

PROGRAMMABLE POTENTIOMETER TRANSMITTER



FEATURES

- Field-rangeable. Wide switchable input ranges 200 to 50K Ω , wide switchable output ranges over 20 standard process ranges
- Accuracy 0.1% F.S.
- Input/output isolation 1.6KVdc

1. MODEL: PF- [] - [] - [] - [] - N → Non-programmable

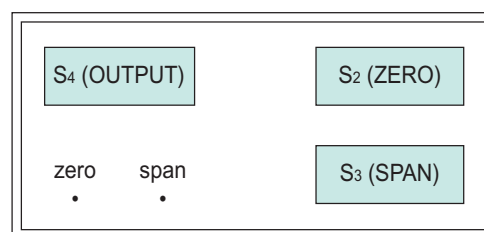
KAP	Non-Isolating (input/output)
KBP	Isolating (input/output)

NO	Ranges RL~RH	NO	Output Ranges	NO	Aux. Power
10	0 ~ 10%	A	0 - 0.5 V	1	AC 110V (50/60Hz)
11	0 ~ 15%	B	0 - 1 V	2	AC 220V (50/60Hz)
12	0 ~ 20%	C	0 - 2 V	3	DC 24V
13	0 ~ 25%	D	0 - 4 V	4	DC 48V
14	0 ~ 30%	E	0 - 5 V	5	DC 110V
15	0 ~ 40%	F	1 - 5 V	6	DC 220V
16	0 ~ 50%	G	0 - 8 V	7	AC 90~260V
17	0 ~ 60%	H	0 - 10 V	9	SPECIFIED
18	0 ~ 70%	I	2 - 10 V		
19	0 ~ 80%	J	0 - 1 mA		• $\pm 20\%$ of rate, less 2.5VA for AC input
20	0 ~ 90%	K	0 - 2 mA		• $\pm 20\%$ of rate, less 2WATT for DC input
21	0 ~ 100%	L	0 - 5 mA		• Switchable 110V/220V by jump internally
22	5 ~ 95%	M	1 - 5 mA		• $\pm 10\%$ of rate, less 2.5VA for AC switching input
23	10 ~ 90%	N	0 - 10 mA		
24	10 ~ 100%	O	0 - 16 mA		
99	SPECIFIED	P	0 - 20 mA		
	• Exciting voltage 2.5VDC ($\leq 12.5mA$)	Q	4 - 20 mA		
		R	SPECIFIED		

2. Specification

- Accuracy : 0.1% F.S. ($23 \pm 5^\circ C$)
- Output ripple (p-p) : $< 0.1\%$ F.S.
- Temp. coefficient : 100ppm/ $^\circ C$ (0-50 $^\circ$)
- Dielectric strength : 1.5KVac/1 min. (power/input/output)
1600 Vdc (input/output)
- Output drive capability : $\leq 10mA$ for voltage mode
 $\leq 10V$ for current mode
- Response time : $\leq 250ms$ (0~90%)
- Operating condition : 0~55 $^\circ C$ humidity 20~95% RH
non-condensed
- Storage condition : 0~70 $^\circ C$ humidity 20~95% RH
non-condensed
- Construction : Socket/plug-in type with barrier terminals

3. Function switches (S2, S3, S4)



- S2 → Input range offset (ZERO) selection

N%	1	2	4	8	10	20	40	80	ON
P	1	2	3	4	5	6	7	8	OFF
Status	off =enable								
All poles off	$\sum N = 165\%$								
All poles on	$\sum N = 0\%$								

- S3 → Input range span (GAIN) selection

N%	1	2	4	8	10	20	40	80	ON
P	1	2	3	4	5	6	7	8	OFF
Status	off =enable								
All poles off	$\sum N = 165\%$								
All poles on	$\sum N = 0\%$								

- S4 → P₁-P₂-P₃-P₄-P₅-P₆ output range selection
P₇-P₈ output mode: voltage/current selection
★ (ref. output switching table)

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4. Programming formula

RH/RL: Percent input high / percent input low

- Span $\rightarrow X = [10/(RH-RL)]\%$
- Offset $\rightarrow Y = (100 \times RL)\%$

5. Application

Example : PF-KAP-21Q-1

Input range (RH = 100%, RL = 0%)

Output (DC 4-20mA)

Power (AC 110V)

- (Span) $X = [10/(100\%-0\%)]\%$
= 10%
- (Offset) $Y = (100 \times 0\%)\%$
= 0%

• S2 $\rightarrow$

1	2	3	4	5	6	7	8
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 ON
OFF
(All poles on $\rightarrow \Sigma N=0\%$)

• S3 $\rightarrow$

1	2	3	4	5	6	7	8
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 ON
OFF
(P5-off & the rest on $\rightarrow \Sigma N=10\%$)

• S4 $\rightarrow$

1	2	3	4	5	6	7	8
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 ON
OFF
(P5-P7-P8-off & the rest on)

6. Input switching table (S2, S3)

(switching status 1 = on; 0 = off)

Input Range	S2 (ZERO) 1-2-3-4-5-6-7-8	S3 (SPAN) 1-2-3-4-5-6-7-8
0 ~ 10%	1-1-1-1-1-1-1-1	1-1-1-1-1-0-1-0
0 ~ 15%	1-1-1-1-1-1-1-1	* 0-0-0-1-1-0-0-1
0 ~ 20%	1-1-1-1-1-1-1-1	1-1-1-1-0-1-0-1
0 ~ 25%	1-1-1-1-1-1-1-1	1-1-1-1-1-1-0-1
0 ~ 30%	1-1-1-1-1-1-1-1	* 0-0-1-1-0-0-1-1
0 ~ 40%	1-1-1-1-1-1-1-1	0-1-0-1-1-0-1-1
0 ~ 50%	1-1-1-1-1-1-1-1	1-1-1-1-1-0-1-1
0 ~ 60%	1-1-1-1-1-1-1-1	* 0-0-0-1-0-1-1-1
0 ~ 70%	1-1-1-1-1-1-1-1	* 1-1-0-1-0-1-1-1
0 ~ 80%	1-1-1-1-1-1-1-1	* 0-0-1-1-0-1-1-1
0 ~ 90%	1-1-1-1-1-1-1-1	* 0-1-1-1-0-1-1-1
0 ~ 100%	1-1-1-1-1-1-1-1	1-1-1-1-0-1-1-1
5 ~ 95%	0-1-0-1-1-1-1-1	* 0-1-1-1-0-1-1-1
10 ~ 90%	1-1-1-1-0-1-1-1	* 0-0-1-1-0-1-1-1
10 ~ 100%	1-1-1-1-0-1-1-1	0-1-1-1-0-1-1-1

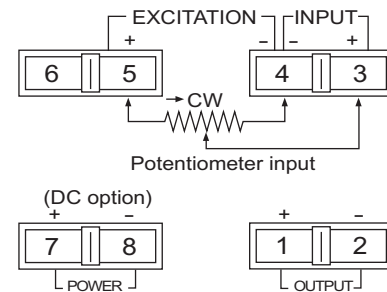
* recalibration to obtain linear output

7. Output switching table (S4)

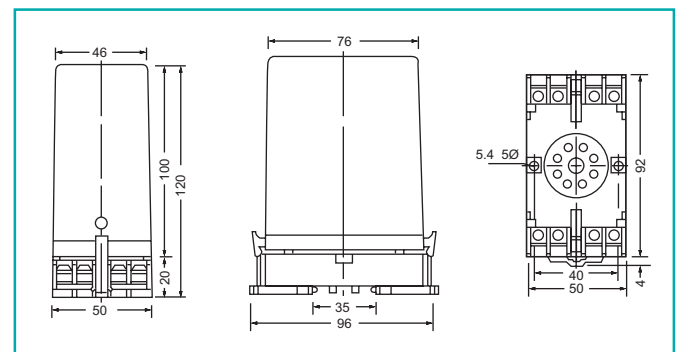
(switching status 1 = on; 0 = off)

Output Range	O/P Range 1-2-3-4-5-6	O/P Mode 7-8
0 ~ 0.5V	0-1-1-1-1-0	1-1
0 ~ 1V	1-0-1-1-1-0	1-1
0 ~ 2V	1-1-0-1-1-0	1-1
0 ~ 4V	1-1-1-0-1-0	1-1
0 ~ 5V	1-0-1-0-1-0	1-1
1 ~ 5V	1-1-1-0-1-1	1-1
0 ~ 6V	1-1-0-0-1-0	1-1
0 ~ 8V	1-1-1-1-0-0	1-1
0 ~ 10V	1-1-0-1-0-0	1-1
2 ~ 10V	1-1-1-1-0-1	1-1
0 ~ 1mA	0-1-1-1-1-0	0-0
0 ~ 2mA	1-0-1-1-1-0	0-0
0 ~ 5mA	0-1-0-1-1-0	0-0
1 ~ 5mA	1-1-0-1-1-1	0-0
0 ~ 10mA	1-0-1-0-1-0	0-0
2 ~ 10mA	1-1-1-0-1-1	0-0
0 ~ 16mA	1-1-1-1-0-0	0-0
0 ~ 20mA	1-1-0-1-0-0	0-0
4 ~ 20mA	1-1-1-1-0-1	0-0

8. Terminal connection



9. Dimension:



Note: 1. Socket drawing type

2. Mounting: either rail mounting or general screw mounting