

Programmable RTD Isolating Transmitters

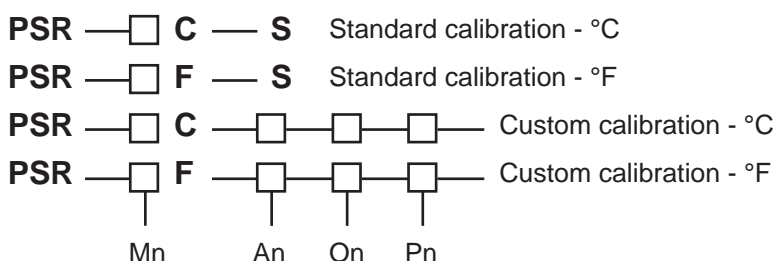
PSR



Features

- ⊙ Linearized output
- ⊙ Field - rangeable
- Switchable input & output ranges
- Changeable input module P1 / P4 / P8 / C4
- ⊙ Accuracy 0.15%
- ⊙ Input / output isolation 1.6KVdc
- ⊙ Available standard calibration or custom calibration

Model Selection Standard or custom calibration



Input modules Max. Effective range	Mn	Input Range	An	Input Range	An	Output Range	On	Power	Pn
-110~110C / -170~170F	P1	-100~0	1	0~500	12	0~1 V	A	AC120V	A
-100~440C / -150~800F	P4	-100~50	2	0~600	13	0~2 V	B	AC240V	B
-100~800C / -150~1500F	P8	-50~50	3	0~700	14	0~5 V	C		
-100~250C / -150~450F	C4	-50~100	4	0~800	15	1~5 V	D	Option	
Note Module P1-P4-P8 for PT 100 Module C4 for CU 10		-50~200	5	0~900	16	0~10 V	E		
		0~100	6	0~1000	17	2~10 V	F	DC 24V	C
		0~150	7	0~1100	18	0~1 mA	G	DC 48V	D
		0~200	8	0~1200	19	0~2 mA	H	DC 12V	E
		0~250	9	0~1400	20	0~5 mA	I		
		0~300	10	0~1500	21	1~5 mA	J		
		0~400	11	Specified	Y	0~10 mA	K		
						2~10 mA	L		
						0~16 mA	M		
						0~20 mA	N		
						4~20 mA	P		

Standard calibration table power AC 120V

Module		P1	P4	P8	C4
Input range	°C	0~100C	0~400C	0~600C	0~100C
	°F	0~150F	0~800F	0~1000F	0~150F
Output		4~20mA	4~20mA	4~20mA	4~20mA



HSIANG CHENG ELECTRIC CORP.

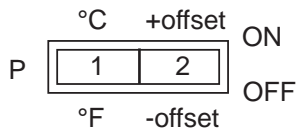
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Specification

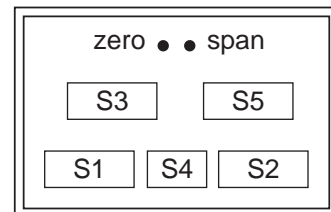
Accuracy (23 ± 3°C)	0.15% of effective range + 0.3°C P4 / P8 0.25% of effective range + 0.15°C P1 / CU
Linearity & repeatability	0.1% typical
Temperature stability	≤ 0.01% RO per degree C
Configuration	Three wires connection / applicable for two wires Excitation ... 5 mA _{dc} constant current source change input module linearized output vs input temperature
Field rangeability	selectable output mode.....voltage or current switchable input ranges/switchable output ranges switchable AC power 120V or 240V selectable °C / °F calibration
Effect of wire resistance	automatically eliminated for 3 wires connection offset recal. required for 2 wires connection
Input break detection	Hi - set ≥ 110% of rated output
Power effect	< 0.003% for per volt change
Response time & ripple	250ms typically , ripple < 0.1% rms of span
Output drive capability	≤ 10mA for voltage mode, ≤ 10 V for current mode
Common mode rejection	> 80db 50 / 60 Hz
Dielectric strength	1500Vac power / input & output terminals 1600Vdc input / output terminals
Operating condition	-5~55°C , humidity 20~95% RH non - condensed
Storage condition	-10~70°C , humidity 20~95% RH non - condensed
Power supply	± 20% of rated , less 3.5 VA for AC input ± 20% of rated , less 3.5 watt for DC input
Construction	Socket plug - in type with barrier terminals

Function switches S1 , S2 , S3 , S4 , S5

S4 °C / °F calibration & offset polarity selection



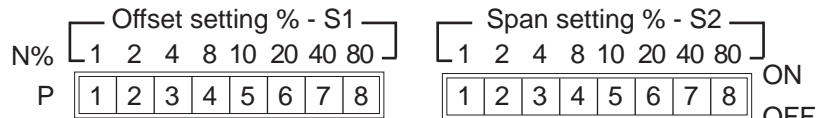
Status P1 ON / °C calibration OFF / °F calibration
P2 ON = +offset ; OFF = -offset
TL > 0 + offset selection
TL < 0 - offset selection
TL = 0 don't care
TL input low (TH input high)



S1 % offset

S2 % span gain

Status S1 & S2 OFF = enable
All poles OFF ΣN = 165%
All poles ON ΣN = 0%



S3 output range selection 6 poles ref. output switching table

S5 output mode : voltage / current selection 2 poles ref. output switching table

Reference constant TR

Module		P1	P4	P8	C4
TR	°C	100	400	800	250
	°F	180	720	1440	450

Programming formula TH / TL : input high / input low TR : reference constant

Input gain $X = [10 \text{ TR} / (\text{TH} - \text{TL})] \%$

Input offset $Y = (100 \text{ TL} / \text{TR}) \%$ TL > 0 +offset ; TL < 0 -offset

Note

1. Input span | TH - TL | should be ≥ 0.1 | TH |

2. If input span | TH - TL | ≤ 0.2 | TH | at normal setting with calibration , if non - linear happened , shifting offset switchess up or down 1 - 2% & recalibrating to obtain correct output

Application

Example 1 : PSR - P4C - Y - P - A

Input module P4 PT 100 ohm type RTD

Input range Y non list range , say specified 200~400°C ; TH = 400°C ; TL = 200°C

Output 4~20mA ; Power AC 120V

S4 P1 ON / °C calibration P2 ON / +offset (TL > 0)

Input gain = $[10 \text{ TR} / (\text{TH} - \text{TL})] \%$

= $[(10 \times 400) / (400 - 200)] \%$ TR = 400 for P4 °C version

= 20%

S2 P

1	2	3	4	5	6	7	8
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 ON
OFF P6 off & the rest on 20%

OFF

Input offset = $(100 \text{ TL} / \text{TR}) \%$ = $(100 \times 200 / 400) \%$ = 50%

S1 P

1	2	3	4	5	6	7	8
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 ON
OFF P5 - P7 off & the rest on 50%

OFF OFF

Example 2 : PSR - P4F - Y - E - B Y = -50 to 250°F

S4 P1 OFF / °F calibration P2 OFF / -offset (TL < 0)

Input gain = $\{ (10 \times 720) / [250 - (-50)] \} \%$ = 24% TR = 720

Input offset = $[100 \times (-50)] / 720 = -7\%$

Switch setting

S2 P3 - P6 OFF & the rest ON 24%

S1 P1 - P2 - P3 OFF & the rest ON | 7 | %

Output switching table

Switch status 1 : ON ; 0 : OFF

Output Ranges	S5 1-2	S3 1-2-3-4-5-6	Output Ranges	S5 1-2	S3 1-2-3-4-5-6
0~0.5 V	1-0	0-0-1-1-1-1	0~1 mA	0-1	0-0-1-1-1-1
0~1 V	1-0	0-1-0-1-1-1	0~2 mA	0-1	0-1-0-1-1-1
0~2 V	1-0	0-1-1-0-1-1	0~5 mA	0-1	0-0-1-0-1-1
0~4 V	1-0	0-1-1-1-0-1	1~5 mA	0-1	1-1-1-0-1-1
0~5 V	1-0	0-1-0-1-0-1	0~10 mA	0-1	0-1-0-1-0-1
1~5 V	1-0	1-1-1-1-0-1	2~10 mA	0-1	1-1-1-1-0-1
0~6 V	1-0	0-1-1-0-0-1	0~16 mA	0-1	0-1-1-1-1-0
0~8 V	1-0	0-1-1-1-1-0	0~20 mA	0-1	0-1-1-0-1-0
0~10 V	1-0	0-1-1-0-1-0	4~20 mA	0-1	1-1-1-1-1-0
2~10 V	1-0	1-1-1-1-1-0			

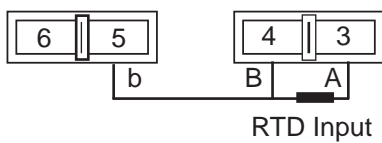
* Plus 0.008% fs per °C of 0 - 0.5V / 1V / 2V / 1mA / 2mA range selection

AC auxiliary power selection

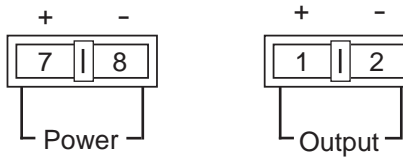
Switchable 120V / 240V by side switch internally

Terminal connection

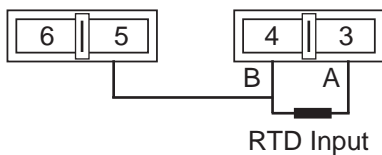
Three wires connection



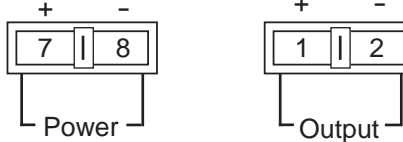
(DC option)



Two wires application shorting terminals 4 & 5



(DC option)



Dimension

