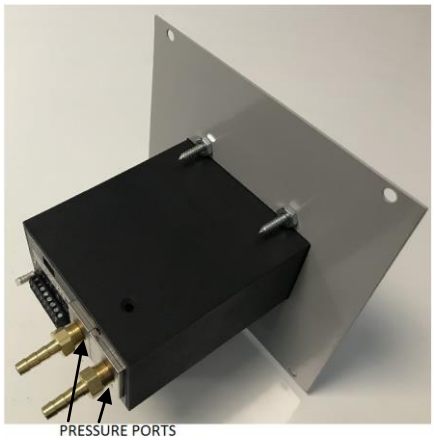
Installation & Maintenance Instructions
ECHOLINE LDP Series M16 Option

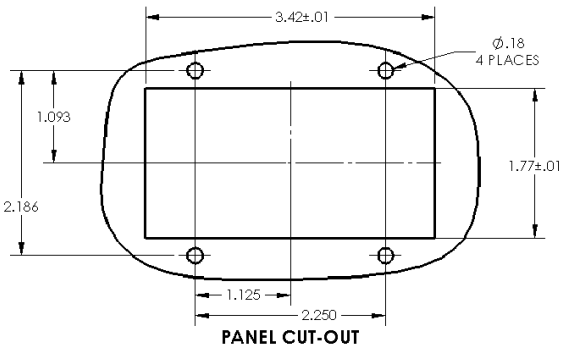
Mounting

The unit can be panel mounted in a rectangular cut out of dimensions 3.42" ±0.01 (86.9±0.3mm) by 1.78"±0.01" (45.3±0.3mm). Four #8 or equivalent screws should be tightened with nuts on the rear side or tapped into the panel to secure the unit.

Pressure Connections

This is a dual port unit with differential high and low pressure inputs located on the rear plate of the unit. Any 1/8-27 NPT connector can be used for these ports. An example is shown in the following figure.





PANEL CUT-OUT

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Electrical Connections

The electrical interface consists of a removable terminal strip. To make reliable connections, crimp ferrules (such as Panduit P/N F75-8-M for 22 gage wire) on the individual wires.

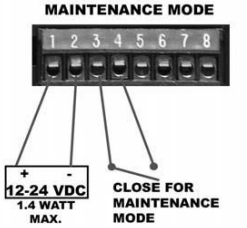
Pins 1 & 2 Power:

12 to 24 VDC power is required on terminals 1 &2, with the positive lead on terminal 1 (extreme left position). Power consumption for each unit is 1.4 watts. **BE AWARE THAT INITIAL POWER UP CURRENT IS 2 AMPERES FOR 10 MILLISECONDS. UPON POWER UP, PRESS RESET TO INITIALIZE UNIT.**

Pins 3 & 4 Maintenance Mode:

Terminals 3 & 4 are used to place the unit in a "Maintenance Mode", unless the analog version is supplied. The alarm points are set to the maximum limits by shorting the terminals 3 & 4 with a customer supplied dry contact switch capable of switching 20 mA at 5 VDC.

If the analog output version is supplied, terminals 3 & 4 are used to give a 4-20 mA or 0-10 VDC output.



Terminals 5 & 6 : ECHO

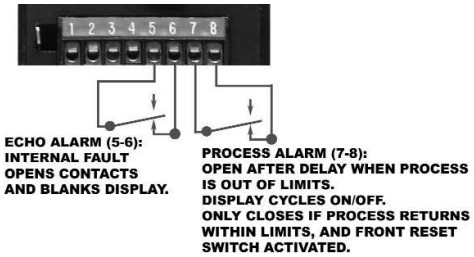
Terminals 5 & 6 are the Electronic Circuit Health Output (ECHO) relay connection which internally monitors the condition of the electronics. This relay will be closed during normal "power on" operation. If a fault occurs, the relay contacts on terminals 5 & 6 will open and the display will blank. Loss of power to the unit is considered a fault.

Terminals 7 & 8 Process Alarm:

Terminals 7 &8 are the process alarm relay connection. This is closed during normal in limits operation. If the process goes out of limits, the front panel status LED will indicate the out of limit condition by turning red. After the preset time delay, the unit will alarm by opening the relay contacts and flashing the display. If the process then goes within limits, the display continues to flash and the contacts remain open until the **RESET** button on the front panel is depressed to clear the alarm. The display will always show the actual process pressure. During an alarm condition, the relay will remain open until the **RESET** button is pushed **and** the process has returned within limits. If the unit is out of limits and the RESET is activated, the unit will remain in the alarm mode with the relay open until the process pressure returns to within the preset limits. The Non-Latching Option (M01) allows automatic reset of the unit.

Grounding Lug:

A spade terminal lug on the rear left side should be connected to the earth ground for proper EMC (Electro Magnetic Compliance) performance.



Unit Setup

Process Alarm Limit Settings

To set the alarm limits, push the **LOW** (or **HIGH**) front panel button. The display will indicate the set point, which can be changed with a small Phillips head screwdriver in the low (or high) alarm adjustment access hole. To exit the set mode, push the **LOW** (or **HIGH**) button a second time. If this is not done, the display will revert to the process measurement within 1 minute. The **LOW ALARM** and **HIGH ALARM** adjustments are 15 turn devices with idle clutches at the end of travel at which point a slight click can be observed. Limits for adjustment are tabulated below for the various ranges in inches of water column.

RANGE	LOW LIMIT	HIGH LIMIT
1.00	0.05	0.95
5.00	0.30	4.70
10.0	0.50	9.50
20.0	1.00	19.0
50.0	3.00	47.0

Time Delay

The time delay has been preset to 10 seconds. To change, pull the rear panel jumper **straight back** to remove and reinstall on the desired time delay selection. With no jumper, the time delay will default to 30 seconds.

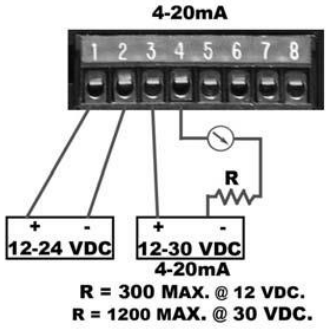
Zero Adjustment

After the power has been applied for 30 minutes* minimum, the zero should be verified and adjusted if required. The center **ZERO** adjust potentiometer is a ¾ turn device with a ± 10% range. Do not exceed 5 in-oz of torque on this part. Be sure to remove process tubing when adjusting the zero.

Analog Output option Connections

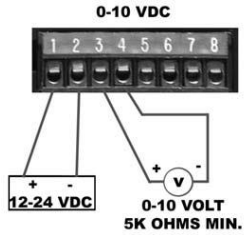
4-20 mA Current Option

The 4-20 mA output is a current sink type. A 12 to 30 VDC loop power should be connected to terminals 3 & 4, with the positive voltage connected to terminal 3. The maximum loop resistance is 300 ohms at 12 VDC and increases linearly to 1200 ohms at 30 VDC power.



0 to 10 VDC Voltage Output

The 0 to 10 VDC output is available across terminals 3 & 4 with terminal 3 being positive. The minimum load resistance is 5000 ohms.



Optional Configurations

The following are available options that must be specified at order placement. Not all options can be combined on a single unit. Consult Factory for specific needs.

Option code	Performance Modification
M01	Non-Latching Alarm
M02	Metric Push to Seal Fitting
M03	Positive Pressure Alarm
M05	9 Pin D-Sub Electrical Connector See Schematic below.
M07	Disabled Low Pressure Alarm
M08	Disabled High Pressure Alarm

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