EMC types, with a connection between cable shield and connector housing are connected, the equipotential bonding can be done by connection the cable shield to the protection earth PE. The cable have to be installed and protected against damages. To connect cables inside hazardous locations only use certificated Ex e housings. All cable terminals must be connected outside hazardous locations. Other than original manufacturer, additional optical lenses or other optical parts, are not allowed in hazardous locations.

The data processing receiver Type ORN-AO-LWL is only applicable for the Ex zone 2. Do not open or close 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. Only connectors, Lumberg RKTs/RKTW 8, are allowed. It is necessary to take into consideration the mounting prescription of the connector manufacturer.

General mounting prescriptions:

Do not exceed the maximum ratings. The electrical connections must be exactly as shown in the connection diagram. For best EMC protection use twisted pair cables. If no twisted pair cables are applicable, use well shielded cables. The cable shield should be connected to the protection earth, large-surfaced. Connection cables must not be installed parallel to high voltage cables. For the upward compatibility with future types, the additional supply voltage +24VDC must be connected at terminals 3 (green) and 5 (grey)

Function

The device has 2 independent data receivers inside. Each receiver has an analog current and a fault indication output.

Battery	Current	Fault Out	Out
Pressure: 0-25 Bar	OK	4-20mA	LOW
Pressure: 0-25 Bar	Low	4-20mA	HIGH
No input signal	--	<=3mA	LOW

Current outputs 4-20mA

PNP type outputs. The load must be connected from the output to 0V and must be <= 500Ω.

Using the fibre optics

The fibre optics must be handled careful. For cutting the fibre

optics, the special cutter or a professional tool is to use. The face of optical fibers must be completely even and free of scratches. After cutting the fibres, push them well set into the adaptor and fasten the screws. Do not use optical fibres longer than 10m. The functional safety of the data receiver is given by the working up of the optical fibres. Specially near the sensor, 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. Please set up the protection cap if no optical fibres are connected. 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 Informations

The data receiver ORN-AO-LWL must not be used for Accident-Prevention! In worst case of disturbance, the outputs can show any state. 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(BGR 104), BetrSichV(ATEX 137), single directive 1999/92/EG.

Standards met:

- EN 50014, EN 50021
- EN 61000-6-1/-2, EN 61000-6-3/4, EN 60529
- Ex Protection: 94/9/EG (ATEX 100a)
- Machine directive: 98/37/EG
- Low voltage directive: 73/23/EEG, 93/68/EEG
- EMC: 89/336/EEG, 91/263/EEG, 92/31/EEG, 93/68/EEG
- Tech File: AN-EX-ORN

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

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