

Process Transmitters

(PS Series)



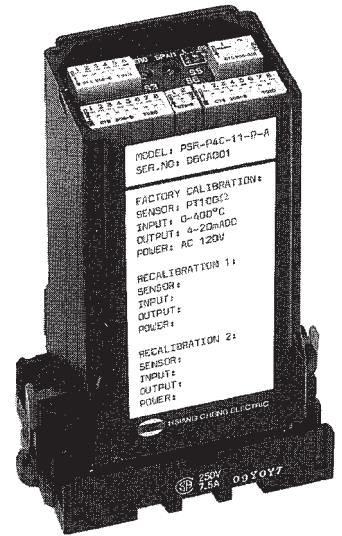
HSIANG CHENG



PROGRAMMABLE SERIES PSD - DC ISOLATING & RE-TRANSMITTING

- ★ HIGH ACCURACY OF 0.1% RO
- ★ GALVANIC ISOLATION OF 1.5 kV AC / DC
- ★ WIDE SELECTABLE DC CURRENT/VOLTAGE FOR INPUT & OUTPUT
- ★ MODULAR 8-PIN PLUG-IN DESIGN WITH DIN – RAIL MOUNTING
- ★ ISO 9002 certified

The **HC PSD** DC Programmable Electronic Transmitters are compactly designed for isolating, signal conditioning, converting and re-transmitting of DC variables. The total flexibility of selecting and programming both the input and output signals from ranges of 10 mV to 200 V and 50µA to 50 mA meets the requirements of almost all instrumentations and control applications. It is also capable of suppressed or elevated zero, plus / minus ranging and is galvanically isolated between input / output / auxiliary power of up to 1.5 kVDC or peak AC.



TECHNICAL SPECIFICATIONS

INPUT - PROGRAMMABLE

DC VOLTS : 10 mV to 200 V
IMPEDANCE : below 2 V - 100 Mohm, above 2 V - 500 Kohm and above
DC CURRENT : 50 µA to 50 mA
IMPEDANCE : less than 200 ohm

OUTPUT - PROGRAMMABLE

ACCURACY : ± 0.1% Rated Output
DC VOLTS : 10 mV to 200 V with 10 mA drive capability
DC CURRENT : 50 µA to 50 mA with 10 V compliance capability

GENERAL SPECIFICATIONS

RIPPLE FACTOR : less than 0.1 % of span - all ranges
RESPONSE TIME : 250 msec to 99% rated output
TEMPERATURE EFFECT : less than ± 0.015% per °C typically
LINEARITY & REPEATABILITY : 0.05% typically
COMMON MODE REJECTION : 120 dB 60 Hz
OPERATING TEMPERATURE: -5°C to 55°C
ISOLATION : 1.5 kV DC or peak AC between input / output / auxiliary power
OUTPUT ADJUSTMENTS : Span & Zero adjustments available

STANDARD OUTPUT RANGES :

CURRENT	IMPEDANCE (MAX)	VOLTAGE	IMPEDANCE (MIN)
0 ... 1 mA	10 Kohm	0 ... 1 V	200 ohm
0 ... 5 mA	2 Kohm	0 ... 5 V	1 Kohm
0 ... 10 mA	1 Kohm	0 ... 10 V	2 Kohm
0 ... 20 mA	500 ohm	1 ... 5 V	2 Kohm
4 ... 20 mA	500 ohm	2 ... 10 V	2 Kohm

AUXILLARY POWER

STANDARD RANGE : 110V, 230 V ±20% 50/60Hz, 24 V DC ±20% (options available)
CONSUMPTION : 3.5 W max
POWER CHANGE EFFECT : less than 0.01% per Volt change

INPUT SWITCHING TABLE ~ Switch status

1 = on; 0 = off; x = don't touch

SWITCH RANGE	S1	S2	S4
	1-2-3-4-5-6-7-8	1-2-3-4-5-6-7-8	1-2-3-4
0 - 10 mV	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	0-0-1-x
0 - 20 mV	1-1-1-1-1-1-1-1	0-1-0-1-1-1-1-1	0-0-1-x
0 - 50 mV	1-1-1-1-1-1-1-1	1-1-1-1-1-0-1-1	0-1-0-x
0 - 100 mV	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	0-1-0-x
0 - 200 mV	1-1-1-1-1-1-1-1	0-1-0-1-1-1-1-1	0-1-0-x
0 - 500 mV	1-1-1-1-1-1-1-1	1-1-1-1-1-0-1-1	0-0-0-x
0 - 1 V	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	0-0-0-x
-1 - 1 V	1-1-1-1-1-0-1-0	0-1-0-1-1-1-1-1	0-0-0-0
0 - 2 V	1-1-1-1-1-1-1-1	0-1-0-1-1-1-1-1	0-0-0-x
0 - 5 V	1-1-1-1-1-1-1-1	1-1-1-1-1-0-1-1	1-1-0-x
1 - 5 V	1-1-1-1-0-1-1-1	0-1-0-1-1-0-1-1	1-1-0-1
-5 - 5 V	1-1-1-1-0-1-0-1	1-1-1-1-0-1-1-1	1-1-0-0
0 - 10 V	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	1-1-0-x
2 - 10 V	1-1-1-1-1-0-1-1	0-0-1-1-0-1-1-1	1-1-0-1
-10 - 10 V	1-1-1-1-1-0-1-0	0-1-0-1-1-1-1-1	1-1-0-0
0 - 20 V	1-1-1-1-1-1-1-1	0-1-0-1-1-1-1-1	1-1-0-x
0 - 50 V	1-1-1-1-1-1-1-1	1-1-1-1-1-0-1-1	1-1-0-x
0 - 100 V	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	1-1-0-x
0 - 200 V	1-1-1-1-1-1-1-1	0-1-0-1-1-1-1-1	1-1-0-x

SWITCH RANGE	S1	S2	S4
	1-2-3-4-5-6-7-8	1-2-3-4-5-6-7-8	1-2-3-4
0 - 0.2 mA	1-1-1-1-1-1-1-1	0-1-0-1-1-0-1-1	1-0-1-x
0 - 0.5 mA	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	1-0-1-x
0 - 1 mA	1-1-1-1-1-1-1-1	1-1-1-1-0-1-0-1	1-1-0-x
0 - 2 mA	1-1-1-1-1-1-1-1	0-1-0-1-1-0-1-1	1-1-0-x
0 - 5 mA	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	1-1-0-x
1 - 5 mA	1-1-1-1-1-0-1-1	0-0-1-1-0-1-1-1	1-1-0-1
0 - 10 mA	1-1-1-1-1-1-1-1	1-1-1-1-0-1-0-1	1-0-0-x
2 - 10 mA	1-1-0-1-1-1-1-1	0-0-1-1-1-0-0-1	1-0-0-1
0 - 20 mA	1-1-1-1-1-1-1-1	0-1-0-1-1-0-1-1	1-0-0-x
4 - 20 mA	1-1-1-0-1-1-1-1	0-1-1-1-0-0-1-1	1-0-0-1
10 - 50 mA	1-1-1-1-1-0-1-1	0-0-1-1-0-1-1-1	1-0-0-1
*20 - 4 mA	1-1-1-1-1-1-0-1	0-1-1-1-0-0-1-1	1-0-0-0
*50 - 10 mA	1-1-1-1-1-0-1-0	0-0-1-1-0-1-1-1	1-0-0-0

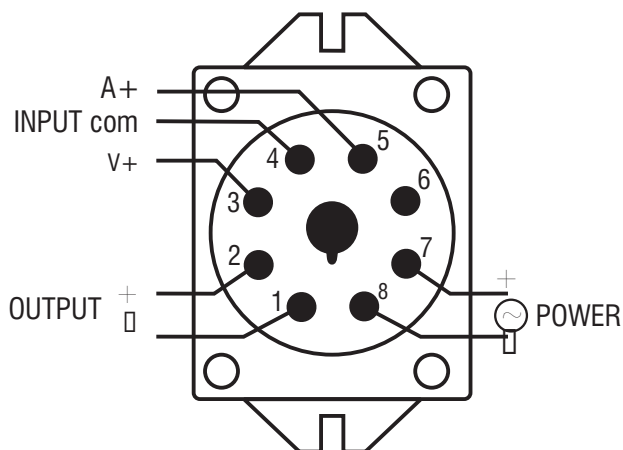
*20 - 4 & 50 - 10 mA be reversed of input connection

OUTPUT SWITCHING TABLE

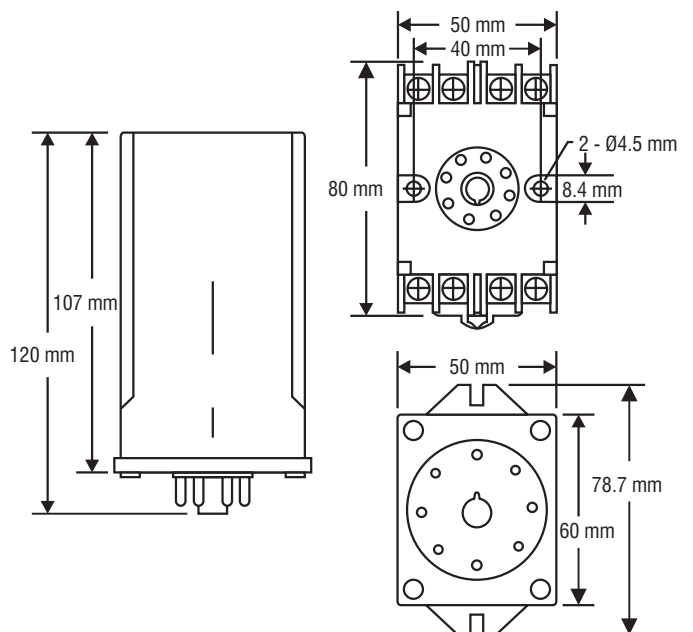
SWITCH RANGE	S5	S3
	1-2	1-2-3-4-5-6
0 - 500 mV	1-0	0-0-1-1-1-1
0 - 1 V	1-0	0-1-0-1-1-1
0 - 2 V	1-0	0-1-1-0-1-1
0 - 4 V	1-0	0-1-1-1-0-1
0 - 5 V	1-0	0-1-0-1-0-1
1 - 5 V	1-0	1-1-1-1-0-1
0 - 6 V	1-0	0-1-1-0-0-1
0 - 8 V	1-0	0-1-1-1-1-0
0 - 10 V	1-0	0-1-1-0-1-0
2 - 10 V	1-0	1-1-1-1-1-0

SWITCH RANGE	S5	S3
	1-2	1-2-3-4-5-6
0 - 1 mA	0-1	0-0-1-1-1-1
0 - 2 mA	0-1	0-1-0-1-1-1
0 - 5 mA	0-1	0-0-1-0-1-1
1 - 5 mA	0-1	1-1-1-0-1-1
0 - 10 mA	0-1	0-1-0-1-0-1
2 - 10 mA	0-1	1-1-1-1-0-1
0 - 16 mA	0-1	0-1-1-1-1-0
0 - 20 mA	0-1	0-1-1-0-1-0
4 - 20 mA	0-1	1-1-1-1-1-0

WIRING CONNECTION



MOUNTING & DIMENSIONS



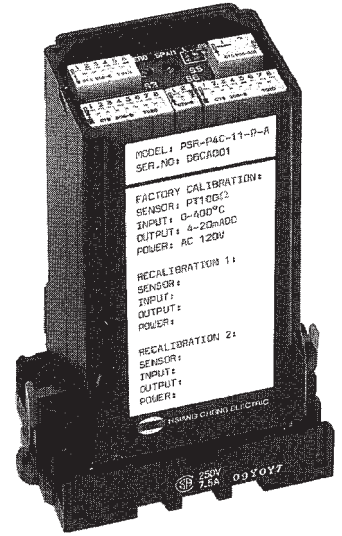
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**PROGRAMMABLE SERIES
PSF - PULSE TO ANALOG**

- ★ HIGH ACCURACY OF 0.1% RO
- ★ PROGRAMMABLE PULSE INPUT OF UP TO 10 KHZ
- ★ GALVANIC ISOLATION OF 1.5 kV AC/DC
- ★ MODULAR 8-PIN PLUG-IN DESIGN WITH DIN-RAIL MOUNTING
- ★ ISO 9002 certified

The **HC PSF** Programmable Pulse to Analog Transmitters convert various type of pulse frequency and provide an isolated DC analog current or volt output. The programmable input can be suited for square or sinusoidal voltage pulses, open collector transistor pulse and relay contact pulse. A selectable filtering circuit of either "normal" or "intensed" mode cater to low frequency input signal. Provision of 12V DC 20mA maximum sinking current terminal is available for driving transistor pulse output. Galvanic separation between input / output / auxillary supply is up to 1.5kV DC or peak AC.



TECHNICAL SPECIFICATIONS

**INPUT - PROGRAMMABLE
SENSING TYPE :**

1. Unipolar / Bipolar Voltage Pulse (Square or Sinusoidal) with sensitivity adjustment from 10 mV to 5V
 2. Open collector Transistor
 3. Relay Contact
- 12 V DC with 10 mA max drive current
Up to 10 KHz
10 mV to 5V adjustable
Selectable

- EXCITATION VOLTAGE TAPPING :**
PULSE RANGES :
SENSITIVITY TRIMMER FOR VOLTAGE PULSE :
NORMAL OR LOW PULSE INPUT FILTER :

**OUTPUT - PROGRAMMABLE
ACCURACY :**
OUTPUT DRIVE :

± 0.1% Rated Output
less than 10 mA for voltage
less than 10 V for current

GENERAL SPECIFICATIONS

- RIPPLE FACTOR :** less than 0.05% input pulse range
RESPONSE TIME : 800 msec typical on normal filter mode
4 sec on "intensed" filter mode
TEMPERATURE EFFECT : less than ±0.05% per °C
LINEARITY & REPEATABILITY : 0.05% typical
OPERATING TEMPERATURE : -5°C to 55°C
ISOLATION : 1.5 kV DC or peak AC between input / output / auxillary power
OUTPUT ADJUSTMENTS : Span & Zero adjustments available
STANDARD RANGES :

CURRENT	IMPEDANCE (MAX)	VOLTAGE	IMPEDANCE (MIN)
0 ... 1 mA	10 Kohm	0 ... 1 V	200 ohm
0 ... 5 mA	2 Kohm	0 ... 5 V	1 Kohm
0 ... 10 mA	1 Kohm	0 ... 10 V	2 Kohm
0 ... 20 mA	500 ohm	1 ... 5 V	1 Kohm
4 ... 20 mA	500 ohm	2 ... 10 V	2 Kohm

AUXILLARY POWER

- STANDARD RANGE :** 110 V, 230 V ±20% 50/60Hz, 24 V DC ±20% (options available)
CONSUMPTION : 4 W
POWER CHANGE EFFECT : max less than 0.01% per Volt change

INPUT SWITCHING TABLE ~ Switch status

1 = on; 0 = off; x = don't touch

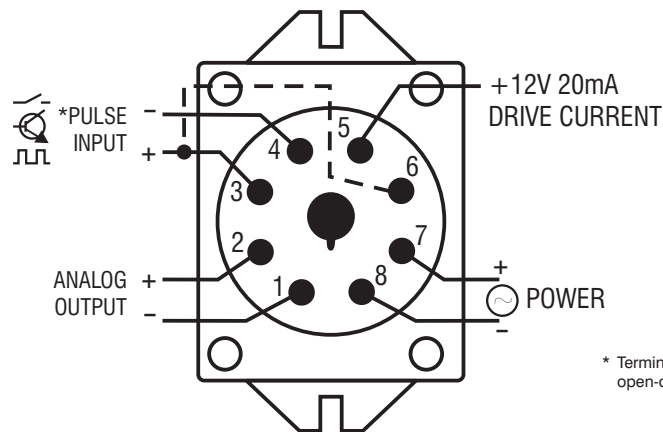
SWITCH RANGE	Gain N 10000 / F	S1 1-2-3-4-5-6-7-8-9-10	Intensed filter Status
0 - 20 Hz	500	0-0-1-0-1-1-1-1-1-0	1
0 - 50 Hz	200	0-0-0-1-0-0-1-1-0-0	1 or 0
0 - 100 Hz	100	0-0-1-0-0-1-1-0-0-0	0
0 - 200 Hz	50	0-1-0-0-1-1-0-0-0-0	0
0 - 500 Hz	20	0-0-1-0-1-0-0-0-0-0	0
0 - 1 kHz	10	0-1-0-0-0-0-0-0-0-0	0
0 - 2 kHz	5	1-0-1-0-0-0-0-0-0-0	0
0 - 5 kHz	2	0-1-0-0-0-0-0-0-0-0	0
0 - 10 kHz	1	1-0-0-0-0-0-0-0-0-0	0

OUTPUT SWITCHING TABLE

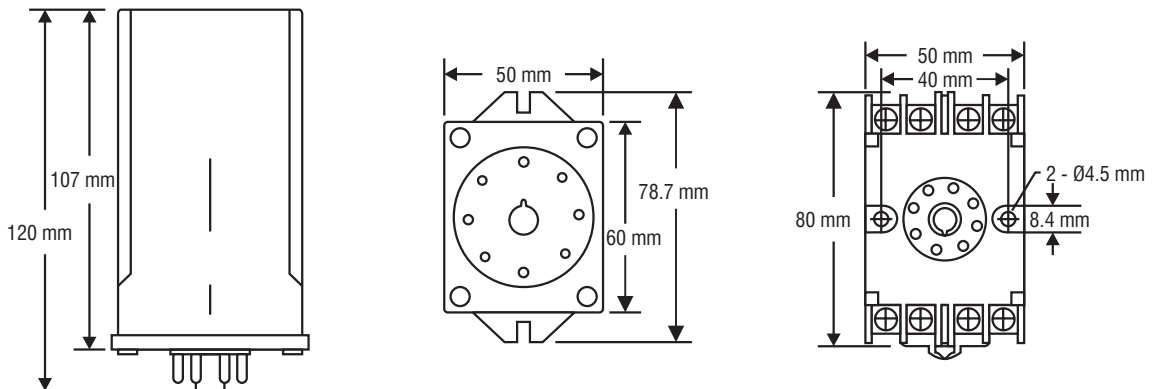
SWITCH RANGE	S5 1-2	S3 1-2-3-4-5-6
0 - 500 mV	1-0	0-0-1-1-1-1
0 - 1 V	1-0	0-1-0-1-1-1
0 - 2 V	1-0	0-1-1-0-1-1
0 - 4 V	1-0	0-1-1-1-0-1
0 - 5 V	1-0	0-1-0-1-0-1
1 - 5 V	1-0	1-1-1-1-0-1
0 - 6 V	1-0	0-1-1-0-0-1
0 - 8 V	1-0	0-1-1-1-1-0
0 - 10 V	1-0	0-1-1-0-1-0
2 - 10 V	1-0	1-1-1-1-1-0

SWITCH RANGE	S5 1-2	S3 1-2-3-4-5-6
0 - 1 mA	0-1	0-0-1-1-1-1
0 - 2 mA	0-1	0-1-0-1-1-1
0 - 5 mA	0-1	0-0-1-0-1-1
1 - 5 mA	0-1	1-1-1-0-1-1
0 - 10 mA	0-1	0-1-0-1-0-1
2 - 10 mA	0-1	1-1-1-1-0-1
0 - 16 mA	0-1	0-1-1-1-1-0
0 - 20 mA	0-1	0-1-1-0-1-0
4 - 20 mA	0-1	1-1-1-1-1-0

WIRING CONNECTION



MOUNTING & DIMENSIONS



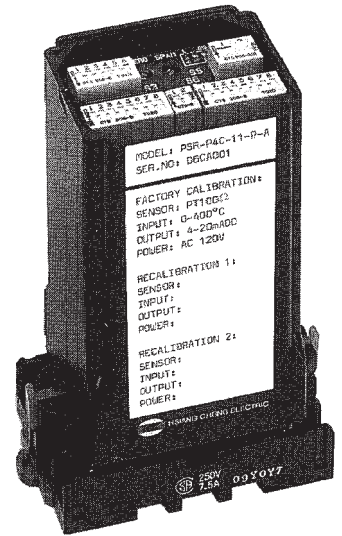
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PROGRAMMABLE SERIES PSG - ANALOG TO DIGITAL PULSE

- ★ HIGH ACCURACY OF 0.1%
- ★ WIDE PROGRAMMABLE INPUT OF 10 mV to 200 V and 200 μ A to 50 mA DC
- ★ WIDE PROGRAMMABLE OUTPUT OF 0.1 Hz to 10 KHz
- ★ GALVANIC ISOLATION OF 1.5 kV AC/DC
- ★ MODULAR 8-PIN PLUG-IN DESIGN WITH DIN-RAIL MOUNTING
- ★ ISO 9002 certified

The **HC PSG** Programmable Analog to Digital Pulse Transmitters are uniquely design to offer flexible ranging applications in the process control fields. The analog DC signal is converted to an accurate and isolated digital pulse signal. Both the programmable input and output ranges cover almost all variations of measurements available in the industries. Galvanic separation between input / output / auxillary supply is up to 1.5 kV DC or peak AC.



TECHNICAL SPECIFICATIONS

INPUT - PROGRAMMABLE

DC VOLTS : 10 mV to 200 V

DC CURRENT : 200 μ A to 50 mA

OUTPUT - PROGRAMMABLE

ACCURACY : \pm 0.1% Rated Output

GENERAL SPECIFICATIONS

RANGES : 0.05 Hz to 10 KHz

TYPE : Open-collector transistor externally powered by 5...30V DC supply sinking 50 mA, option relay contact

RESPONSE TIME : less than 500 msec typically

TEMPERATURE EFFECT : less than 0.008% per $^{\circ}$ C

LINEARITY & REPEATABILITY : 0.05% typical

OPERATING TEMPERATURE : -5 $^{\circ}$ C to 55 $^{\circ}$ C

ISOLATION : 1.5 kV DC or peak AC between input / output / auxillary power

OUTPUT ADJUSTMENTS : Span & Zero adjustments available

AUXILLARY POWER

STANDARD RANGE : 110 V, 230 V \pm 20% 50/60Hz, 24 V DC \pm 20% (options available)

CONSUMPTION : 4 W max

POWER CHANGE EFFECT : less than 0.01% per Volt change

INPUT SWITCHING TABLE ~ Switch status

1 = on; 0 = off; x = don't touch

SWITCH RANGE	S1	S2	S4
0 - 10 mV	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	0-0-1-x
0 - 20 mV	1-1-1-1-1-1-1-1	0-1-0-1-1-1-1-1	0-0-1-x
0 - 50 mV	1-1-1-1-1-1-1-1	1-1-1-1-1-0-1-1	0-1-0-x
0 - 100 mV	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	0-1-0-x
0 - 200 mV	1-1-1-1-1-1-1-1	0-1-0-1-1-1-1-1	0-1-0-x
0 - 500 mV	1-1-1-1-1-1-1-1	1-1-1-1-1-0-1-1	0-0-0-x
0 - 1 V	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	0-0-0-x
-1 - 1 V	1-1-1-1-1-0-1-0	0-1-0-1-1-1-1-1	0-0-0-0
0 - 2 V	1-1-1-1-1-1-1-1	0-1-0-1-1-1-1-1	0-0-0-x
0 - 5 V	1-1-1-1-1-1-1-1	1-1-1-1-1-0-1-1	1-1-0-x
1 - 5 V	1-1-1-1-0-1-1-1	0-1-0-1-1-0-1-1	1-1-0-1
-5 - 5 V	1-1-1-1-0-1-0-1	1-1-1-1-0-1-1-1	1-1-0-0
0 - 10 V	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	1-1-0-x
2 - 10 V	1-1-1-1-1-0-1-1	0-0-1-1-0-1-1-1	1-1-0-1
-10 - 10 V	1-1-1-1-1-0-1-0	0-1-0-1-1-1-1-1	1-1-0-0
0 - 20 V	1-1-1-1-1-1-1-1	0-1-0-1-1-1-1-1	1-1-0-x
0 - 50 V	1-1-1-1-1-1-1-1	1-1-1-1-1-0-1-1	1-1-0-x
0 - 100 V	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	1-1-0-x
0 - 200 V	1-1-1-1-1-1-1-1	0-1-0-1-1-1-1-1	1-1-0-x

SWITCH RANGE	S1	S2	S4
0 - 0.2 mA	1-1-1-1-1-1-1-1	0-1-0-1-1-0-1-1	1-0-1-x
0 - 0.5 mA	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	1-0-1-x
0 - 1 mA	1-1-1-1-1-1-1-1	1-1-1-1-0-1-0-1	1-1-0-x
0 - 2 mA	1-1-1-1-1-1-1-1	0-1-0-1-1-0-1-1	1-1-0-x
0 - 5 mA	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1	1-1-0-x
1 - 5 mA	1-1-1-1-1-0-1-1	0-0-1-1-0-1-1-1	1-1-0-1
0 - 10 mA	1-1-1-1-1-1-1-1	1-1-1-1-0-1-0-1	1-0-0-x
2 - 10 mA	1-1-0-1-1-1-1-1	0-0-1-1-1-0-0-1	1-0-0-1
0 - 20 mA	1-1-1-1-1-1-1-1	0-1-0-1-1-0-1-1	1-1-0-x
4 - 20 mA	1-1-1-0-1-1-1-1	0-1-1-1-0-0-1-1	1-0-0-1
10 - 50 mA	1-1-1-1-1-0-1-1	0-0-1-1-0-1-1-1	1-0-0-1
*20 - 4 mA	1-1-1-1-1-1-0-1	0-1-1-1-0-0-1-1	1-0-0-0
*50 - 10 mA	1-1-1-1-1-0-1-0	0-0-1-1-0-1-1-1	1-0-0-0

*20 - 4 & 50 - 10 mA be reversed of input connection

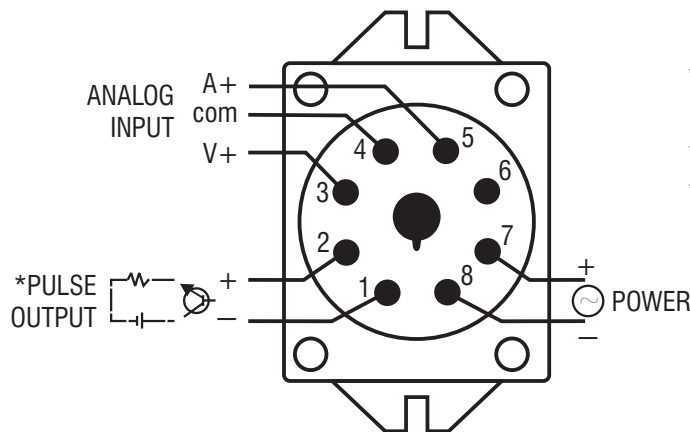
OUTPUT SWITCHING TABLE

SWITCH RANGE	S5-4 poles M	S6-8 poles N
0 - 0.05 Hz	0-0-0-1	0-0-0-1-0-0-1-1
0 - 0.1 Hz	0-0-0-1	0-0-1-0-0-1-1-0
0 - 0.2 Hz	0-0-0-1	0-1-0-0-1-1-0-0
0 - 0.5 Hz	0-0-0-1	0-0-1-0-1-0-0-0

SWITCH RANGE	S5-4 poles M	S6-8 poles N
0 - 1 Hz	0-0-1-0	0-0-1-0-0-1-1-0
0 - 2 Hz	0-0-1-0	0-1-0-0-1-1-0-0
0 - 5 Hz	0-0-1-0	0-0-1-0-1-0-0-0
0 - 10 Hz	0-1-0-0	0-0-1-0-0-1-1-0
0 - 20 Hz	0-1-0-0	0-1-0-0-1-1-0-0
0 - 50 Hz	0-1-0-0	0-0-1-0-1-0-0-0

SWITCH RANGE	S5-4 poles M	S6-8 poles N
0 - 100 Hz	1-0-0-0	0-0-1-0-0-1-1-0
0 - 200 Hz	1-0-0-0	0-1-0-0-1-1-0-0
0 - 500 Hz	1-0-0-0	0-0-1-0-1-0-0-0
0 - 1 kHz	1-0-0-0	0-1-0-1-0-0-0-0
0 - 5 kHz	1-0-0-0	0-1-0-0-0-0-0-0
0 - 10 kHz	1-0-0-0	1-0-0-0-0-0-0-0

WIRING CONNECTION

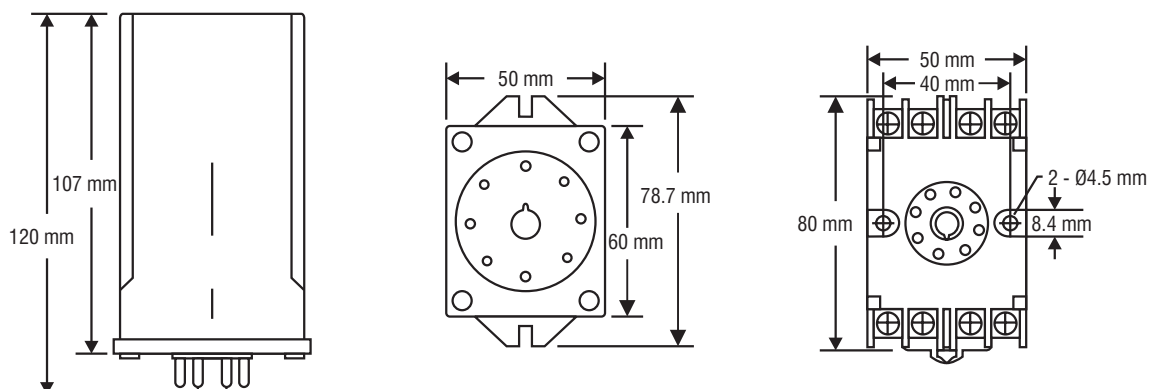


* An external series resistor of 1 - 10 Kohm powered by a 5 - 30 V DC source as shown is required for the open - collector output of terminals 1 (+) and 2 (-).

* Relay contact outputs are available on request.

* Avoid wrong polarity or direct power connections to output terminals as it may cause permanent damage.

MOUNTING & DIMENSIONS



Subject to change without prior notice

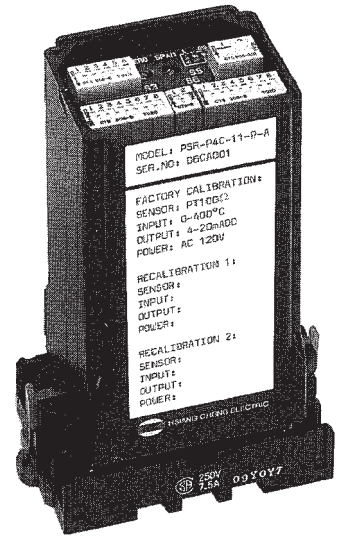
The technical specifications & data given may be amended without prior notice due to continuous developments of our products.



PROGRAMMABLE SERIES PSK - RESISTANCE TO ANALOG

- ★ HIGH ACCURACY OF 0.1% RO
- ★ GALVANIC ISOLATION OF 1.5 kV AC/DC
- ★ WIDE SELECTABLE INPUT RESISTANCE RANGE AND LINEARISED DC OUTPUT
- ★ MODULAR 8-PIN PLUG-IN DESIGN WITH DIN-RAIL MOUNTING
- ★ ISO 9002 certified

The **HC PSK** Programmable Resistance Transmitter are compactly design for converting the variations of resistance to a linearised and isolated DC output. The input sensing is fully programmable from 0 ... 10 Kohm with maximum loop current of 20 mA, with the output programmable for wide range of DC voltage or current signals. Galvanic separation between input / output / auxillary supply is up to 1.5 kV DC or peak AC.



TECHNICAL SPECIFICATIONS

INPUT - PRE-SELECTED & PROGRAMMABLE

INPUT : 0 ... 10 Kohm or other on applications
MAXIMUM LOOP CURRENT : 20 mA
WIRING CONFIGURATION : 3 wires method
RTD OPEN-CIRCUIT DETECTION : output over-ranged to above 110% of rated range

OUTPUT - PROGRAMMABLE

ACCURACY : ± 0.1% RO

GENERAL SPECIFICATIONS

RIPPLE FACTOR : less than 0.1 % typical
RESPONSE TIME : 400 msec to 99% rated output
TEMPERATURE EFFECT : less than ± 0.008% per °C
LINEARITY & REPEATABILITY : 0.05% typical
COMMON MODE REJECTION : 120 dB 60 Hz
OPERATING TEMPERATURE : -5°C to 55°C
ISOLATION : 1.5 kV DC or peak AC between input / output / auxillary power
OUTPUT ADJUSTMENTS : Span & Zero adjustments available
STANDARDS OUTPUT RANGE :

CURRENT	IMPEDANCE (MAX)	VOLTAGE	IMPEDANCE (MIN)
0 ... 1 mA	10 Kohm	0 ... 1 V	200 ohm
0 ... 5 mA	2 Kohm	0 ... 5 V	1 Kohm
0 ... 10 mA	1 Kohm	0 ... 10 V	2 Kohm
0 ... 20 mA	500 ohm	1 ... 5 V	2 Kohm
4 ... 20 mA	500 ohm	2 ... 10 V	2 Kohm

AUXILLARY POWER

STANDARD RANGE : 110 V, 230 V ± 20% 50 / 60 Hz, 24 V DC ± 20% (options available)
CONSUMPTION : 4 W max
POWER CHANGE EFFECT : less than 0.01% per Volt change

INPUT SWITCHING TABLE

INPUT SWITCHING FORMULA :

Upon request

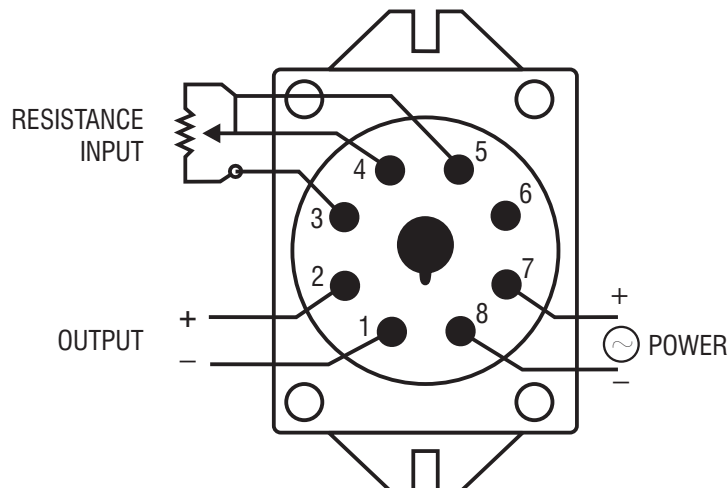
OUTPUT SWITCHING TABLE ~ Switch status

1 = on; 0 = off; x = don't touch

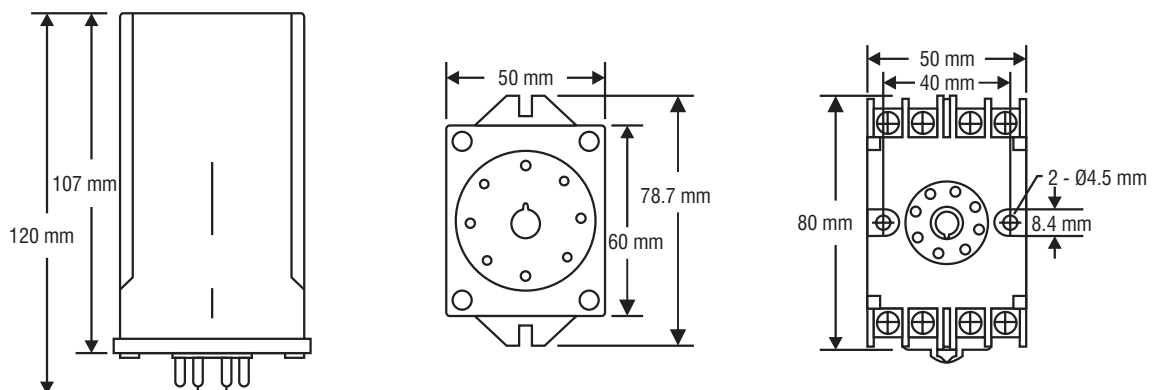
SWITCH RANGE	S5	S3
0 - 500 mV	1-0	0-0-1-1-1-1-1
0 - 1 V	1-0	0-1-0-1-1-1-1
0 - 2 V	1-0	0-1-1-0-1-1-1
0 - 4 V	1-0	0-1-1-1-0-1-1
0 - 5 V	1-0	0-1-0-1-0-1-1
1 - 5 V	1-0	1-1-1-1-0-1-1
0 - 6 V	1-0	0-1-1-0-0-1-1
0 - 8 V	1-0	0-1-1-1-1-1-0
0 - 10 V	1-0	0-1-1-0-1-1-0
2 - 10 V	1-0	1-1-1-1-1-1-0

SWITCH RANGE	S5	S3
0 - 1 mA	0-1	0-0-1-1-1-1-1
0 - 2 mA	0-1	0-1-0-1-1-1-1
0 - 5 mA	0-1	0-0-1-0-1-1-1
1 - 5 mA	0-1	1-1-1-0-1-1-1
0 - 10 mA	0-1	0-1-0-1-0-1-1
2 - 10 mA	0-1	1-1-1-1-0-1-1
0 - 16 mA	0-1	0-1-1-1-1-1-0
0 - 20 mA	0-1	0-1-1-0-1-1-0
4 - 20 mA	0-1	1-1-1-1-1-1-0

WIRING CONNECTION



MOUNTING & DIMENSIONS

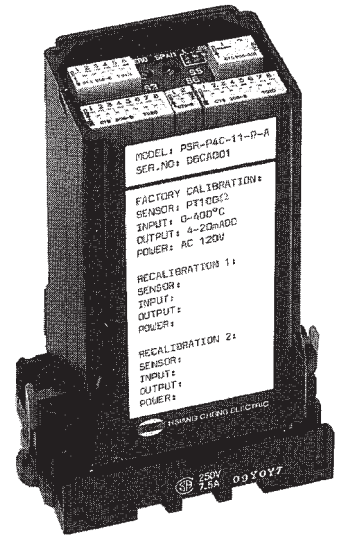




**PROGRAMMABLE SERIES
PSR - TEMPERATURE - PT 100 R.T.D.**

- ★ HIGH ACCURACY OF 0.15% RO
- ★ GALVANIC ISOLATION OF 1.5 kV AC/DC
- ★ WIDE SELECTABLE INPUT TEMPERATURE RANGE AND LINEARISED DC OUTPUT
- ★ MODULAR 8-PIN PLUG-IN DESIGN WITH DIN-RAIL MOUNTING
- ★ ISO 9002 certified

The **HC PSR** Programmable R.T.D Transmitters are compactly designed for converting the variations of resistance in a PT100 temperature sensor to a linearised and isolated DC output. The input sensing is programmable within its 3 pre-selected effective sensing ranges of either °C or °F. Inventory costs and application needs are further reduced with the output programmable for a wide range of DC voltage or current signals. Galvanic separation between input / output / auxillary supply is up to 1000V DC or peak AC.



TECHNICAL SPECIFICATIONS

INPUT - PRE-SELECTED & PROGRAMMABLE

- PRE-SELECTED TEMPERATURE SENSING SPAN :**
- 1 -100°C ... +100°C / -150°F... +230°F
 - 2 -100°C ... +400°C / -150°F... +800°C
 - 3 -100°C ... +800°C / -220°F ... +1470°F

- PROGRAMMABLE RANGE :** within pre-selected range
MAXIMUM LOOP CURRENT : 5 mA
WIRING CONFIGURATION : 3 wires method
R.T.D OPEN-CIRCUIT DETECTION : output over-range to above 110% of rated range

OUTPUT - PROGRAMMABLE

ACCURACY : ± 0.15% Rated Output

GENERAL SPECIFICATIONS

- RIPPLE FACTOR :** less than 0.1 % typical
RESPONSE TIME : 250 msec to 99% rated output
TEMPERATURE EFFECT : less than ± 0.01% per °C
LINEARITY & REPEATABILITY : 0.1% typical
COMMON MODE REJECTION : 120 dB 60 Hz
OPERATING TEMPERATURE : -5°C to 55°C
ISOLATION : 1.5 kV DC or peak AC between input / output / auxillary power
OUTPUT ADJUSTMENTS : Span & Zero adjustments available

STANDARD OUTPUT RANGES :

CURRENT	IMPEDANCE (MAX)	VOLTAGE	IMPEDANCE (MIN)
0 ... 1 mA	10 Kohm	0 ... 1 V	200 ohm
0 ... 5 mA	2 Kohm	0 ... 5 V	1 Kohm
0 ... 10 mA	1 Kohm	0 ... 10 V	2 Kohm
0 ... 20 mA	500 ohm	1 ... 5 V	1 Kohm
4 ... 20 mA	500 ohm	2 ... 10 V	2 Kohm

AUXILLARY POWER

- STANDARD RANGE :** 110 V, 230 V ± 20% 50/60Hz, 24 V DC ± 20% (options available)
CONSUMPTION : 4 W
POWER CHANGE EFFECT : max less than 0.01 % per Volt change

INPUT SWITCHING TABLE

INPUT SWITCHING FORMULA :

Upon request

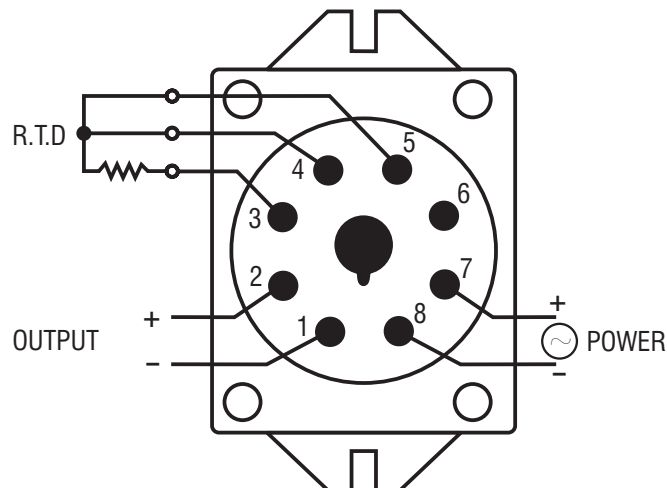
OUTPUT SWITCHING TABLE ~ Switch status

1 = on; 0 = off; x = don't touch

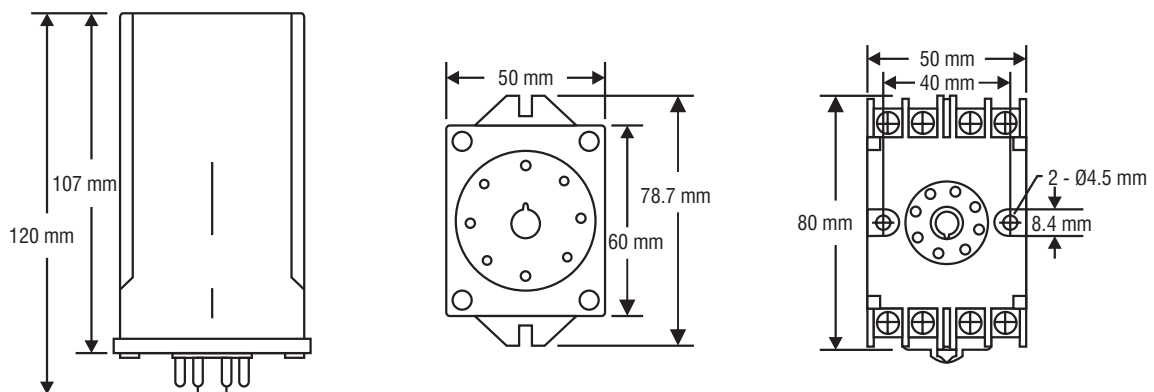
SWITCH RANGE	S5	S3
0 - 500 mV	1-0	0-0-1-1-1-1-1
0 - 1 V	1-0	0-1-0-1-1-1-1
0 - 2 V	1-0	0-1-1-0-1-1-1
0 - 4 V	1-0	0-1-1-1-0-1-1
0 - 5 V	1-0	0-1-0-1-0-1-1
1 - 5 V	1-0	1-1-1-1-0-1-1
0 - 6 V	1-0	0-1-1-0-0-1-1
0 - 8 V	1-0	0-1-1-1-1-1-0
0 - 10 V	1-0	0-1-1-0-1-1-0
2 - 10 V	1-0	1-1-1-1-1-1-0

SWITCH RANGE	S5	S3
0 - 1 mA	0-1	0-0-1-1-1-1-1
0 - 2 mA	0-1	0-1-0-1-1-1-1
0 - 5 mA	0-1	0-0-1-0-1-1-1
1 - 5 mA	0-1	1-1-1-0-1-1-1
0 - 10 mA	0-1	0-1-0-1-0-1-1
2 - 10 mA	0-1	1-1-1-1-0-1-1
0 - 16 mA	0-1	0-1-1-1-1-1-0
0 - 20 mA	0-1	0-1-1-0-1-1-0
4 - 20 mA	0-1	1-1-1-1-1-1-0

WIRING CONNECTION



MOUNTING & DIMENSIONS

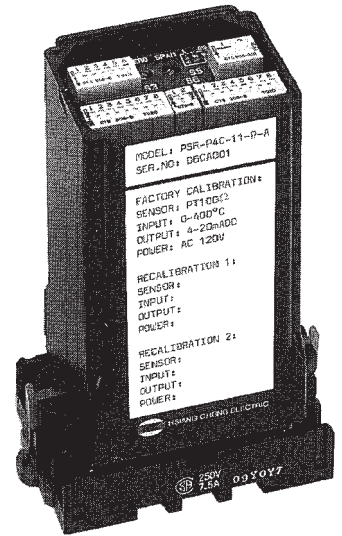




PROGRAMMABLE SERIES PST - TEMPERATURE - THERMOCOUPLES

- ★ HIGH ACCURACY OF 0.2% OR 1°C
- ★ GALVANIC ISOLATION OF 1.5 kV AC/DC
- ★ SUITABLE FOR THERMOCOUPLES TYPE J, K, E, T, N, R, S & B
- ★ PROGRAMMABLE INPUT SENSING RANGE
- ★ MODULAR 8-PIN PLUG-IN DESIGN WITH DIN-RAIL MOUNTING
- ★ ISO 9002 certified

The HC PST Programmable Thermocouple Transmitters are compactly designed to meet wide ranging thermocouples' type. The thermocouple's signal is linearised and cold-junction compensated to provide an isolated & linearised programmable DC volt or current output in °C or °F. Plug-in modules are available to configure a basic unit to the various types of thermocouples. Galvanic separation between input / output / auxillary supply is up to 1.5 kV DC or peak AC.



TECHNICAL SPECIFICATIONS

INPUT - PRE-SELECTED & PROGRAMMABLE

THERMOCOUPLE TYPES :

J	-100°C to +750°C / -150°F to +1380°F
K	-100°C to +1250°C / -150°F to +2250°F
T	-150°C to +400°C / -220°F to +750°F
N	-100°C to +1250°C / -150°F to +2250°F
S	300°C to +1700°C / 600°F to +3100°F

J	-100°C to +400°C / -150°F to +400°F
K	-100°C to +400°C / -150°F to +400°F
E	-100°C to +800°C / -150°F to +1470°F
R	300°C to +1700°C / 600°F to 3100°F
B	500°C to +1750°C / 900°F to 3200°F

PROGRAMMABLE RANGE :

within pre-selected range

COLD JUNCTION COMPENSATION ERROR :

± 0.5°C typical

THERMOCOUPLE BREAK DETECTION :

Selectable for positive over-ranged of above 110% RO or negative under-ranged of below 0.5% RO

THERMOCOUPLE RESISTANCE EFFECT :

less than 5µV per 100 ohm

OUTPUT - PROGRAMMABLE

ACCURACY :

± 0.2% of range + 0.5°C for types J, K, E, T & N thermocouples

± 0.25% of range + 1°C for types R, S & B thermocouples

GENERAL SPECIFICATIONS

RIPPLE FACTOR :

0.1 % typical

RESPONSE TIME :

250 msec to 99% rated output

TEMPERATURE EFFECT :

less than ±0.015% fs per °C

LINEARITY & REPEATABILITY :

0.12% typical

COMMON MODE REJECTION :

120 dB 60 Hz

OPERATING TEMPERATURE :

-5°C to 55°C

ISOLATION :

1.5 kV DC or peak AC between input / output / auxillary power

OUTPUT ADJUSTMENTS :

Span & Zero adjustments available

STANDARD OUTPUT RANGES :

CURRENT	IMPEDANCE (MAX)	VOLTAGE	IMPEDANCE (MIN)
0 ... 1 mA	10 Kohm	0 ... 1 V	200 ohm
0 ... 5 mA	2 Kohm	0 ... 5 V	1 Kohm
0 ... 10 mA	1 Kohm	0 ... 10 V	2 Kohm
0 ... 20 mA	500 ohm	1 ... 5 V	2 Kohm
4 ... 20 mA	500 ohm	2 ... 10 V	2 Kohm

AUXILLARY POWER

STANDARD RANGE :

110 V, 230 V ±20% 50 / 60 Hz, 24 V DC ±20% (options available)

CONSUMPTION :

4 W max

POWER CHANGE EFFECT :

less than 0.01% per Volt change

INPUT SWITCHING TABLE

INPUT SWITCHING FORMULA :

Upon request

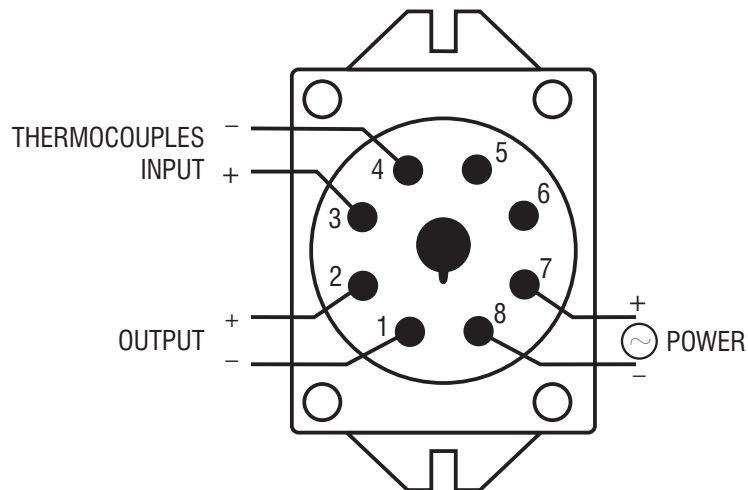
OUTPUT SWITCHING TABLE ~ Switch status

1 = on; 0 = off; x = don't touch

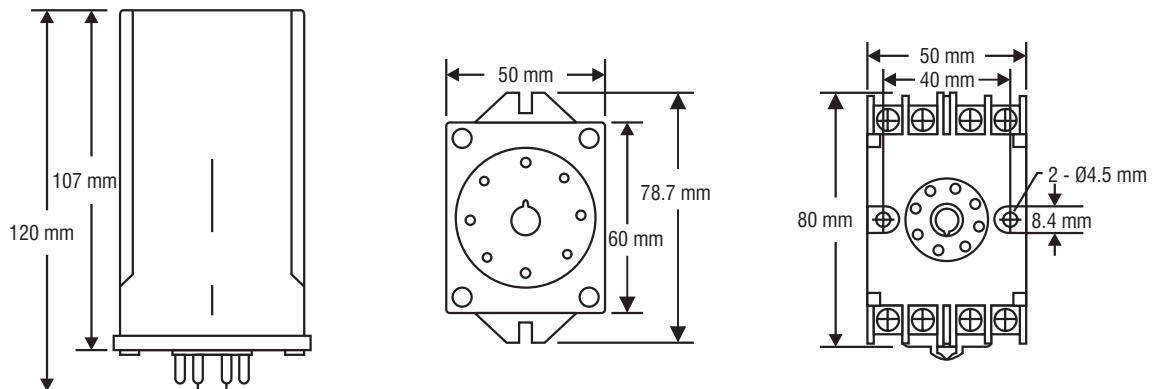
SWITCH RANGE	S5	S3
0 - 500 mV	1-0	0-0-1-1-1-1
0 - 1 V	1-0	0-1-0-1-1-1
0 - 2 V	1-0	0-1-1-0-1-1
0 - 4 V	1-0	0-1-1-1-0-1
0 - 5 V	1-0	0-1-0-1-0-1
1 - 5 V	1-0	1-1-1-1-0-1
0 - 6 V	1-0	0-1-1-0-0-1
0 - 8 V	1-0	0-1-1-1-1-0
0 - 10 V	1-0	0-1-1-0-1-0
2 - 10 V	1-0	1-1-1-1-1-0

SWITCH RANGE	S5	S3
0 - 1 mA	0-1	0-0-1-1-1-1
0 - 2 mA	0-1	0-1-0-1-1-1
0 - 5 mA	0-1	0-0-1-0-1-1
1 - 5 mA	0-1	1-1-1-0-1-1
0 - 10 mA	0-1	0-1-0-1-0-1
2 - 10 mA	0-1	1-1-1-1-0-1
0 - 16 mA	0-1	0-1-1-1-1-0
0 - 20 mA	0-1	0-1-1-0-1-0
4 - 20 mA	0-1	1-1-1-1-1-0

WIRING CONNECTION



MOUNTING & DIMENSIONS

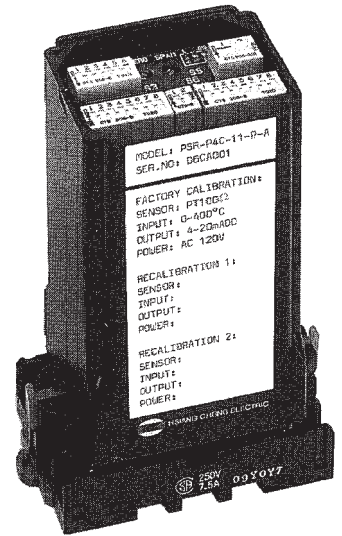




PROGRAMMABLE SERIES PA - MATH - SUMMING

- ★ HIGH ACCURACY OF 0.1% RO
- ★ GALVANIC ISOLATION OF 1.5kV AC / DC
- ★ WIDE SELECTABLE DC CURRENT/VOLTAGE FOR INPUT & OUTPUT
- ★ MODULAR 8-PIN PLUG-IN DESIGN WITH DIN-RAIL MOUNTING
- ★ ISO 9002 certified

The **HC PA DC** Programmable Math -Summing transmitters are compactly designed for adding, subtracting and isolating of DC variables. The total flexibility of selecting and programming both the input and output signals meet the requirements of almost all instrumentation and control applications. It is galvanically isolated between input / output / auxillary power of up to 1.5kV DC or peak AC.



TECHNICAL SPECIFICATIONS

INPUT - PROGRAMMABLE

FUNCTIONS : $x+y / x -y / x+y+z / x-y+z$

OUTPUT - PROGRAMMABLE

ACCURACY : $\pm 0.1\%$ Rated Output
DC VOLTS : 10 mV to 200 V with 10 mA drive capability
DC CURRENT : 50 μ A to 50 mA with 10 V compliance capability

GENERAL SPECIFICATIONS

RIPPLE FACTOR : less than 0.1 % rms RO
RESPONSE TIME : 250 msec to 99% rated output
TEMPERATURE EFFECT : less than $\pm 0.015\%$ per $^{\circ}$ C typically
LINEARITY & REPEATABILITY : 0.05% typically
COMMON MODE REJECTION : 120 dB 60 Hz
OPERATING TEMPERATURE : -5° C to 55° C
ISOLATION : 1.5 kV DC or peak AC between input / output / auxillary power
OUTPUT ADJUSTMENTS : Span & Zero adjustments available

STANDARD OUTPUT RANGES :

CURRENT	IMPEDANCE (MAX)	VOLTAGE	IMPEDANCE (MIN)
0 ... 1 mA	10 Kohm	0 ... 1 V	200 ohm
0 ... 5 mA	2 Kohm	0 ... 5 V	1 Kohm
0 ... 10 mA	1 Kohm	0 ... 10 V	2 Kohm
0 ... 20 mA	500 ohm	1 ... 5 V	2 Kohm
4 ... 20 mA	500 ohm	2 ... 10 V	2 Kohm

AUXILLARY POWER

STANDARD RANGE : 110 V, 230 V $\pm 20\%$ 50 / 60 Hz, 24 V DC $\pm 20\%$ (options available)
CONSUMPTION : 3.5 W max
POWER CHANGE EFFECT : less than 0.01% per Volt change

INPUT SWITCHING TABLE

INPUT SWITCHING FORMULA :

Upon request

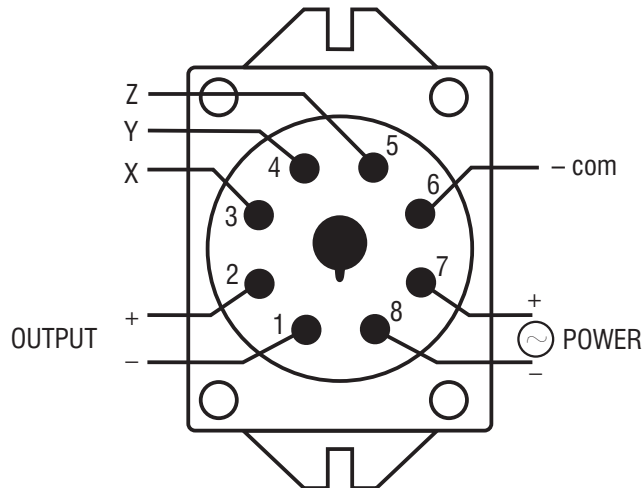
OUTPUT SWITCHING TABLE ~ Switch status

1 = on; 0 = off; x = don't touch

SWITCH RANGE	S5	S3
	1-2	1-2-3-4-5-6
0 - 500 mV	1-0	0-0-1-1-1-1
0 - 1 V	1-0	0-1-0-1-1-1
0 - 2 V	1-0	0-1-1-0-1-1
0 - 4 V	1-0	0-1-1-1-0-1
0 - 5 V	1-0	0-1-0-1-0-1
1 - 5 V	1-0	1-1-1-1-0-1
0 - 6 V	1-0	0-1-1-0-0-1
0 - 8 V	1-0	0-1-1-1-1-0
0 - 10 V	1-0	0-1-1-0-1-0
2 - 10 V	1-0	1-1-1-1-1-0

SWITCH RANGE	S5	S3
	1-2	1-2-3-4-5-6
0 - 1 mA	0-1	0-0-1-1-1-1
0 - 2 mA	0-1	0-1-0-1-1-1
0 - 5 mA	0-1	0-0-1-0-1-1
1 - 5 mA	0-1	1-1-1-0-1-1
0 - 10 mA	0-1	0-1-0-1-0-1
2 - 10 mA	0-1	1-1-1-1-0-1
0 - 16 mA	0-1	0-1-1-1-1-0
0 - 20 mA	0-1	0-1-1-0-1-0
4 - 20 mA	0-1	1-1-1-1-1-0

WIRING CONNECTION



MOUNTING & DIMENSIONS

