

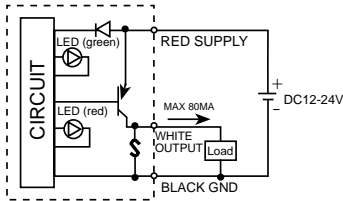


Instruction Leaflet

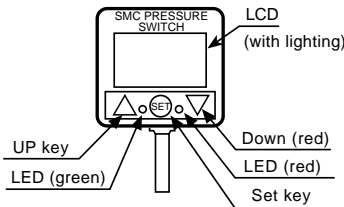
GB **RS Stock No.**
384-8300, 384-8322, 384-8287, 384-8293

Operating Instructions for RS Digital Pressure and Vacuum Switches

① Output circuit wiring

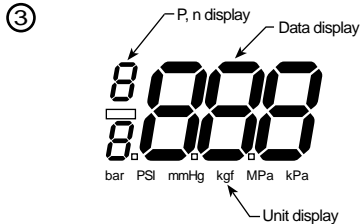


② Parts description



- Set key : Change the input mode
 - UP key : Increase the setting valve
 - DOWN key : Decrease the setting valve
 - : change display unit
 - : change output mode
- To reset press UP and DOWN key simultaneously

3. Setting method



a) Unit and output mode setting

- Push set key for approx 1 sec.
- Unit display will flash
- Push DOWN key ▼ to change units
- Push SET key
- 'P' or 'n' will be displayed
- Push DOWN key ▼ to switch between 'P' and 'n'
- Push SET key

Note: See section b for details of 'P' and 'n' selection

b) Data setting

Example 1

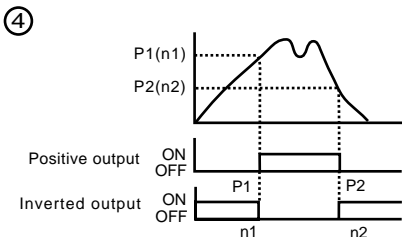
Hysteresis mode $P1 (n1) > P_c (n2)$, e.g. detection of applied pressure greater than 0.50 PMP. Hysteresis = 0.05 MPa.

- a) Positive output
- Set output mode to 'P'
 - Push SET key
 - Set $P1 = 0.5 \text{ MPa}$
 - Push SET key
 - Set $P2 = 0.45 \text{ MPa}$
 - Push SET key

- b) Inverted output
- Set output mode to 'n'

Follow steps 2-6 as for Positive output.

Note: P1 and P are now n1 and n2 in this mode.



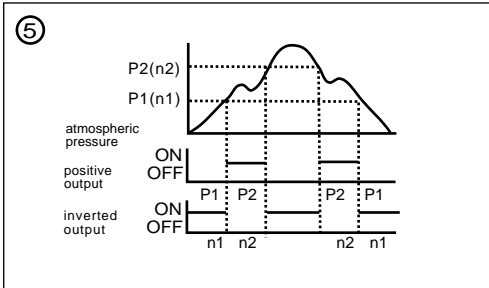
Example 2

Window comparator mode $[(P2 (n2) > P1 (n1))]$, e.g. detection of pressure greater than or equal to 0.30 MPa and less than or equal to 0.7 MPa.

- a) Positive output
 - Set output mode to P
 - Push SET key
 - Set P1 = 0.30 MPa
 - Push SET key
 - Set P2 = 0.70 MPa
 - Push SET key
- b) Inverted output
 - Set output mode to 'n'

Follow steps 2-6 as for positive output.

Note: P1 and P2 are now n1 and n2 in this mode.



4. Additional features

- a) Peak pressure display mode
 - Push the UP key ▲ to display peak pressure.
(In this mode 'H' will appear on the display)
 - Push the UP key ▲ again to return to current pressure
- b) Minimum pressure display mode
 - Push down key ▼ to display minimum pressure.
(In this mode 'L' will appear on the display)
 - Push down key ▼ again to return to current pressure.
- c) Resetting
 - To reset push the UP and DOWN keys ▲ ▼ simultaneously
 - In normal operation, resetting will clear the peak indicators and rest the zero point.
 - In the case of an output error, the set data is held when the power supply is applied (system reset is operated)
 - In the case of a data error the display changes to the setting mode

Note: The reset function will not operate in the setting mode.

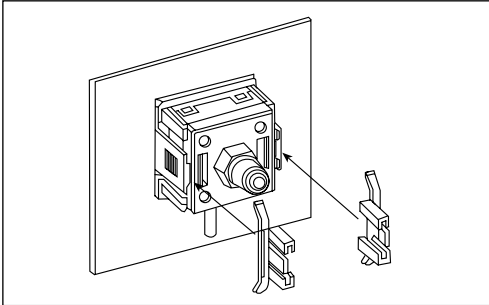
5. Errors

Error name		Display of Error	Reason for Error		Correction
Over current error	Out1	Er 1	Over 80mA load current of switch output flows.		Switch off power, remove the output cause which brought over current and re-input power
	Out2	Er 2			
Residual Pressure Error		Er 3	Performing zero reset, over ± 0.071 Mpa to ambient pressure and over ± 7.1 kPa for compound pressure and for vacuum pressure are applied. After 3 sec, measurement mode recovers automatically		After changing an applied pressure into ambient pressure, re-perform zero reset.
Applied Pressure error	---		For positive pressure for compound pressure	Pressure over max. limit of set pressure range is applied	Set back an applied pressure into within set pressure range
			For vacuum pressure	Pressure over min limit of set pressure range is applied	
	-----		For positive pressure for compound pressure	Pressure over min. limit of set pressure range is applied	
			For vacuum pressure	Pressure over max. limit of set pressure range is applied	
System error	Er 4		Internal data error caused this display		Switch off the power, and re-input power Non-recovery case needs Manufacturer investigation
	Er 5		Internal system error caused this display		
	Er 6		Internal data error caused this display		
	Er 7		Internal system error caused this display		

6. Handling

- Handle the switch by its body not the cord
- Use a 12mm spanner on the hexagon nut on the back of the switch.
- Use no tools on any part of the plastic body
- Do not use the switch with corrosive gas
- The switch will be affected by noise if wired into a high voltage or motor power line
- The switch is not waterproof

7. Panel mounting



The adaptor for panel mounting must be fitted to the switch body before the switch is mounted on the panel.

Pressure unit conversion chart

	bar	kgf/cm ²	mmHg	PSI	Pa
bar	1	1.020	750.062	14.50	0.1M
kgf/cm ²	0.981	1	735.559	14.217	0.098M
mmHg	1.333x10 ⁻³	1.359x10 ⁻³	1	1.933x10 ⁻³	0.133k
PSI	0.039	0.070	51.715	1	6.89k
Pa	10 ⁻⁵	1.019x10 ⁻⁵	7.501x10 ⁻³	1.45x10 ⁻⁴	1

Technical Specification

	Vacuum models	
NPN + Analogue output	RS stock no.	384-8300
PNP + Analogue output	RS stock no.	384-8322
Operating pressure range		-1 to 1 bar
		-100.0 to 100.0 kPa
Maximum pressure		+5 bar (500kPa)
Min. displayed units		mmHg: 1
		InHg: 0.1
		PSI: 0.01
		Bar: 0.001
		kPa: 0.1
		kgf/cm ² : 0.001
Analogue output	Output voltage: 1 to 5 V	± 5%F.S.
	linearity: ≤ ± 1%F.S	
	Output impedance: approx. 1kΩ	
	Pressure models	
NPN + Analogue output	RS stock no.	384-8287
PNP + Analogue output	RS stock no.	384-8293
Operating pressure range		-1 to 10 bar
		-0.100 to 1.000 MPa
Maximum pressure		+15 bar (1.5 MPa)
Min. displayed units		PSI: 0.1
		Bar: 0.01
		MPa: 0.001
		kgf/cm ² : 0.01
Analogue output	Output voltage: 1 to 5 V	± 2.5%F.S .
	linearity: ≤ ± 1%F.S .	
	Output impedance: approx. 1kΩ	
Both models		
Fluid		Air, Non-corrosive gases, Incombustible gases
Power supply voltage		12 - 24Vdc ± 10%, Ripple (P-P) ≤ 10%
Current consumption		≤ 55mA
Switch output		NPN or PNP open collector 2 outputs max. load current: 80mA, max. applied voltage: dc30V (NPN output), residual voltage: ≤ 1V (load current 80mA)
Repeatability (switch output)		≤ ± 0.2% F.S. ± 1 digit
Response time		≤ 2.5 ms
7 segment LED display		3 1/2 digit LED display (sampling rate: 5 times/sec)
Indicator accuracy		≤ ± 2% F.S. ± 1 digit (at the ambient temperature 25± 3°C)
Indicator		Green LED (OUT1: Illuminate @ON), Red LED (OUT2: Illuminate @ON)
Enclosure		IP65 (IEC standard)
Operation temp. range		0 to 50 °C
Insulation strength		1000V a.c., 1 minute
Insulation resistance		50MΩ or more (@500Vdc M)
Vibration resistance		10 to 500Hz, smaller one of 1.5mm or 98m/s ² double amplitude, two hour each in direction of X, Y and Z respectively (De-energizing)
Shock resistance		980m/s ² (100G) three times each in direction of X, Y and Z respectively (De-energizing)
Port size		R1/8, M5 x 0.8
Weight		60g

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