General Specifications

Model PTED EMF- and RTD-to-Pneumatic Converters

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The Model PTED EMF- and RTD-to-Pneumatic Converters receive an input, such as mV DC, thermocouple, RTD or 1 to 5 V DC and converts it to a 20 to 100 kPa pneumatic pressure. For temperature measurements, a built-in linearizer linearizes temperature vs. pneumatic output signal. A burnout circuit can be provided for thermocouple, RTD and mV DC inputs.

*PTED-1, 2 and 3: Order accept was stopped on June 30, 2005.

STANDARD SPECIFICATIONS.

Input Specifications

See Table 1.

Output Specifications

Output Signal: 0.2 to 1.0 kg/cm^2 or bar, 20 to 100 kPa, or 3 to 15 psi, whichever specified.

Conversion:

mV DC input: Proportional output.

Thermocouple, RTD inputs: Outputs are proportional to temperature (linearized).

Air connection: Tapped for Rc1/8 (PT1/8) or 1/8NPT (option) female.

Mounting: Installed in an indoor rack.

Connections: Converter is connected to the rack case with pneumatic connector and multipin connector. Pneumatic connections OUT and SUP on the front panel of the converter are tapped for Rc1/8 (PT1/8) 1/8NPT (option). Input wires are connected to terminals with 4 mm screws.

Power and Ground Wiring:

100 V version: JIS C 8303 two-pin plug with earthing contact. (IEC A5-15, UL498)

220 V version: CEE 7 VII (CENELEC standard) plug.

Cable Length: 300 mm.

Weight: Approx. 2.5 kg.

Case Material: Aluminum.

Other Specifications

Accuracy: ±0.5% (excluding reference junction compensation accuracy for thermocouple).

Thermocouple Reference Junction Compensation Accuracy (no compensation for Type B):

For Temperatures Over 0°C: At least ±0.5°C (except for types R, S – their accuracy is ±1°C).

For Temperatures Below 0°C: Multiply accuracy for temperatures over 0°C by K, where

$$K = \frac{\text{(Thermocouple output change/°C near 0°C)}}{\text{(Thermocouple output change/°C at measurement temperature*)}}$$

*K is maximum at low end of measuring range.

Table 1. Input Specification.

Input Signal & Standard	mV DC Input	Thermocouple Input JIS, IEC, ANSI, BS Standards Types B, R, S, K, J, E & T.	RTD Input JIS 3-wire Pt 100Ω at 0°C Currrent at Least 2 mA	1 to 5 V DC Input
Minimum Span	3 mV	3 mV	10°C*1	
Maximum Span	100 mV	62 mV	500°C	–
Elevation	Within 3 times of span or ±50 mV, whichever is smaller.	Within 3 times of span or ±25 mV, whichever is smaller.	Within 5 times of span.	
Measuring Range	–50 to +150 mV	See standard range table*2.		1 to 5 V DC
Input Impedance	1 MΩ	1 MΩ	–	1 MΩ
External Input Impedance	500 Ω maximum	500 Ω maximum*3	No greater than input span (°C) × 0.4 Ω maximum 10 Ω/wire*3.	–

Notes: *1: Minimum span is 30°C for the converter used with BARD.

*2: Type B measuring range: 600 to 1700°C.

*3: This resistance value can be added to the BARD internal resistance when the converter is used with BARD.

Power Consumption:
24 V DC power version: 86 mA.
100 V AC power version: 6.6 VA.
220 V AC power version: 9.5 VA.
Air Consumption: 10 N leter/min. or less.
Insulation Resistance:
100 MΩ at 500 V DC between each input terminal and ground.
100 MΩ at 500 V DC between power and ground.
Dielectric Strength:
500 V AC for 1 minute between each input terminal and ground.
1000 V AC (100 V version), or 1500 V AC (220 V version), for 1 minute between power and ground.

Normal Operating Conditions

Ambient Temperature: 0 to 50°C.
Ambient Humidity: 5 to 90% RH (non-condensing).
Power Supply: Two versions, for "100 V" (standard) or "220 V" (option /A2ER). Both versions may use AC or DC, without change to the instrument:

Version	100 V	220 V
DC (polarity reversible)	20 to 130 V	120 to 340 V
AC (47 to 63 Hz)	80 to 138 V	138 to 264 V

Air Supply: 1.4 ±0.1 kg/cm^2 or bar, 140 ±10 kPa, 20 ±1.4 psi.
Allowable Tilt Angle: The converter can be tilted any direction within 15°.

Standard Thermocouple Ranges

Detector JIS/ANSI Type	Standard Ranges °C*1, *2		
R, S	0 to 800	0 to 1600	600 to 1600
	0 to 1000	400 to 1000	700 to 1400
	0 to 1200	400 to 1400	800 to 1600
	0 to 1400	500 to 1500	900 to 1400
B	600 to 1500	600 to 1700	
K	0 to 100	100 to 300	500 to 800
	0 to 200	100 to 500	500 to 1000
	0 to 300	200 to 500	500 to 1200
	0 to 400	200 to 700	600 to 1000
	0 to 500	200 to 1000	600 to 1200
	0 to 600	300 to 600	700 to 1000*3
	0 to 800	300 to 800	700 to 1200*3
	0 to 1000	400 to 800	
	0 to 1200	400 to 1000	
J	0 to 100	0 to 400	200 to 400
	0 to 150	0 to 500	200 to 500
	0 to 200	0 to 600	300 to 500
	0 to 250	50 to 200	300 to 600
	0 to 300	100 to 300	
	0 to 350	100 to 500	
E	0 to 200	0 to 600	200 to 500
	0 to 250	0 to 700	300 to 500
	0 to 300	0 to 800	300 to 600
	0 to 350	100 to 300	300 to 700
	0 to 400	100 to 500	
	0 to 500	200 to 400	
T	−50 to 150	0 to 200	100 to 200
	−100 to 200	0 to 250	100 to 300
	−150 to 150	0 to 300	
	0 to 100	50 to 150	

*1 : Corresponding °F ranges and spans are available.
*2 : Ranges other than standard are available.
*3 : Zero elevation of these ranges is greater than the " maximum zero elevation" specified in the table "Input Specifications", nevertheless these ranges are provided as standard.

Standard RTD Ranges

Detector	Standard Ranges °C*4, *5		
Pt 100 Ω at 0°C (DIN Pt 100)	−20 to 50	0 to 50	20 to 50
	−40 to 60	0 to 70	50 to 100
	−50 to 50	0 to 100	50 to 150
	−50 to 100	0 to 120	50 to 200
	−50 to 150	0 to 150	100 to 200
	−100 to 50	0 to 200	100 to 250
	−150 to 150	0 to 250	100 to 300
	−200 to 50	0 to 300	200 to 400
	−200 to 150	0 to 400	300 to 500
	0 to 20	0 to 500	

*4 : Corresponding °F ranges and spans are available.
*5 : Ranges other than standard are available.

MODEL AND SUFFIX CODES.

Model	Suffix Code	Description
PTED	.....	EMF-and RTD-to-Pneumatic Converters
Input Signal	**-1** (*)	mV DC input
	-2 (*)	Thermocouple input
	-3 (*)	RTD input
	-5	1 to 5 V DC input
No. of Input	**1**.....	Single input (absolute value measurements)
	0.....	Always 0
Suffix Code	**-MV**.....	mV DC input
	-TK	Type K
	-TT	Type T
	-TJ	Type J
	-TE	Type E
	-TB	Type B
	-TR	Type R
	-TS	Type S
	-PA.....	JIS Pt 100 Ω
	-SV.....	1 to 5 V DC
Style Code	***A**.....	Style A
Option (Note)	**/CAL-M**.....	Output: 0.2 to 1.0 kgf/cm²
	/CAL-B.....	Output: 0.2 to 1.0 bar
	/CAL-E.....	Output: 3 to 15 psi
	/A2ER.....	220 V power supply
	/NPT.....	ANSI connection 1/8 NPT female

(Note) If no /CAL-□ option is specified, output will be 20 to 100 kPa.

*PTED-1, 2 and 3: Order accept was stopped on June 30, 2005.

TERMINAL CONNECTIONS.

Terminal Designation	mV DC, Thermocouple, 1 to 5 V DC Input	RTD Inputs
1	+	A
2	− Input	B Input
3		B
4		
5		
6		

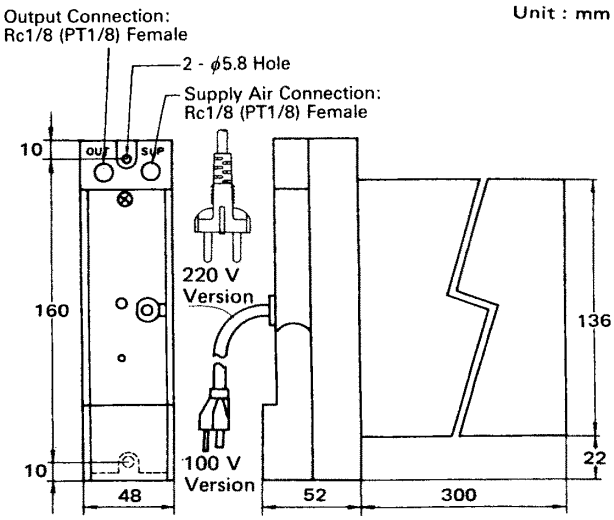
OPTIONS.

/A2ER: For "220 V version" power supply.
/NPT: ANSI Connection 1/8 NPT Female.

ACCESSORIES.

1 A fuse, quantity one.

EXTERNAL DIMENSIONS.



========= ORDERING INSTRUCTIONS =========

When ordering, specify the following.

1. Model and suffix codes.
2. Calibration range (for thermocouple and RTD inputs, select a measuring range from the standard range table).