AX-LDPSTXL

Liquid Differential Pressure Switch with Transmitted output

Product Overview

The AX-LSPSTXL is an electronic pressure switch with a volt-free contact output for use in HVAC applications. The display allows the user to set the switching points with ease compared to mechanical pressure switches. The LCD displays the pressure on both ports as well as the differential. Since the settings are done electronically, much higher accuracy can be achieved at the switching point, with complete control over the hysteresis. An analogue output is also available for BMS controllers to continuously monitor the differential pressure.
Applications:

Monitoring and control of pumps in HVAC applications

Liquid flow detection

Products Features

- LCD readout for pressure on both sides and differential
- Adjustable switch ON and switch OFF points
- Analogue differential pressure output 4-20mA / 0-10V
- High accuracy pressure sensors
- IP-65 Enclosure for covered outdoor application
- Two part plug-in connectors for easy installation

Product Specifications

Power Supply:	24V AC/DC ±10%
	-230 Version: 85-265V AC
Relay Output:	Type: 1CO
	Contact Rating: 8A resistive at 250V AC/24V DC
Analog Output:	4-20mA (<600 Ohms) / 0-10V DC(>10K Ohms) (See order codes)
Accuracy:	±0.5% FS for Range1, ±1% FS for Range2, ±1.5% FS for Range3, ±2% FS for Range4
Display:	4 digit 9.5mm high character blue backlit LCD
Relay ON Point Adjustability:	0.1Bar to FS.(0.01Bar for 500mBar units)
Relay OFF Point Adjustability:	0 - Relay ON point
Terminals:	Rising clamp for 0.5-1.5mm². Two part pluggable connectors
Pressure connections:	G1/4" Male.
Medium temperature:	-20°C to +85°C
Wetted Parts:	SS 316L, NBR
Maximum Static Pressure:	1.5 times the selected pressure range.
Burst Pressure:	3 times the selected pressure range
Sensor cable length:	1 metre
Enclosure:	Flame retardant ABS, IP65, white with clear lid
Weight & Dimensions	TBD
Ambient Operating Conditions:	0˚C to 60˚C / 10 to 90%RH
Country of Origin	United Kingdom

Product Order codes

AX - LDPSTXL - ☐ ☐ - ☐

Pressure in bar
30, 25, 16, 10, 7, 6, 4, 1 or **05(0.5 bar)**

Transmitter output	
V	0-10 Vdc voltage output
I	4-20 mA current output

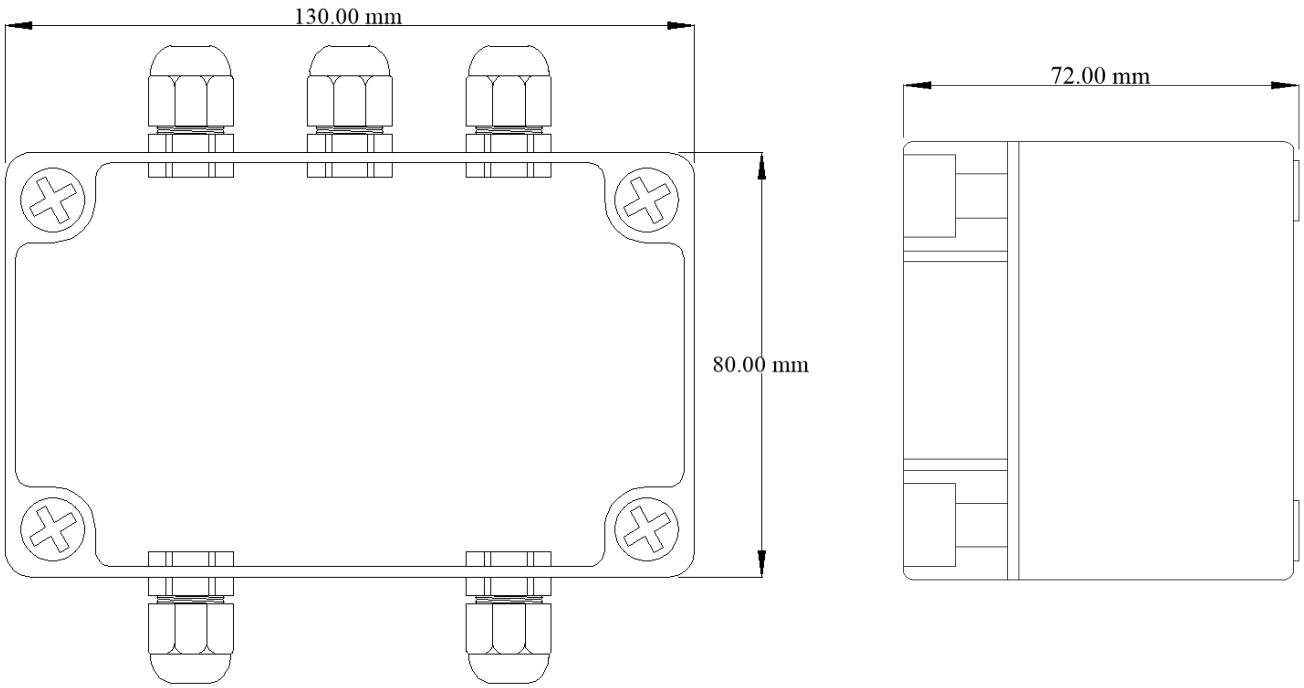
Power supply	
	24Vac/dc
230	230Vac

e.g. AX-LDPSTXL-16V for 16Bar differential pressure switch with 0-10V output, 24V AC/DC power supply

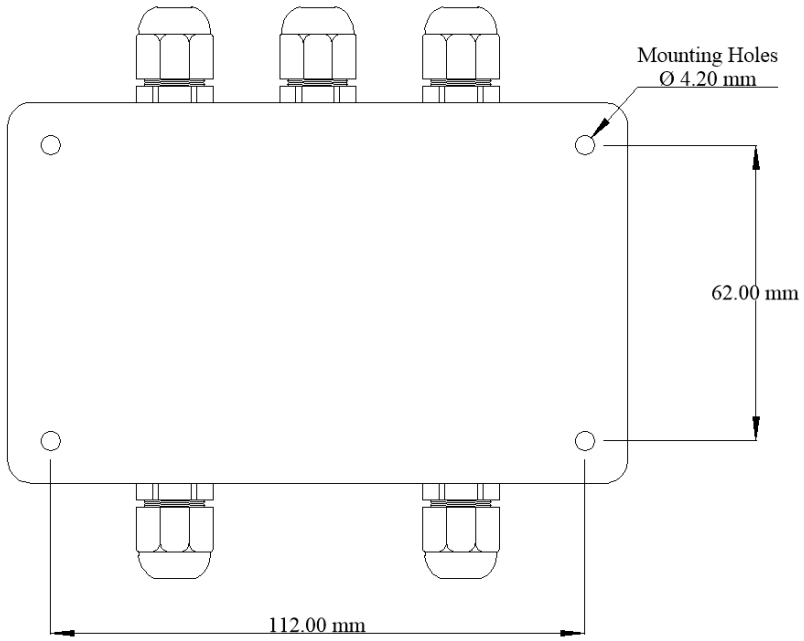
ANNICOM Ltd Unit 21, Highview, High Street, Bordon, Hampshire, GU35 0AX
Tel: +44 (0)1420 487788 Fax: +44(0)1420 477799 Website: www.annicom.com

Dimensions

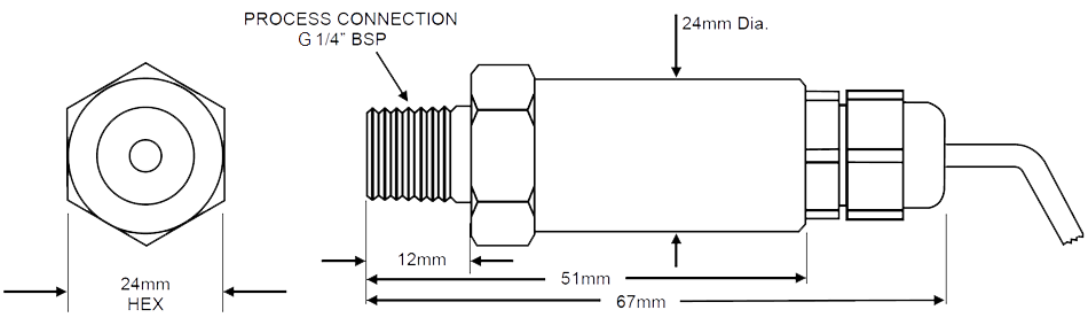
Enclosure



Mounting Holes



Pressure Sensors



Installation

The unit should be installed by a suitably qualified technician, following the guidelines for the equipment it will be connected to, as well as any applicable local regulations. Field wiring must be installed in accordance with the requirements specified by the manufacturer of the equipment to which the unit is connected.

Mounting the enclosure

Use the provided mounting holes to secure the unit to a flat surface. Do not drill additional holes in the enclosure, as this may compromise its ingress protection.
Mount the unit in a covered area to avoid direct sunlight, which can raise the unit temperature above the rated ambient temperature and affect measurement accuracy.

Fitting the pressure sensors.

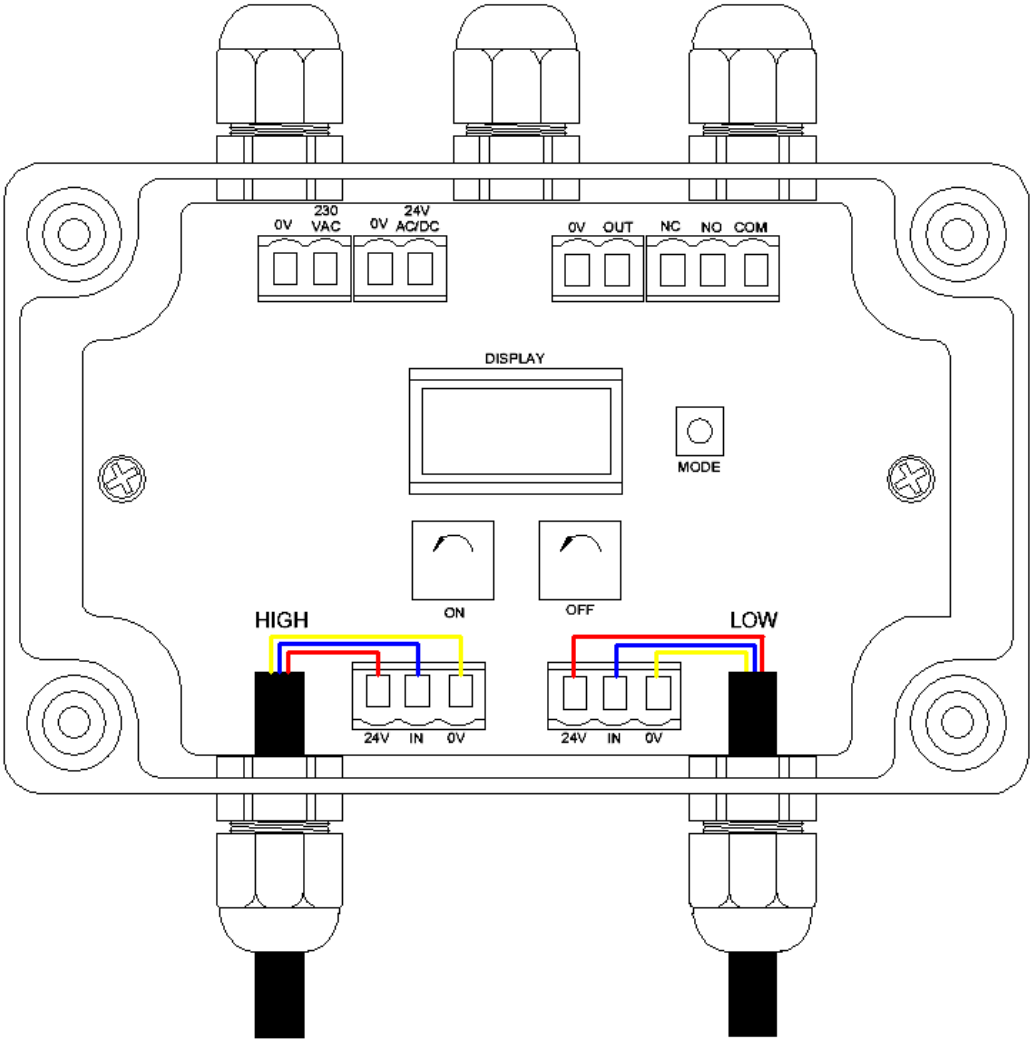
The pressure sensors feature a G1/4" (1/4" BSPP male) thread and can be fitted directly onto piping or via a copper extension tube. A hexagonal surface is cast into the body for turning the sensor with a spanner. Do not use gripping devices such as stilson wrenches or swan-neck pliers on the smooth cylindrical part of the body, as this may damage the sensor.
To reduce fluctuations caused by pressure pulsations in the measured line, use pressure snubbers as needed.

Connections

The pressure sensors should be connected to the main unit after they have been installed on the pipes. Each sensor comes with a 1-metre-long cable, with the wires stripped and tinned. Pass the cables through the cable glands and connect them to the terminal blocks. The wire colours should match the colour codes Red(R), Blue(B), Yellow(Y) on the printed circuit board.

Connect the power supply (24 V or 230 V, depending on the version) and the output wires as required by the application.

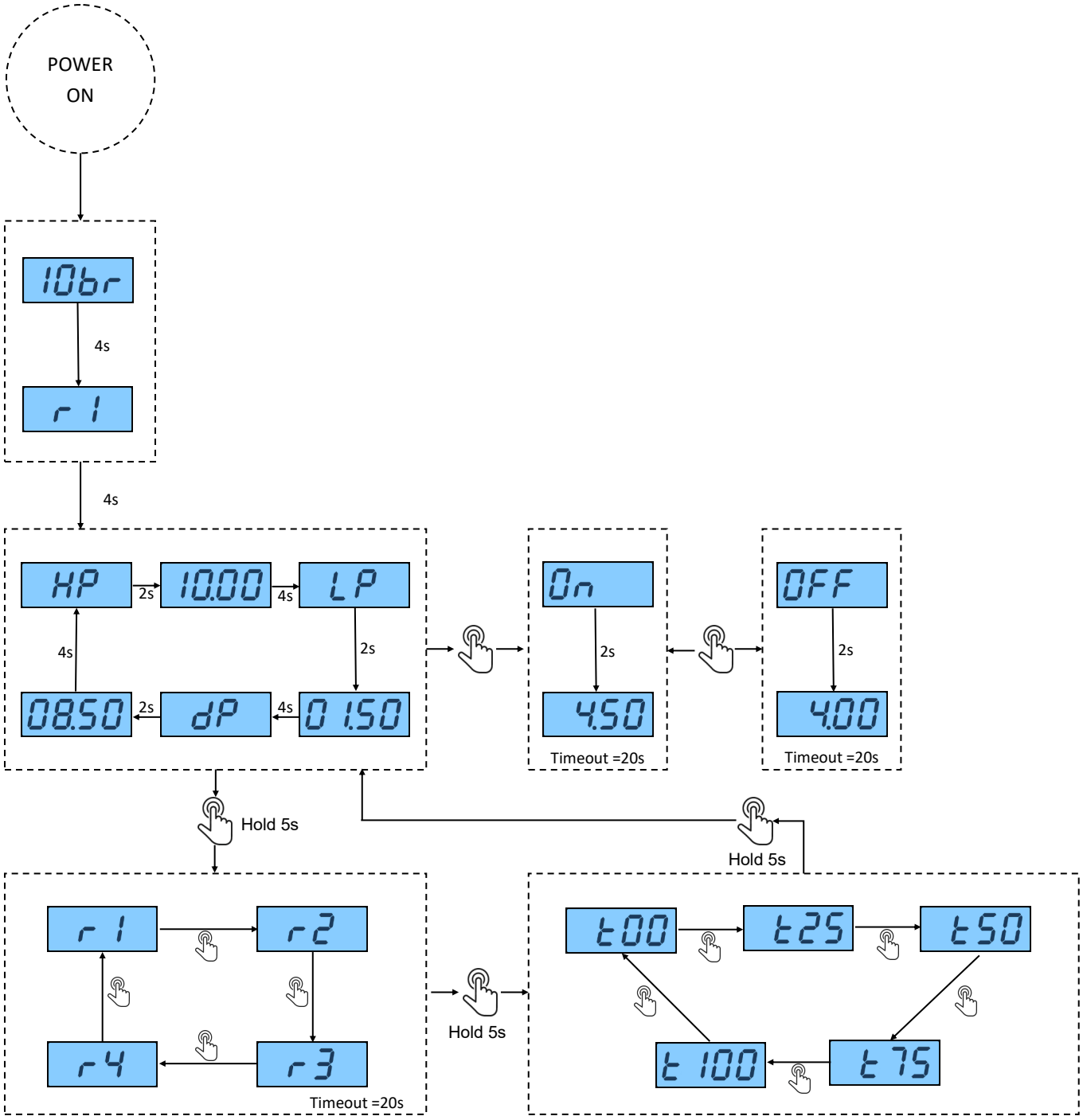
For analogue outputs, use shielded cable and connect the shield to earth at the control panel. Do not route signal cables alongside high-current power cables, as this can cause signal degradation.



Set Up

When the unit is powered on, the display will show the pressure range (in bar) for a few seconds and the selected range before switching to the normal screen. Ensure that this value matches the part number you have ordered. Do not press the button or adjust the preset until the display returns to the normal screen.

The sensor engraving should read AX-LSPTA-V-x, where x indicates the pressure range in bar.



During normal operation, the display will sequentially toggle between the pressure at the HIGH port, pressure at the LOW port, and the differential pressure. Press the push-button switch once to display the switch ON point on the LCD. Adjust the ON preset to set it to the desired pressure. Press the push-button switch again to display the switch OFF point on the LCD. Adjust the OFF preset to set it to the desired pressure. If the push-button is not pressed or the preset is not adjusted for 20 seconds, the display will automatically return to the normal operation screen.

Differential pressure transmitter output range selection

The display must be on the normal operation screen. Press and hold the push-button for 5 seconds. The display will show the selected range. Four ranges are available r1 through r4. Note that the output accuracy will vary depending on the selected range.

Part No	Differential Pressure Output			
	r4	r3	r2	r1
AX-LDPSTXL-05	0-500 mBar	0-400 mBar	0-250 mBar	0-125 mBar
AX-LDPSTXL-1	0-1000 mBar	0-750 mBar	0-500 mBar	0-250 mBar
AX-LDPSTXL-4	0-4 Bar	0-3 Bar	0-2 Bar	0-1 Bar
AX-LDPSTXL-6	0-6 Bar	0-4.5 Bar	0-3 Bar	0-1.5 Bar
AX-LDPSTXL-7	0-7 Bar	0-5 Bar	0-3.5 Bar	0-2 Bar
AX-LDPSTXL-10	0-10 Bar	0-7.5 Bar	0-5 Bar	0-2.5 Bar
AX-LDPSTXL-16	0-16 Bar	0-12 Bar	0-8 Bar	0-4 Bar
AX-LDPSTXL-25	0-25 Bar	0-18 Bar	0-12 Bar	0-6 Bar
AX-LDPSTXL-30	0-30 Bar	0-22.5 Bar	0-15 Bar	0-7.5 Bar

Test Output

Use test mode to verify the unit and the output wiring. In test mode, the relay is turned ON, and the transmitted output takes the following values:

t00 : 0.0V/4.0mA

t25 : 2.5V/8.0mA

t50 : 5.0V/12.0mA

t75 : 7.5V/16.0mA

t100 : 10.0V/20.0mA

Press and hold the push button switch for 5 seconds to return to main screen.

Installation and Operation

The purpose of this document is to provide information on installing, setting up and troubleshooting AX-LDPSTXL liquid differential pressure switch with transmitted output. The unit comes with two pressure sensors with 1 metre cables and a wall mounting unit with LCD display for readout and configuration. The details of the variants of the module and sensors are provided in the relevant datasheets. Please download the latest datasheets from our website www.annicom.com. This manual is applicable for all variants of AX-LDPSTXL

1.0 General

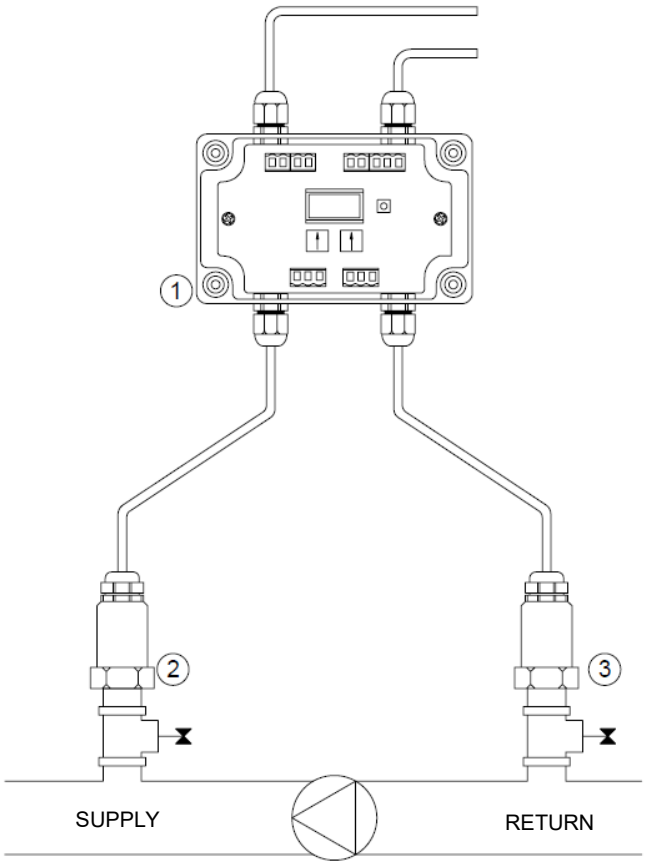
Read this manual carefully before installing and commissioning the leak detection module and sensors. It is imperative that the installation be carried out by qualified personnel familiar with relevant standards and safety procedures. Failure to comply may result in personal injury or equipment damage.

> ⚠ ***Do NOT use the product in explosive or hazardous environments, with combustible or flammable gases, or in safety critical systems where the failure of the product could result in loss of life, significant property damage, or damage to the environment.***

Prior to installation, ensure that all power sources are disconnected, locked out, and remain locked out during installation and setup. Follow electrostatic discharge (ESD) precautions during installation .

2.0 System Overview

The AX-LDPSTXL is a liquid differential pressure switch and transmitter engineered for applications requiring accurate monitoring and reliable control of pressure-dependent processes. It incorporates two stainless-steel pressure sensors to measure the high- and low-side pressures independently, with all values - including the calculated differential - displayed on a backlit LCD . Electronic configuration of switching thresholds and hysteresis ensures stable, repeatable operation, making the device suitable for pump protection, liquid flow verification, and general HVAC or process-system supervision. An integrated analogue output, selectable as 0–10V or 4–20mA, provides continuous differential-pressure feedback for BMS or PLC integration, while four selectable transmitter ranges (r1–r4) allow the measurement span to be matched to system requirements.



The product line includes multiple factory-scaled models covering differential-pressure capabilities from 0.5 bar and 1 bar through 4, 6, 7, 10, 16, 25, and 30 bar, enabling precise alignment with the hydraulic characteristics of a wide range of installations. Power supply flexibility further supports varied deployment environments: a 24V AC/DC version is suited to control-panel applications, while a 230V AC (85–265V AC) variant allows direct mains operation without auxiliary transformers. Installation is facilitated by G1/4" BSPP sensor connections, pre-terminated cables, and an IP65-rated enclosure with integrated mounting points. A dedicated test mode provides fixed analogue output values and forces the relay ON, supporting commissioning and verification procedures.

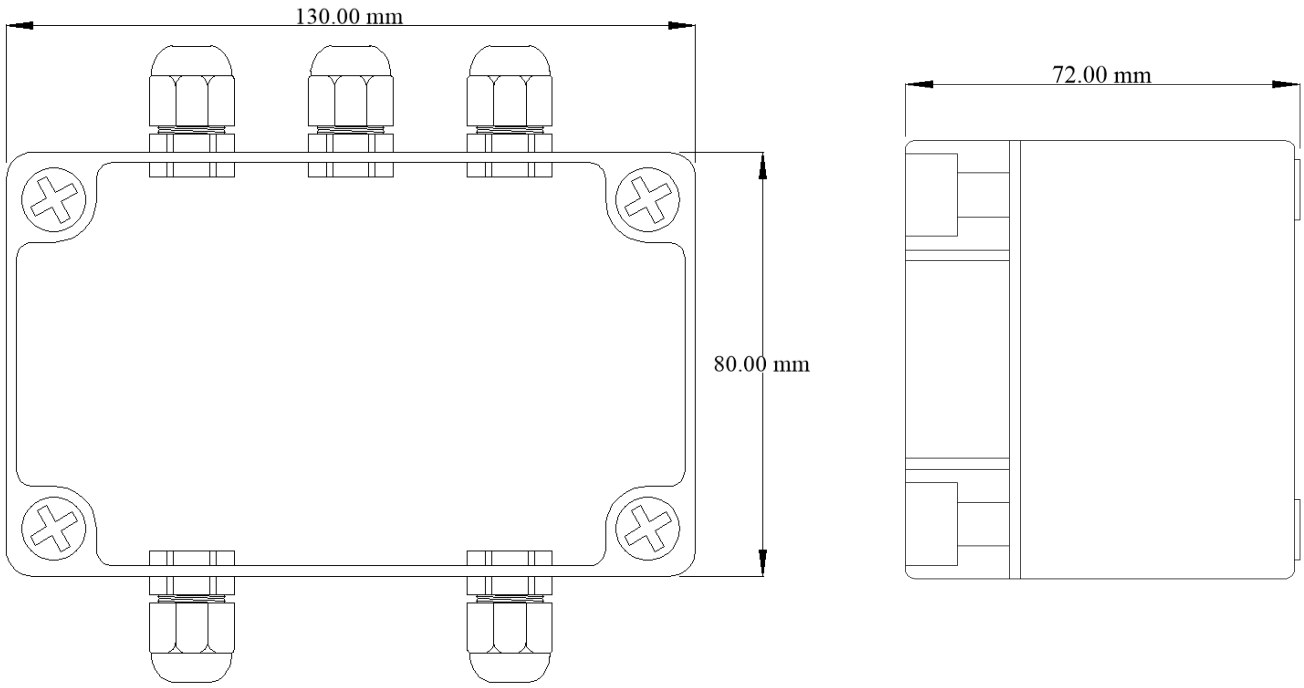
① Electronics module - IP65 rated enclosure

② High pressure sensor

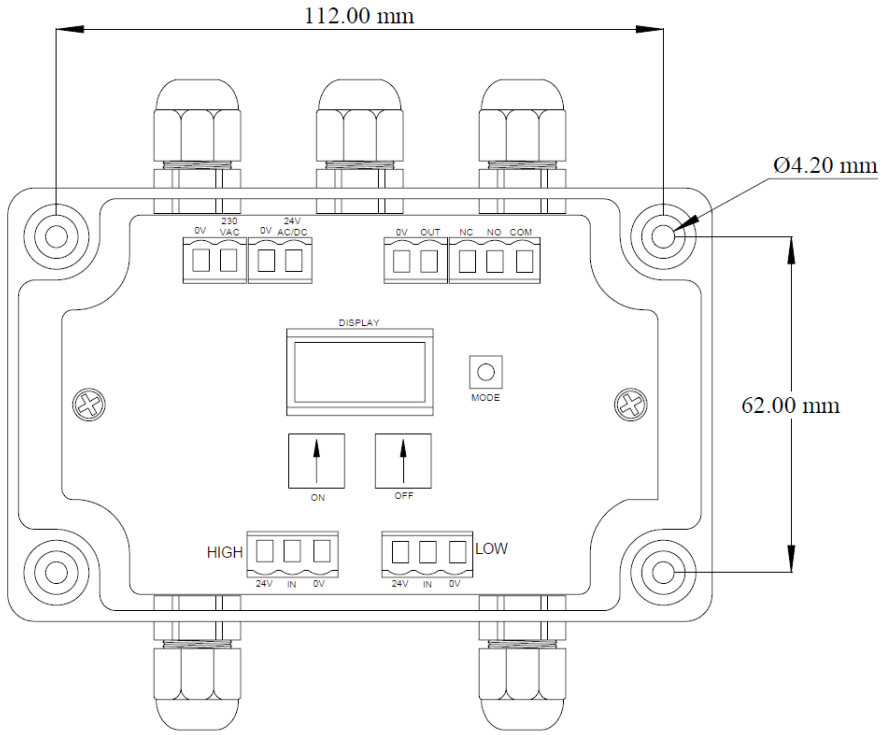
③ Low pressure sensor

3.0 Electronics Module

3.1 Enclosure Dimensions



3.2 Mounting

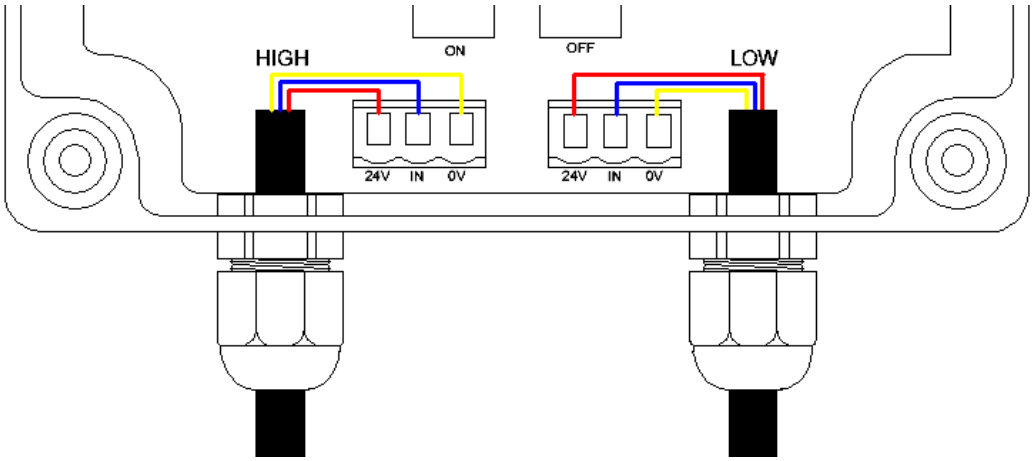


x4 Use No 6 Screws for mounting

Use the provided mounting holes to secure the unit to a flat surface. Do not drill additional holes in the enclosure, as this may compromise its ingress protection.
Mount the unit in a covered area to avoid direct sunlight, which can raise the unit temperature above the rated ambient temperature and affect measurement accuracy.

3.3 Wiring

3.3.1 Sensors

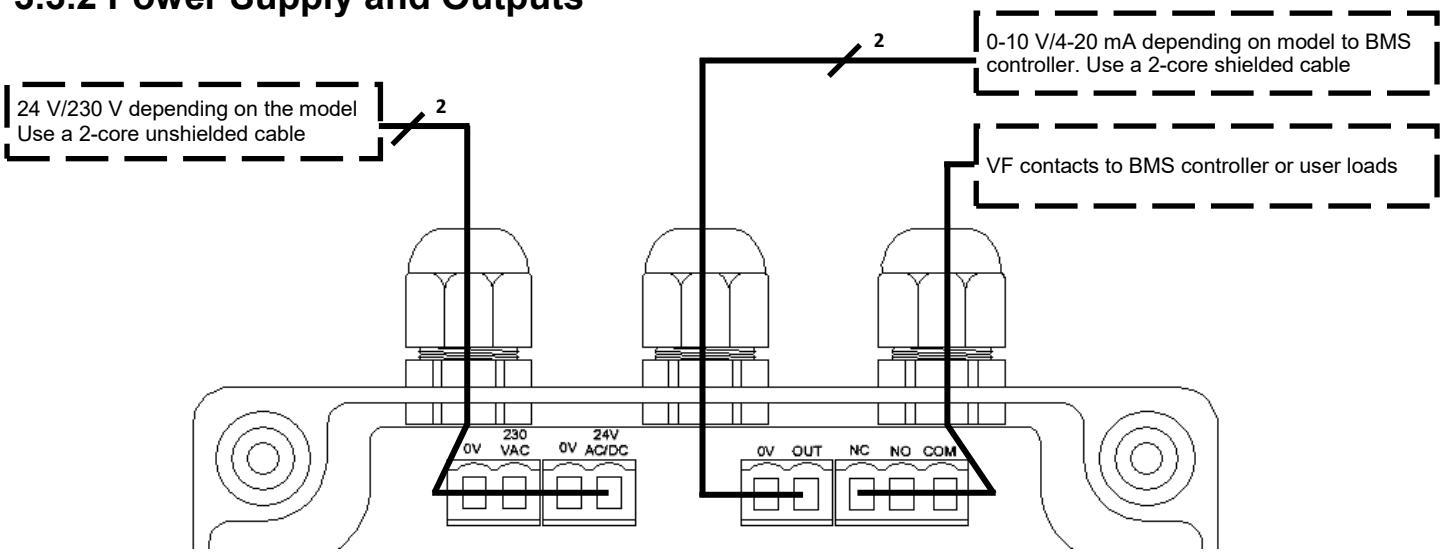


Connect the high-pressure sensor to the terminal block labelled HIGH. The sensor leads are colour-coded and must be terminated as follows: Red → 24 V, Blue → IN, and Yellow → 0 V. Correct polarity and terminal assignment are essential to ensure accurate measurement and stable operation.

Extending sensor cables

The sensor cables may be extended up to 10m when required. When extending, the breather tube must be protected from moisture, dust, and debris to prevent measurement drift or sensor damage. Cable joints should be made inside an IP65-rated junction box to maintain environmental protection and ensure long-term reliability.

3.3.2 Power Supply and Outputs



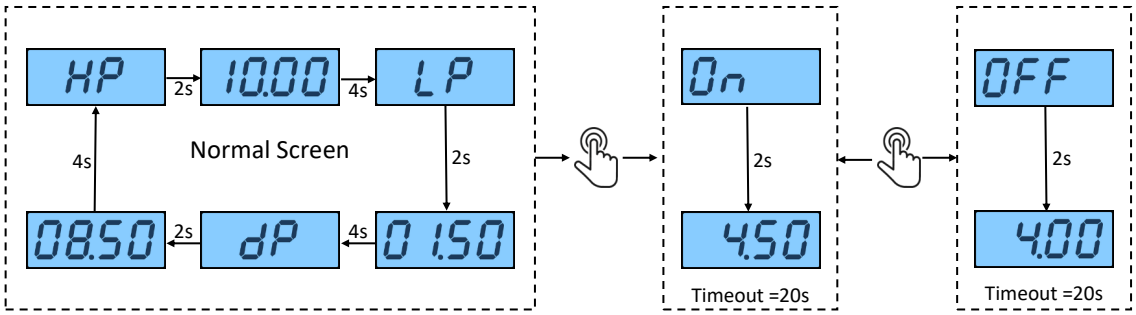
For applications where the analogue signal must be routed over longer distances, the 4–20mA output version is recommended. Current-loop transmission maintains signal integrity over extended cable lengths and provides improved immunity to electrical interference.

Use shielded signal cables for all analogue output wiring. The cable shield must be connected to earth at one end only, preferably at the control-panel side, to minimise ground-loop effects and ensure stable measurement performance.

Note: The cable glands must be fully tightened after wiring to maintain the enclosure's IP65 ingress-protection rating. Any loose or improperly tightened gland may allow moisture or dust to enter the enclosure, potentially affecting measurement accuracy or damaging internal electronics.

3.4 Configuration

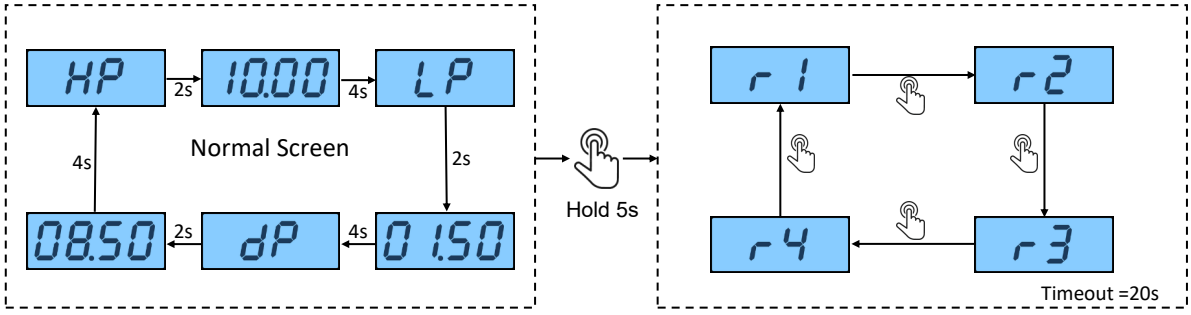
3.4.1 Relay Output



From the normal operating screen, press the push-button once. The LCD will display the **Relay ON** pressure. Adjust the **ON** potentiometer until the required differential-pressure switching point is reached. Press the push-button again to display the **Relay OFF** pressure, then adjust the **OFF** potentiometer to the desired value.

After the **ON** and **OFF** pressures have been set, do not operate the push-button or the potentiometers. If no adjustments are made for approximately 20 seconds, the display will automatically return to the normal operating screen.

3.4.2 Transmitter Output Scaling.

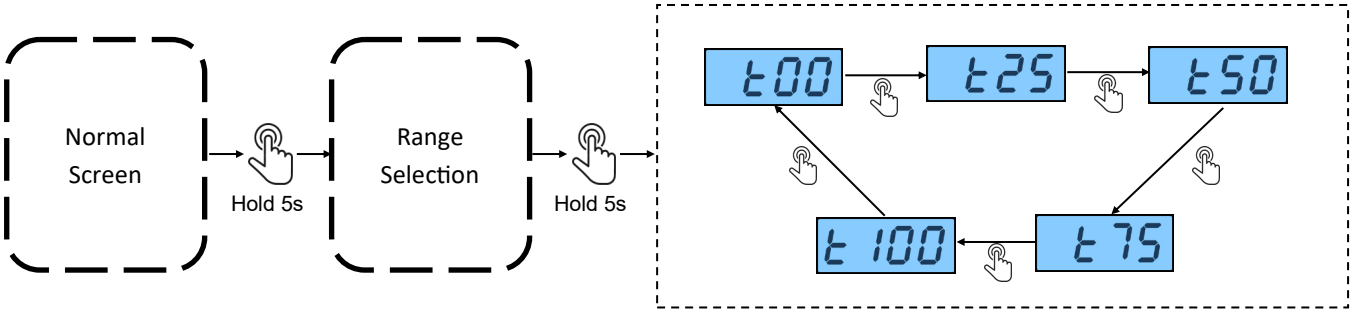


From the normal operating screen, press and hold the push-button for 5 seconds. The display will show the currently selected output range. Press the push-button briefly to cycle through the available ranges in sequence. When the required range has been selected, make no further inputs; after approximately 20 seconds the selection will be stored automatically and the display will return to the normal operating screen.

The available transmitter output ranges for each part number are listed in the table below.

Part No	Differential Pressure Output			
	r4	r3	r2	r1
AX-LDPSTXL-05	0-500mbar	0-400mbar	0-250mbar	0-125
AX-LDPSTXL-1	0-1000mbar	0-750mbar	0-500mbar	0-250mbar
AX-LDPSTXL-4	0-4bar	0-3bar	0-2bar	0-1bar
AX-LDPSTXL-6	0-6bar	0-4.5bar	0-3bar	0-1.5bar
AX-LDPSTXL-7	0-7bar	0-5bar	0-3.5bar	0-2bar
AX-LDPSTXL-10	0-10bar	0-7.5bar	0-5bar	0-2.5bar
AX-LDPSTXL-16	0-16bar	0-12bar	0-8bar	0-4bar
AX-LDPSTXL-25	0-25bar	0-18bar	0-12bar	0-6bar
AX-LDPSTXL-30	0-30bar	0-22.5bar	0-15bar	0-7.5bar

3.5 Testing



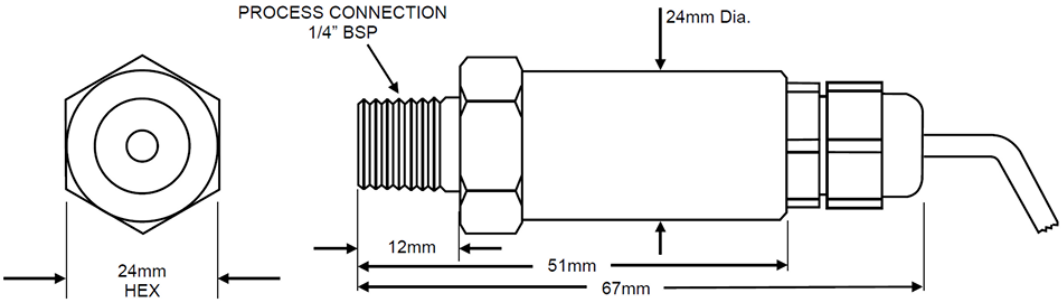
Press and hold the push-button switch while the display is on the range-selection screen to enter Test Mode. In Test Mode, the relay is forced ON, and the analogue output is driven to fixed, predefined values to allow verification of wiring, BMS/PLC input scaling, and general system functionality.

The transmitted output will cycle through the following test points:

Test Code	Output (Voltage Models)	Output (Current Models)
t00	0.0V	4.0mA
t25	2.5V	8.0mA
t50	5.0V	12.0mA
t75	7.5V	16.0mA
t100	10.0V	20.0mA

4.0 Pressure Sensors

4.1 Dimensions

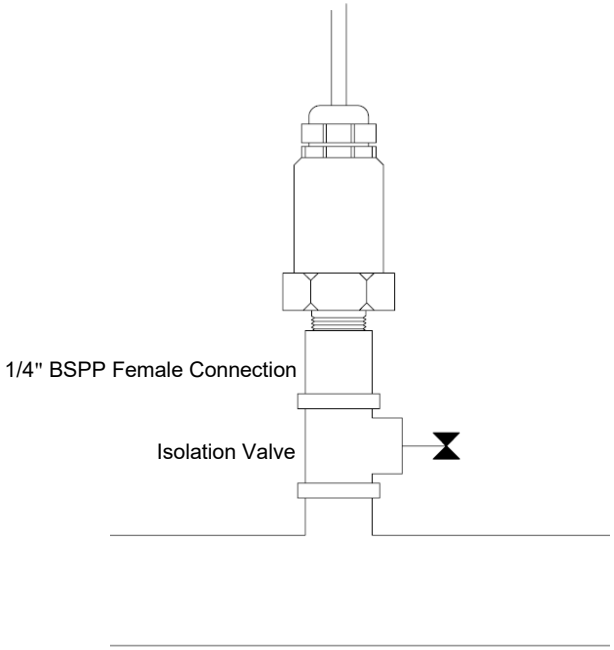


4.2 Mounting

The pressure sensors are supplied with a G1/4" (¼" BSPP male) process connection and may be installed directly onto the pipework or mounted via a suitable copper extension tube. A hexagonal spanner surface is provided on the sensor body for tightening; only this surface should be used. Gripping tools such as stilson wrenches or swan-neck pliers must not be applied to the smooth cylindrical section, as this may deform the housing and impair sensor performance.

To facilitate commissioning and future maintenance, it is recommended that each sensor be installed through an isolating valve. This allows the sensor to be removed or serviced without depressurising the entire system.

Where the measured line is subject to pulsations or rapid pressure fluctuations, pressure snubbers should be fitted. These devices help stabilise the pressure presented to the sensor, improving measurement stability and extending sensor life.



4.3 Wiring

For detailed wiring guidance, see Section 3.3.1, which describes the correct method for connecting the pressure sensors to the electronics module.

4.4 Medium Compatibility

Suitable for use with any non-aggressive gas or liquid compatible with SS316 and nitrile butadiene rubber (NBR).

5.0 Maintenance and Troubleshooting

5.1 Maintenance

Although the unit does not require scheduled servicing, it is recommended that the plumbing connections and electrical wiring be inspected periodically to ensure uninterrupted and reliable operation.

5.2 Troubleshooting

Issue	Action
Unit not powering on	- Verify correct wiring for 24V or 230V models. - Check supply voltage with a multimeter. - Inspect terminal blocks for loose or damaged wires.
Incorrect or unstable pressure readings	- Check that the HIGH and LOW sensors are not interchanged - Inspect breather tube for blockage (if exposed) - Check whether the shield is connected to Earth. - Check whether the isolating valve (if fitted) is open - Enter range selection mode (hold push-button 5 seconds) and confirm r1–r4 matches the application. - Ensure load is <600 Ω for 4–20mA or >10kΩ for 0–10V - Verify shield is grounded at one end only, as recommended.
Differential pressure is zero	- HIGH and LOW ports are interchanged - Check the power supply.
Moisture inside the electronics module	- Tighten all cable glands - Move enclosure to a shaded area.