
# SUBMERSIBLE LEVEL SENSOR/ TRANSMITTER

# INSTALLATION & OPERATING DATA

ATEX
M1
**GROUP I & II INTRINSICALLY SAFE**

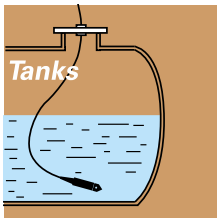
**TUNNELS**
•
**MINING**
•
**RESERVOIRS**
•
**PUMPING INDUSTRY**

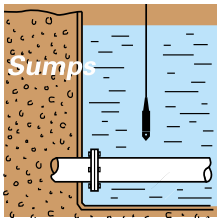
## contents...



ISSUE I 06/14

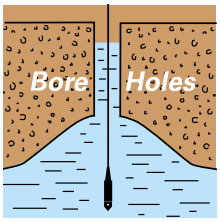
## 1 APPLICATION

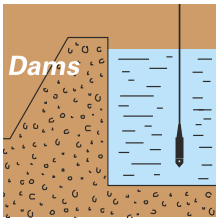



The TX5814 is suitable for monitoring liquid levels in a number of applications, including:

- Boreholes,
- Sumps,
- Reservoirs,
- Tanks,
- Water treatment,
- Distribution.



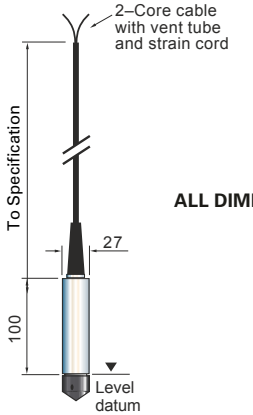




## 2 PRINCIPLE OF OPERATION

- Submersible hydrostatic pressure sensors utilising a four arm active strain gauge bridge, laser welded to a stainless steel diaphragm, offering high output signal coupled with superb chemical and corrosion resistance. They have been designed for long-term immersion in liquids and offer a temperature compensated two-wire, 4...20 mA output proportional to depth or liquid level.
- The sensing element and its associated electronics are housed in a rugged stainless steel body with integral cable complete with equalisation vent tube and strain cord and is supplied with a self-cleaning nose cone.
- The TX5814 provides a conditioned 4...20 mA output signal that is calibrated during manufacture to the specified measuring range.

ATEX
M1
**GROUP I & II INTRINSICALLY SAFE**

## 3 DIMENSIONS




**ALL DIMENSIONS IN MM**

ATEX
M1
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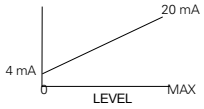
## 4 TECHNICAL DETAILS

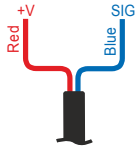
| | |
|---|---|
| Ambient Temp. Limits: | –20...80°C. |
| Sensor Principle: | Stainless steel diaphragm, piezo-resistive strain gauge. |
| Depth Measuring Ranges: | 2.5, 5, 10, 20, 50, 100, 200 metres. |
| Safe Over Pressure: | 2 x measuring range. |
| Overall Accuracy: | 0.25% of range. |
| Housing Material: | Stainless steel. |
| Protection Classification: | IP68 (submersible). |
| Electrical Connections: | 2 core cable with vent tube and strain cord. |
| Max. Suspended Length: | 400 metres. |
| Output Signal: | 4...20 mA, 2 wire pre-calibrated for the specific depth measuring range. |




## 5 ELECTRICAL DETAILS

| | |
|---|---|
| Supply Voltage: | 15...30 V dc (Group II and General Purpose),<br>7...14 V dc (Group I). |
| Output Signal: | 4...20 mA, 2 wire pre-calibrated for the specific depth measuring range. |

## 6 CONNECTIONS




## 7 MAINTENANCE

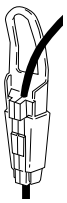
The hole in the nose cone should be kept free from dirt and debris. If necessary, this should be cleaned by rinsing with water, or use of a soft cleaning implement.

DO NOT USE SHARP IMPLEMENTS OR HIGH PRESSURE HOSES WHICH MAY CAUSE DAMAGE TO THE SENSING DIAPHRAGM.

## 8 ACCESSORIES

**TX5810.01** **TENSION WEIGHT**
Extra sensor weight for borehole insertion.

**SC400.0089** **SUSPENSION GRIP**
Cable grip suitable for up to 400m suspension.



ATEX
M1
**GROUP I & II INTRINSICALLY SAFE**

# 9 APPROVALS AND CERTIFICATION

## 9.1 Europe (ATEX)

Ex Certificate number: Sira 02ATEX2387X
Ex Certification code: I M1 EEx ia I (-20°C ≤ Ta ≤ +90°C)
II 1G EEx ia IIC T4 (-20°C ≤ Ta ≤ +90°C)

OR:

Ex Certificate number: Baseefa 03ATEX0021X
Ex Certification code: I M1 Ex ia I Ma (-20°C ≤ Ta ≤ +60°C)

**Specific Conditions of Use pertaining to certificate Sira 02ATEX2387X:**

1. Some Transducers have an enclosure manufactured from Aluminium alloy. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered when the equipment is installed in locations that specifically require Group II, category 1G equipment.

2. In the case of the B-series pressure transducer and the S6420-Series level transducer, the circuit is not isolated from its enclosure and does not meet the 500 V insulation test; this shall be taken into account when it is installed.

**Specific Conditions of Use pertaining to certificate Baseefa 03ATEX0021X:**

1. When installing the apparatus, please note that the screen of the integral cable must be connected internally to the frame of the apparatus.

2. Also during installation, please note that Pin 4 of the optional plug-socket arrangement is connected internally to the frame of the apparatus.

3. When the absolute version is used, the electrical circuit is not capable of withstanding 500 V rms to earth or frame, and this must be taken into account when installing.

**General Conditions of Use:**

Prior to installation, it is essential that user refers to the above certificate to ensure that the termination and cable parameters are fully complied with and are compatible with the application. Copies of certificates are available from Trolex.

CE

ATEX Directive (94/9/EC)
EMC Directive (2004/108/EC)

ATEX
M1
**GROUP I & II INTRINSICALLY SAFE**

## 9 APPROVALS AND CERTIFICATION continued

### 9.2 Australia (ANZEx)

Ex Certificate number: ANZEx 12.3024X
Ex Certification Code: Ex ia I (-20°C ≤ Ta ≤ +60°C)

**Conditions of Certification:**

1. Prior to installation, it is essential that the user refers to the above certificate to ensure that the termination and cable parameters are fully complied with and are compatible with the application. Copies of certificates are available from Trolex.

2. It is a condition of safe use that, when installing the apparatus, the screen of the integral cable must be connected internally to the frame of the apparatus.

3. It is a condition of safe use that Pin 4 of the optional plug-socket arrangement is connected internally to the frame of the apparatus.

4. It is a condition of safe use that the apparatus measures high process pressures, but shall be exposed to the hazardous gas at atmospheric pressure only.

### 9.3 Russia (GOST-R)

Ex certificate number: POCC GB.ME92.B02876 (-20°C ≤ Ta ≤ +60°C)
Ex certification code: PO Ex ia I X

**Conditions of Use:**

Prior to installation, it is essential that user refers to the above certificate for any specific conditions of use. The user must ensure that the termination and cable parameters are fully complied with and are compatible with the application. Copies of certificates are available from Trolex.

ATEX
M1
**GROUP I & II INTRINSICALLY SAFE**

## 9 APPROVALS AND CERTIFICATION continued

### 9.4 South Africa

Ex certificate number: MASC MS/11-422X
Ex certification codes: EEx ia I (-20°C ≤ Ta ≤ +90°C)
EEx ia IIC T4 (-20°C ≤ Ta ≤ +90°C)

OR:

Ex certificate number: MASC M/11-421X
Ex certification codes: Ex ia I (-20°C ≤ Ta ≤ +60°C)

**General Conditions of Use:**

Prior to installation, it is essential that user refers to the above certificate to ensure that the termination and cable parameters are fully complied with and are compatible with the application. Copies of certificates are available from Trolex.

**Specific Conditions of Use pertaining to certificate MASC MS/11-422X:**

1. Some Transducers have an enclosure manufactured from Aluminium alloy. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered when the equipment is installed in locations that specifically require Group II, category 1G equipment.

2. In the case of the B-series pressure transducer and the S6420-Series level transducer, the circuit is not isolated from its enclosure and does not meet the 500 V insulation test; this shall be taken into account when it is installed.

**Specific Conditions of Use pertaining to certificate MASC MS/11-421X:**

1. When installing the apparatus, please note that the screen of the integral cable must be connected internally to the frame of the apparatus.

2. Also during installation, please note that Pin 4 of the optional plug-socket arrangement is connected internally to the frame of the apparatus.

3. When the absolute version is used, the electrical circuit is not capable of withstanding 500 V rms to earth or frame, and this must be taken into account when installing.

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