

Description



Single and dual differential pressure transmitters of the PTS series are used to measure differential pressure, overpressure and vacuum. They provide eight adjustable pressure ranges, two output signals, Modbus and calibrated and temperature compensated measurements. Monitoring of gaseous, non-aggressive media. Possible usage areas are: Building automation, air conditioning systems and clean room monitoring, valve and flap control, filter, ventilator and blower monitoring, control of air flows.

Technical data

Supply voltage	24 VAC or 15...35 VDC
Power consumption	< 1,5 W
Output signal	0...10 VDC, 2...10 VDC, 0...5 VDC, 1...5 VDC, 4...20 mA
Current output	4...20 mA, maximum 500 Ohm
Voltage output	0...10 VDC or 0...5 VDC, minimum 1000 Ohm
Relay output	Max. rating 1A at 230 VAC
Sensing element	Piezoresistive silicon ceramic sensor
Pressure medium	Air and non-aggressive gases
Temperature compensation	-40 ... 110°C
Accuracy	± 0,25% of FS
Working temperature	-25 ... 70°C
Storage temperature	-30 ... 85°C
Pressure connection	6 mm hose connection
Electrical connection	Spring terminals for wires and leads up to 1,5 mm ²
Mounting	Screw mounting with serrated screws
Housing dimensions	151x85x50 mm
Weight	168...205 g
Cable conduit for protection cap	M16
Protection class EN 60529	IP54
Standards	CE conformity, RoHS



Order matrix

model	Range 1		Range 2		Output 1		Output 2		Option	
PTS	0	no	0	no	0	no	0	no	M	Modbus
	1	±250 Pa	1	±250 Pa	1	0...10 VDC	1	0...10 VDC	D	Display
	2	1.000 Pa	2	1.000 Pa	2	2...10 VDC	2	2...10 VDC	R	Relay*
	3	±1.000 Pa	3	±1.000 Pa	3	0...5 VDC	3	0...5 VDC		
	4	2.500 Pa	4	2.500 Pa	4	1...5 VDC	4	1...5 VDC		
	5	10.000 Pa	5	10.000 Pa	5	4...20 mA	5	4...20 mA		
	6	6.000 Pa	6	6.000 Pa						
	7	±6.000 Pa	7	±6.000 Pa						

*It is recommendable to order the relay version with display option.

Each range has its own 8 sub-ranges that can be selected by DIP switch, see schedule hereafter.



Range - Pa	sub-ranges - Pa
0 no	no
1 ±250	-25...+25, -50...+50, -100...+100, -250...+250, 0...25, 0...50, 0...100, 0...250
2 1.000	0...100, 0...200, 0...300, 0...400, 0...500, 0...600, 0...750, 0...1.000
3 ±1.000	-250...+250, -500...+500, -750...+750, -1.000...+1.000, 0...250, 0...500, 0...750, 0...1.000
4 2.500	0...100, 0...250, 0...500, 0...750, 0...1.000, 0...1.500, 0...2.000, 0...2.500
5 10.000	0...1k, 0...2k, 0...3k, 0...4k, 0...5k, 0...6k, 0...7,5k, 0...10k
6 6.000	0...500, 0...750, 0...1.000, 0...2.000, 0...3.000, 0...4.000, 0...5.000, 0...6.000
7 ±6.000	-1k...+1k, -2k...+2k, -3k...+3k, -6k...+6k, 0...1k, 0...2k, 0...3k, 0...6k

DIP Switch

1. SW1, channel #1,2,3 selects port 1 sub-ranges
2. SW1, channel #4 selects reponse time

Sub-ranges

DIP switch 1 and DIP switch 2 have the same subscales selectable from the table.

SW1/2	±250 Pa	1.000 Pa	±1.000 Pa	2.500 Pa	6.000 Pa	±6.000 Pa	10 KPa
	-25...25	0...100	-250...250	0...100	0...500	-1.000...1.000	0...1 KPa
	-50...50	0...200	-500...500	0...250	0...750	-2.000...2.000	0...2 KPa
	-100...100	0...300	-750...750	0...500	0...1.000	-3.000...3.000	0...3 KPa
	-250...250	0...400	-1.000...1.000	0...750	0...2.000	-6.000...6.000	0...4 KPa
	0...25	0...500	0...250	0...1.000	0...3.000	0...1.000	0...5 KPa
	0...50	0...600	0...500	0...1.500	0...4.000	0...2.000	0...6 KPa
	0...100	0...750	0...750	0...2.000	0...5.000	0...3.000	0...7.5 KPa
	0...250	0...1.000	0...1.000	0...2.500	0...6.000	0...6.000	0...10 KPa

Response time

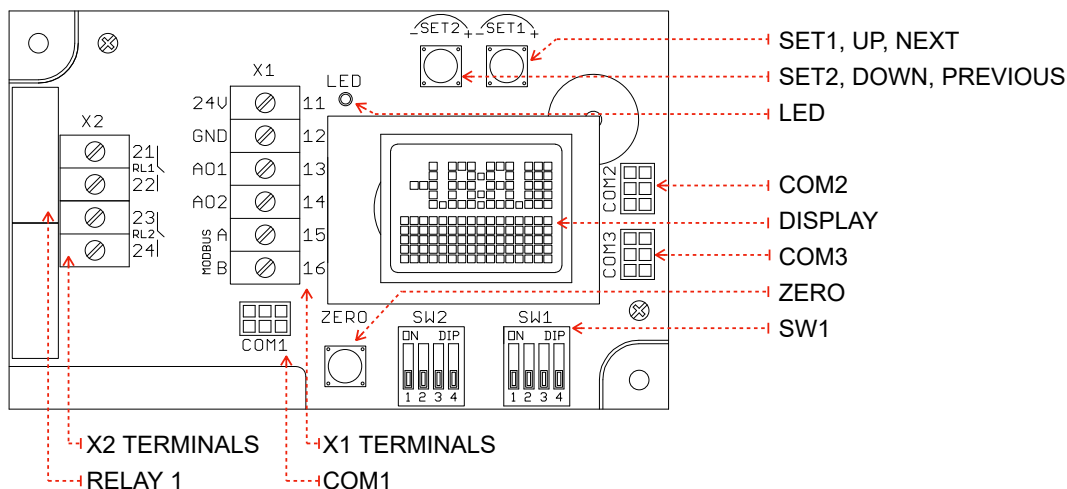
SW1	Response
	FAST / 1 sec.
	SLOW / 4 sec.

In both cases, FAST or SLOW,
- output is mean of latest 10 measurements.

Output is updated:
- every 0.1 second in FAST mode
- every 0.4 second in SLOW mode

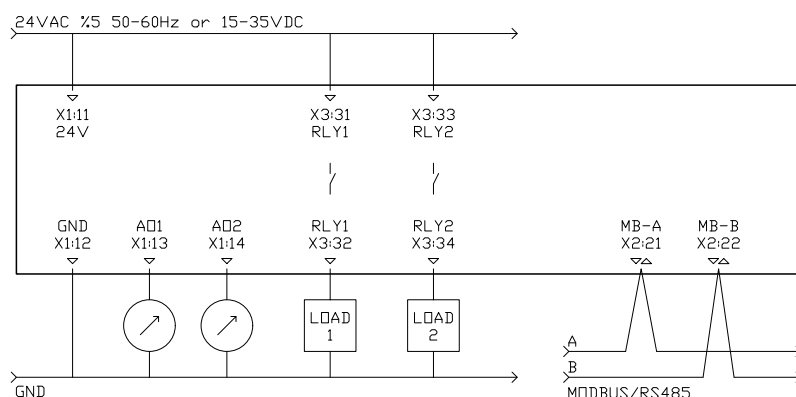


■ Transmitter hardware



SET1	Main Screen Menu Mode	press min. 5 sec. for entering MENU increase the parameter or next selection
SET2	Menu Mode	decrease the parameter or previous selection
ZERO	Main Screen Menu Mode	press min. 5 sec. for setting ZERO next parameter and finally exit
LED	Working Modbus	blinks periodically blinks for each Modbus transmitting
DISPLAY		custom dot matrix display, please check page 6 for more information
COM	COM 1 COM 2 COM 3	service port service port service port
SW 1	# 1-2-3 # 4	sub-range selection for DP 1, see page 3 response time selection, see page 3
X1	11 24V Terminals 12 GND 13 AO1 14 AO2 15 modbus-A 16 modbus-B	14...35 VDC or 24 VAC (\pm %5, 50-60 Hz) ground for power and reference for outputs analog output 1 analog output 2 modbus communication positive pair modbus communication negative pair
X2	21-22	relay 1, dry contact, max. rating 1A @ 220 VAC
Relay 1	normally open	acts always for DP1

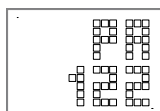
■ Electrical wiring



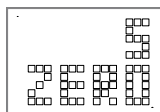
Relay contact rating is max. 1A at 230 VAC
We kindly advise using 24V for avoiding high voltage harmonics and external power relay for bigger loads
Please use shielded and twisted paired cables for Modbus connections



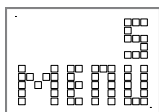
■ Display



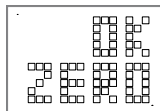
main screen
for Single DP version



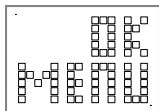
zeroing
counts down for 5 sec.
Keep pressing ZERO button



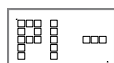
entering MENU
counts down for 5 sec.
Keep pressing SET1 button



zeroing is OK



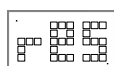
entered to MENU



min. point, scale for DP



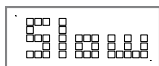
max. point, scale for DP



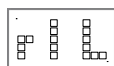
response time



FAST response, 1 sec.



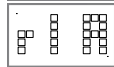
SLOW response, 4 sec.



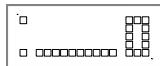
Relay, LOW point



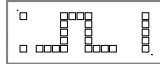
Relay, HIGH point



Relay, ACTION



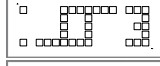
action 0,
always OFF



action 1,
ON between LOW and HIGH points



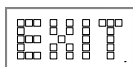
action 2,
OFF between LOW and HIGH points



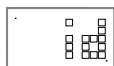
action 3,
ON over HIGH



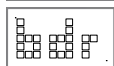
action 4,
ON under LOW



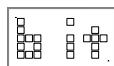
EXIT



modbus address



baudrate



bit settings



9.600



databits: 8, parity: even, stopbit: 1



19.200



databits: 8, parity: none, stopbit: 1



38.400



databits: 8, parity: none, stopbit: 2



57.600



databits: 8, parity: odd, stopbit: 1



115.200



Menu

1. For entering MENU press SET1 button min. 5 sec.
2. ZERO button calls the next parameter
3. SET1 button increases the value or choses the next selection
4. SET2 button decreases the value or choses the previous selection
5. All parameters are listed below, due to options you may not see some of them
6. Any changed parameter or value is set while exiting Menu

Main Screen >> r1L >> r1H >> r1A >> EXIT

Actions for Relay and Buzzer

Action	under LOW	between LOW - HIGH	over HIGH
0	Open	Open	Open
1	Open	Closed	Open
2	Closed	Open	Closed
3	Open	hysterisis	Closed
4	Closed	hysterisis	Open

Modbus 485 protocol

Use Function 3 for Reading and Function 6 for Writing Holding Registers.

Register Table starts from Base 1. Default Settings: Modbus ID:1, 9600, 8bit, None, 1.

Register	R/W	min.	max.	Description
1	R & W	1	254	Modbus Address
2	R & W	0	4	Baudrate, 0: 9.600, 1: 19.200
3	R & W	0	3	Bit_Parity_Stop, 0: 8bit_None_1, 1: 8bit_None_2, 2: 8bit_Even_1, 3: 8bit_Odd_1
4	R	min. Pa	max. Pa	DP measurement as PASCAL
5	R			Blank
6	R	0	1	Relay, contact position, 0: OFF/Open, 1: ON/Closed
7	R & W	min. Pa	max. Pa	Relay, LOW Point
8	R & W	min. Pa	max. Pa	Relay, HIGH Point
9	R & W	0	4	Relay, Actions
10-20	R & W			Blank

Dimensions (mm)

