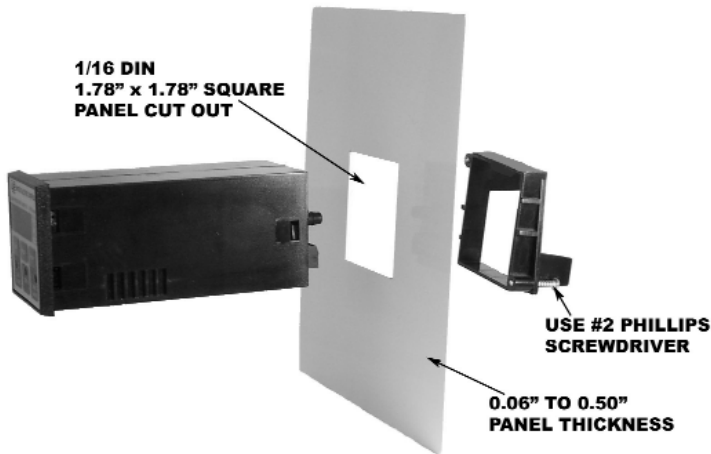




**Installation and Maintenance Instructions**  
**ECHOLINE LDP Series**

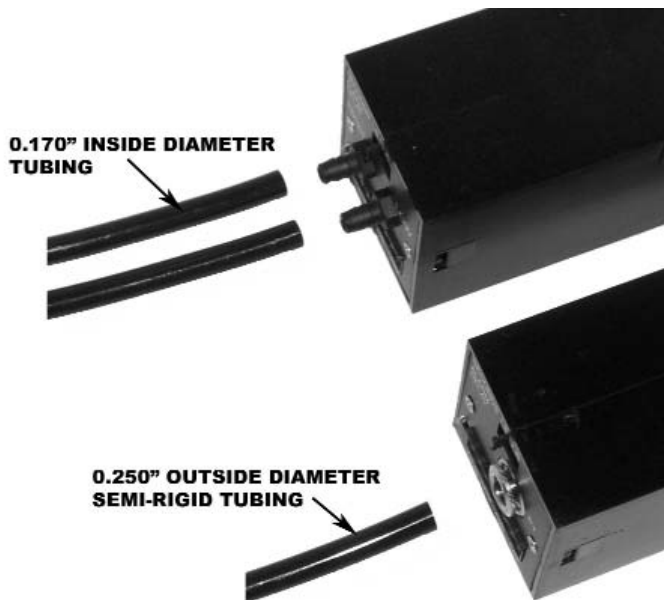
**Mounting**

The unit can be panel mounted in a 1.78" ± 0.01" (45.3 ± 0.3mm) square cutout (1/16 DIN 43 700). The retaining bracket should be installed after placement in the panel. The two phillips head screws should be tightened to secure the unit in the panel. The maximum panel thickness is 0.5" (12 mm).



**Pressure Connections**

On single port units, the rear panel has a push-to-connect fitting for 1/4" OD tubing. The tubing should be sufficiently rigid and have a square cut end to ensure proper sealing. The dual port units have a barbed tube fitting which will accept 0.170" ID flexible tubing. Pull on tube with an 8 oz. force to ensure proper installation



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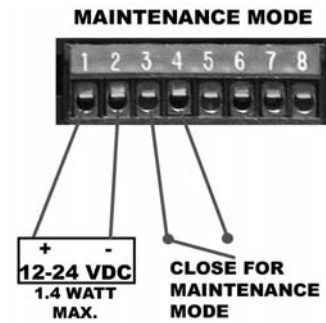
**Electrical Connections**

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 .

12 to 24 VDC power is required on terminals 1 and 2, with the positive lead on terminal 1 (extreme left position). Power consumption for each unit is 1.4 watts. Terminals 3 and 4 are used to place the unit in a "Maintenance Mode", unless the analog option is supplied.

The alarm points are set to the extreme limits by shorting terminals 3 and 4. The external, customer supplied, dry contact switch should be capable of reliably switching 20 mA at 5 VDC for each unit.

If the analog option is supplied, terminals 3 and 4 are used to give a 4 to 20 mA or 0 to 10 VDC output



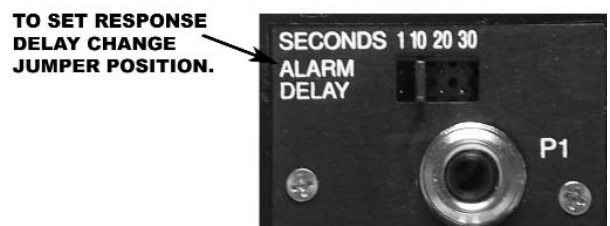
Terminals 5 and 6 are the Electronic Circuit Health Output (ECHO) relay connection. This relay will be closed during normal "power on" operation. If the unit power is removed or the electronic circuit faults, this relay will change to the open state.

Terminals 7 and 8 are the process alarm relay connection. This is closed during normal operating conditions.

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

**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 1, 20, or 30 second time delay, as noted on the rear panel. With no jumper, the time delay will default to 30 seconds.



# Installation and Maintenance Instructions ECHOLINE LDP Series

## 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 one minute. The **LOW ALARM** and **HIGH ALARM** adjustment potentiometers are 15 turn devices with idle clutches at the end of travel at which point a slight click can be observed. Limits of adjustment are tabulated below for the various ranges in inches of water column.

| RANGE | LOW LIMIT | HIGH LIMIT |
|-------|-----------|------------|
| 0.200 | 0.002     | 0.190      |
| 0.500 | 0.005     | 0.470      |
| 1.00  | 0.05      | 0.95       |
| 2.00  | 0.10      | 1.90       |
| 5.00  | 0.25      | 4.75       |
| 10.0  | 0.50      | 9.50       |
| 20.0  | 1.00      | 19.0       |

## ECHO Alarm Relay Output Function

The Electronic Circuit Health Operation (ECHO) feature internally monitors the condition of the electronics. If a fault occurs, the relay contacts on terminals 5 and 6 will open and the display will blank. Loss of power to the unit is considered a fault.

### ECHO Alarm and Process Alarm



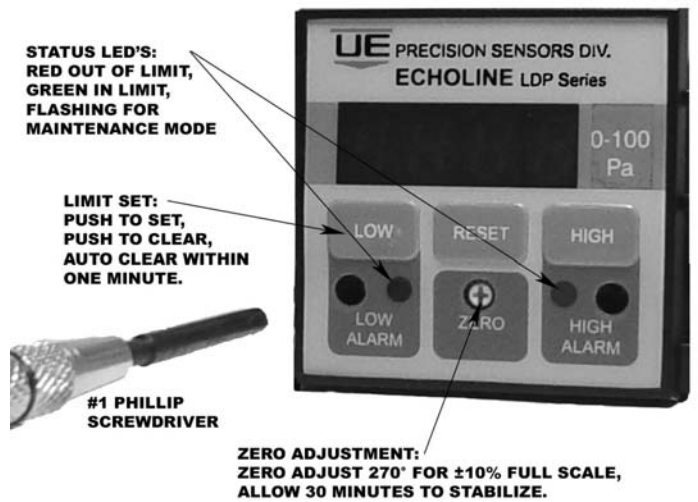
**ECHO ALARM (5-6):**  
INTERNAL FAULT  
OPENS CONTACTS  
AND BLANKS DISPLAY.

**PROCESS ALARM (7-8):**  
OPEN AFTER DELAY WHEN PROCESS  
IS OUT OF LIMITS.  
DISPLAY CYCLES ON/OFF.  
ONLY CLOSSES IF PROCESS RETURNS  
WITHIN LIMITS, AND FRONT RESET  
SWITCH ACTIVATED.

## Process Alarm Relay Output Function

The unit alarm relay (Terminals 7 and 8) is closed during normal operation within limits. 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 is reached, 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 open and remain open until the **RESET** button on the front panel is pushed **and** the process returns to within limits. If the unit is still out of limits when 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.

# Installation and Maintenance Instructions ECHOLINE LDP Series



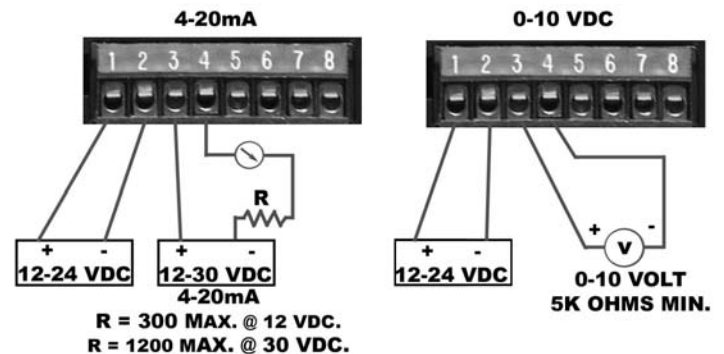
## Zero Adjustment

After power has been applied for at least 30 minutes, the zero reading should be verified and adjusted if required. The center ZERO adjust potentiometer is a ¾ turn device and has a ±10% range of adjustment with a solid stop at the end of travel. Do not exceed 5 in-oz of torque on the part as it may be damaged. To verify the unit zero reading, remove the process pressure connection on the rear panel.

## Analog Output Option Connections

### 4 to 20 mA Current Output

The 4 to 20 mA output is a current sink type. A 12 to 30 VDC loop power should be connected to terminals 3 and 4, with the positive voltage connected to terminal 3. The maximum loop resistance is 300 ohms at 12 VDC power 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 and 4 with terminal 3 being positive. The minimum load resistance is 5,000 ohms.



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