

TX6114 PRESSURE SENSOR/TRANSMITTER

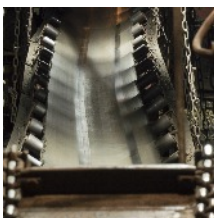
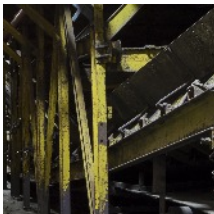


INSTALLATION & OPERATING DATA



ATEX
M1
GROUP I&II
INTRINSICALLY
SAFE

FOR USE IN
MINING
AIR COMPRESSORS
AIR CONDITIONING
AUTOMOTIVE
CHEMICAL PROCESSING
DATA LOGGING
FOOD PROCESSING
GAS FLOW
HANDLING MACHINERY
HYDRAULIC MACHINERY
HYDROSTATIC LEVEL
SENSING
LOAD MEASUREMENT
MEDICAL ENGINEERING
PAPER PROCESSING



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INSTALLATION & OPERATING DATA

1 APPLICATION

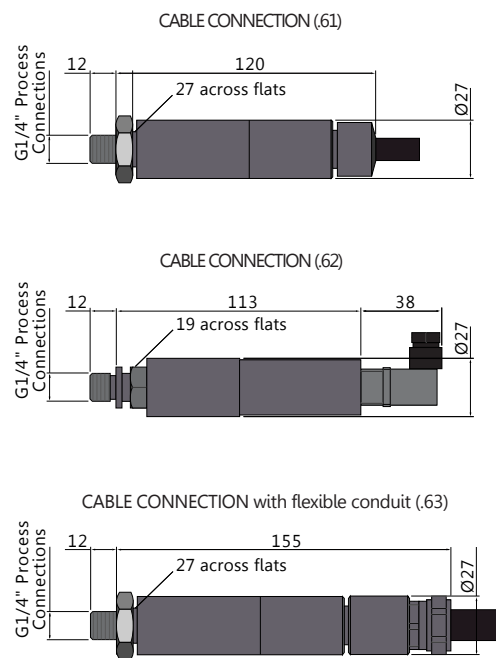
The sensing element of the TX6114 is a pressure capsule connected to an ASIC to provide a 2-wire, 4...20mA, pressure related output signal. Certified intrinsically safe for use in hazardous areas for both Group I and Group II applications.

- Petrochemical & Offshore
- Air Compressors,
- Food Processing,
- Paper Processing,
- Pneumatic Controls,
- Medical Engineering,
- Data Logging,
- Automotive,
- Mining
- Air Conditioning,
- Chemical Processing,
- Handling Machinery,
- Hydraulic Machinery,
- Hydrostatic Level Sensing,
- Gas Flow and Liquid Flow,
- Load Measurement.
- Pressure ranges from 0.5bar up to 400bar.
- Four arm active strain gauge bridge laser welded to a stainless steel diaphragm gives exceptional chemical and corrosion resistance.
- Weatherproof stainless steel housing.
- Versions with plug and socket connection, cable or flexible conduit to a specific length.
- Fully temperature compensated output signal.
- Versions available for Gauge and Absolute pressure measurement.
- Standard pressure connection G1/4" male (other pressure ports available to special order).



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2 DIMENSIONS

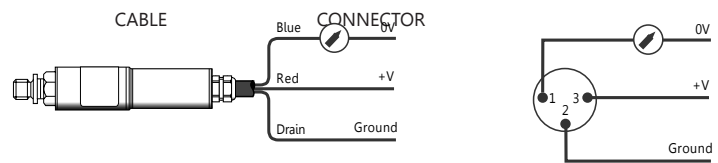


ALL DIMENSIONS IN MM

3 TECHNICAL DETAILS

| | TX6114.01 | TX6114.02 | TX6114.03 |
|---|--|----------------------|-----------------------------|
| Pressure Measuring Ranges | 0.25, 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 400, 600 bar | | |
| Supply Voltage | 7...14V dc | 7...28V dc | 7...35V dc |
| Output Signal | 4...20mA (2 wire loop powered) | | |
| Maximum Load Resistance | 1kN•@•28V•dc | | |
| Non-linearity, Hysteresis and Repeatability | <0.25% of span | | |
| Compensated Temp. Range | -20°C...+80°C | | |
| Operating Temp. Range | -40°C...+125°C | | |
| Thermal Zero Shift | <±1.5% over -20°C...+80°C | | |
| Thermal Span Shift | <±1.5% over -20°C...+80°C | | |
| Safe Over Range | 2 x range | | |
| Burst Pressure | 5 x range minimum | | |
| Long Term Stability | 0.1% per annum | | |
| Connections conduit. | Polyurethane cable sealed at the point of entry. DIN Connector or Flexible | | |
| Protection Classification | IP68 with Cable. | IP65 with Connector. | IP65 with Flexible Conduit. |
| Ex Certification | EEx ia I | EEx ia IIC T4 | ———— |

Connections



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4 PREPARATION



- Check that supply voltage is correct for the application and is from an approved supply.
- Check that the certification code is correct.
- Check that the pressure range is correct.
- Check that the mechanical fitting is correct

5 PRECAUTIONS

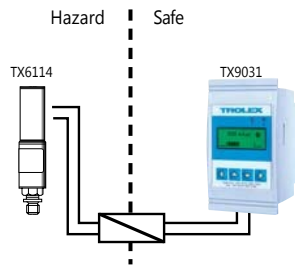
- Ensure pressure sensor range is compatible with the application.
- The sensor will tolerate normal levels of contamination and foreign particles present in the process medium. Where conditions are particularly aggressive the sensor should be protected with a U-bend or isolating seal.
- Ensure that the appropriately rated pressure couplings are used for the installation of the sensor.
- Where the sensor is used on high pressure systems, care should be taken to isolate and relieve the system pressure before installation or removal.
- Ensure that all couplings are fully tightened before applying pressure to the system.
- High pressure surges in excess of twice the rated operating pressure can cause permanent damage or de-calibration of the sensing element. Protect the sensor pressure inlet whenever maintenance work is being carried out on the system.
- Do not insert sharp objects or metallic objects into the pressure orifice. This may cause damage to the diaphragm.

6 USING THE SENSOR IN HAZARDOUS AREAS

6.1 Group II Hazardous Areas.

IMPORTANT

Ensure that the sensor is the
INTRINSICALLY SAFE VERSION GROUP II TX6114.02



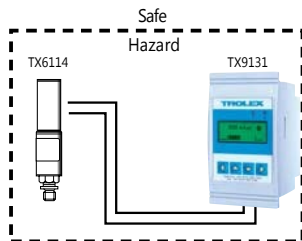
The output signal of the sensor is certified Intrinsically Safe for use in Group II hazardous areas, category 1, 2, and 3, when used in conjunction with a zener safety barrier or isolation safety barrier. Only the sensor may be mounted in the hazardous area and a safety barrier will be required.

Suggested Zener safety barrier MTL787s
Suggested safety isolator MTL5042

6.2 Group I Hazardous Areas (Mining).

IMPORTANT

Ensure that the sensor is the
INTRINSICALLY SAFE VERSION GROUP I TX6114.01



The output signal of the sensor is certified Intrinsically Safe for use in Group I hazardous areas (mining) when used with approved equipment (eg. TX9131 Trip Amplifier or a TX9042 Programmable Sensor Controller). The complete system, both sensor and monitoring device can be mounted in the hazardous area. Both the sensor and monitoring equipment

If additional information about Intrinsically Safe applications is required, please contact the Trolex Engineering Department.



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7 APPROVALS AND CERTIFICATION

7.1 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 Vrms 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.



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



7 APPROVALS AND CERTIFICATION *continued*

7.2 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.

7.3 Russia (GOST-R)



Ex certificate number: POCC GB.ME92.B02879 (-20°C ≤ Ta ≤ +60°C) - for TX6114
 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.



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7 APPROVALS AND CERTIFICATION *continued*

7.4 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 Vrms to earth or frame, and this must be taken into account when installing.



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