**Safety precautions**

⚠️ Pressure switch is powered by an external power supply. The power supply should be in accordance with relevant standards stipulated by energy limitation circuit, and special attention should be given to the high-voltage that may exist in the circuit.

**Product usage**

**Pipe pressure measurement**

Can be installed with adapters on the pipe directly.

**Container pressure measurement**

After the pressure in vessel is stable, slowly open the shut-off valve to start measuring.

**Container level measurement**

Can be used for liquid level measurement in open container. Media compatibility should be considered.

**Differential pressure measurement system**

Two pressure switches can be used to create a differential measurement system, commonly used in the filter control or closed container level measurement.

**Install pressure transmitter**

**Direct installation**

Light-weight pressure switch can be mounted directly on the pressure leading tube. When installing the maximum torque force can not exceed 50Nm.

⚠️ Do not install the instruments in medium flow area or the position of pressure impact.

- Install the instruments downstream of the valve for easy calibration and function testing.
- The installation position may affect measurement accuracy. For example: the measured value is not zero under the condition of normal atmospheric pressure. If this occurs, refer to the section "zero point adjustment".

**Process connection**

Aviation plug (M12*1, 5 pins)
Signal connection
4~20mA five wires + two way transistor output (PNP)

Power supply
- Connect the positive power supply (P+) to the terminal 1/brown wire of pressure switch;
- Connect the negative signal module (S-) to the negative power supply;(P-);
- Connect the negative signal module (S-) to the negative power supply(P-) and then connect to the terminal 4/black wire of pressure switch;
- Connect the positive signal module (S+) to the terminal 3/blue wire of pressure switch;
- Connect the first way transistor to the terminal 2/white wire of pressure switch;
- Connect the second way transistor to the terminal 5/gray wire of pressure switch.

A zero point adjustment should be made after installation to counter any effects the mounting position may have on the zero setting. When performing the adjustment, the vessel should be completely empty, with no pressure or media on the measuring diaphragm and the vessel exposed to atmospheric air. With unit powered, short the key-z wire (blue) to the + power lead. hold for 5 seconds, when removed the zero point will be adjusted. Set the zero point three weeks after installation to ensure accuracy, and reset zero point annually. Set PV=0 each year.

External cleaning
Please observe the following when cleaning:
- Use a cleaner that is compatible with pressure switch materials
- Clean carefully to ensure that the pressure port isn’t damaged (e.g. with a sharp object)
- Do not directly spray electrical connection or gauge vent with water or cleaner.

Transportation / storage
- Do not store outside.
- Keep dry and dust-free.
- Do not expose to the corrosive medium.
- Avoid solar radiation.
- Avoid mechanical shock and vibration.
- Storage temperature: -40-185°F(-40-85℃).
- Maximum relative humidity: 95%.

EMC statement
- EMC equipment instructions 2014/30/EU.
- CE mark suggests the instruments are in line with EU standards
- Users need to ensure the whole equipment conform to all the applicable standards.

Cable protection system
Standard protection system

To safeguard against liquid media potentially traveling along the cable into the terminal box, the cable should be configured in a U-shape as shown, with the bottom of the “U” lower than the bottom of the pressure switch.
### Alarm settings function

<table>
<thead>
<tr>
<th>Label</th>
<th>Item</th>
<th>Setting range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPx</td>
<td>OUT upper limit</td>
<td>-99999~99999</td>
<td>Upper limit value of transistor output</td>
</tr>
<tr>
<td>RpX</td>
<td>OUT lower limit</td>
<td>-99999~99999</td>
<td>Lower limit value of transistor output</td>
</tr>
<tr>
<td>SPDTx</td>
<td>OUT output delay</td>
<td>0.0~60.0(S)</td>
<td>Delay time before transistor output active</td>
</tr>
<tr>
<td>RPDTx</td>
<td>OUT reset delay</td>
<td>0.0~60.0(S)</td>
<td>Delay time before transistor output reset</td>
</tr>
</tbody>
</table>

#### Modex working mode

<table>
<thead>
<tr>
<th>Modex</th>
<th>OUT active</th>
<th>Modex=0</th>
<th>No output. OUTx keeps reset state</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modex=1</td>
<td>HNO</td>
<td>Measured value &gt; SPx, delay SPDTx, OUTx active (Note2)</td>
<td></td>
</tr>
<tr>
<td>Modex=2</td>
<td>HNC</td>
<td>Measured value &gt; SPx, delay RPDTx, OUTx reset (0V, the same below)</td>
<td></td>
</tr>
<tr>
<td>Modex=3</td>
<td>HNO</td>
<td>Measured value &gt; RPx or measured value &lt; SPx, delay SPDTx, OUTx active</td>
<td></td>
</tr>
<tr>
<td>Modex=4</td>
<td>HNC</td>
<td>Measured value &gt; SPx or measured value &lt; RPx, delay RPDTx, OUTx reset</td>
<td></td>
</tr>
</tbody>
</table>

Notes: 1. x = 1 or 2, SPx ≥ RPx

2. Active electrical level is 2V lower than power supply level. Eg. power supply level is 24V, then active electrical level is 22V.

#### Oscillogram of alarm function

- **High level alarm**
  - Output alarm signal when pressure is higher than 145Psi.
  - Normal setting: SP1=145Psi, RP1=137.78Psi, Mode1=1, SPDT1=1, RPDT1=1. Pressure rises to 145Psi, delay 1s, OUT1 active (on); pressure drops to 137.78Psi, delay 1s, OUT1 reset (off)

- **Low level alarm**
  - Output alarm signal when pressure is lower than 145Psi.
  - Normal setting: RP1=145Psi, SP1=152.28Psi, Mode1=2, SPDT1=1, RPDT1=1. Pressure drops to 145Psi, delay 1s, OUT1 active (on); pressure rises to 152.28Psi, delay 1s, OUT1 reset (off)

- **Window function**
  - Applying pressure on a device by a compressor and keeping the pressure within the range 72.51~145Psi need two ways output. The first way output controls the compressor and the second way output controls the device. The first way output setting: SP1=145Psi, RP1=72.51Psi, Mode1=3, SPDT1=1, RPDT1=1. The first way contact controls the power supply of compressor through intermediate relay to disconnect once the pressure is higher than 130.53Psi and connect once the pressure is lower than 87.02Psi. The pressure value needs to be controlled within 87.02~130.53MPa. The second way output setting: SP2=145Psi, RP2=72.51Psi, Mode2=3, SPDT2=1, RPDT2=1. Once the working pressure of device is not within the range 72.51Psi~145Psi, after 1s, the second way contact controls the alarm output of the device through intermediate relay to ensure the abnormal working pressure of the device can be discovered and handled in time.

- **Automatically keep pressure function**
  - Applying pressure on a device by a compressor and keeping the pressure within the range 72.51~145Psi need two ways output. The first way output controls the compressor and the second way output controls the device. The first way output setting: SP1=145Psi, RP1=87.02Psi, Mode1=2, SPDT1=1, RPDT1=1. The first way contact controls the power supply of compressor through intermediate relay to disconnect once the pressure is higher than 130.53Psi and connect once the pressure is lower than 87.02Psi. The pressure value needs to be controlled within 87.02~130.53MPa. The second way output setting: SP2=145Psi, RP2=72.51Psi, Mode2=3, SPDT2=1, RPDT2=1. Once the working pressure of device is not within the range 72.51Psi~145Psi, after 1s, the second way contact controls the alarm output of the device through intermediate relay to ensure the abnormal working pressure of the device can be discovered and handled in time.
Display function

Display module is used for field adjustment to complete all the parameters setting and site configuration before measuring.

Keys operation

For example, factory setting parameters: pressure range -10-100Psi, display unit Psi, operate in the atmosphere.

Set PV=0

Press \( \) at least 3 seconds \( \rightarrow \) Press \( \) at the same time at least 3 seconds \( \rightarrow \) Release \( \) at the same time \( \rightarrow \) Measuring interface

Press \( \) at least 3 seconds \( \rightarrow \) Press \( \) at the same time at least 3 seconds \( \rightarrow \) Release \( \) at the same time \( \rightarrow \) Measuring interface

Press \( \) at least 3 seconds \( \rightarrow \) Press \( \) at the same time at least 3 seconds \( \rightarrow \) Release \( \) at the same time \( \rightarrow \) Measuring interface

Press \( \) at least 3 seconds \( \rightarrow \) Press \( \) at the same time at least 3 seconds \( \rightarrow \) Release \( \) at the same time \( \rightarrow \) Measuring interface

Span adjustment

Check peak pressure

Switch to lock/unlock
Detailed operating instructions

**Set display unit**

- **kPa**
  - Unit
  - 1
  - Current parameter
  - Display selected parameter
  - Display modified parameter

- **Mpa**
  - Unit
  - 2

**Set display mode**

- Pressure & Unit
  - 0
  - DisMod
  - Enter settings
  - Confirm and enter next menu

- Pressure & Unit
  - 0

**Set lower range value**

- Range: -99999~99999
  - LRV
  - -10.00
  - Display selected parameter
  - Display modified parameter

**Set upper range value**

- Range: 99999~99999
  - U RV
  - 100.00

**Set decimal precision of measuring value (Note 1)**

- XXXX
  - DotPos
  - 1
  - Enter settings
  - Confirm and enter next menu

**Parameters table**

- **Display mode**
  - PV & Unit
  - SP1 & RP1
  - SP2 & RP2

- **Process unit**
  - kPa
  - Mpa
  - Bar
  - Psi
  - Torr

- **Display mode**
  - Auto
  - Integer, no decimal
  - One decimal
  - Two decimal
  - Three decimal

- **Lower range value**
  - Range: -99999~99999

- **Upper range value**
  - Range: 99999~99999

**Factory reset**

**Method 1**

- Power off
- Press \( \varnothing \), power on
- Data restore OK
- Please free the key
- Release \( \varnothing \)
- Finished interface

**Method 2**

- Press \( \varnothing \), power on
- Data restore OK
- Please free the key
- Release \( \varnothing \)
- Finished interface
Display hidden parameters

Method one:

0.010 Ψ
Power off
Press Ø, power on
It will display all parameters! Please free the key!
Release Ø
0.010 Ψ

Method two:

Press Ø, power on
It will display all parameters! Please free the key!
Release Ø
0.010 Ψ
After above operation, press M get into DisMod-LRV-Unit parameters setting, and press M again get into hidden parameters setting.

**Note 1:** By default, the system shows optimal precision according to measuring range. Eg: While the measuring range of product is 0-10kPa, measuring value shows 0.000-10.000; while the measuring range of product is 0-100kPa, the measuring value shows 0.00-100.00. If DotPos parameters value and measuring range do not match, the system will automatically ignore and then process by default. Eg: While the measuring range of product is 0-10kPa, if operator makes DotPos=5, the system will regard it as ineffectiveness and the measuring value will still shows 0.000-10.000 by default; while the measuring range of product is 0-100kPa, if operator makes DotPos=4 or 5, the system will regard it as ineffectiveness and the measuring value will still shows 0.00-100.00 by default.

**Note 2:** Use FixCOut parameters to control fixed current, to confirm whether current output is ok. Changing fixed current value by press S and confirm by Z.

**Note 3:** Use FixTOut parameters to control 2 way PNP by manual operation, to confirm whether PNP output is ok. Changing fixed current value by press S and confirm by Z.
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2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

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