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USER GUIDE

PDS 2.2

Produal

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PDS 2.2 universal controller

PDS 2.2 is a universal controller is made for pressure, differential pressure, temperature or humidity control.

Input 0...10 Vdc correspond 0...100 %. Display is possible to scale with following units Pa, kPa, ºC, bar, m/s, lux, CO2 and CO.

Actuator types are thermic actuator, 3-point actuator or 0…10 V control signal.

Connect PDS 2.2 with PYR 4 when several stages are needed in control.

The controllers have built-in RS-485 channel for Modbus communication. The controllers can be connected to any supervisory software/system that supports Modbus RTU.



Model types	Model	Description
	PDS 2.2	Universal controller
Technical Data	Power supply	24Vac/dc (20…28V) , <1VA NOTE! If using DC-voltage only 0..10V outputs are operational
	Inputs	1 x Analog 0…10 V, 10 kOhm 1 x Analog 0…10 V, for ext. potentiometer (4,7…220kΩ). 1 x Potential free. SP1 (OPEN) / SP2 (CLOSE)
	Outputs	1 x 0..10 Vdc, 2 mA 1 x 10 Vdc, voltage supply for ext. potentiometer. 3 x 24 Vac Triacs, 1A max. (3-point / thermic and alarm)
	Communications	RS-485 Modbus RTU, 9600/19200/38400 bps, 8 data bits, Parity None, 1 Stop Bit (Up to 128 devices per segment)
	Display	LCD Display
	Buttons	4 touch sensitive buttons
	Wiring Terminals	1.5 mm^2
	Operating conditions	0..95% rH non-condensing Temperature 0..50 ºC
	Protection Class	IP20
	Standards	2004/108/EY(EMC) EN61000-6-3: 2001 (Emission) EN61000-6-2: 2001 (Immunity)
	Housing	DIN-rail
	Dimensions	53 W x 90 H x 58 D mm

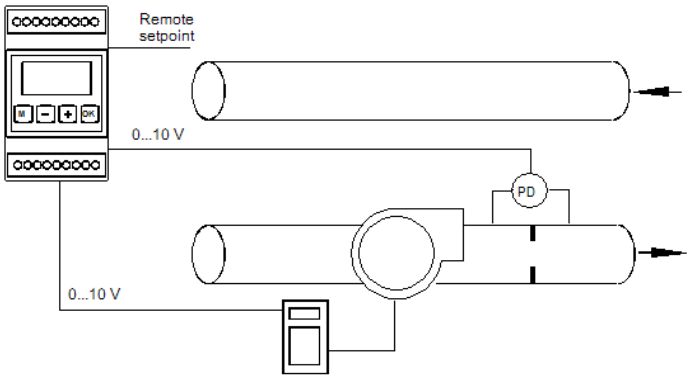
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WORKING DIAGRAM

Actuator types are thermic actuator, 3-point actuator or 0…10 V control signal. The Picture below presents normal PDS 2.2 working environment.

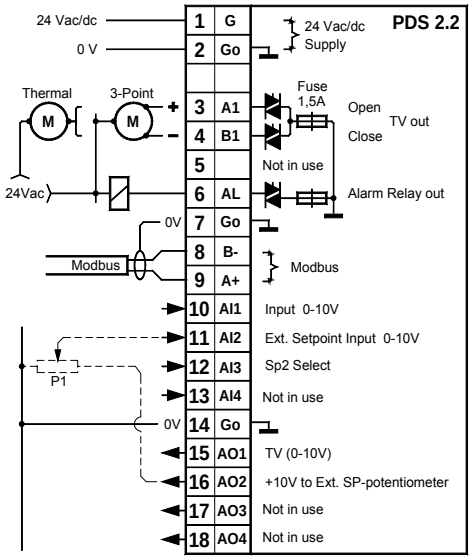


UNITS

Input signal 0...10V is possible to scale in different units. Default unit is a percent [%], but can be scaled to following units; Pa, kPa, ºC, bar, m/s, lux, CO_2 and CO.

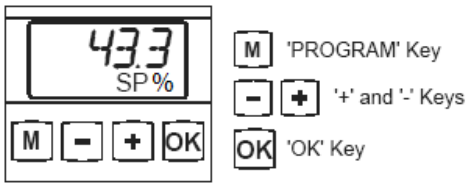
WIRING TERMINALS

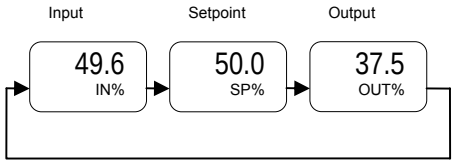
The electrical installation, device connection and commissioning can only be carried out by qualified professionals and according to the local wiring regulations!



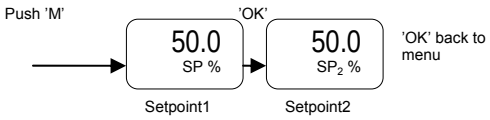
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USER INTERFACE

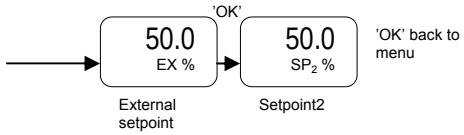




USER MODE



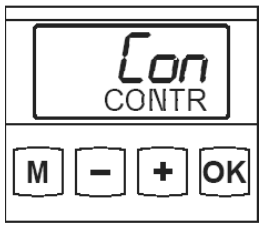
If external setpoint in use:



PROGRAMMING MODE

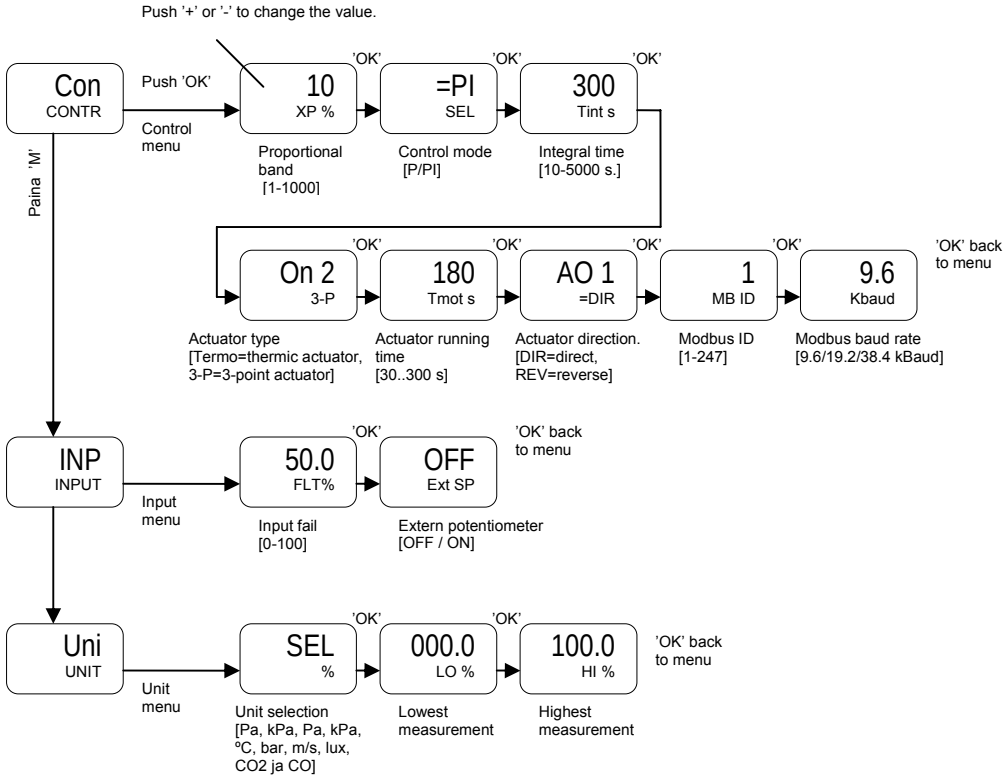


Push the following buttons to get into programming mode:
'+', 'OK', 'OK' and 'M'.



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MENU

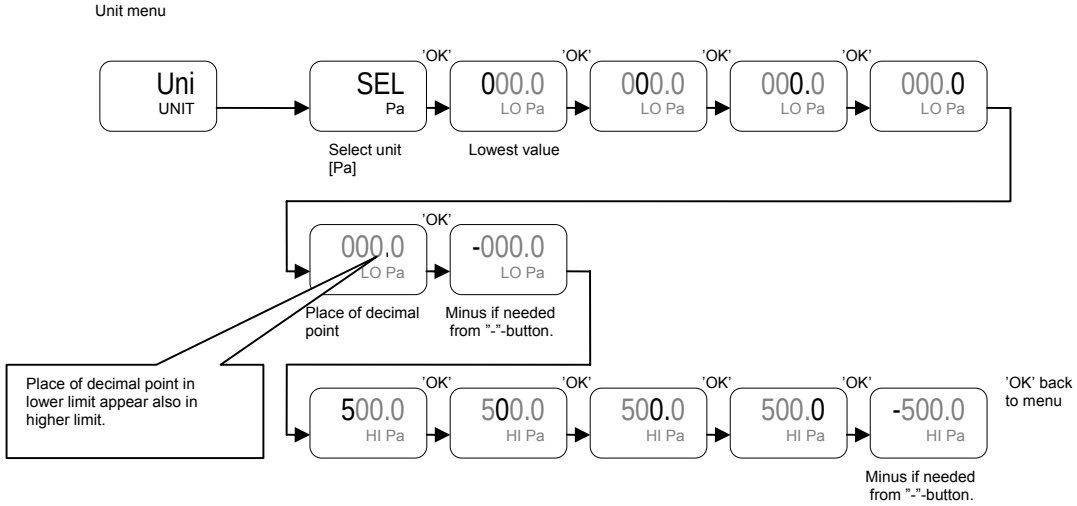


Exit menu by pushing ”M” –button for 5 s. or waiting for 1 min.

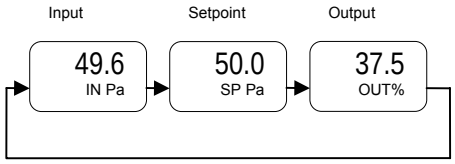
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UNITS SELECTION

Internal measuring range of the controller is 1000 and single step one. Minimum and maximum of measuring range is adjustable by the user [-9999..9999]. Note! Single step is different if measuring range is scaled.
For example implementing differential pressure transmitter (Produal PEL 2000) with PDS 2.2. The measuring range is 0...500 Pa.



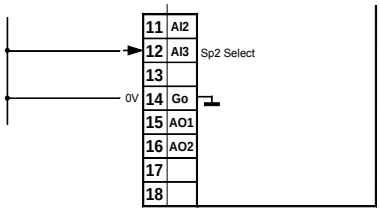
Selected unit appears as follows:



SETPOINT SELECT (SP2)

Setpoint 2 is selected if AI3 connector is grounded. This is valid for both internal and external setpoints.

Connection:



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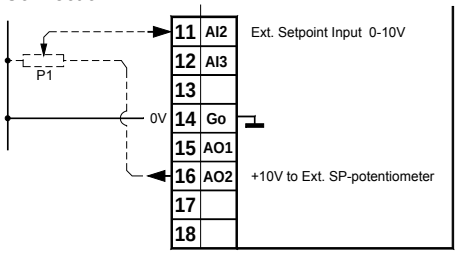
EXTERN SETPOINT

External setpoint signal; 0...10 Vdc (Produalin TEHR PT1000-P) or potentiometer (4.7 - 220 kΩ).

Menu:

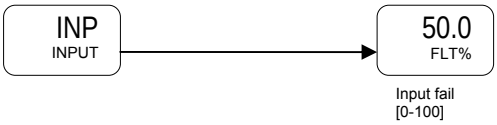


Connection:



ALARM

If input measurement fails, controls output according FLT-percent value.
For example 50% control at fail situation.



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PDS2.2 VER.1.0 The controller supports the following Modbus registers and function codes.

Register	Parameter Description	Data Type	Value	Range
	FUNCTION CODE 01 - READ COILS			
1	Alarm	Bit		Off - On
2	POT - external setpoint enabled	Bit		Off - On
3	Overdrive enable	Bit		Off - On
4	External SP measurement enable	Bit		Off - On
	FUNCTION CODE 02 - READ DISCRETE INPUTS			
10001	Measurement input error (AI1)	Bit		Off - On
10002	Setpoint input error (AI2)	Bit		Off - On
10003	SP2 select	Bit		Off - On
	FUNCTION CODE 03 - READ HOLDING REGISTERS			
40001	Overdrive Value	Signed 16	0 … 1000	0,0 … 100,0 (%)
40002	Setpoint (internal)	Signed 16	0 … 1000	0,0 … 100,0 (%)
40003	Setpoint 2 (internal)	Signed 16	0 … 1000	0,0 … 100,0 (%)
40004	XP	Signed 16	1 … 1000	1 … 1000
40005	TINT - integrator time	Signed 16	10 … 5000	10 … 5000 (s)
40006	Input fault value (INP FLT%)	Signed 16	0 … 1000	0,0 … 100,0 (%)
	FUNCTION CODE 04 - READ INPUT REGISTERS			
30001	IN	Signed 16	0 … 1000	0,0 … 100,0 (%)
30002	Setpoint (active=pot or internal)	Signed 16	0 … 1000	0,0 … 100,0 (%)
30003	OUT	Signed 16	0 … 1000	0,0 … 100,0 (%)
30004	External SP Input	Signed 16	0 … 1000	0,0 … 100,0 (%)
	FUNCTION CODE 05 - WRITE SINGLE COIL			
1	Alarm	Bit		Off - On
2	POT - external setpoint enabled	Bit		Off - On
3	Overdrive enable	Bit		Off - On
4	External SP measurement enable	Bit		Off - On
	FUNCTION CODE 06 - WRITE SINGLE REGISTER			
40001	Overdrive Value	Signed 16	0 … 1000	0,0 … 100,0 (%)
40002	Setpoint (internal)	Signed 16	0 … 1000	0,0 … 100,0 (%)
40003	Setpoint 2 (internal)	Signed 16	0 … 1000	0,0 … 100,0 (%)
40004	XP	Signed 16	1 … 1000	1 … 1000
40005	TINT - integrator time	Signed 16	10 … 5000	10 … 5000 (s)

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40006	Input fault value (INP FLT%)	Signed 16	0 … 1000	0,0 … 100,0 (%)
	FUNCTION CODE 15 - WRITE MULTIPLE COILS			
1	Alarm	Bit		Off - On
2	POT - external setpoint enabled	Bit		Off - On
3	Overdrive enable	Bit		Off - On
4	External SP measurement enable	Bit		Off - On
	FUNCTION CODE 16 - WRITE MULTIPLE REGISTERS			
40001	Overdrive Value	Signed 16	0 … 1000	0,0 … 100,0 (%)
40002	Setpoint (internal)	Signed 16	0 … 1000	0,0 … 100,0 (%)
40003	Setpoint 2 (internal)	Signed 16	0 … 1000	0,0 … 100,0 (%)
40004	XP	Signed 16	1 … 1000	1 … 1000
40005	TINT - integrator time	Signed 16	10 … 5000	10 … 5000 (s)
40006	Input fault value (INP FLT%)	Signed 16	0 … 1000	0,0 … 100,0 (%)
	FUNCTION CODE 23 - READ/WRITE MULTIPLE REGISTERS			
40001	Overdrive Value	Signed 16	0 … 1000	0,0 … 100,0 (%)
40002	Setpoint (internal)	Signed 16	0 … 1000	0,0 … 100,0 (%)
40003	Setpoint 2 (internal)	Signed 16	0 … 1000	0,0 … 100,0 (%)
40004	XP	Signed 16	1 … 1000	1 … 1000
40005	TINT - integrator time	Signed 16	10 … 5000	10 … 5000 (s)
40006	Input fault value (INP FLT%)	Signed 16	0 … 1000	0,0 … 100,0 (%)

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