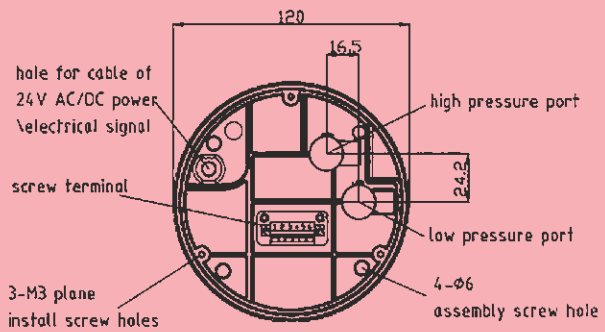
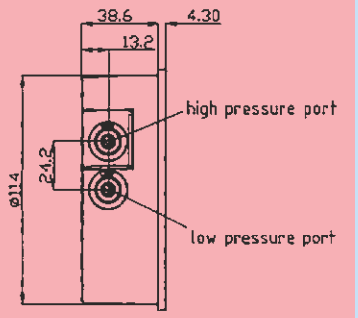
AEROSENSE®

SERIES CDP

DIGITAL DIFFERENTIAL PRESSURE TRANSMITTER





The Series CDP Digital Differential Pressure Transmitter is available with various combinations in a single unit such as audio visual alarm and transmitter or two relays and transmitter. Combining these features allows the reduction of several instruments in one product, saving inventory, installation time and money.

FEATURES:

- Easy to read LED display with audio visual alarm or relay provides immediate local alerts allowing corrective action to be taken quicker to eliminate problem from becoming widespread.
- Multiple ranges, outputs and selectable engineering units.

APPLICATIONS:

- It can measure and control system pressure of fan, blower, filter, furnace draft and orifice plate and can apply to various clean room, biological safety cabinet, clean bench, dust collection systems, medical or pharmaceutical machine, etc.

MODEL CHART FOR DIGITAL DIFFERENTIAL PRESSURE TRANSMITTER

Series	CDPT CDPM		DIGITAL DIFFERENTIAL PRESSURE TRANSMITTER DIGITAL DIFFERENTIAL PRESSURE TRANSMITTER (MODBUS COMMUNICATION)
		x	Range Selection

MODEL CHART FOR DIGITAL DIFFERENTIAL PRESSURE CONTROLLER

Series	CDPC		DIGITAL DIFFERENTIAL PRESSURE CONTROLLER
		x	Range Selection

Code	UNIT & Range & Display Resolution					
	Pa	Pa	kPa	in w.c.	mm w.c.	mbar
0	0-25	25.00	0.025	0.100	2.500	0.250
Q	0-60	60.00	0.060	0.250	6.000	0.600
H	0-125	125.0	0.125	0.500	12.00	1.250
1	0-250	250.0	0.250	1.000	25.00	2.500
2	0-500	500.0	0.500	2.000	50.00	5.000
4	0-1000	1000	1.000	4.000	100.0	10.00
10	0-2500	2500	2.500	10.00	250.0	25.00
20	0-5000	5000	5.000	20.00	500.0	50.00
40	0-10000	10000	10.000	40.00	1000.0	100.00

SPECIFICATIONS:

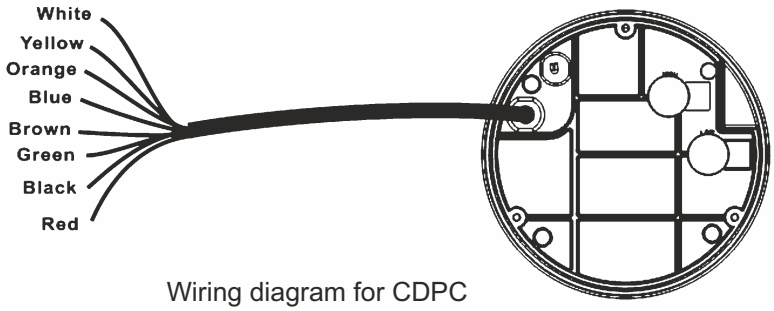
Medium: Air & Non-Combustible, Non-corrosive air
Operating Temp.: 0-60°C
Materials: cast aluminum housing and PC plate
Storage Temp.: -20~70°C
Compensated Temp.: 0-50°C
Work pressure: 1, 2, 5 or 10kPa for different ranges overload 5xFS, burst 10xFS
Connection: 1/8" ID tubing, two pairs (on left side and back)
Display: 4 bits 0.8" red LED
Output
CDPT:0-10V & 4-20mA (3 wires), and 1x Buzzer (audio alarm)
CDPM: RS485-Modbus RTU (9600-n-8-1), and 1x Buzzer (audio alarm)
CDPC: 0-10V & 4-20mA (3 wires) 2×SPST,3A×30VDC/250VAC
Output Load: ≤500Ω (current), ≥2kΩ (voltage)
Electrical wiring: cable terminals from back of the enclosure
Accuracy: ±1.0% FS
Long term stability: ±0.5%FS /Year
Thermal effect: ＜0.05%FS/°C(Zero), ＜0.08%FS/°C(FS)
Response time: 0.5-30s
Power: 16-28V AC/ DC
Key: 3 buttons
Protection: IP65
Approval: CE

For zero center models, add "Z" at the end of the model. For example, CDPT-QL-LEDZ, means -60-0-60 Pa. Range 20, 40 is not available with Zero Centre.

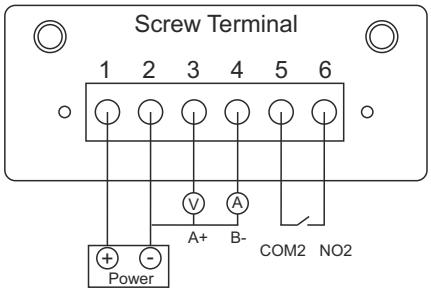
DIGITAL DIFFERENTIAL PRESSURE TRANSMITTER

Connection

Different models have different electrical connections. Refer to the table as below (x means for any models).



Wiring diagram for CDPC



Wiring diagram for CDPT/CDPM

Models	Eight Cores Cable								
CDPT	Cable Color	Red	Black	Yellow	White				
	Electrical Signal	+24V	GND	0-10V	4-20mA				
CDPC	Cable Color	Red	Black	Yellow	White	Green	Brown	Blue	Orange
	Electrical Signal	+24V	GND	0-10V	4-20mA	NO2	COM2	NO1	COM1
CDPM	Cable Color	Red	Black	Yellow	White				
	Electrical Signal	+24V	GND	A+	B-				

Operation Instruction

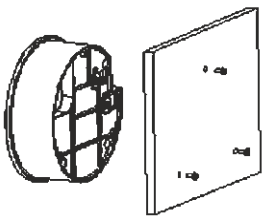
Refer to **CDPT Digital Differential Pressure Transmitter - Operation Instruction.**

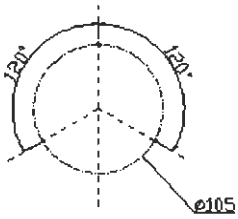
Modbus Set

If choose RS485/Modbus，user can use it to do all operation. Refer to the **CDPM Digital Differential Pressure Transmitter RS485/Modbus Communication Data Table.**

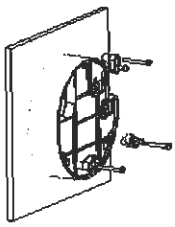
Installation

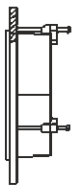
Surface mount





Embedded mount





Zero reset & Calibration

According to different environment and sensor's characteristics, after long period of using, the sensor's accuracy may reduce. The transmitter should be zero reset after initial installed to meet the specified accuracy, and be zero reset periodically in every 6-12 months' using, or when the accuracy reduces. it is recommended to be zero reset after 7 days continuous using.
Zero reset: keep the high/low pressure ports unconnected in stable air, or directly connect the two, press the button ►for 5s to reset the actual “zero point”. It means “remove the zero drift of the transmitter in order to improve the accuracy”.
It is recommended that this operation could be done periodically.

DIGITAL DIFFERENTIAL PRESSURE TRANSMITTER

Note: it should be clear that the "zero point" of the input differential pressure is different from the "zero output position" of the transmitter. "zero point" means the point that the input differential pressure is 0, and "zero output position" means the low limit value of the measuring range.
Initial zero reset: when initial power on, it should be zero reset after fully warm-up and stable, to meet the specified accuracy.
Long term zero drift & reset: It may have long term zero drift after continuous working; customers can reset it periodically.
Re-calibration & zero reset: when re-calibration needed, zero reset should be done first. A qualified standard manometer is needed for re-calibration operation. Please follow the operation procedures below.

Attention

It should be power OFF during installing and wiring. When using 24VAC, it is strongly recommended to power the unit with independent transformer. If sharing a 24VAC transformer with other equipments such as controllers, transmitters or actuators, please make sure the terminals 24V and GND are connected correctly. Otherwise, it may reduce serious damages.

Warranty

- It has limited warranty for twelve (12) months after the production date.
- It does not extend to any unit that has been subjected to misuse or accident.
- It is, in any event, strictly limited to the replacement or repair of the product itself.

CDPT and CDPM Digital Differential Pressure Transmitter - Operation Instruction

Button definition:

Set/Save Bit Select/decrease Adjust/increase

Zero reset: keep the high/low pressure ports unconnected in stable air, or directly connect the two, press the button ►5s to reset the actual "zero point". It means "remove the zero drift of the transmitter in order to improve the accuracy". It is recommended that this operation could be done periodically.

Note: it should be clear that the "zero point" of the input differential pressure is different from the "zero output position" of the transmitter. "Zero point" means the point that the input differential pressure is 0, and "zero output position" means the relevant input differential pressure value when the calibrated transmitter's output is 0V or 4mA.

Operation instruction:

1."P810": Reset

User can resume the factory default set. Input "P810", "PRET" will flash, press button ●, all factory default set will restore.

2. "P075": Set the smoothing time (Default set: 0.7s, available range: 0.5-30.0s)

● →►/▲→P075→●→►/▲→XXX→●finish. (XXX means set time)

3. "P083": Check LED display function, it will display the 4 digits one by one.

● →►/▲→P083→● finish

4."P081": Set Engineering Unit (Default set: 1, for engineering unit Pa, available ranges: 1-5)

● →►/▲→P081→●→►/▲→XXX→● finish (XXX means the code of engineering unit), then the relevant LED on.

(Index: 1: Pa; 2: kPa; 3: mbar; 4: mmW.C.; 5: inW.C.)

5."P485": Set RS485 address(Default set: 1, available ranges 1~255, but recommend 1~32)

● →►/▲→P485→●→►/▲→XXX→● finish. (XXX means RS485 address)

Note：Refer to the communication data table

6."P401":Buzzer/ Relay 1 Set (default set: 0, 50, 5, 0, 1)

●→►/▲→P401→●→►/▲→XXX→●→►/▲→XXX→●→►/▲→XXX→●→►/▲→XXX→●→►/▲→XXX→●finish

XXX means 5 settable parameters, stands for relay output mode, parameter #1, #2, #3 and #4 respectively.

DIGITAL DIFFERENTIAL PRESSURE TRANSMITTER

Mode	Description	Para. #1	Para. #2	Para. #3	Para. #4	Definition
0	Cancel relay alarm function	N/A	N/A	N/A	N/A	Relay OFF
1	Relay actuate when input is lower than setpoint	Setpoint	Deadband	Actuate delay	Restore delay	Relay ON / Deadband / Relay OFF / Setpoint
2	Relay actuate when input is higher than setpoint	Setpoint	Deadband	Actuate delay	Restore delay	Relay OFF / Deadband / Relay ON / Setpoint
3	Relay actuate between high and low limits	Low limit	High limit	Actuate delay	Restore delay	Relay OFF / Relay ON / Relay OFF / Low limit / High limit
4	Relay actuate outside high and low limits	Low limit	High limit	Actuate delay	Restore delay	Relay ON / Relay OFF / Relay ON / Low limit / High limit

Available actuate or restore delay: 0~100 seconds.
When negative parameters needed, should set any of the LEDs last 3 bits not to be zero, then press ► to make the first (thousand) bit flash, then use ▲ to set 0～9～0～-9 in cycle.
Relay pause hot key: in normal status press ▲over 2 seconds, Alarm will pause actuate delay times.

7."P402": Relay 2 Set (default set: 0, 50, 5, 0, 1)

●→►/▲→P402→●→►/▲→XXX→●→►/▲→XXX→●→►/▲→XXX→●→►/▲→XXX→●→►/▲→XXX→●finish
XXX means 5 settable parameters, stands for relay output mode, parameter #1, #2, #3 and #4 respectively.
For other operation, the same as above “P401”.

Calibration by user:

Even though the product can be re-calibrated by user, it should be operated very carefully. The calibration is already finished in factory. It may be out of accuracy or even damaged after un-properly re-calibrated.
There are 2 sets of parameters can be re-calibrated by user. Current outputs at both zero (4mA) and full range (20mA) and voltage outputs at both zero(0V) and full range(10V). The calibration of analog output (4-20mA/0-10V) are independent. All calibrated data will be stored and kept in the flash memory even power supply is fail. But the factory default sets are always kept and can be restored any time.
There are need 2 conditions/tools for re-calibrating, a stable power supply and an accurate multi-meter (voltmeter or ammeter). Make sure to connect the calibrated transmitter with all meters properly and operate relevant calibrations as required.

8. "P271": Re-calibrate analog voltage output, include zero and full range

●→►/▲→P271→●→►/▲→key→●→►/▲→Wait jump→►/▲→● finish. “Key” is calibration password: 1021.
Calibration method: Enter P271 and password, connect the transmitter with standard voltmeter. At this time the LED will display present full range value and last 25s. During this period, press ►/▲ to make the voltage output become 10V. When the LED displays present zero input value (it will last 25s), press ►/▲ to make the output become 0V, then press ● to finish.

9. "P281": Re-calibrate analog current output, include zero and full range

●→►/▲→P281→●→►/▲→key→●→►/▲→Wait jump→►/▲→● finish. “Key” is calibration password: 1021.
Calibration method: Enter P281 and password, connect the transmitter with standard ammeter. At this time, the LED will display present full range value and last 25s. During this period, press►/▲ to make the current output become 20mA. When the LED displays present zero input value(it will last 25s), press►/▲ to make the output become 4mA, then press ● to finish.

System Error signal:

Err 1 Keys input operation code is wrong
Err 2 Input data is not available
Err 3 Modbus attempt to write read only register error
Err 4 Modbus CRC check error
Err 6 Password Key input error