Parker Hannifin Canada
Micro Thermo Technologies ™
12855 rue Brault
Mirabel, QC J7J 0C4 Canada
Office phone 450-668-3033

023-0594 Differential pressure Transmitter specification & installation guide

Precision control/sensing

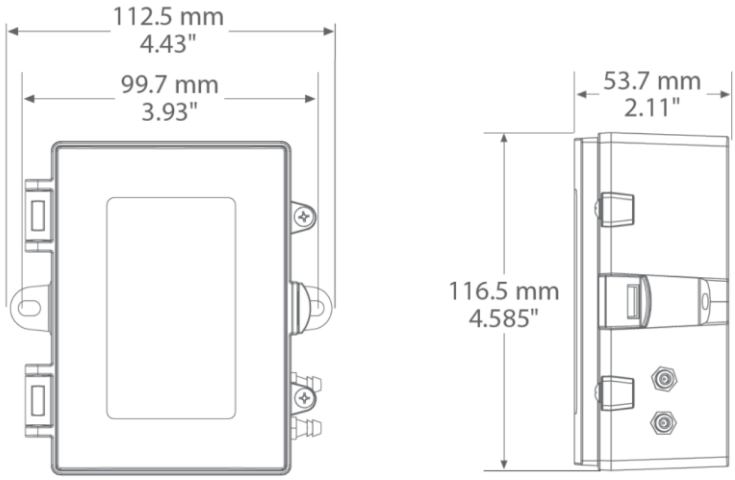
FEATURES:

- 6 User Selectable Pressure Ranges
- Automatic Calibration Logic Program
- Easy field adjustment
- LCD Display and analog out
- On-board Relay and menu driven set-up
- Solid-state reliability
- Small compact size
- Solid, reliable mounting method

DESCRIPTION:

The Low Pressure Transducer can be used to measure positive, negative or differential pressure in the ranges of 1”wc to 4”wc. The highly accurate piezoresistive sensor is ideal for monitoring pressure of non-corrosive, non-ionic working fluids such as clean dry air or other inert gases. It features field selectable pressure ranges and output signal types for the most flexible application. Typical HVAC applications include monitoring of filter differential pressure or clean room pressure. The output signal is factory calibrated and temperature compensated for highest startup accuracy and trouble-free operation.

Mechanical Information



ORDERING INFO:

Order P/N 023-0594
By fax to 1-844-867-4795
Or email to MTorder@Parker.com

RoHS COMPLIANT MADE IN CANADA

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SPECIFICATIONS:

Pressure Ranges	±4", ±2", ±1", 0-4", 0-2", 0-1" WC (switch selectable)
Accuracy	±1% F.S. of selected range (minimum range is ±1.5 %F.S.) @ 22°C (72°F) including hysteresis, non-linearity and repeatability
Measurement Type	Differential (two port), Static, Velocity, & Total Pressure
Response Time	250 ms
Stability	<±0.5% F.S./year typical
Thermal Effects	<±3% over compensated range
Compensated Range	0 to 50°C (32 to 122°F)
Proof Pressure	40" W.C. (100" for 10", 20" & 40" models)
Burst Pressure	60" W.C. (200" for 10", 20" & 40" models)
Operating Conditions	0 to 50°C (32 to 122°F), 5 to 95 %RH, non-condensing
Power Supply	20-28 Vac/dc (non-isolated half-wave rectified)
Supply Current	<4 mA for voltage output, 20 mA max for current output
Input Voltage Effect	Negligible over specified operating range
Protection Circuitry	Reverse voltage protected and output limited
Output Signal	4-20 mA (2-wire), 0-5 or 0-10 Vdc (3-wire), field selectable
Output Drive @ 24 Vdc	Current: 400Ω max Voltage: 10KΩ min
Zero Adjustments	Push-button auto-zero
Wiring Connections	Screw terminal block (14 to 22 AWG)
Pressure Connection	6.35 mm (0.25”) Nylon barb fitting for 3.175 mm (0.125”) to 4.762 mm (0.1875”) ID tubing
Conduit Connection	1/2" NPT conduit or cable gland
Display	3"1/2 digit LCD, 0.4" digit height
Enclosure	Polycarbonate UL94-V0, IP65 (NEMA 4X)

BEFORE INSTALLATION

Read these installation instructions carefully before commissioning the Pressure Transducer. Failure to follow these instructions may result in product damage. Do not use in an explosive or hazardous environment, with combustible or flammable gases, as safety or emergency stop devices or in any other application where failure of the product could result in personal injury. **Use electrostatic discharge precautions during installation and do not exceed the device ratings.**

MOUNTING

The transducer mounts on a vertical surface using the two integrated mounting holes. Ensure there is enough space around the unit to connect the pressure tubing without kinking and avoid locations with severe vibrations or excessive moisture. The two mounting holes will facilitate a #10 size screw (not supplied). See Figure 1. Ensure there is enough space around the unit to make the electrical connections and that it is within an acceptable distance for the length of remote sensor cable.

The enclosure has a hinged cover with a latch. Open the cover by pulling slightly on the latch on the bottom of the enclosure and at the same time pulling on the cover, as illustrated in Figure 2.

A 1/2" NPT threaded connection hole is provided on the bottom side of the enclosure. Screw the EMT connector or cable gland connector (not included) in until tight. See Figure 3. It is recommended that weatherproof conduit or cable gland fittings to be used. See 1/2" NPT to M16 thread adapter and cable gland fitting on Figure 3.

Make wiring connections as per the “Wiring” illustrations on Page 4.

Swing door closed until securely latched. For added security, 2 screws are provided that may be installed in the integrated screw tabs. See Figure 4.

Figure 1

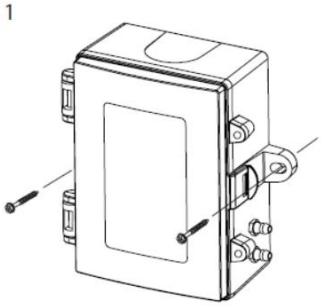


Figure 2

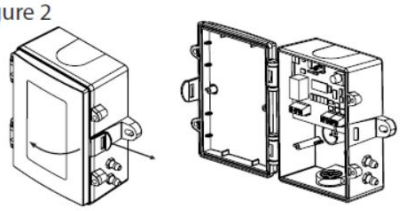


Figure 3

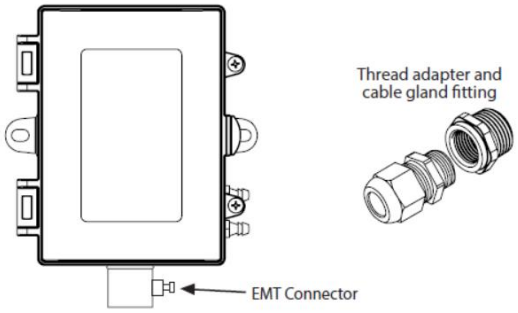
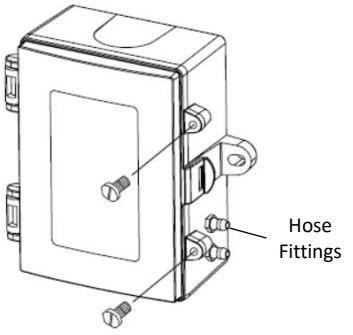


Figure 4



Use 0.187” ID LLDPE tubing to connect pitot to hose fittings

WIRING

Disconnect the power supply before making any connections to prevent electrical shock or equipment damage. Make all connections in accordance with national and local electrical codes. The transmitter has a screw block connector. It is recommended that shielded twisted pair wiring at least 22 AWG be used for all connections and that the device wires not be run in the same conduit with wiring used to supply inductive loads such as motors.

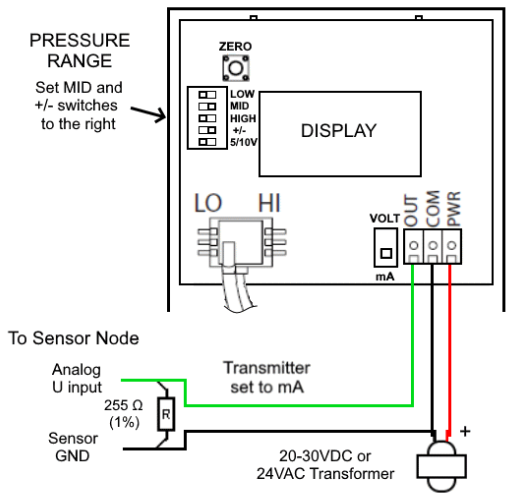
The device power (24 Vac/dc) is connected to the terminal marked PWR. This terminal is used for the positive dc voltage or the hot side of the ac voltage. The device is reverse voltage protected and as such will not operate if connected backwards.

For voltage output signal types (3-wire) or for AC power supply operation (3-wire), the common of the power supply is connected to the terminal marked COM. Note that this device has a half-wave type power supply which means the power supply common is the same as the output signal common. Therefore, several devices may be connected to one power supply and the output signals all share the same signal common. Use caution when grounding the secondary of an ac transformer or when wiring multiple devices to ensure that the circuit ground point is the same on all devices and the controller. This terminal is not used for loop-powered 4-20 mA output type (2-wire).

The analog output signal is available on the OUT terminal. This signal is switch selectable for either a voltage output or a standard loop-powered 4-20 mA output signal type. When voltage mode is selected, either 0-5 Vdc or 0-10 Vdc can also be selected. The analog output signal is transmitting the differential pressure value accordingly to the range selected.

To use the 4-20 mA output signal you need a 255 ohms (1% 1/4W) resistor between the “GND” and “U” inputs of the controller.

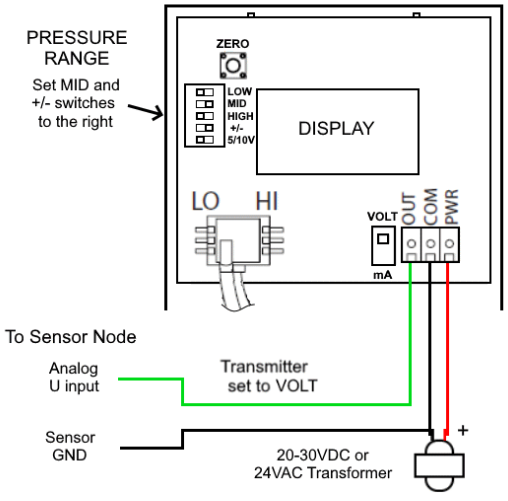
Left side 4-20mA wiring



Notes:
Use dedicated 24VAC transformer
DO NOT USE the same transformer used to power the Sensor Node

Put the resistor R at the Sensor Node input, not at the transmitter output

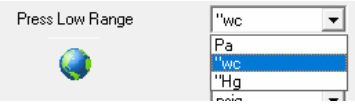
Right side 0-5V or 0-10V wiring



Notes:
Use dedicated 24VAC transformer
DO NOT USE the same transformer used to power the Sensor Node

Addition of 023-0594 ±2 ”wc 4-20mA sensor model to MTA version older than V8.7.X

Change Press Low Range unit to “wc



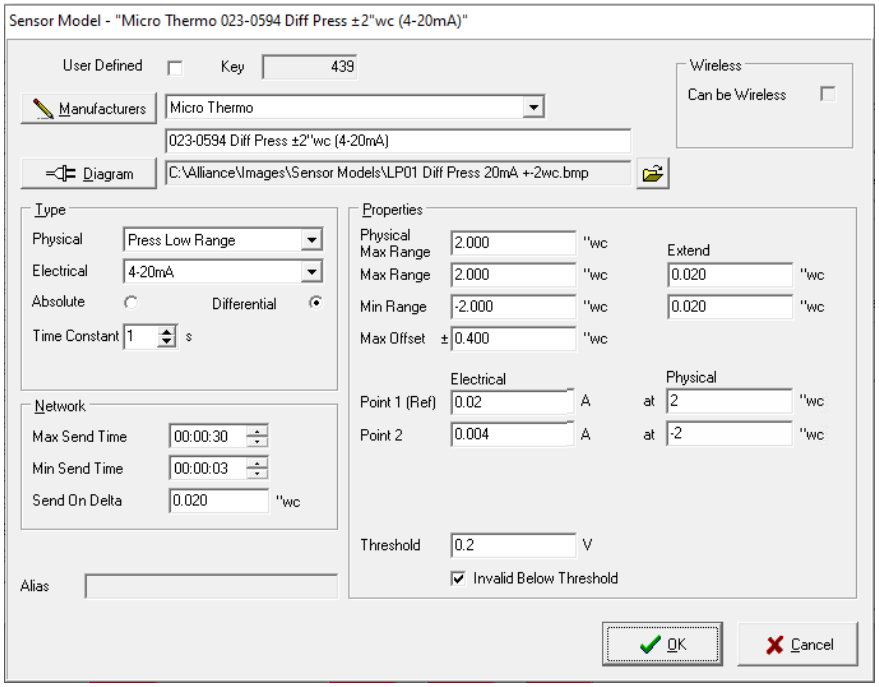
Then from the menu open Configure - Sensor models

And click + Add and fill the form as follow

- Manufacturer: **Micro Thermo**
- Diagram: **LP01 Diff Press 20mA +-2wc.bmp**
- Physical type: **Press Low Range**
- Electrical type: **4-20mA**
- Choose Differential
- Time Constant: **1** s
- Max send time: **30 s**
- Min send time: **3** s
- Send on delta: **0.020 “wc**
- Max Range: **2.000 “wc**
- Min Range: **-2.000 “wc**
- Max Offset: **±0.020**
- Point 1: **0.02**A at **2.000 “wc**
- Point 2: **0.004**A at **-2.000 “wc**

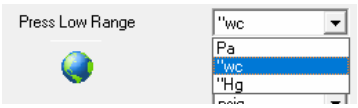
You may not be able to change the key number but it is ok

Example in MTA V8.6.0



Addition of 023-0594 ±2 ”wc 0-5V sensor model to MTA version older than V8.7.X

Change Press Low Range unit to “wc



Then from the menu open Configure - Sensor models

And click + Add and fill the form as follow

- Manufacturer: **Micro Thermo**
- Description:
- Diagram: **LP01 Diff Press 5V +-2wc.bmp**
- Physical type: **Press Low Range**
- Electrical type: **0-5V**
- Choose Differential
- Time Constant: **1** s
- Max send time: **30 s**
- Min send time: **3** s
- Send on delta: **0.020 “wc**
- Max Range: **2.000 “wc**
- Min Range: **-2.000 “wc**
- Max Offset: **±0.020**
- Point 1: **0.02**A at **2.000 “wc**
- Point 2: **0.004**A at **-2.000 “wc**

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Example in MTA V8.6.0