

2. GENERAL.

The Model PTED converter receives a mV DC input, thermocouple input, RTD (resistance temperature detector) input or 1 to 5 V DC input and converts it to a pneumatic pressure signal of 0.2 to 1.0 kg/cm² or bar, 20 to 100 kPa, and 3 to 15 psi. For temperature measurements, linearizers are provided in all converters and burnout functions are equipped with all models – except 1 to 5 V DC input versions.

2-1. Standard Specifications.

Input Specifications: Refer to Table 2-1.

Output Signal: 0.2 to 1.0 kg/cm² 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 PT1/8 (or 1/8 NPT (option)) female.

Wiring:

Signal wiring to/from the field: ISO M4 (4 mm) size on terminal block.

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.

Mounting: Installed in an indoor rack.

Normal Operating Conditions

Ambient Temperature: 0 to 50°C.

Ambient Humidity: 5 to 90% relative humidity (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/cm² or bar, 140 ±10 kPa, 20 ±1.4 psi.

Maximum Air Consumption: 10 N l/min.

Maximum Power Consumption:

24 V DC power version: 86mA.

100 V AC power version: 6.6 VA.

220V AC power version: 9.5VA

Allowable Tilt Angle: The converter can be tilted any direction within 15°.

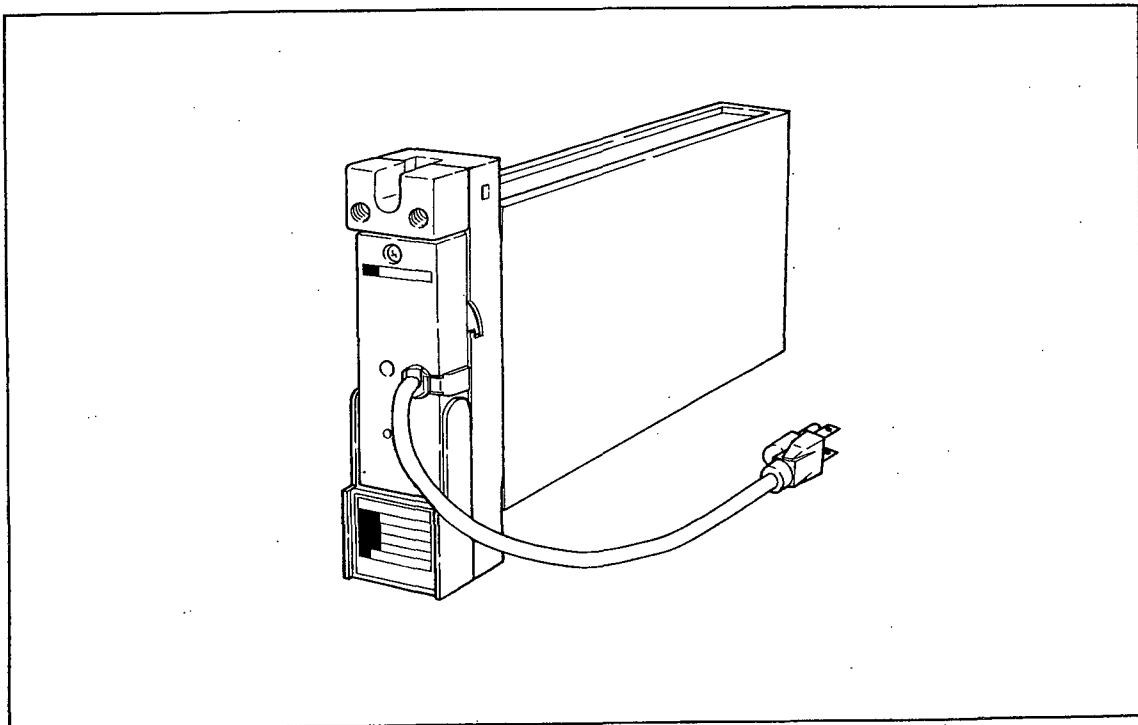


Figure 2-1. External View.

2-2. Model and Suffix Codes.

Model	Suffix Codes	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
Saffix Codes	-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	/A2ER	220 V power supply
	/NPT	ANSI connection 1/8 NPT female

2-3. Option.

/NPT: ANSI Connection 1/8 NPT female.

2-4. Accessories.

1 A fuse. quantity one.

Note: The fuse (S9510VK) is the dedicated fuse, Do not use it for other products.

Table 2-1. Input Specifications.

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 Current 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.	—
Input Impedance	1 MΩ	1 MΩ	—	1 MΩ
External Input Impedance	500 Ω maximum	500 Ω maximum*2	No greater than input span (°C) × 0.4 Ω maximum 10 Ω/wire*2.	—

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

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

3. INSTALLATION.

3-1. Construction of Rack-Mounted Instruments.

The Model PTED converter consists of an internal unit and rack case. They can be separated from each other. The internal unit is connected to the rack case with pneumatic and multipin connectors, so the internal unit can be withdrawn from the rack case without disconnecting these connectors. The terminal cover can be manually held when drawing out the internal unit from the rack case.

3-2. Rack Construction.

A strong steel angle should be used to mount instruments. Figure 3-1 also shows steel angles of 40 mm X 40 mm wide and 5 mm thick.

For ease of signal wiring and for safety, pass all cables through a synthetic resin cable duct.

For safety this converter employs a Two-pole plug with earthing contact conforming to IEC A5 - 15, UL498, JIS C 8303 for 125 V, 15 A. Therefore, suitable receptacles for this plug must be furnished by the user.

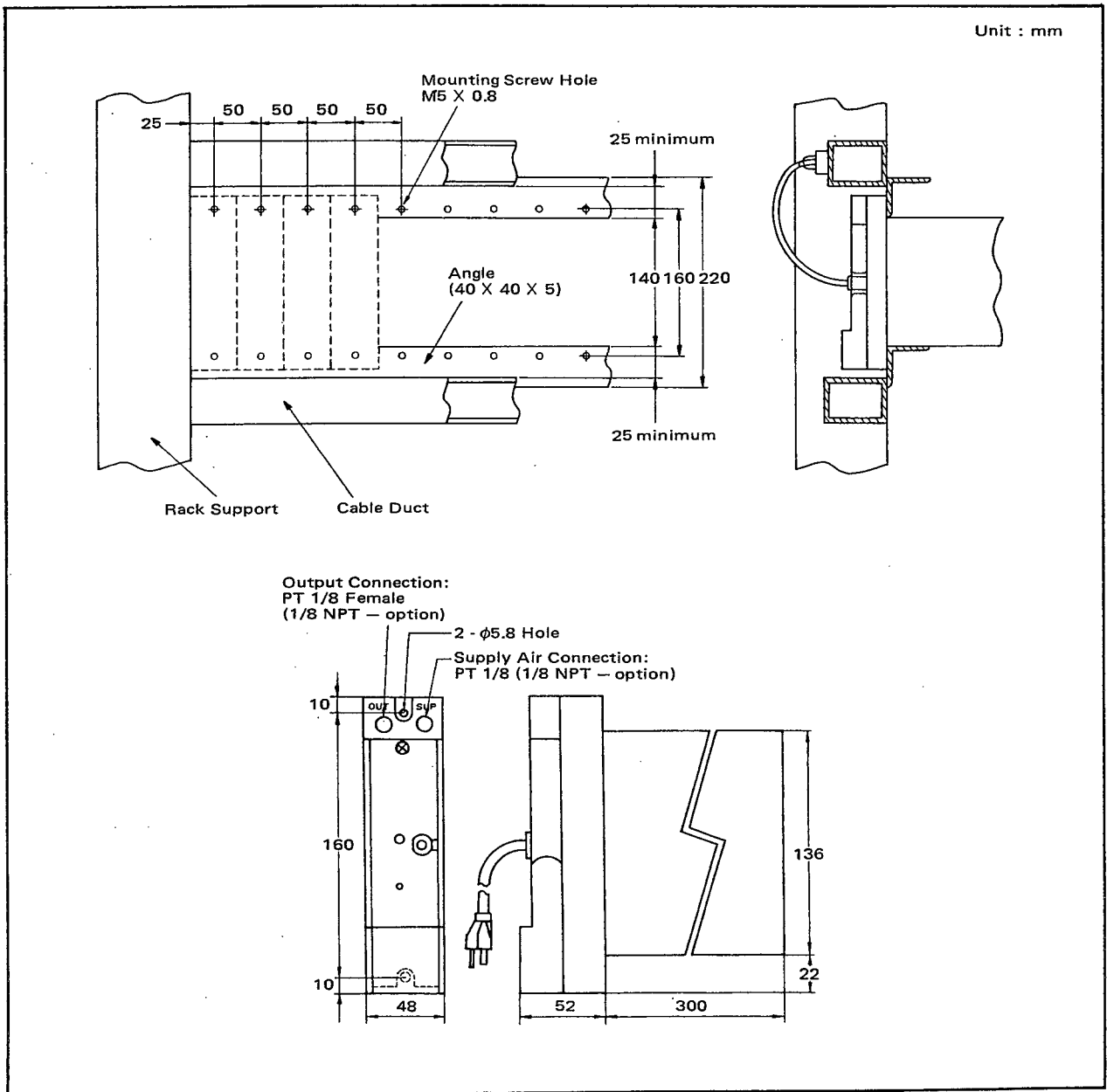


Figure 3-1. Rack Construction.

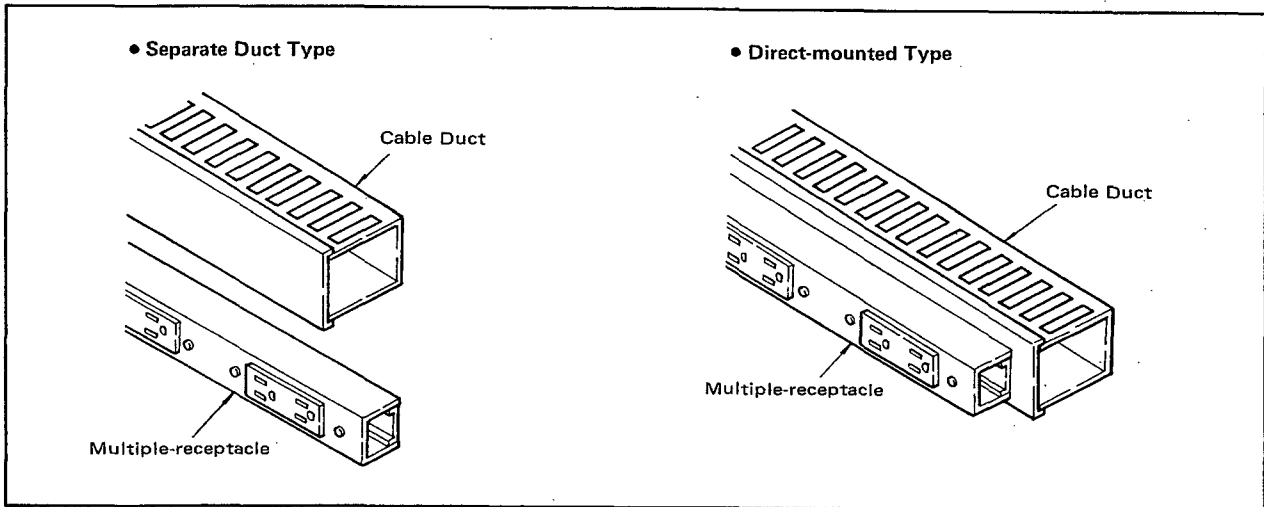


Figure 3-2. Typical Installation of Receptacle Units.

3-3. Installation.

Although wiring and piping can be accomplished with internal units installed, it is recommended that all internal units be removed from the rack case before performing them.

- (1) Insert the rack case into the rack with the air connections above. Match the two mounting holes (upper and lower portions of the case) to the rack mounting holes on the support angle. Secure the case with setscrews of 5 mm × 0.8 (M5 × 0.8). See Figure 3-3.
- (2) Pass the signal cables through the lower cable duct (see Figure 3-4). For terminal wiring details, refer to section 3-4.

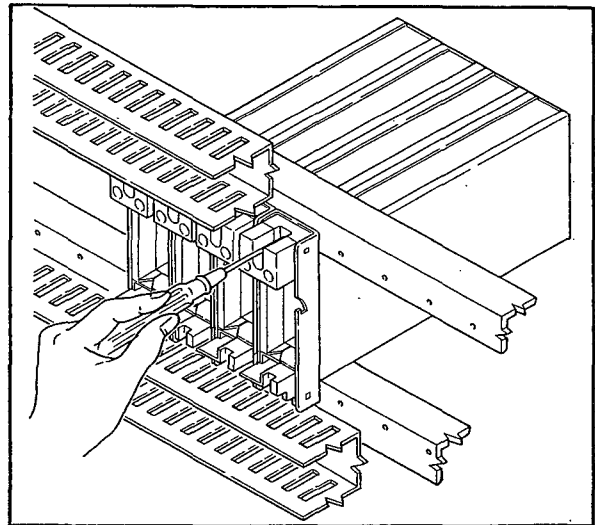


Figure 3-3. Installing the Rack Case.

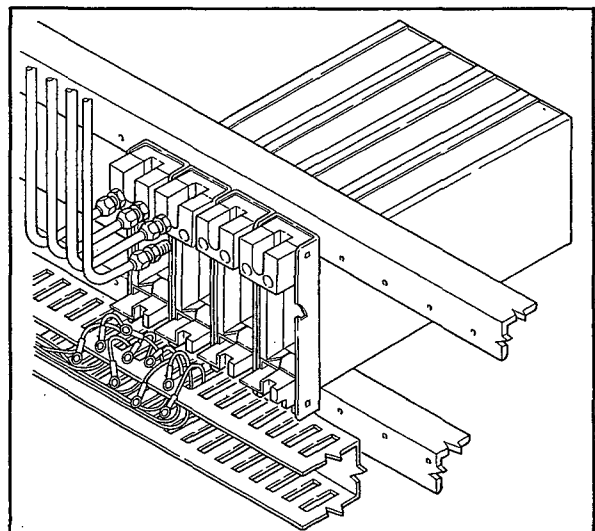


Figure 3-4. Routing the Wire.

3-4. Wiring.

- (1) Use solderless crimp-on lugs (for 4 mm screw) with insulation sleeves for leadwire ends.

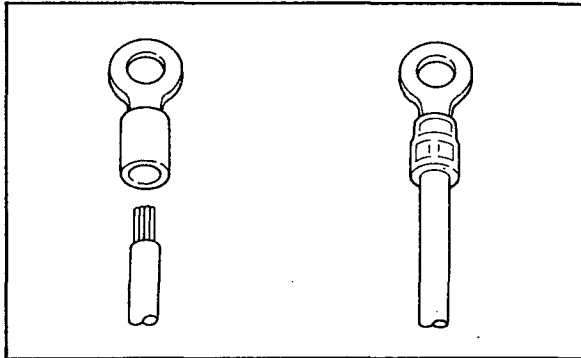


Figure 3-5. Solderless Crimp-on Lugs.

- (2) When the internal unit is contained in the rack case, open the terminal cover by pulling it down and connect wires.
- (3) For wiring to each terminal, refer to the wiring diagram below.

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

- (4) Secure the reference junction block to terminal screw 5.
- (5) After completing the wiring, replace the terminal cover.

3-5. Wires and Wire End Finish.

Use flexible stranded wires and furnish the wire end with solderless crimp-on (for 4 mm screw) lugs. Wires to be used are specified depending on the applications.

- (1) Signal cables.
 - Nominal cross sectional area of conductor: 0.5 to 0.75 mm².
 - Examples of wires:
 - PVC insulated stranded wire cord (VSF) (JIS C 3306) for electric appliances.
 - Heat-resistant PVC insulated wire (UL 1007).

- (2) Power supply and ground wires.
 - Conductor cross sectional area: 20 mm² *.
 - Examples of proper wires:
 - 600 V PVC stranded wire (IV) (JIS C 3307).
 - PVC insulated stranded wire (KIL) (JIS C 3316) for electrical equipment.
 - *Power supply cables should be selected depending on the instrument current consumption. Generally, the conductor cross sectional area 1.25 mm² is used.

3-6. Piping.

Pipes should be connected so there is no air leakage from the connector assembly, Use PT 1/8 or 1/8 NPT male joint screws. For the air supply system, refer to Instruction Manual IM 2A0A1-E.

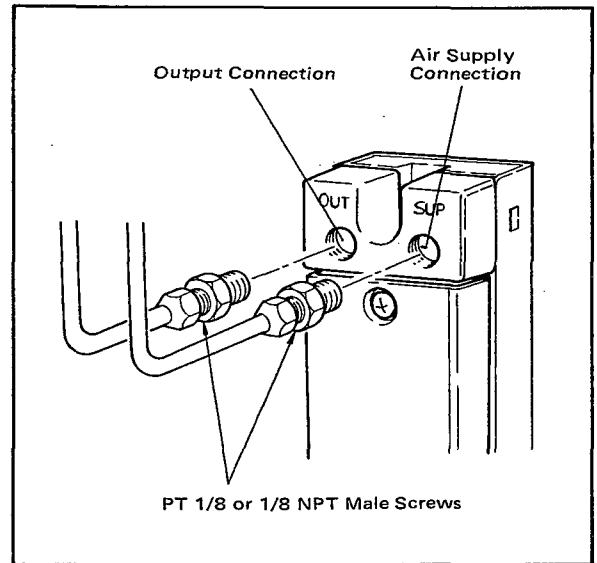


Figure 3-6. Piping.