

Smart Press

PS..., PST..., PST...-R

ELECTRONIC PRESSURE SWITCHES

PRODUCT DATA



APPLICATION

Honeywell FEMA's PS, PST, and PST...-R series Electronic Pressure Switches require adjustment (configuration and parameterization) in only two modes (the basic mode and the expert mode) and are suitable for an extremely wide range of applications, including the precision-adjustment and monitoring of system pressures in the field of plant construction, fluidics, process technology, and pneumatics, as well as in the monitoring and control of pumps and compressors.

Those versions equipped for self-monitoring are suitable for use in manufacturing lines in the automotive industry as well as in the area of machine tool construction. These switches provide sufficient accuracy (0.5% of final value) for measurement monitoring in many laboratory applications.

FEATURES

Housing and back	polybutylene terephthalate (PBT)
Max. ambient temp.	-20...+60 °C
Storage temperature	-35...+80 °C
Temperature, medium	-20...+100 °C
Relative air humidity	0...95%, non-condensing
Accuracy, total	0.5% of final value
Medium temp. drift	0.3% per 10 K
Total weight	380 grams
Parts in contact with medium	
High-pressure versions	1.4571 + 1.4542
Low-pressure / flush	1.4571 + 1.4435
Process connection	
Manometer connection	G1/2" external thread
Flush connection	G3/4" external thread
Electrical connection	
PS and PST versions	5-prong M12 plug, A-coded as per DIN IEC 60947-5-2
PST...-R version	Extra 3-prong M12 plug
Protection class	II as per EN 60335-1
Protection type	IP65 as per EN 60529
Climate class	C as per DIN IEC 60654
Power supply	14...36 Vdc, max. 100 mA
EMC	compatible as per EN61326/A1
Switch outputs (all versions)	
Open-Collector outputs	Two; configurable as high-side/low-side or as push-pull switches, max. load: 250 mA / 14...36 Vdc
Reaction time	30 ms
Switching difference	(SP and RP) configurable
Relay outputs (PST...-R series)	
Contact type	1 switch-over contact
Min. electrical lifetime	250,000 switching cycles
Switching performance, gold contacts (AgSnO₂+Au)	
AC1 (resistive)	1.5 VA (24 Vdc / 60 mA, 230 Vac / 6.5 mA)
AC15 (inductive)	unsuitable
Max. switch-on current	60 mA for < 5 ms
Min. switching perf.	50 mW (either > 5 V or > 2 mA)
Switching performance, silver contacts (AgSnO₂)	
AC1 (resistive)	690 VA (230 Vac / 3 A)
AC15 (inductive)	230 VA (230 Vac / 1 A)
Max. switch-on current	30 A for < 5 ms
Min. switching perf.	500 mW (> 12 V or > 10 mA)
Diagnostic output	
Output configuration	warning output (plug 2), max. 20 mA, 14...36 Vdc
Transmitter output (analog output)	
Voltage / current	0...10 V and 4...20 mA, configurable in expert mode
Transient response	approx. 300 ms

VARIANTS

The electronic pressure switches are available in three variants, easily distinguishable by the number of M12 plugs present on the rear side.

PS... Series

The devices of this series provide switching functionality.

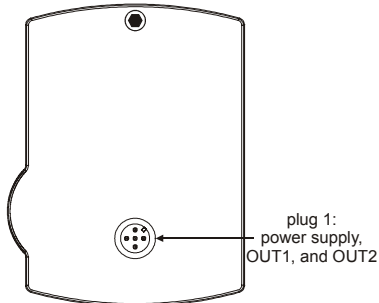


Fig. 1. PS... Series, rear view of housing

PST... Series

Like PS... Series devices, the devices of this series provide switching functionality, but also transmitting functionality.

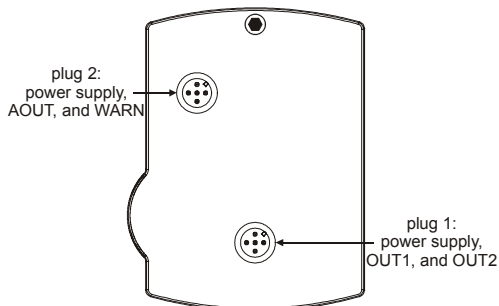


Fig. 2. PST... Series, rear view of housing

PST...-R Series

Like PST... Series devices, the devices of this series provide switching and transmitting functionality, but also relaying functionality.

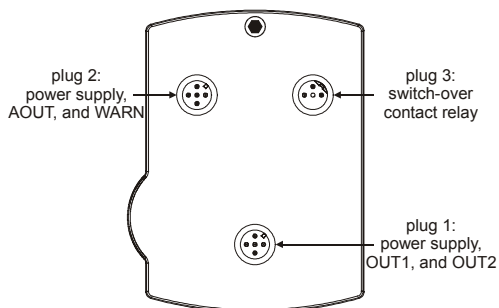


Fig. 3. PST...-R Series, rear view of housing

FUNCTION

The PS, PST, and PST...-R Electronic Pressure Switches are screwed directly into the pressure line or the boiler's connection nozzle. When monitoring gaseous media and high-viscosity liquids, G1/2" standard manometer can be used. In the case of low-viscosity and roiled liquids, G3/4" (flush) process connections must be used.

The LCD display screen indicates the pressure as a 4-digit digital value and as an analog value (bar graph).

Two LED's provide information on the switching status of the outputs and on the alarm status.

The device is configured and parameterized using the large rotary/push button. The user can move from screen to screen and enter values and/or change configurations by rotating the button. Values and configurations are confirmed and/or stored by pressing this button.

Parameterization and configuration are performed in only two modes (the basic mode and the expert mode).

Basic Mode (Parameterization)

- Outputs 1 and 2: Adjustment of the switch-points (SP) and reverse switch-points (RP).
- In the "transmitter" versions (PST and PST...-R): Adjustment of the lower (ZERO) and upper (FSO = "full-scale output") reference values for limiting the analog output signal to a defined pressure range.
- Setting of a filter value in a range of 0...95% (ATT).
- When locked, the device can be unlocked in the basic mode by entering a CODE.

Expert Mode (Configuration)

Output 1 (OUT1)

- Configurable as a maximum or minimum monitor.
- Configurable as a window monitor.
- Configurable as normally-open or normally-closed.
- Configurable as low-side/high-side switch or as push-pull switch.

Output 2 (OUT2)

- Configurable as a maximum or minimum monitor.
- Configurable as a window monitor.
- Configurable as normally-open or normally-closed.
- Configurable as low-side/high-side switch or as push-pull switch.
- Configurable as a warning output (max. 250 mA).

Analog Output (AOUT)

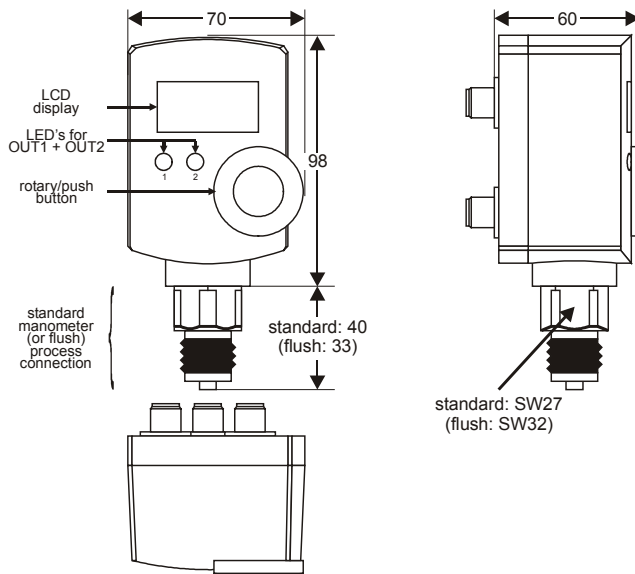
- Configurable as a 0...10 V / 10...0 V or 4...20 mA / 20...4 mA output (default setting: 0...10 V)

Additional Configuration

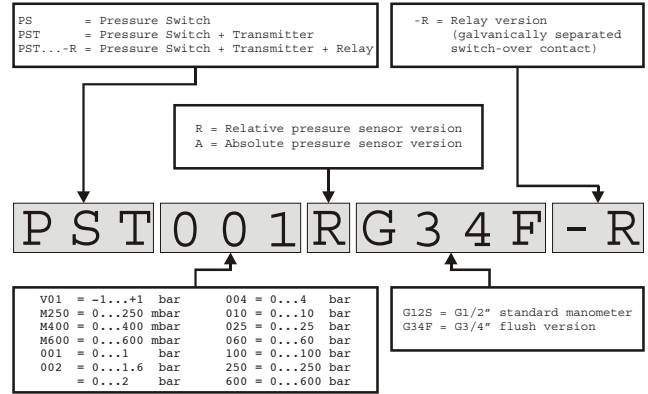
- Relay output (REL) configurable to be coupled with OUT1, OUT2, or the warning output.
- Selection of the pressure units (bar, Pa, or psi) in the UNIT display.
- Data restorable using the REST command.
- Selection of a 4-digit locking code (0001 to 9999) in the CODE display (0000 = no code).

PROCESS CONNECTIONS

The device is connected to the pressure-side via a G1/2" standard manometer threaded connection or a G3/4" flush process connection (see fig. below). The geometry of the G1/2" and G3/4" connections conforms to DIN EN 837.



PRODUCT IDENTIFICATION SYSTEM



PRESSURE RANGES

Table 1. Pressure ranges, connection, and equipment of models

pressure range (bar)	type of pressure	bursting pressure (bar)	max. pressure (bar)	process connection	equipment		
					switch, only	switch and transmitter	switch, transmitter, and relay
-1...+1	relative	≥ 10	6	G1/2"	PSV01RG12S	PSTV01RG12S	PSTV01RG12S-R
0...0.25	relative	≥ 10	1	G1/2"	PSM250RG12S	PSTM250RG12S	PSTM250RG12S-R
0...0.4	relative	≥ 10	2	G1/2"	PSM400RG12S	PSTM400RG12S	PSTM400RG12S-R
0...0.6	relative	≥ 10	2	G1/2"	PSM600RG12S	PSTM600RG12S	PSTM600RG12S-R
0...1	relative	≥ 10	6	G1/2"	PS001RG12S	PST001RG12S	PST001RG12S-R
0...1.6	relative	≥ 10	6	G1/2"	PS002RG12S	PST002RG12S	PST002RG12S-R
0...4	relative	≥ 20	12	G1/2"	PS004RG12S	PST004RG12S	PST004RG12S-R
0...10	relative	≥ 50	30	G1/2"	PS010RG12S	PST010RG12S	PST010RG12S-R
0...25	relative	≥ 125	75	G1/2"	PS025RG12S	PST025RG12S	PST025RG12S-R
0...60	relative	≥ 300	180	G1/2"	PS060RG12S	PST060RG12S	PST060RG12S-R
0...100	relative	≥ 500	300	G1/2"	PS100RG12S	PST100RG12S	PST100RG12S-R
0...250	relative	≥ 1600	500	G1/2"	PS250RG12S	PST250RG12S	PST250RG12S-R
0...600	relative	≥ 1800	1000	G1/2"	PS600RG12S	PST600RG12S	PST600RG12S-R
-1...+1	relative	≥ 10	6	G3/4"	PSV01RG34F	PSTV01RG34F	PSTV01RG34F-R
0...0.25	relative	≥ 10	1	G3/4"	PSM250RG34F	PSTM250RG34F	PSTM250RG34F-R
0...0.4	relative	≥ 10	2	G3/4"	PSM400RG34F	PSTM400RG34F	PSTM400RG34F-R
0...0.6	relative	≥ 10	2	G3/4"	PSM600RG34F	PSTM600RG34F	PSTM600RG34F-R
0...1	relative	≥ 10	6	G3/4"	PS001RG34F	PST001RG34F	PST001RG34F-R
0...1.6	relative	≥ 10	6	G3/4"	PS002RG34F	PST002RG34F	PST002RG34F-R
0...4	relative	≥ 20	12	G3/4"	PS004RG34F	PST004RG34F	PST004RG34F-R
0...10	relative	≥ 50	30	G3/4"	PS010RG34F	PST010RG34F	PST010RG34F-R
0...25	relative	≥ 125	75	G3/4"	PS025RG34F	PST025RG34F	PST025RG34F-R
0...2	absolute	≥ 10	6	G1/2"	PS002AG12S	PST002AG12S	PST002AG12S-R
0...10	absolute	≥ 50	30	G1/2"	PS010AG12S	PST010AG12S	PST010AG12S-R
0...2	absolute	≥ 10	6	G3/4"	PS002AG34F	PST002AG34F	PST002AG34F-R
0...10	absolute	≥ 50	30	G3/4"	PS010AG34F	PST010AG34F	PST010AG34F-R

OVERVIEW OF CONFIGURABLE PARAMETERS

activity / situation	LCD display shows		parameters adjustable in	
	symbols	digital values / text	basic mode	expert mode
Current Pressure Is Displayed*				
current pressure	■■■■■■■■■■■■■■■■■■■■, units	digital value	-	-
SP [RP] of OUT1	OUT1	-	-	-
SP [RP] of OUT2	OUT2	-	-	-
AOUT (pressure betw. ZERO & FSO)	AOUT	-	-	-
pressure is rising	▸	-	-	-
pressure is dropping	▹	-	-	-
warning	WARN	digital value	NO	NO
Parameterizing Output 1 [Output 2]				
SP	■, OUT1 [OUT2], SP	digital value	YES	NO
RP	■, OUT1 [OUT2], RP	digital value	YES	NO
first limit of window (WIN)	■, OUT1 [OUT2], SP	digital value	YES	NO
second limit of window (WIN)	■, OUT1 [OUT2], RP	digital value	YES	NO
Configuring Output 1 [Output 2]				
max. pressure monitor (SP>RP)	EXPERT, SP, RP, ■■■▸	OUT1 [OUT2]	NO	YES
min. pressure monitor (SP<RP)	EXPERT, SP, RP, ◀■■■	OUT1 [OUT2]	NO	YES
window monitor (WIN)	EXPERT, WIN	OUT1 [OUT2]	NO	YES
output 2 as WARN	EXPERT, WARN	OUT2	NO	YES
N-C low-side output 1 [2]	EXPERT, —, ZERO	FCT1 [FCT2]	NO	YES
N-O low-side output 1 [2]	EXPERT, —, ZERO	FCT1 [FCT2]	NO	YES
N-C high-side output 1 [2]	EXPERT, —, FSO	FCT1 [FCT2]	NO	YES
N-O high-side output 1 [2]	EXPERT, —, FSO	FCT1 [FCT2]	NO	YES
output 1 [2] as "push-pull"	EXPERT, —, ZERO, FSO	FCT1 [FCT2]	NO	YES
output 1 [2] as inverted "push-pull"	EXPERT, —, ZERO, FSO	FCT1 [FCT2]	NO	YES
Parameterizing the Analog Output				
first limit (ZERO) of range	■, AOUT, ZERO	digital value	YES	NO
second limit (FSO) of range	■, AOUT, FSO	digital value	YES	NO
Configuring the Analog Output				
0...10 V voltage-controlled output	EXPERT, AOUT	FCTV	NO	YES
10...0 V voltage-controlled output	EXPERT, AOUT, INV ▽	FCTV	NO	YES
4...20 mA current-control output	EXPERT, AOUT	FCTA	NO	YES
20...4 mA current-control output	EXPERT, AOUT, INV ▽	FCTA	NO	YES
Configuring the Relay				
relay coupled with output 1	EXPERT, OUT1	REL	NO	YES
relay coupled with output 2	EXPERT, OUT2	REL	NO	YES
relay configured as alarm output	EXPERT, WARN	REL	NO	YES
Configuring Units				
units	EXPERT, Pa / bar / psi	UNIT	NO	YES
Parameterizing Filter				
attenuation	■, ATT, %	digital value or OFF	YES	NO
Locking / Unlocking Device Using a Code				
unlocked (code = 0000)	-	EXP	YES	NO
locked (code ≠ 0000)	-	CODE, digital value	YES	NO
Changing Code				
device is locked	EXPERT	LOCK	NO	YES
device is unlocked	EXPERT	CODE	NO	YES
*The same symbols appearing in the expert mode are also visible in the user mode, where they indicate the current configuration of the given output. Exceptions: If an output has been configured to act as a max. / min. monitor, in the user mode, ▸ and ▹ appear instead of ■■■▸ and ◀■■■.				

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