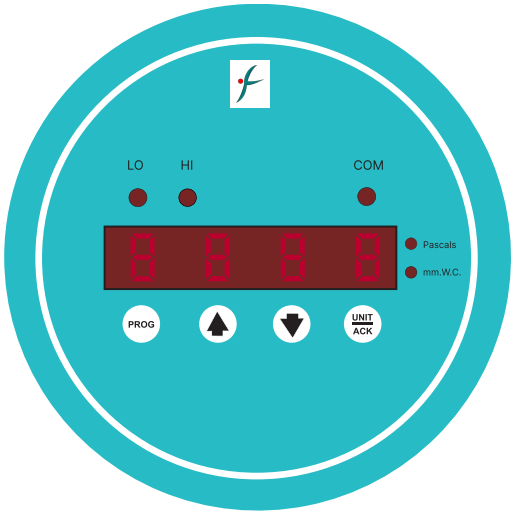
USER MANUAL

Differential Pressure Indicator DPTA11



Futuristic Differential Pressure Gauge DPTA11 is a microcontroller-based indicator designed to show the differential pressure in clean room equipment relative to the corridor or between two clean rooms/equipment. It is equipped with an acknowledgment key and high-quality integrated sensors for precise monitoring. For models with external D.P. transmitters, please inquire with the factory.

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Note :

The front panel key operation of this system is intuitively designed for user-friendly interactions. Commands are available for commands for mode settings, alarm configurations, and offset adjustments. To ensure a smooth installation and usage experience, it is strongly recommended that users thoroughly review the instructions provided in this user manual.

APPLICATIONS

- Pharma Clean Rooms
- Air Handling Units
- Laminar Air Flow Cabinets
- Pharmacy & Bulk drugs
- Electronic Hardware Manufacturing Plants
- Semiconductor Manufacturing
- Hospitals & Operation Theatres
- Green Houses, etc.

SPECIFICATIONS

Pressure Measuring Range	-10.0 to +10.0 mm.W.C./ -25.0 to +25.0 mm.W.C./ -50.0 to +50.0 mm.W.C. / 0.0 to +100.0 mm.W.C./ -100 to +100 Pascals/ -250 to +250 Pascals 0 to 10, 25, 50, 100, 200, 300, 500, 1000 Pascals (Other ranges also available)
Maximum Over Pressure	2 Times The Rated Pressure
Resolution	0.1 inchW/c
Display	Integrated 4 Digit Red Led 7 Segment Display 0.5" High
Power	24 Volts D.C. Typical
Medium	Air Or Gases (Non Corrosive)
Maximum Temp Range	0 to 60 Deg.C
Accuracy	+/- 0.5% Of Full Scale
Alarms	Built In Buzzer Alarm For Process Violation Alert
Connection	2 Nos. Hose Nipples of 4mm. ABS Plastic at the back
Sensor	Integrated High Speed Differential Pressure Sensor
Communication	RS 485 Modbus Protocol
Construction	Matte Finish ABS Plastic Enclosure
Output	Optional 4–20 Ma Isolated

ORDERING CODE

Differential Pressure Transmitter	DPTA11		
Range	XXXX	B10	±10mm / ±100 Pa
		B50	±50mm / ±500 Pa
		B100	±100mm / ±1000 Pa
		010	0 to 10mm / 0 to 100 Pa
		050	0 to 50mm / 0 to 500 Pa
		0100	0 to 100mm / 0 to 1000 Pa
		ZZZ	Any other Special range
Output	XX	NN	None
		mA	4-20mA
Comm. Port	X	N	None
		1	RS485, Modbus
Display	XX	NN	Without display
		D1	4 Digit LED Display

OFFSET SETTING CHART:

⚠ USE THIS FACILITY WITH DISCRETION & BY AUTHORIZED PERSONNEL ONLY

Offset setting is a provision given in the instrument to enable it to adjust the readout value to meet a desired value.

S.No.	STEPS	SCREEN	PARAMETER
1	Look at the screen display	0000	Display Screen (shows diff. pressure)
2	Long press PROG for 5 secs to go to password	PASS	Password (Factory Set)
3	Using ▼ ▲ set the password value 32	0032	Password (Factory Set)
4	Press PROG to go to offset parameter	OFF	Offset
5	Using ▼ ▲ enter the offset value to the actually measured value	0000	Offset
6	Press UNIT/ACK to save	0000	Offset

Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.

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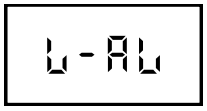
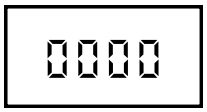
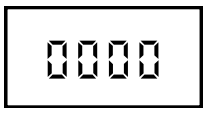
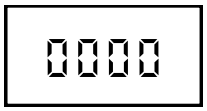
ALARM SETTING CHART:

S.No.	STEPS	SCREEN	PARAMETER
7	Press PROG to go to low alarm		Low Alarm
8	Using ▼ ▲ enter value of the low alarm		Low Alarm
9	Press UNIT/ACK to save		Low Alarm
10	Press PROG to go to high alarm		High Alarm
11	Using ▼ ▲ enter value of the high alarm		High Alarm
12	Press UNIT/ACK to save		High Alarm

Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.

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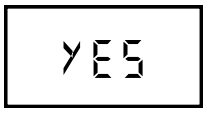
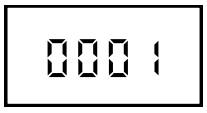
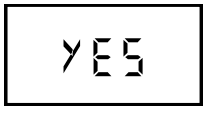
ALARM BUZZER (OPTIONAL) SETTING CHART:

Buzzer logic:

The buzzer alarm logic is such that the instrument will only trigger the buzzer when the set values are exceeded. There will be no buzzer activation within the Low Alarm (L-AL) and High Alarm (H-AL) limits. The buzzer will only be triggered if the readout falls below the Low Alarm limit or exceeds the High Alarm limit. Within these alarm limits, there will be no buzzer activation, indicating that the process is within the defined limits.

The buzzer is set to trigger only after the delay time selected in the programming mode. To acknowledge the buzzer, long-press the UNIT ACK key. The buzzer will remain off until another cycle of process violation occurs with the set delay time being exceeded.

S.No.	STEPS	SCREEN	PARAMETER
13	Press PROG to go to Buzzer Sound		Buzzer Sound
14	Use ▼ ▲ to select yes or no		Buzzer Sound
15	Press UNIT ACK to save		Buzzer Sound
16	Press PROG to go to Buzzer Delay Time		Buzzer Delay Time
17	Use ▼ ▲ to set the delay time in seconds		Buzzer Delay Time
18	Press UNIT ACK to save		Buzzer Delay Time
19	Press PROG to go to Buzzer Snooze Mode		Buzzer Snooze Mode
20	Use ▼ ▲ to select yes or no		Buzzer Snooze Mode

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S.No.	STEPS	SCREEN	PARAMETER
21	Press UNIT/ACK to save	YES	Buzzer Snooze Mode
22	Press PROG to go to Snooze Time Selection	SN-T	Snooze Time
23	Using ▼ ▲ adjust time for setting the snooze time delay	0001	Snooze Time
24	Press UNIT/ACK to save	0001	Snooze Time
25	Press PROG to go to Snooze Number Selection	S-NO	Snooze Number (no. of repeats)
26	Use ▼ ▲ to set the number of times the snooze is to be repeated	0002	Snooze Number (no. of repeats)
27	Press UNIT/ACK to save	0002	Snooze Number (no. of repeats)

Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.

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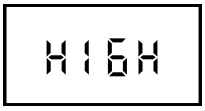
INSTRUMENT LOCKING CHART:

⚠️ TO BE USED EXCLUSIVELY BY MANAGERS OR SENIOR EXECUTIVES

The instrument's low and high ranges can be locked. This ensures that only authorized personnel at the managerial or executive level have the capability to make adjustments or modifications to these settings.

WARNING - RISK OF WRONG READOUTS❗

S.No.	STEPS	SCREEN	PARAMETER
28	Press PROG to go to Snooze Number Selection		Readout Low Range Lock
29	Use ▼ ▲ to adjust low range. Instrument will continue to display this reading even if actual readout is below this reading.		Readout Low Range Lock
30	Press UNIT ACK to save		Readout Low Range Lock
31	Press PROG to go to Snooze Number Selection		Readout High Range Lock
32	Use ▼ ▲ to adjust high range. Instrument will continue to display this reading even if actual readout is above this reading.		Readout High Range Lock
33	Press UNIT ACK to save		Readout High Range Lock
34	Press PROG to go to normal working mode		Normal Mode

Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.

UNIT SELECTION/BUZZER ACKNOWLEDGEMENT

Press the UNIT ACK button for the following functions:

1. Unit Selection:

- Toggle between Pascals (Pa) and millimeters of water column (mm.W.C).
- Check if the instrument is ordered with two engineering units or a single engineering unit.
- If a single engineering unit is selected (either Pa or mm.W.C), the "ack" key does not toggle between engineering units.

2. Buzzer Acknowledgement:

- Long-press the same "ack" key to acknowledge alarms.

This ensures that the UNIT ACK key serves a dual purpose, allowing users to toggle between units and acknowledge of alarms with the appropriate duration of key presses.

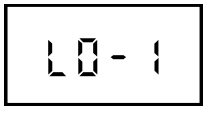
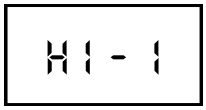
WIRING

Standard Model :

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

INPUT RANGE CONFIGURATION CHART:

WARNING - Do not disturb the PASS, LO-1, HI-1, DP1, LO-2, HI-2, DP2, RES settings as these are factory settings for ranges of differential pressure.

S.No.	STEPS	SCREEN	PARAMETER
1	Long press ▼ ▲ to go to password		Password (Factory Set)
2	Using ▼ ▲ set the password value 24		Password (Factory Set)
3	Press PROG to go to Low Range Pascal's setting		Low Range (Pascal's)
4	Using ▼ ▲ enter the value -500		Low Range (Pascal's)
5	Press UNIT ACK to save		Low Range (Pascal's)
6	Press PROG to go to High Range Pascal's setting		High Range (Pascal's)
7	Using ▼ ▲ enter the value 500		High Range (Pascal's)
8	Press UNIT ACK to save		High Range (Pascal's)
9	Press PROG to go to Decimal Point selection		Decimal Point Selection
10	Using ▼ ▲ enter the value 9999		Decimal Point Selection
11	Press UNIT ACK to save		Decimal Point Selection

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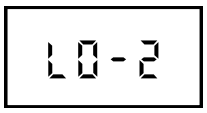
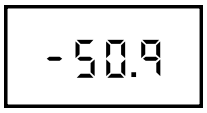
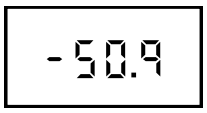
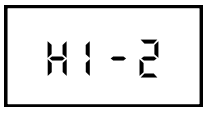
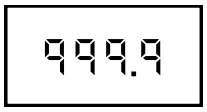
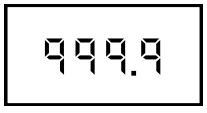
S.No.	STEPS	SCREEN	PARAMETER
12	Press PROG to go to Low Range mm W.C. setting		Low Range (mm W.C.)
13	Using ▼ ▲ enter the value -50.9		Low Range (mm W.C.)
14	Press UNIT ACK to save		Low Range (mm W.C.)
15	Press PROG to go to High Range mm W.C. setting		High Range (mm W.C.)
16	Using ▼ ▲ enter the value 50.9		High Range (mm W.C.)
17	Press UNIT ACK to save		High Range (mm W.C.)
18	Press PROG to go to Decimal Point selection		Decimal Point Selection
19	Using ▼ ▲ enter the value 999.9		Decimal Point Selection
20	Press UNIT ACK to save		Decimal Point Selection

Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.

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OUTPUT RANGE CONFIGURATION CHART:

WARNING - Do not disturb the RES, Output Type(4-20mA) settings as these are factory settings for ranges of differential pressure.

SPECIFICATIONS

1. Analog 4-20mA:

- Selected at the time of ordering.
- Caution: Please do not alter this setting.

2. Pressure Readout:

- Response time is programmable.
- Adjustable within the range of 0 to 99 seconds.

3. Selectable ID:

- ID can be chosen based on communication requirements.

4. Selectable Baud Rate:

- Baud rate options: 4800, 9600, 19200, 38400 bps.

S.No.	STEPS	SCREEN	PARAMETER
21	Press PROG to go to Low Range output setting	0P-L	Low Range (Analog Output)
22	Use ▼ ▲ to select output low range	0000	Low Range (Analog Output)
23	Press UNIT ACK to save	0000	Low Range (Analog Output)
24	Press PROG to go to High Range output setting	0P-H	High Range (Analog Output)
25	Use ▼ ▲ to select output high range	0000	High Range (Pascal's)
26	Press UNIT ACK to save	0000	High Range (Pascal's)

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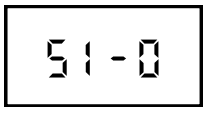
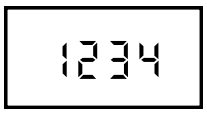
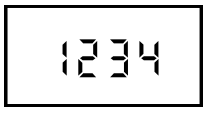
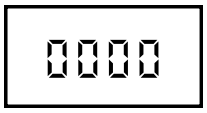
S.No.	STEPS	SCREEN	PARAMETER
27	Press PROG to go to Response Time Adjustment		Response Time Adjustment
28	Using ▼ ▲ select response time for pressure read out delay response time		Response Time Adjustment
29	Press UNIT ACK to save		Response Time Adjustment
30	Press PROG to go to Communication ID setting		Communication device ID setting
31	Using ▼ ▲ to enter the value		Communication device ID setting
34	Press UNIT ACK to save		Communication device ID setting
32	Press PROG to go to Baud Rate		Device Baud Rate
33	Using ▼ ▲ to select the value		Device Baud Rate
34	Press UNIT ACK to save		Device Baud Rate
35	Press PROG to go to normal working mode		Normal Mode

Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.

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RS 485 MODBUS COMMUNICATION DETAILS:

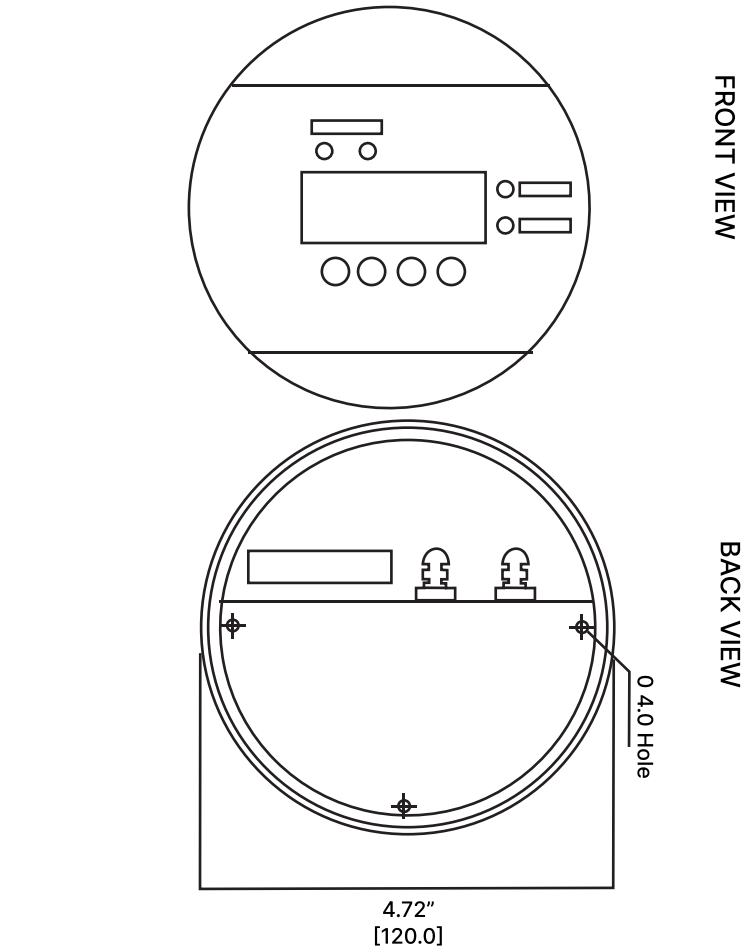
Baud Rate - 9600 bps, Parity - None, Date Bits - 8, Stop Bit - 1

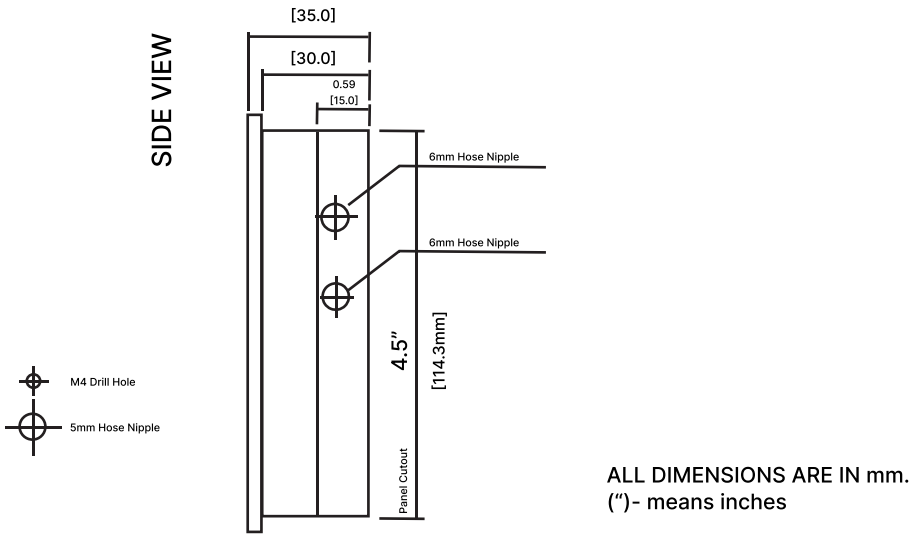
Mod Bus Reg. No.	Parameter	Modbus Functions	Description	Values
0	rngl1	03,06	Lower Range for Pascals	Settable from -999 upto (rngh1-1)
1	rngh1	03,06	Higher Range for Pascals	Settable upto (rngl1+1) upto 9999
2	dp1	03,06	Decimal Point for Pascals	0-9999.1 - 999.2-99.993-9.999
3	rngl2	03,06	Lower Range for mm W.c	Settable from-999 upto (rngh21)
4	rngh2	03,06	Higher Range for mm W.c	Settable from (rngl2 +1) upto 9999
5	dp2	03,06	Decimal Point for mm W.c	0-9999 1-999.9 2-99.99 3-9.999
6	unit	03,06	Unit of Measurement	Unit1 0- Pascals
				Unit2 1-mm W.C
7	off	03,06	Offset for Display value	Settable from -99 to 99 counts
8	-	-	not used	-
9	set3	03,06	Set Point of (Lower Alarm)	Settable from (rngl1+1) to (set4-1)
10	set4	03,06	Set Point of (Higher Alarm)	Settable from (set3+1) to (rngh-1)
11	buzz_enable	03,06	Buzzer Enable/ Disable 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
	(If selected)			Bit 1 : Not Used
				Bit 2 : Buzzer ON, 0 - Buzzer OFF
19	oplo	03,06	output low	Settable from -999 to (rngh1-1)
20	ophi	03,06	output high	Settable from (rngl1+1) to 9999
21			not used	
22	TI03		differential pressure process value	process value
23			not used	
24			not used	
25			not used	
26			Alarm Flag	0 - No alarm
				1 - Low alarm
				1 - High alarm

TROUBLESHOOTING:

	Problem	Solution
1	Pressure Readout is not changing	Check if the Pressure Ports are duly connected to Silicon Hose & Exposed to pressure
2	Pressure Readout shows room value & does not change	Check if the AHU is switched on & If there is pressure in line
3	Pressure Reading shows negative readout	Check the AHU status & ensure that the room is positively pressurized
4	Buzzer is not sounding	Ensure that the Set Limits are exceeded to enable the buzzer to sound. Also, Check if the Delay Time is programmed as per requirement.
5	Readout is showing O instead of 0.0 positioning	Check unit selection to ensure correct decimal
6	Readout is showing a value & Not going below it	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.
7	Readout is showing a value & not going above a certain 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.
8	Buzzer Alarm is switching on after some some time	Buzzer Snooze Option may have been enabled. Disable the snooze for instant alarm sounding.

DIMENSIONAL DRAWING





ALL DIMENSIONS ARE IN mm.
(“)- means inches

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