



Miniature Low Pressure Transmitter

#NSA-HH/MLP2-001-W-U-A-A-0P-C, NSA-HH/MLP2-002-W-U-A-A-0P-C, NSA-HH/MLP2-003-W-U-A-A-0P-C

Installation and Operation

NSA-HH/MLP2-004-W-U-A-A-0P-C, NSA-HH/MLP2-005-W-U-A-A-0P-C, NSA-HH/MLP2-010-W-U-A-A-0P-C

NSA-HH/MLP2-2D5-W-U-A-A-0P-C, NSA-HH/MLP2-D10-W-U-A-A-0P-C, NSA-HH/MLP2-D25-W-U-A-A-0P-C, NSA-HH/MLP2-D50-W-U-A-A-0P-C – 11/14/2019

Overview

The Miniature Low Pressure Transmitter (MLP2) Series Low Differential Pressure transmitters are designed for use in OEM or high density panel mounting applications. Key installation features include an integral 35 mm Din rail mounting foot, vertically orientated wiring and pressure connections, and a pushbutton zero function conveniently located on the front cover. The MLP2 incorporates a high accuracy, piezoresistive, silicon sensing element which senses differential pressure and provides a linear 4 to 20 mA or DC voltage output equal to the specified pressure range. This technology reduces warmup shift while also reducing the effect of package stress for increased long term stability. In addition, the unit contains a de-pluggable terminal block that can be removed for ease of installation. This unit must be ordered with a single uni or bi-directional pressure range and output signal from +/- 0.1" of water column to a maximum pressure of +/- 40" of water column depending on your application. All MLP2 Series pressure transmitters are calibrated using NIST Certified equipment. Optional 3 or 5 point NIST Certificates are available and must be specified when placing your order.



Applications: Building and Duct Static Pressure, Filter Monitoring, Air Flow Measurement, Process Control, Roof Top Units, Air Handlers, Clean Rooms, Isolation Rooms, Data Centers

Part Numbers

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Specifications

Supply Voltage (VDC):	0-5 VDC Output: +12-36 VDC 0-10 VDC Output: +16-36 VDC 4-20 mA Output: +16-36 VDC (250 Ohm Load) +21-36 VDC (500 Ohm Load)
Supply Voltage (VAC):	24 VAC +/- 10%, 50/60 Hz
Supply Current mA (Power Consumption):	4-20 mA Output: 23 mA minimum (0.83 VA) VDC Output Signals: 5 mA maximum (0.18 VA)
Output Signals:	4-20 mA: 2-wire Loop Powered (output limited to 20.5 mA maximum) 4-20 mA: 3-Wire, VAC Powered (output limited to 20.5 mA maximum) 0-5 VDC or 0-10 VDC: 3-Wire, VAC or VDC Powered (output limited to 5.25 & 10.25 VDC)
Pressure Ranges:	D10 = 0.10 D25 = 0.25 D50 = 0.50 001 = 1.00 002 = 2.00 2D5 = 2.50 003 = 3.00 004 = 4.00 005 = 5.00 010 = 10.00
Accuracy ¹ :	+/- 0.5% FSO (Default) +/- 0.25% (Optional) for all ranges except 0.1" and +/- 0.1" wc
Sensor Compensated Temp Range:	32 to 122°F (0 to 50°C)
Thermal Effects ² :	+/- 0.056% FSO/°F (+/- 0.10% FSO/°C)
Warm Up Time:	15 Minutes
Response Time (T95):	4 seconds
Output Update Rate:	500 ms
Zero Function:	Pushbutton Zero Function (Recommended after 15 minutes warm up)
Proof Pressure Burst Pressure:	Ranges < 1" wc (248.84 pa): Proof: 270" wc (67.2 kPa) Burst: 415" wc (103.3 kPa) Ranges > 1" wc (0.2488 kPa) to < 10" wc (2.488 kPa): Proof: 350" wc (87.12 kPa) Burst: 550" wc (136.9 kPa) Ranges > 10" wc (2.488 kPa) to < 40" wc (9953.6 kPa): Proof: 562" wc (140 kPa) Burst: 1004.7" wc (250 kPa)
Operating Temperature Humidity:	32 to 185°F (0 to 85°C) 10 to 95% RH, non-condensing
Storage Temperature Humidity:	-40 to 176°F (-40 to 80°C) 10 to 95% RH, non-condensing
Media Types:	Intended for use with non-corrosive, non-ionic gases, such as air and other dry gases
Enclosure Material Flammability Rating:	Polycarbonate UL 94 V-0

Specifications subject to change without notice.



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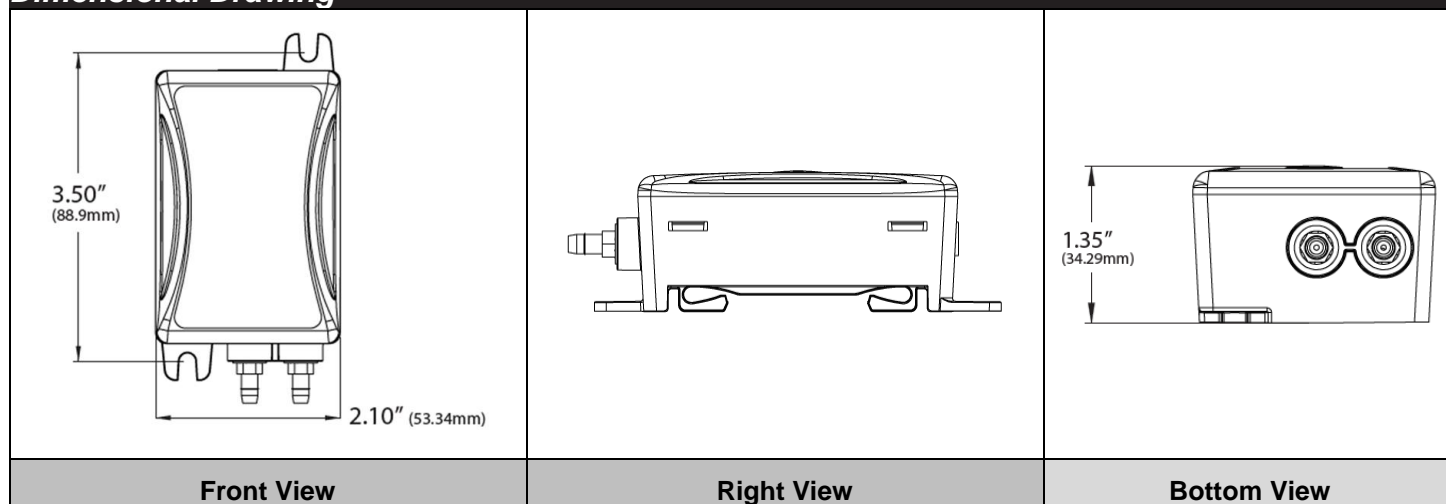
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Enclosure Temperature Rating:	-40 to 248°F (-40 to 120°C)
Din Rail Mounting:	35 mm (U.S. Patent No. 7,416,421)
Wiring Connections Wire Size:	3 Position de-pluggable screw terminal block 14 AWG (1.628 mm ²) to 24 AWG (0.5105 mm ²)
Terminal Block Torque Rating:	4.43 to 5.31 in-lbs. (0.5 to 0.6 Nm)
Pressure Fitting Material:	Brass
Tubing Size Accepted:	0.250" (6.35 mm) O.D. x 0.170" (4.318 mm) I.D. Push-On Flexible Poly Tubing
NIST Certification:	3 Point NIST Test Points: 10%, 50%, & 90% of FSO 5 Point NIST Test Points: 10%, 30%, 50%, 70%, and 90% of FSO
Product Dimensions (L x W x D):	4.210" (106.94 mm) x 2.085" (52.96 mm) x 1.340" (34.04 mm)
Product Weight:	0.17 lbs. (0.078 kg)
Approvals:	CE, RoHS2, WEEE, Reach

¹Accuracy includes Hysteresis, Linearity, and Repeatability at 71°F (21.5°C) Typical

²Shift is relative to 77°F (25°C)

Dimensional Drawing



Installation

Precautions

- Remove power before wiring. Never connect or disconnect wiring with the power applied. Do not allow live wires to touch the circuit board.
- An isolation transformer is recommended when powering the device with 24 VAC.
- Do not run the wiring in any conduit with line voltage.
- Failure to wire devices with the correct polarity when using a shared transformer may result in damage to any device powered by the shared transformer.
- Do not remove the cover. All user features are accessible from the outside of the unit.



Mounting Instructions

Using the two #8 x 3/4" self-drilling mounting screws supplied by ACI, mount the unit vertically with the brass fittings pointing towards the ground. Attach the unit to the mounting surface using the two mounting openings located on the top and bottom flanges. This ensures that any condensation that may form in the tubing does not have an effect on the pressure sensor. If mounting the unit horizontally, a slight zero shift may occur and care must be taken to prevent moisture from building up in the sensor. For best results, all tubing lengths should be limited to a maximum length of 75 feet (23 meters).

Din Rail Mounting

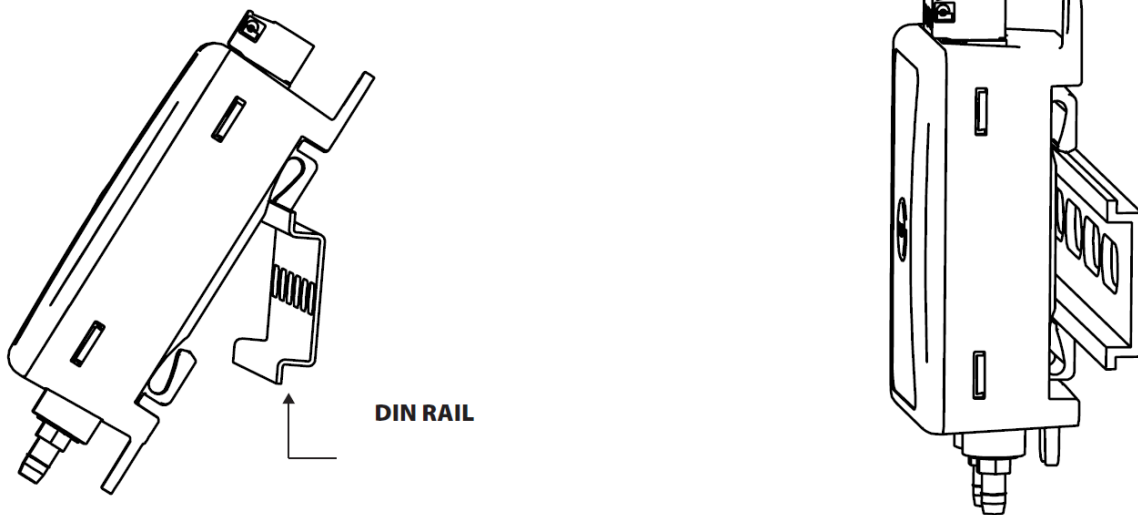


Figure 2

Pressure Connections

The recommended connection tubing is 1/4" O.D. push-on tubing (1/8" – 3/16" I.D.). ACI recommends to keep the tubing runs as short as possible so as to not affect the response time.

Zero Adjustment

Small positive or negative pressure offsets can be removed using the Zero push button. Make sure that there is no pressure at the HI and LO pressure fittings. Additionally, a small piece of tubing can be connected between the HI and LO brass fittings to neutralize any external pressure effects. Press and hold the Zero button for 5 seconds. MLP2 will enter zero mode AFTER push button is released. The Zero adjustment should only be performed with no pressure applied.



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Duct Assembly

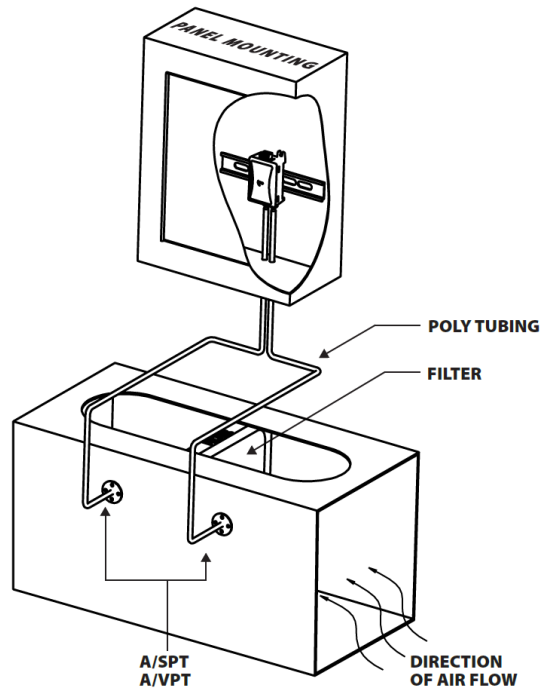


Figure 3

Wiring Instructions

Shielded cable with 16 to 22AWG conductors is recommended.

Use the Wiring Connections table below to determine the proper wiring for your application. Insert the wire into the depluggable terminal block sockets and tighten the screws. In some circumstances, it may be easier to remove the terminal blocks while connecting the wires.

Wiring Connections Table

Output signal	Supply voltage	Wire connections		
VDC	AC/DC	VIN	GND	OUT
mA	AC	VIN	GND	OUT
mA	DC	VIN	-----	OUT

W.E.E.E. Directive

At the end of their useful life the packaging and product should be disposed of via a suitable recycling center. Do not dispose of with household waste. Do not burn.