

SELEC**PIC101A**
Process Indicator**SPECIFICATIONS****Display**

4 digit, 7 segment digital display

Keys

3 keys for digital setting

INPUT SPECIFICATIONS**Input Type**For **PIC101A-T-230** :

Thermocouple (J,K,T,R,S), RTD (Pt100)

For **PIC101A-VI-230**:

Voltage: 0 - 10V DC

Current: 0 - 20mA & 4- 20mA DC

Sampling Time

250 ms

Input Filter (FTC)

0.2 to 9.9 sec

Resolution

1 / 0.1° (For PIC101A-T-230)

(Fix 1° resolution for R & S type TC)

Decimal point position selectable : 1/0.1/0.01/0.001

(For PIC101A-VI-230)

Temperature Unit

°C / °F selectable (For PIC101A-T-230)

Indication AccuracyFor **PIC101A-T-230** :

TC Inputs : ±0.25% of F.S. ±1°

R & S Inputs : ±0.5% of F.S. ±2°

(20 min of warm up time for TC Inputs)

RTD Inputs : ±0.1% of F.S. ±1°

For **PIC101A-VI-230**: ±0.5% of F.S., ±1 digit

(F.S. = Full Scale)

Display Bias

-19.9° to 19.9° (For PIC101A-T-230)

POWER SUPPLY**Supply Voltage**

230V AC ± 20%, 50/60 Hz

Power Consumption

5VA max @230V AC

Temperature

Operating : 0 to 50°C (32 to 122°F)

Storage : -20 to 75°C (-4 to 167°F)

Humidity (non-condensing)
95% RH**Weight**

200 gms (0.440 lbs)

Protection Level

IP65 for faceplate

SAFETY PRECAUTIONS

All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument.

If the equipment is not handled in a manner specified by the manufacturer it might impair the protection provided by the equipment.

Read complete instructions prior to installation and operation of the unit.

WARNING : Risk of electric shock.

WIRING GUIDELINES

WARNING

- To prevent the risk of electric shock power supply to the equipment must be kept OFF while doing the wiring arrangement. Do not touch the terminals while power is being supplied.
- To eliminate electromagnetic interference use short wire with adequate ratings; twists of the same in equal size shall be made. For the input and output signal lines, be sure to use shielded wires and keep them away from each other.
- Cable used for connection to power source, must have a cross section of 1mm² or greater. These wires shall have insulation capacity made of at least 1.5kV.
- When extending the thermocouple lead wires, always use thermocouple compensation wires for wiring. For the RTD type, use a wiring material with a small lead resistance (5Ω max per line) and no resistance differentials among three wires.
- A better anti-noise effect can be expected by using standard power supply cable for the instrument.

MAINTENANCE

- The equipment should be cleaned regularly to avoid blockage of ventilating parts.
- Clean the equipment with a clean soft cloth . Do not use Isopropyl alcohol or any other cleaning agent.

INSTALLATION GUIDELINES

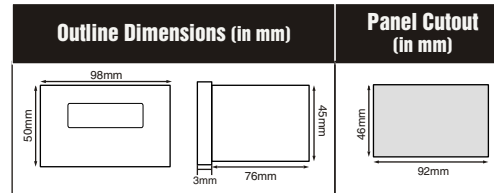
- This equipment, being built-in-type, normally becomes a part of main control panel and in such case the terminals do not remain accessible to the end user after installation and internal wiring.
- Do not allow pieces of metal, wire clippings, or fine metallic fillings from installation to enter the product or else it may lead to a safety hazard that may in turn endanger life or cause electrical shock to the operator.
- Circuit breaker or mains switch must be installed between power source and supply terminals to facilitate power 'ON' or 'OFF' function. However this switch or breaker must be installed in a convenient position normally accessible to the operator.
- Use and store the temperature controller within the specified ambient temperature and humidity ranges as mentioned in this manual.

CAUTION

- When powering up for the first time, disconnect the output Connections.
- Fuse Protection : The unit is normally supplied without a power switch and fuses. Make wiring so that the fuse is placed between the mains power supply switch and the controller. (2 pole breaker fuse- rating: 275V AC,1A for electrical circuitry is highly recommended)
- Since this is a built-in-type equipment (finds place in main control panel), its output terminals get connected to host equipment. Such equipment shall also comply with basic EMI/EMC and other safety requirements like BSEN61326-1 and BSEN61010 respectively.
- Thermal dissipation of equipment is met through ventilation holes provided on chassis of equipment. Such ventilation holes shall not be obstructed else it can lead to a safety hazard.
- The output terminals shall be strictly loaded to the manufacturer specified values/range.

MECHANICAL INSTALLATION

For installing the Indicator
Prepare the panel cutout with proper dimensions as shown (in mm) below



- Prepare the panel cutout with proper dimensions as shown above.
- The equipment in its installed state must not come in close proximity to any heating sources, caustic vapors, oils, steam, or other unwanted process by-products.
- Use the specified size of crimp terminals (M3.5 screws) to wire the terminal block. Tighten the screws on the terminal block using the tightening torque with in the range of 1.2N.m.
- Do not connect anything to unused terminals.

EMC GUIDELINES :

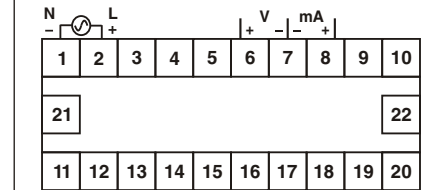
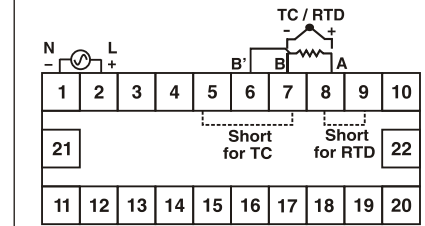
- Use proper input power cables with shortest connections and twisted type.
- Layout of connecting cables shall be away from any internal EMI source.

ELECTRICAL PRECAUTIONS DURING USE

Electrical noise generated by switching of inductive loads can create momentary disruption, erratic display, latch up, data loss or permanent damage to the instrument.

To reduce noise :

- A) Use separate shielded wires for inputs.

TERMINAL CONNECTIONS

Use only the correct thermocouple wire or compensating cable from the probe to instrument terminals avoiding joints in the cable if possible.
Failure to use the correct wire type will lead to inaccurate readings.

Ensure that the input sensor connected at the terminals and the input type set in the temperature controller configuration are the same.

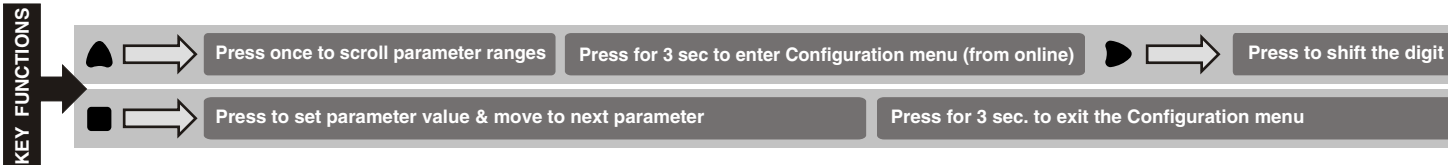
FRONT PANEL DESCRIPTION**FRONT KEYS DESCRIPTION**

Functions	Key press
Programming Mode	
To view Configuration Level	Press keys for 3 seconds.
To view parameters on the same level.	Key once to register/ view the next function in operational menu.
To set parameter ranges.	Key to scroll through the function ranges (ranging 0 to 9)
To select digit	Key to select digit from MSD to LSD

NOTE: The unit will auto exit programming mode after 30 seconds of inactivity.

OR By pressing the keys for 3 seconds.

CONFIGURATION INSTRUCTIONS



OPERATIONAL MENU

POWER ON



PIC101A-T

PIC101A-VI

Display (for 1 sec.)	Description	Default Value	Range	Display Condition
0000	Lock code	0000	Factory Set = 0085	For PSWD = LOCK
INPE	Input type (Refer Table 1)	J	J/K/T/R/S/RTD	—
RESL	Display Resolution	1	1/0.1	Not prompted for R & S type
UNIT	Temperature unit	°C	°C/°F	—
FELC	Filter time constant	1.0	0.2 to 9.9 sec.	—
DSPB	Display Bias ¹	0.0	-19.9° to 19.9°	—
PSWD	Password ²	UNLK	UNLK/LOCK	—
RSLE	Factory default ³ (Reset all)	NO	NO / YES	—

Display (for 1 sec.)	Description	Default Value	Range	Display Condition
0000	Lock code	0000	Factory Set = 0085	For PSWD = LOCK
INPE	Input type	4 mA	0-20 mA / 4-20 mA 0-10 V	—
RESL	Decimal point selectable	1	1/0.1/0.01/0.001	—
DSLCL	Display scaling point low ¹	0000	-1999 to DSCH	—
ISCLL	Input scaling point low	4.00	0.0/4.0 mA OR 0V to ISCH	—
DSLCH	Display scaling point high	9999	DSCL to 9999	—
ISCHH	Input scaling point high	20.00	ISCL to 20.00mA/ 10.00V	—
REU	Reverse scaling	NO	NO / YES	—
FELC	Filter time constant	1.0	0.2 to 9.9 sec.	—
PSWD	Password ²	UNLK	UNLK/LOCK	—
RSLE	Factory default ³ (Reset all)	NO	NO / YES	—

NOTE :

- For MSD by pressing ▲ key the values are scrolled from 0 to 9 and then '←' and '→' then return to 0. Rest all the digit are scrolled between 0 to 9
- If in configuration menu [PSWD] is selected as [0000] then the [0000] will prompted at power ON.
- To reset the parameters to factory default, select [RSLE] as [YES] [DONE] Press ■ key again to move to next parameter [INPE]
- For Invalid setting the parameter will prompt again with last valid setting.
Applicable for parameters such as [FELC], [DSPB], [DSLCL], [DSLCH], [ISCLL] & [ISCHH]

INPUT RANGES (Table 1)

FOR RTD

Input	Ranges	
Resolution	1/0.1°	
Pt100	°C	-150 to 850
	°F	-238 to 1562

FOR THERMOCOUPLE

Input	Ranges	
Resolution	1/0.1°	
J	°C	-199 to 750
	°F	-328 to 1382
K	°C	-199 to 1350
	°F	-328 to 2462
T	°C	-199 to 400
	°F	-328 to 750
R & S	°C	0 to 1750
	°F	32 to 3182

ERROR DISPLAY (Table 2)

When an error has occurred, the display indicates error codes as given below.

Error	Meaning
0UEP	Sensor break / over range condition
PEUP	Sensor reverse / under range condition

CALIBRATION ACCURACY DECLARATION

Product is tested & calibrated by automatic technique. The calibration of this instrument is done as per following accuracy :

For PIC101A-T-230 :

- TC Inputs : ±0.25% of F.S. ±1°
- R & S Inputs : ±0.5% of F.S. ±2° (20 min of warm up time for TC Inputs)
- RTD Inputs : ±0.1% of F.S. ±1°

For PIC101A-VI-230: ±0.5% of F.S., ±1 digit (F.S. = Full Scale)

Sources calibrated against:

Kusam-meco, model 405, Sr.No.:104446

Initial calibration is valid for 18 months after the Month/Year of manufacturing which is mentioned on order code label.

(Specifications are subject to change, since development is a continuous process)

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