

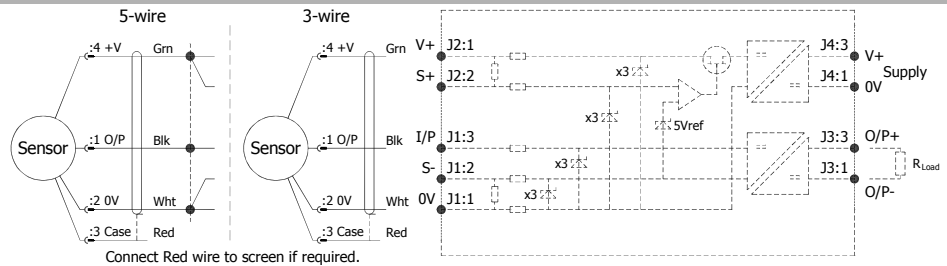
# Installation Information

## LIPS<sup>®</sup> X120 350 BAR SUBMERSIBLE CYLINDER - LINEAR POSITION SENSOR

### INTRINSICALLY SAFE FOR HAZARDOUS GAS/VAPOUR ATMOSPHERES

ATEX /IECEx Qualified to Intrinsic Safety Standard Certificate numbers SIRA 13ATEX2371X IECEx SIR 13.0154X		Ex II 1G Ex ia IIC T4 Ga (Ta = -40°C to +80°C)	
Electronics Version	Output Description:	Supply Voltage: V <sub>s</sub> (tolerance)	Load resistance:
<b>EX07</b>	0.5 - 4.5V (ratiometric with supply) [Output code 'A']	+5V (4.5 - 5.5V)	5kΩ min

Connector Pin Layout:  
MC BH 4 M (face view)



**Putting Into Service:** The sensor must be used with a galvanic isolation barrier designed to supply the sensor with a nominal 5V and to transmit the sensor output to a safe area. The barrier parameters must not exceed:-

- U<sub>i</sub> = 11.4V**      **I<sub>i</sub> = 0.20A**      **P<sub>i</sub> = 0.51W**
- C<sub>i</sub> = 1.36µF\***    **Li = 860µH\*** (with cable) \*Figures for 1km cable
- C<sub>i</sub> = 1.16µF**      **Li = 50µH**      (without cable)

The sensor is certified to be used with up to **1000m** of cable, cable characteristics must not exceed:-

- Capacitance: ≤ 200 pF/m for max. total of: 200 nF
- Inductance: ≤ 810 nH/m for max. total of: 810 µH

Approval only applies to specified ambient temperature range and atmospheric conditions in the range: 0.80 to 1.10 Bar, oxygen ≤ 21%.

The performance of the sensor may be affected by voltage drops associated with long cable lengths; For cable lengths exceeding 20 metres a five wire connection is recommended to eliminate errors introduced by cable resistance and associated temperature coefficients.

N.b. Cable free end must be appropriately terminated, including preventing water ingress into the cable. **See page 2 for connector handling instructions.** The sensor is sealed to IP68 350 Bar.

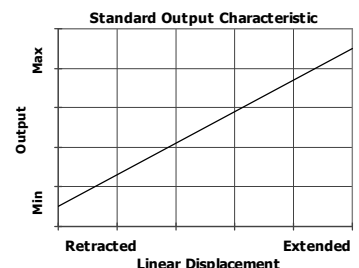
**Use:** The sensor is designed to measure linear displacement and provide an analogue output signal.

**Assembly and Dismantling:** The unit is not to be serviced or dismantled and re-assembled by the user.

**Maintenance:** No maintenance is required. Any cleaning must be done with a damp cloth.

**Mechanical Mounting:** Via mounting thread, maximum tightening torque: 100Nm. See drawing P100-15, Installation Details Mounting Threads & Seals. An O ring seal is provided, size BS908 for 3/4 UNF thread or 14.3 x 2.4 for M18 thread. Install the target tube using the flange provided or fix directly into the piston rod using adhesive for instance, the end of the target tube can be proud or flush with the piston end face as required.

**Output Characteristic:** Target position at start of normal travel is 36.0 mm from seal face. The output increases as the target is moved away from the sensor body, the calibrated stroke is between 5 mm and 800 mm.



**Incorrect Connection Protection levels: Not protected** – the sensor is **not** protected against either reverse polarity or over-voltage. The risk of damage should be minimal where the supply current is limited to less than 50mA.

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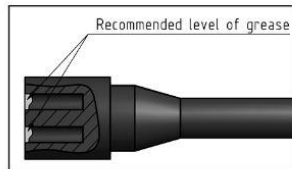
#### Handling

- Always apply grease before mating
- Disconnect by pulling straight, not at an angle
- Do not pull on the cable and avoid sharp bends at cable entry
- When using a bulkhead connector, ensure that there are no angular loads
- Do not over-tighten the bulkhead nuts
- SubConn<sup>®</sup> connectors should not be exposed to extended periods of heat or direct sunlight. If a connector becomes very dry, it should be soaked in fresh water before use

#### Cleaning

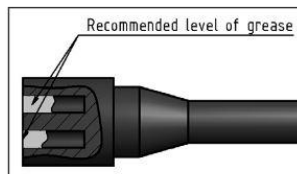
- General cleaning and removal of any accumulated sand or mud on a connector should be performed using spray based contact cleaner (isopropyl alcohol)
- New grease must be applied again prior to mating

#### Greasing and mating above water (dry mate)



- Connectors must be greased with Molykote 44 Medium before every mating
- A layer of grease corresponding to minimum 1/10 of socket depth should be applied to the female connector
- The inner edge of all sockets should be completely covered, and a thin transparent layer of grease left visible on the face of the connector
- After greasing, fully mate the male and female connector in order to secure optimal distribution of grease on pins and in sockets
- To confirm that grease has been sufficiently applied, de-mate and check for grease on every male pin. Then re-mate the connector

#### Greasing and mating under water (wet mate)



- Connectors must be greased with Molykote 44 Medium before every mating
- A layer of grease corresponding to approximately 1/3 of socket depth should be applied to the female connector
- All sockets should be completely sealed, and transparent layer of grease left visible on the face of the connector
- After greasing, fully mate the male and female connector and remove any excess grease from the connector joint