

'DIGIMACKS[®] S1 Series

Differential Pressure Gauge / Switch / Transmitter

Specification, Installation and Operating Manual



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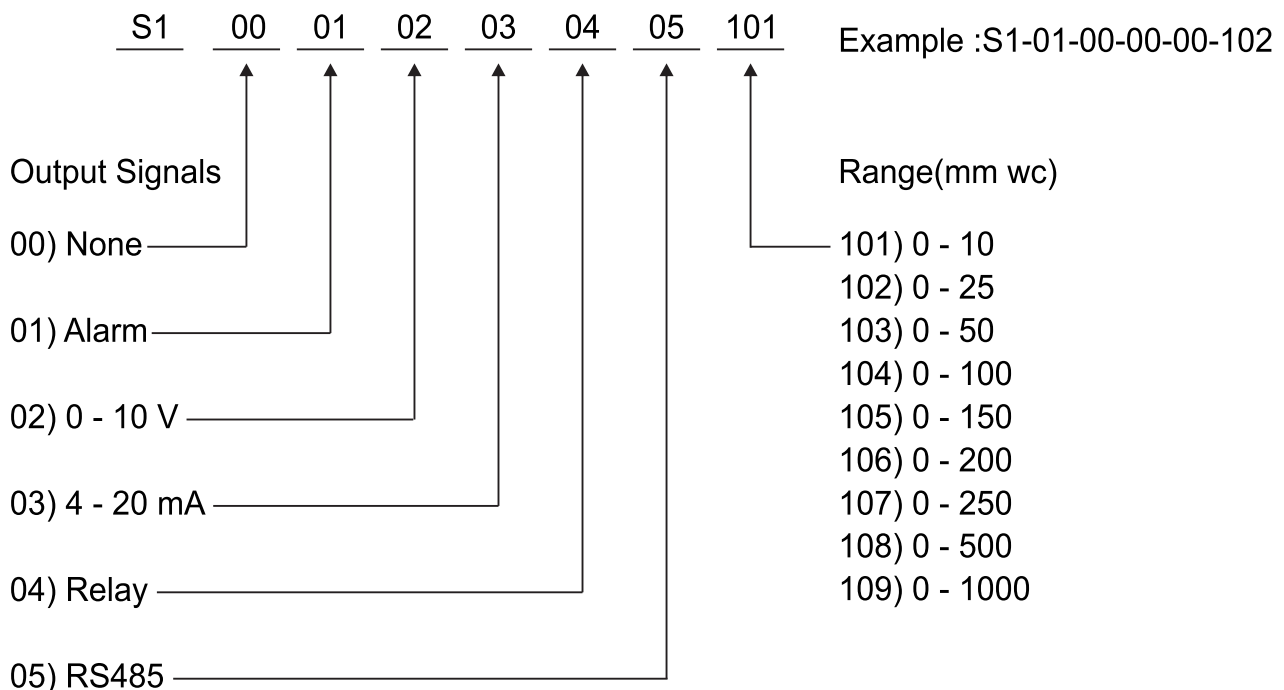
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1. Introduction:

FAUZ MECHANICS introduces S1 Series Pressure Instrument, which is a microcontroller based. 'DIGIMACKS[®]', that can be used to directly measure Pressure. Differential and Absolute Pressure Gauge which support pressure up to 1000 mm wc. The pressure output is displayed in selectable engineering unit of mm wc, and Pa. The S1 Series has been designed using the latest technology to provide reliable accuracy, using extremely stable Micro Electro Mechanical Sensor to give a standard full scale accuracy of 0.5%. The compact design makes the unit easy to install in the industry and serves as an excellent alternative to existing mechanical gauges. Pressure measurement can be displayed on a large, easy to read Seven segment display, which also indicates set points and range overflow condition.

1.1 Model Configuration:

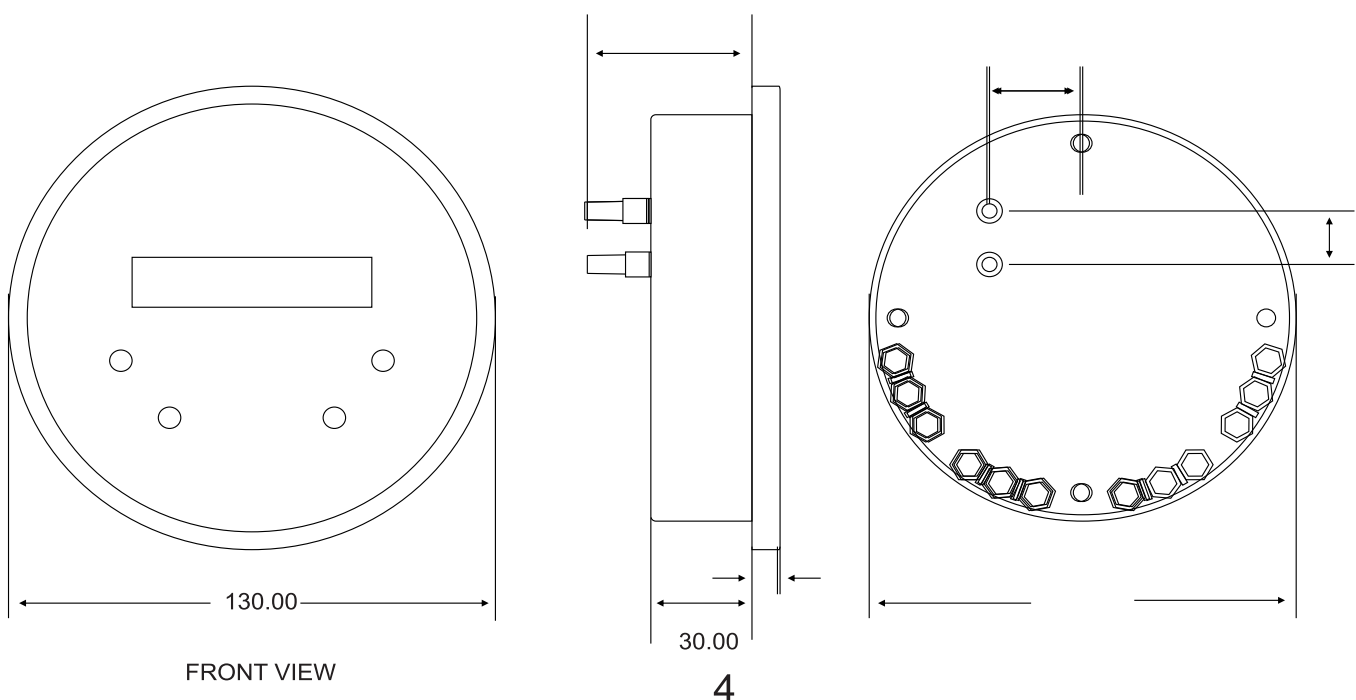


* Customized Range available on request

1.2 Specification

| | | |
|------------------------|---|--|
| Media compatibility | : | Air, non combustible, non corrosive gases |
| Supply Voltage | : | 12- 24 VDC |
| Accuracy | : | Ranges: $\leq 0 - 10$ mm Wc. $\pm 1.0\%$ of F. S Ranges: $\geq 0 - 25$ mm Wc $\pm 0.5\%$ of F. S. |
| Display | : | 4 Digit Seven Segment |
| Output Signals | : | Audio - Visual Low & High Pressure Alarm |
| Optional Output | : | 4-20 mA/0 - 10 V/ Relay/RS485 |
| Response Time | : | 1 - 3000 mSec (Selectable via Menu) |
| Operating Temperature | : | 10° to 60° C |
| Storage Temperature | : | -30° to $+100^{\circ}$ C |
| Pressure Limit | : | 1 PSI Maximum |
| Switch | : | Digital push button. |
| Housing Material | : | Glass filled nylon |
| Electrical Connections | : | Screw terminals |
| Process Connection | : | Push on connection for 3/16" ID tubing |
| Weight | : | 230 Gram. |
| Dimensions | : | 114 Dia. X 30 mm depth |

1.3 Dimensional Drawing



2. Installation

2.1 Mounting

The 'DIGIMACKS[®]' should be mounted by making cutout of 114.00 mm diameter in the panel. Insert the Gauge through the hole and secure it to the panel with the provided mounting tabs and screws. 'DIGIMACKS[®]' S1 Series have been designed to fit in industry standard cutout of 114.00 mm

2.2 Pressure Connection:

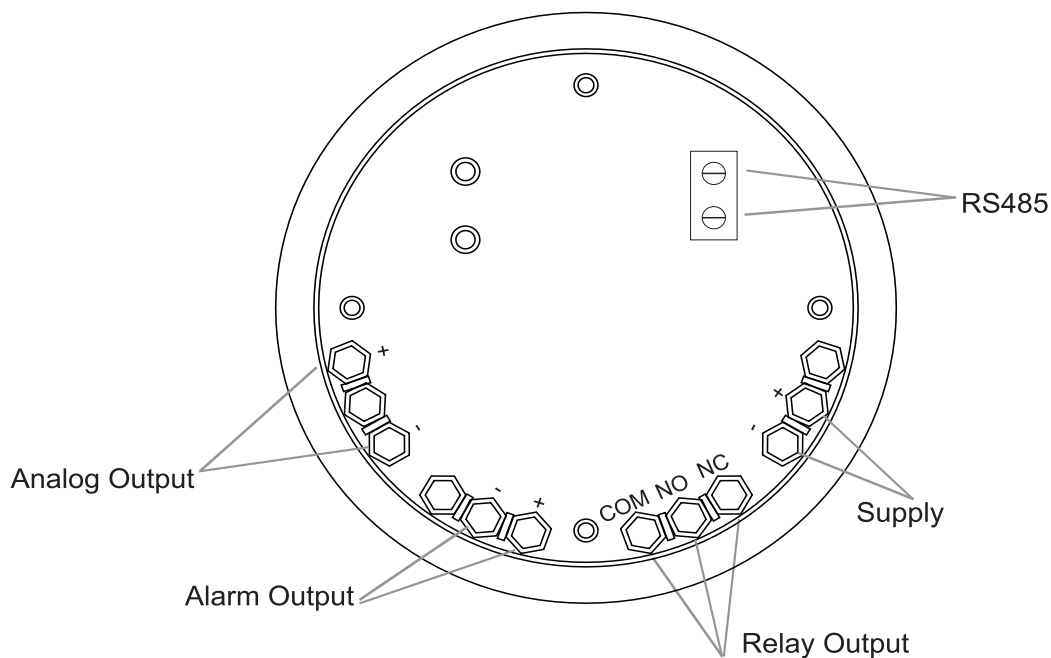
For installation convenience inbuilt two pressure ports are provided at back side of pressure gauge.

Positive Pressure : Connect tubing to HIGH PRESSURE port and vent LOW PRESSURE port to atmosphere.

Negative (Vacuum) Pressure - Connect tubing to LOW PRESSURE port and vent HIGH PRESSURE port to atmosphere.

Differential Pressure - Connect tubing from the higher source to HIGH PRESSURE port and from the lower source to LOW PRESSURE port.

2.3 Electrical Connection:



Note :

The Instrument can be powered 24 VDC (at different screw terminal shown in the above figure.)

For low and high pressure alarm connect wire as shown in the figure.

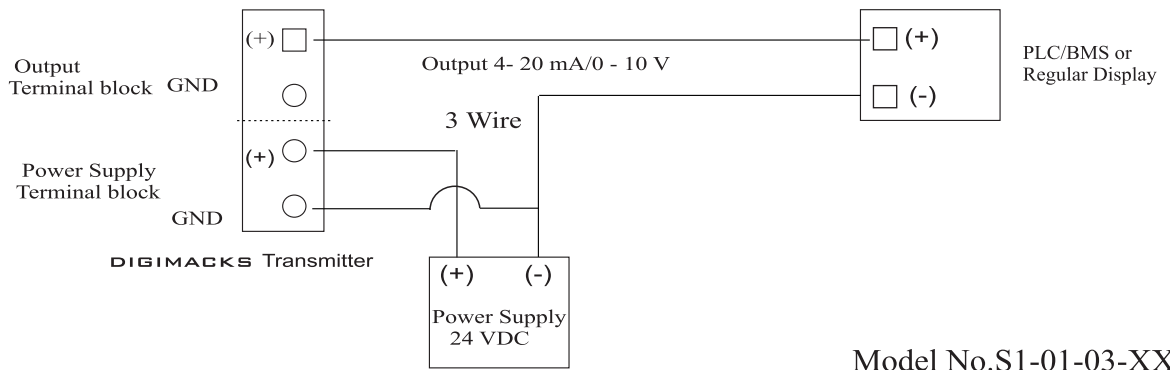
For Analog Output connect wire as shown in the figure. (Page 6)

2.4 Wiring Diagram

To make the connection, the transmitter must not be energised. Attach wiring from your equipment according to the following terminal connections and wiring diagrams depending on your circumstances.

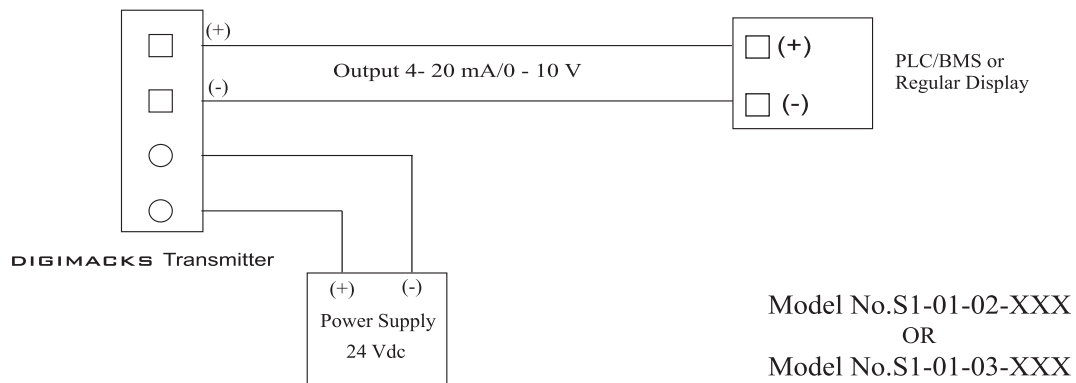
WIRING DIAGRAM 1

Input Supply : 24 VDC Output Signal : 0 -10 Volt or 4-20 mA (3 Wire)



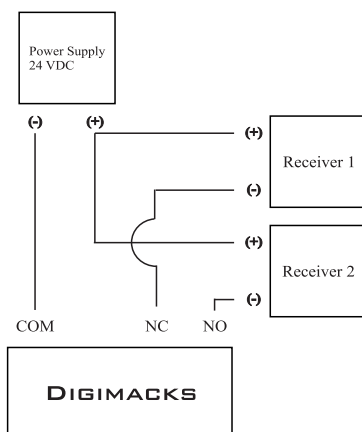
WIRING DIAGRAM 2

Input Supply : 24 VDC Output Signal : 0 -10 Volt or 4-20 mA (4 Wire)

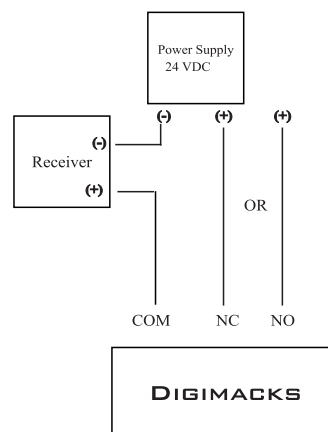


WIRING DIAGRAM 3

Relay Wiring Diagram for Two Receiver with common Power Supply

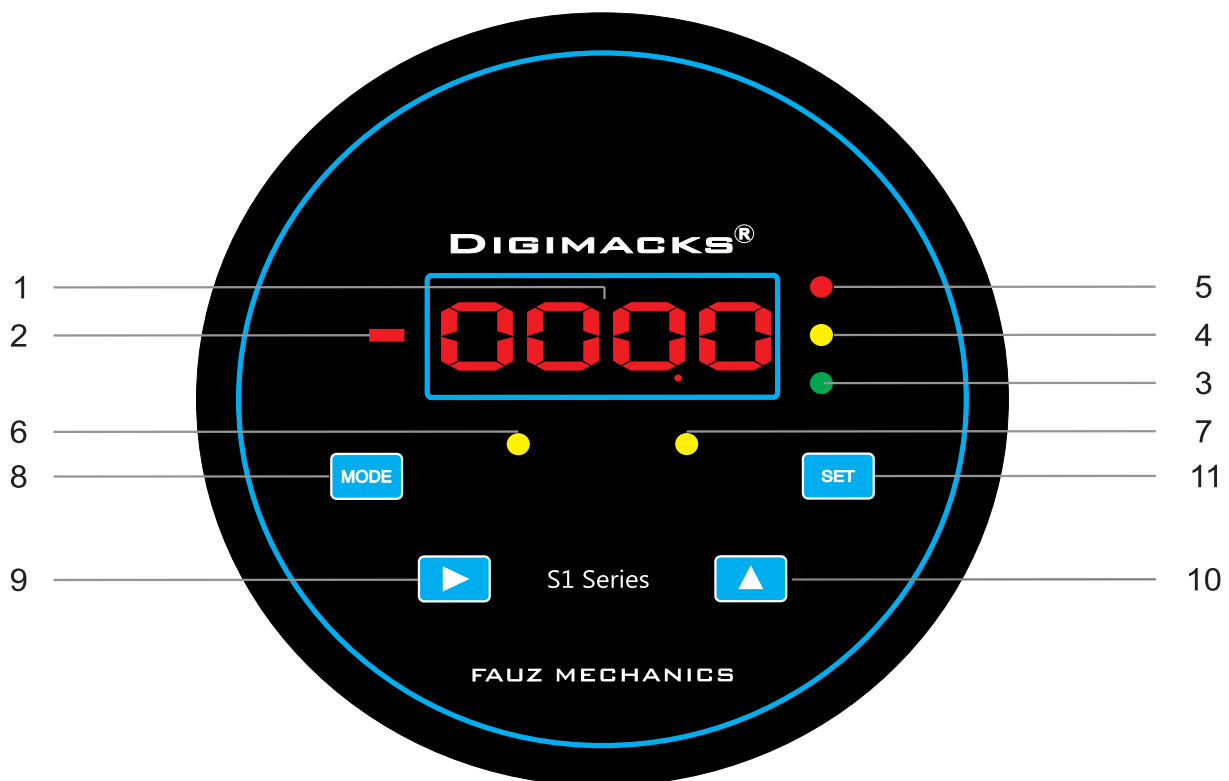


Relay Wiring Diagram for Single Receiver with common Power Supply



3.1 Display:





The 'DIGIMACKS[®]' S1 series were designed to give the user maximum feedback and flexibility. Negative pressure will be indicated by the negative sign before the numerical indication. The 4 digit LED displays the numerical pressure reading and will show various parameter and set points. The Green, Yellow and Red LED Shows the Alarm condition. Four easy to operate keys help to access and modify various parameter.



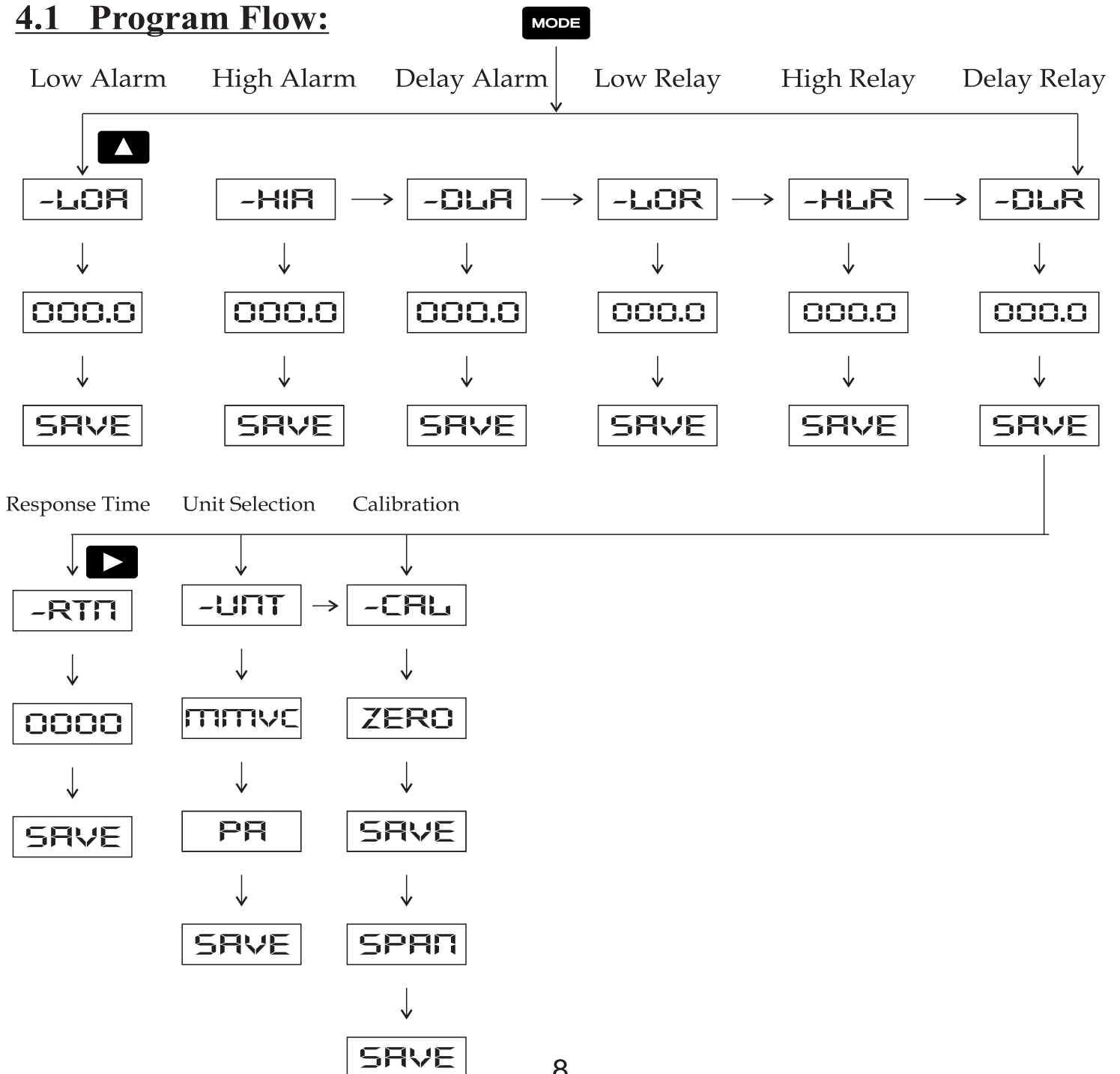
3.2 Front Panel Description:


| Sr No | DISPLAY | DESCRIPTION |
|-------|------------|--|
| 1 | 0000 | LED Pressure indication |
| 2 | Red LED | Negative Indication |
| 3 | Green LED | Will Glow When Pressure in Normal Condition |
| 4 | Yellow LED | Will Glow When Pressure delay time Condition |
| 5 | Red LED | Will Glow When Pressure in faulty Condition |
| 6 | Yellow LED | Will Glow When Pressure unit Selected in Pa |
| 7 | Yellow LED | Will Glow When Pressure unit Selected in mm Wc |

3.3 Key Function:

| | | | | |
|----------------------|---|---|---|---|
| Sr No. | 8 | 9 | 10 | 11 |
| Display |  |  |  |  |
| Description | Mode Key | Shift Key | Increment Key | Set Key |
| Normal Mode | Press to access the Programming Menu | Press to save Zero | _____ | _____ |
| Programing Menu | Press to exit from programing menu | Down key to select parameter | Up key to select parameter | _____ |
| Editing Menu | Press to exit from editing menu | Press to move cursor to select digit | Press to Increase selected Digit | Press to accept the entered value |
| Keypad Locked (Mode) | Press to Enable / Disable Alarm | _____ | _____ | _____ |

4.1 Program Flow:



| Sr. No. | Description | Key to Press | Display | Action | Note |
|---------|--------------------------------|---|---------|--|---|
| 18 | To Enter into Calibration Mode |  | -CAL | Calibration | Press SET To Enter |
| 19 | Zero | Disconnect both pressure connections so that they are open to atmospheric | ZERO | Press SET to Save | The display will advanced to SPAN |
| 20 | Span | To Span the gauge, apply the full scale pressure to the high pressure port and let the pressure stabilized. | SPAN | Press and hold the SET key until SAUD is displayed | Calibration done Press Mode to exit from Calibration menu |


4.3 Defalut Parameters:

| Sr. No. | Parameter | Default Value | Programmable Range | Unit |
|---------|----------------|---------------|--------------------|----------|
| 1. | Low Alarm | 0.5 | - 10.0 to 10.0 | mm Wc |
| 2. | High Alarm | 4.0 | - 10.0 to 10.0 | mm Wc |
| 3. | Delay Alarm | 001 | 0 - 999 | Sec |
| 4. | Low Relay | 0.5 | - 10.0 to 10.0 | mm Wc |
| 5. | High Relay | 4.0 | - 10.0 to 10.0 | mm Wc |
| 6. | Delay Relay | 001 | 0 - 999 | Sec |
| 7. | Response Time | 700 | 1 - 3000 | mil. Sec |
| 8. | Unit Selection | mm Wc | mmWc / Pa | Pressure |
| 9. | Range | 0 - 10 | | mm Wc |



























5.1 Symbols:

| Sr. No. | Symbols | Description |
|---------|---------|----------------------------|
| 1 | DIS | Alarm Disabled |
| 2 | EN | Alarm Enabled |
| 3 | POFL | Positive Pressure Overflow |
| 4 | NOFL | Negative Pressure Overflow |
| 5 | INVL | Entered Invalid Value |



5.2 Zeroing the S1:

To re-zero the ‘**DIGIMACKS[®]**’ Pressure Gauge, disconnect both pressure connections so they are open to atmospheric pressure and press and hold the  for about 3- 4 seconds. This will reset Zero point of Gauge.

4.2 Programing Mode:

| Sr. No. | Description | Key to Press | Display | Action | Note |
|---------|---------------------------------|---|------------------|---|--------------------|
| 1 | To Unlock keypad | Simultaneously press  &  key | ULOC | Keypad Unlocked | |
| 2 | To enter in to programming mode |  | -LOR | Low Alarm | Press Set To Enter |
| 3 | To edit & save | | 007.0 | Rightmost Digit will start blinking. Use  key for selection and  for change digit | Press SET to Save |
| 4 | To enter in to High Alarm |  | -HIR | High Alarm | Press Set To Enter |
| 5 | To edit & save | | 017.0 | Using Combination of  /  edit the value | Press Set To Save |
| 6 | To enter in to Delay Alarm |  | -DLA | Delay Alarm | Press Set To Enter |
| 7 | To edit & save | | 0001 | Using Combination of  /  edit the value | Press Set To Save |
| 8 | To enter in to Low Relay |  | -LOR | Low Relay | Press Set To Enter |
| 9 | To edit & save | | 000.0 | Using Combination of  /  edit the value | Press Set To Save |
| 10 | To enter in to High Relay |  | -HAR | High Relay | Press Set To Enter |
| 11 | To edit & save | | 017.0 | Using Combination of  /  edit the value | Press Set To Save |
| 12 | To enter in to Delay Relay |  | -DLR | Delay Relay | Press Set To Enter |
| 13 | To edit & save | | 0001 | Using Combination of  /  edit the value | Press Set To Save |
| 14 | To enter in to Response Time |  | -RTN | Response Time | Press Set To Enter |
| 15 | To edit & save | | 0700 | Using Combination of  /  edit the value | Press Set To Save |
| 16 | To Select Pressure Unit |  | -UNT | Unit | Press Set To Enter |
| 17 | To edit & save | | mmWC 9 | Using Combination of  /  edit the value | Press Set To Save |

5.3 Restoring Factory Calibration

The factory defaults can be easily restored by simultaneously press both the  and  key and holding them for approximately 3-4 seconds. Once you have press both keys “FCR” is display that can restore the factory calibration setting.

5.4 Alarm/Relay Enable and Disable

For using this feature **KEYPAD** must be in **LOCK** mode.

Enable: This can be done by pressing  key until “**EN**” is displayed.

Disable: This can be done by pressing  key until “**DIS**” is displayed.

5.5 Instructions and Maintenance:

Occasionally disconnect pressure lines to vent both sides of gauge to atmosphere and re-zero.

When making tubing connection DO NOT apply torque to tube fitting that can cause fitting to turn of twist with respect to plastic enclosure.

Doing so will damage the product and void the warranty. The Applied pressure should not exceed the specified upper limit of the pressure gauge.

The electrical connection must be firm and proper. Instrument should not be subjected to excessive temperature.

In case of malfunctioning of the instrument, please contact the manufacturer.

5.6 Warranty

FAUZ MECHANICS warrants its products to be free from defects in materials and workmanship for a period of 1 years from the date of shipment, subject to the following terms and conditions: Without charge, we will repair, replace the product found to be defective in materials or workmanship within the warranty period; provided that:

1. The product has not been subjected to abuse, neglect, accident, incorrect wiring not our own, improper installation or servicing.
2. The product has not been repaired or altered by anyone.
3. The product is returned to our factory, transportation prepaid before expiration of the warranty.