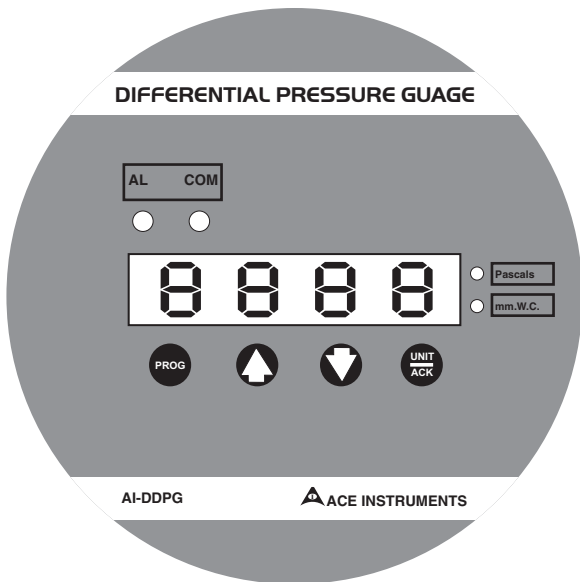


USER'S MANUAL FOR DIFF. PRESSURE GAUGE

AI-DDPG



For any technical assistance, please feel free to contact factory at the below address...

ACE INSTRUMENTS

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Thanks for purchasing Ace Instruments products.

The front panel key operation has been specially designed for user friendly operations. There are commands for directing mode settings, alarm settings and offset settings.

The documentation presented herein describes the front panel operation in detail. The user is requested to go through this manual thoroughly before attempting to install & use it.

1. APPLICATION:-

1. Pharma Clean Rooms,
2. Air Handling Units,
3. Laminar Air Flow Cabinets
4. APIs,
5. Bulk Drugs,
6. Electronic Hardware Manufacturing Plants,
7. Semiconductor Manufacturing,
8. Hospitals & Operation Theatres
9. Green Houses, etc.

RS 485 Modbus Communication from devices allows easy & quick integration to Building Management Systems (BMS) & SCADA interfacing.



2. INTRODUCTION:-

The DIFFERENTIAL PRESSURE GAUGE is a micro controller based indicator for indicating clean room differential pressure with respect to corridor (atmosphere) or between 2 clean rooms/equipments caused by the flow of air supplied by the AHU along with 1 inbuilt and 1 optional external buzzer with acknowledgement keys. This instrument has been designed mainly to monitor differential pressure using imported integrated sensors. Ask factory for differential pressure indicators with external D.P. Transmitters.

- The Clean Room Differential Pressure Gauge measuring ranges are ...
 - 1) -100 to +100 Pascals
 - 2) -50 to +50 Pascals
 - 3) 0 to 50 Pascals
 - 4) 0 to 60 Pascals
 - 5) 0 to 100 Pascals
 - 6) 0.0 to 25.0 mm.W.C.
 - 7) -25.0 to +25.0 mm.W.C.
 - 8) -50.0 to +50.0 mm.W.C.
 - 9) Customized Ranges



3. TECHNICAL SPECIFICATIONS

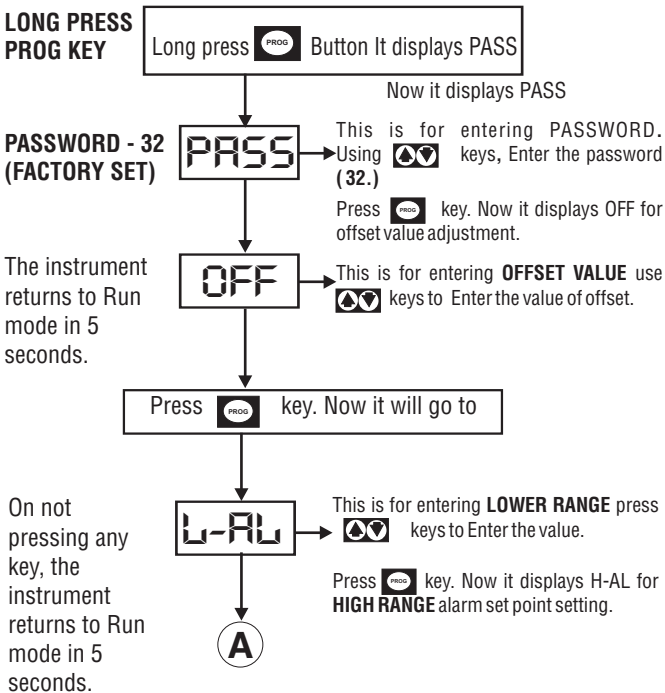
- Sensor Type : Piezo Resistive Sensor for Differential Pressure
- Range :
 - 1) -100 to +100 Pascals
 - 2) -50 to +50 Pascals
 - 3) 0 to 50 Pascals
 - 4) 0 to 60 Pascals
 - 5) 0 to 100 Pascals
 - 6) 0.0 to 25.0 mm.W.C.
 - 7) -25.0 to +25.0 mm.W.C.
 - 8) -50.0 to +50.0 mm.W.C.
 - 9) Customized Ranges for Specialized Applications
- Resolution : Fixed 0.1 for mm.W.C. & 1 Pascal for Pascals Units
Consult factory for any other resolution.
- Accuracy : +/- 0.5% F.S. for Differential Pressure
- Differential Pressure Entry : 2 Nos. 4 mm. Hose Nipples at top
- Setting : By 4 keys on the enclosure front plate
- Supply Voltage: 24 V.D.C. 200 mA/24 V A.C.,
- Mounting : Wall mounting / Modular Wall mounting with Stainless Steel Front Flush Plate for Clean Rooms & Equipments



4. PROGRAMMING FLOW CHART

1) FLOW CHART FOR BUZZER/ALARM SETTING :-

Offset setting is a provision given in the instrument to enable it to adjust the readout value to meet a desired value. Use this facility with discretion & by authorised personnel only.



A

H-AL

This is for **HIGHRANGE** alarm set point. Using ▲▼ keys Enter the value.

Press **PROG** key. Now it displays buzz for buzzer ON/OFF SETTING

BUZZ

This is for **ACTIVATING BUZZER** option . Using ▲▼ keys, select YES/NO option.

Press **PROG** key. Now it displays buzz for ON delay time setting.

DLY

This is for **BUZZER** delay time setting. Using ▲▼ keys, enter delay value.

Press **PROG** key. Now it will go to snooze Yes or No option.

BUZZER SNOOZE SETTINGS

SNOZ

This is for **BUZZER** snooze mode activation. Using ▲▼ keys make YES or NO selection for snooze option.

Press **PROG** key. Now it will go to snooze time option.

Snooze time select between 1-99 mins.

SN-T

This is for **BUZZER** snooze time delay settings. Using ▲▼ keys adjust time for setting the snooze time delay.

Press **PROG** key. Now it will go to snooze number (No. of Repeats) Option

Snooze number select between 1-10 times.

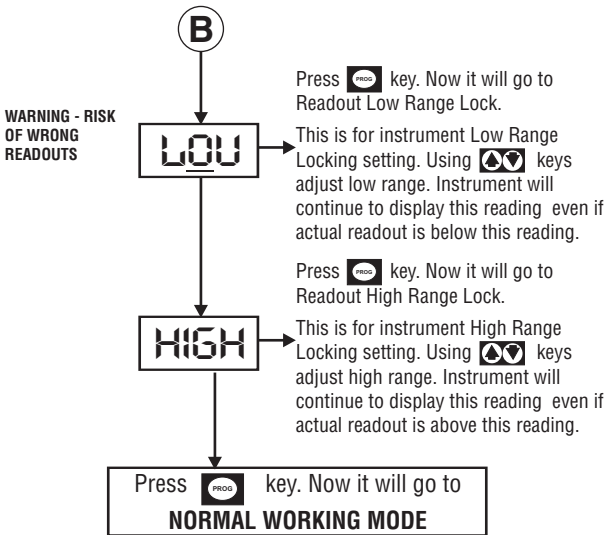
S-NO

Program the **BUZZER** snooze number of repeats settings. Using ▲▼ keys adjust No. of times snooze is to be repeated

B




LOCKING OF INSTRUMENT LOW & HIGH RANGE (TO BE USED BY MANAGER OR SENIOR EXECUTIVE ONLY)



BUZZER LOGIC : The buzzer alarm logic is that the instrument will trigger the buzzer once the Set Values are exceeded. There will be no buzzer within the Low Alarm & High Alarm. The buzzer will trigger only if the readout falls below the Low Alarm (L-AL) or if the readout exceeds the High Alarm (H-AL) limit. Within the Alarm Limits, there will be no buzzer , meaning that the process is within defined limits. The buzzer triggers only on process limit violation.



N.B. The readout starts to blink whenever the Alarm Limits (Process Violation Limit) is exceeded alongwith the buzzer. The Buzzer triggers on only after the delay time selected in the programming mode.

Long Press the  Key to Acknowledge Buzzer. The display continues blinking upon Buzzer Acknowledgement. The Buzzer remains off till another cycle of process violation with delay time set is exceeded.

3) UNIT SELECTION/BUZZER ACKNOWLEDGE : -

Press 

- 1) Unit selection from Pascals to mm.W.c .
- 2) Long Press same key for alarm acknowledgement .

5) WIRING DETAILS :

Standard Model :

1	2	3	4	5	6	7
G	A	B	-	+	-	+
RS 485			4 - 20 mA O / P		24 V DC / AC	

Special Model with external buzzer :

1	2	3	4	5	6	7	8
-	+	-	+	-	+	G	24V
Rs-485		BUZZ / ACK				24V DC/AC	



6) RS 485 MODBUS COMMUNICATION DETAILS:-

Baud Rate - 9600 bps, Parity - None, Data Bits - 8, Stop Bit - 1

Mod Bus Reg. No.	Parameter	Applicable Modbus Functions	Description	Values
0	rngl1	03,06	Lower Range for Unit1	Settable from-999 to (mgh1-1)
1	rngh1	03,06	Higher Range for Unit1	Settable from (rngl1+1) to 9999
2	dp1	03,06	Decimal Point for Unit1	0-9999.1 - 999.2-99.993-9.999
3	rngl2	03,06	Lower Range for Unit2	Settable from-999 to (mgh21)
4	rngh2	03,06	Higher Range for Unit2	Settable from (rngl2 +1) to 9999
5	dp2	03,06	Decimal Point for Unit2	0-9999 1-999.9 2-99.99.3-9.999
6	unit	03,06	Unit of Measurement	Unit1 corresponding to mgl1 mgh1 & dp1 Unit2 corresponding to mgl2 mgh2 & dp2
7	off	03,06	Offset for Display value	Settable from-99 to 99 counts
8			Not used	
9	set3	03,06	Set Point of Relay3(Lower Alarm)	Settable from (rngl1+1) to (set4-1)
10	set4	03,06	Set Point of Relay 4 (Higher Alarm)	Settable from (set3+1) to (rngh-1)
11	buzz_enable	03,06	Buzzer Enable Setting	0-Buzzer OFF 1-Buzzer ON
12	buzz_delay	03,06	Buzzer Delay Setting	Buzzer Delay Settable from 1 to 999 seconds
13	snooze_enable	03,06	Snooze Enable Setting	0 - Snooze OFF, 1 - Snooze ON
14	snooze_time	03,06	Snooze Time Setting	Settable from 1 to 99 Minutes
15	snooze_no	03,06	No. of Snooze Setting	Settable from 1 to 10 Nos.
16	lo_limit	03,06	Lower Limit for Display Lock	Settable from -999 to (hi_limit-1)
17	hi_limit	03,06	Higher Limit for Display Lock	Settable from (lo_limit+1) to 9999
18	relay_flags	03	Relay Status	Bit 0 : Not Used Bit 1 : Not Used Bit 2 : Buzzer ON, 0 - Buzzer OFF
19	t1	03	Process Value	If no error rngl to rngh, 0x7FFD - IPL0, 0x7FFE - IPHI



7. Trouble Shooting :

PROBLEM

1. Pressure Readout is not changing
2. Pressure Readout shows room value & does not change
3. Pressure Reading shows negative readout
- 4 Buzzer is not sounding
- 5 Readout is showing 0 instead of 0.0 positioning
6. Readout is showing a value & Not going below it
7. Readout is showing a value & not going above a certain readout
8. Buzzer Alarm is switching on after some some time.

SOLUTION

Check if the Pressure Ports are duly connected to Silicon Hose & Exposed to pressure

Check if the AHU is switched on & If there is pressure in line

Check the AHU status & ensure that the room is positively pressurized

Ensure that the Set Limits are exceeded to enable the buzzer to sound. Also, Check if the Delay Time is programmed as per requirement.

Check unit selection to ensure correct decimal

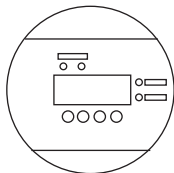
Ensure locking of instrument Low & High Range is correctly configured. The Low value may have been the value being displayed on the screen. Change the Low locking Range to a lower value to ensure proper readout.

Ensure locking Low & High Range is correctly configured. The high value may have been the value being display on the screen. Change the High Locking Range to a still higher value to ensure proper readout.

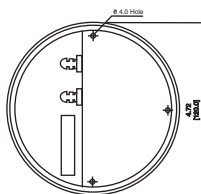
Buzzer Snooze Option may have been enabled. Disable the snooze for instant alarm sounding.



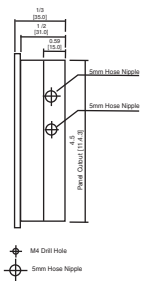
FRONT VIEW



BACK VIEW



SIDE VIEW



Package Contents

- | | | |
|----|----------------------------|--------------------------|
| 1) | D.P. Indicator | <input type="checkbox"/> |
| 2) | Range | <input type="checkbox"/> |
| 3) | Instruction Manual | <input type="checkbox"/> |
| 4) | Calibration Certificate | <input type="checkbox"/> |
| 5) | Traceability Certificate | <input type="checkbox"/> |
| 6) | Analog 4-20m A Output | <input type="checkbox"/> |
| 7) | RS485 Modbus Communication | <input type="checkbox"/> |
| 8) | 24V.D.C. Adaptor | <input type="checkbox"/> |



CLEAN ROOM INSTRUMENTS RANGE FROM THE LEADERS ACE INSTRUMENTS

- CLEAN ROOM SYNCHRONIZED CLOCKS
- CLEAN ROOM MONITOR FOR TEMPERATURE, HUMIDITY & DIFFERENTIAL PRESSURE (3-IN-1)
- CLEAN ROOM HUMIDITY & TEMPERATURE INDICATORS
- DIFFERENTIAL PRESSURE TRANSMITTERS
- HUMIDITY TEMPERATURE TRANSMITTERS
- BMS/SCADA INTEGRATION
- GPS CLOCKS



Manufactured By:

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