RSA SENSORES, CONTROLES, VALVULAS, ATUADORES, EQUIPAMENTOS, HVAC E AUTOMAÇÃO
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RSA-TDPA Differential Pressure Transmitter

Applications & Features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure . RSA-TDPA is suitable for wall mount, RSA-TDPA -F is suitable for flush mount
- It can measure system pressure of fan, blower, filter, furnace draft and orifice plate and can apply to various clean room, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
- Multiple ranges, engineering units and outputs
- Good performance with accuracy of 1.0% and range as low as 25Pa
- Function keys: zero calibrate, unit select, response time set, etc
- Field upgradable LCD display module and multiple ranges selection

Specifications

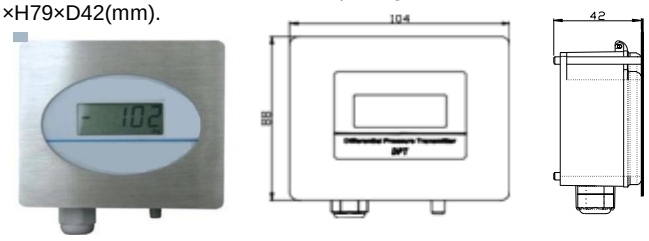
Medium: non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
Working Temp.: -20~70°C
Medium Temp.:0~60°C
Temp. Compensation: 0~50°C
Working Pressure: overload 10xFS, burst 15xFS
Accuracy: ±1.0%FS(±2.0%FS@25Pa range)
Long term stability: ±0.5%FS/Year
Thermal effect: <0.05%FS/°C (zero), <0.08%FS/°C (FS)
Response Time: 0.5~30s, can be set by keys
Process Connection: 5mm ID tubing
Display: 5 digits LCD, displayarea 44x18mm, with unit indication, field upgradable
Output: 0~10V, 4~20m A (2 wires), RS485 selectable
Output Load: ≤500Ω (current), ≥2kΩ (voltage)
Power: Voltage: 16~28VAC/ 16~35VDC
Current: 18.5~35VDC (R_L=500Ω); 8.5~35VDC (R_L=0Ω)
Units: 5 units, selected by keys

Zero set: easy to reset by external key
Materials: ABS (housing) & PC (cover)
Protection: IP54
Weight:165g
Approval: CE
Accessories: LCD displaymodule (model RSA-TDPA -LCD), including 1 LCD module and 1 panel film , and flush mount panel (model RSA-TDPA -A), can be ordered separately

Models

Model	RSA-TDPA RSA-TDPA -F				DP transmitter Flush Mount DP Transmitter
Range		X			Range selection
Output			1 2 8		0-10V 4-20mA(2 wires) RS485/Modbus
Display				0 1	N/A LCD

RSA-TDPA-F Flush Mount Differential Pressure Transmitter
It's the combination of RSA-TDPA (with LCD) and flush mount panel (model RSA-TDPA -A). The specifications are the same as RSA-TDPA. And the model is RSA-TDPA -F xx1(with LCD). It's good for flush mount in clean room or equipment with no dust and easy to clean 316 brushed stainless steel panel, with the size W104×H88×T1.5 and flush mount opening size W93 ×H79×D42(mm).



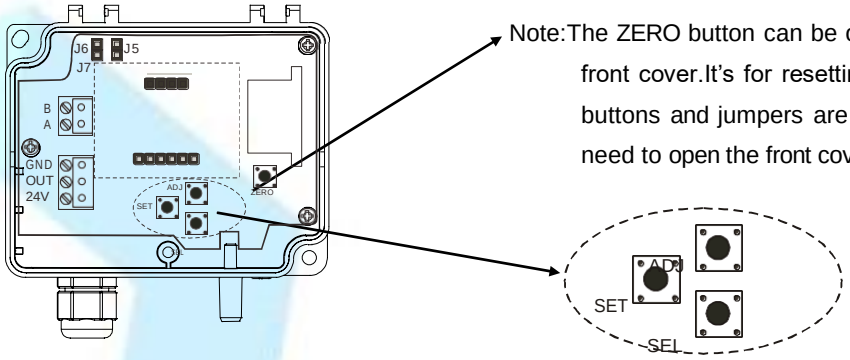
Measuring Ranges

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
1	0-60/125	60.00	0.060	0.250	6.000	0.600
		125.0	0.125	0.500	12.00	1.250
3	0-250/500/1000	250.0	0.250	1.000	25.00	2.500
		500.0	0.500	2.000	50.00	5.000
		1000	1.000	4.000	100.0	10.00
6	0-2500	2500	2.500	10.00	250.0	25.00
7	0-5000	5000	5.000	20.00	500.0	50.00
8	0-10000	10000	10.00	40.00	1000	100.0

1. Code 1 and 3 have multiple rangeswhich could be jumper selected.
2. Set the 5 engineering unitsby button keysand the related LCD indicator will be on.
3. For zero center models, add "Z" at the end of the model. For example, RSA-TDPA 1**Z, means the range is-30-0-30/-62.5-0-62.5pa. Only ranges 1~6 have thisselection.

Connection:

Different m odels ha ve different electri ca l connections. Refer to the table as below (x m eans for any m odels).



Terminal:

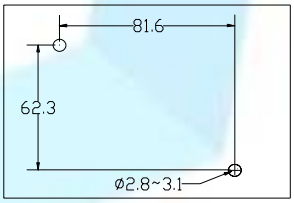
Models	Connections					
RSA-TDPA X1X	Terminal	24V	GND	OUT		
	Signal	Power+	Power-	0-10V		
RSA-TDPA X2X	Terminal	24V	OUT			
	Signal	Power+	4-20mA			
RSA-TDPA X8X	Terminal	24V	GND	OUT	B	A
	Signal	Power+	Power-	N/A	B/Z	A/Y

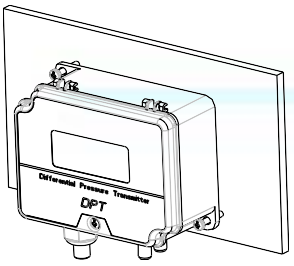
RSA-TDPA1XX and RSA-TDPA3XX Range Jumpers Setting(J5, J6, J7) :

Models	Jumpers				Remark
RSA-TDPA 1XX	Range	J5	J6	J7	√: ON (Connected)
	0-60Pa			√	
	0125Pa	√			
RSA-TDPA 3XX	0-250Pa			√	
	0-500Pa	√			
	0-1000Pa		√		

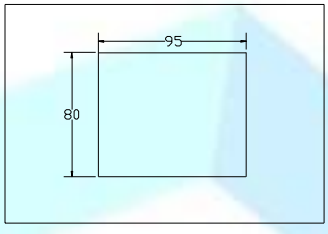
Surface Mounting:

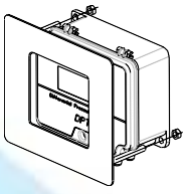
It can be installed bysurface mount and connected high(+) and low(-) pressures with accessories.

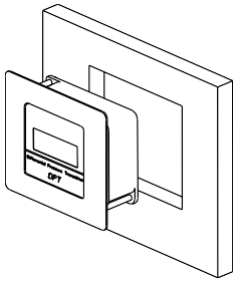


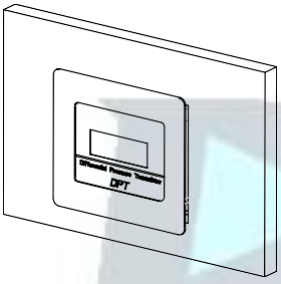


Flush Mounting:









(1) Cut a 95(W)×80(H)mmrectangular hole on the wall.
(2) Assemble the panel with the transmitter as shownabove.Connect the tubes (be careful of the high(+)/low(-) ports) and the electrical terminals, then coat some glue on the back of the stainless steel installation panel, insertthe transmitter body into the hole and paste the panel with the wall properly.

Zero reset & Calibration:

According to diffe re nt environm ent and sensor's characteristics , fo r long te rm of using, the s ens o r's accu ra cy ma yb e drift. The transm i tter should be ze ro reset after in i ti al installed to meet the spe ci fied a ccu ra cy, and be ze ro res et pe ri odi ca ll y in e ve ry 6 -12 months' us ing. It is recommended to be "ze ro reset" after the ini tia l 7 days continuous working.

Zero reset: keep the high（+）/l ow（-）p ressu re ports un con nected in s table ai r, or directly connect them , p ress the button "ZERO" for 5s to perfo rm "zero reset". It means "remove the zero d ri ft of the transmitter in o rd er to imp ro ve the accuracy". It is recommended that this operation could be done periodi ca ll y.

Initial ze ro reset: when in i ti al power on, i t should be ze ro rese t after fu ll y wa rm -up and s table, to m eet the s pecified accura cy.

Long term ze ro drift & reset: It m ay ha ve long term ze ro drift after continuous working; cus tom e rs can reset i t periodi ca ll y.

Re-cal ibration & ze ro reset: when re-calib ra tion needed, ze ro reset should be done firs t. A qualified s tanda rd m anometer is needed for re -calibration operation. Please follow the operation procedures below.

Attention:

It should be power OFF du ri ng ins ta ll ing and wiring. When using 24 VAC , i t is s trongly re comme nded to power the unit with independent trans form e r. If sha ri ng a 24 VAC trans fo rme r with other equipments s u ch as contro ll e rs, transmitte rs or actuators , please m ake s u re the terminals 24 V and GND are connected co rre ctly. Othe rw ise, i t m ay reduce s erious damages.

Warranty:

- It has l imited warranty for eighteen (18) m onths after the production date.
- It does not extend to any unit that has been s ubjected to m isuse or accident.
- It is , in any event, s trictly lim i ted to the replacement or repair of the product i ts elf.

RSA-TDPA Differential Pressure Transmitter - Operation Instruction

Button definition:

"SET": Set/Confirm/Save; "SEL": Bit Select/Decrease; "ADJ": Adjus t/Increase; "Zero ":Ze ro Reset

Zero reset: keep the high（+）/low（-）pressu re ports unconnected in s table ai r, or di re ctly connect the two, press the button "Ze ro " 5s to rese t the actual "zero point". It m eans "rem ove the zero d ri ft of the transmitter in order to im prove the accuracy". It is recommended that this ope ra tion could be done periodically.

Operation instruction:

1. **"P810": Reset**

SET→SEL/ADJ→P810→SET

User can restore the factory default set. Input "P810", "Pret" will blink, press button SET, all factory default set will res tore.

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

SET→SEL/ADJ→P075→SET→SEL/ADJ→XXX→SET. (XXX means set time).

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

SET→SEL/ADJ→P083→SET

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

SET→SEL/ADJ→P081→SET→SEL/ADJ→XXX→SET (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 1~30)**

SET→SEL/ADJ→P485→SET→SEL/ADJ→XXX→SET (XXX means RS485 address) **Note**

: Refer to the communication data table

6. **"P484": Set RS485 RTU Mode(Default set: 1, available 1 or 2)**

SET→SEL/ADJ→P484→SET→SEL/ADJ→XXX→SET (XXX means RTU Mode index)

Index：1: 9600-N-8-1; 2:9600-N-8-2.

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 sets of parameters can be re-calibrated by user. Current outputs at both zero (4mA) and full range (20mA) or voltage outputs at both zero(0V) and full range(10V). All calibrated data will be stored and kept in the flash memory even power supp ly is fail. But the factory default sets are always kept and can be restored any time.

7. **"P271": Re-calibrate analog output, include zero and full range**

SET→SEL/ADJ→P271→SET→SEL/ADJ→"key"→SET→SEL/ADJ→Waitjump→SEL/ADJ→SET

"Key" is calibration password: 1021.

Calibration method : Enter P271 and password, connect the transmitter with standard meter. At this time the LED will alternatedisplay “ZErO” and “ FULL”. During “ FULL” display period(last about 25s), press SEL/ADJ to adjust the output become 10V or 20mA. During “ZErO” display period(last about 25s), pressSEL/ADJ to adjust the output become 0V or 4mA, then press SET to finish. If adjust to the limit, it will display"Err".

System Error signal:

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