

USER'S OPERATING MANUAL FOR DIGITAL TEMPERATURE CONTROLLER

(Models: AI - 5982)



AI - 5982
(96 X 96)

SPECIFICATIONS :-

1. **DISPLAY TYPE** : Dual 4- Digit 7 segment LED
4 Digit Bright White (PV)
4 Digit Luminous Green (SV)

Model no.	AI-5982
Display height (PV)	0.56"
Display height (SV)	0.56"

- STATUS LED'S** : OP1 : Main Control Output
OP2 : Alarm Status
SOAK : Soak Timer

2. **INPUT**
Sensor : TC:J,K,R,S & RTD: Pt-100
Range : Refer below table

Sensor Type	Range	Resolution	Accuracy
Fe-k(J) T/C	0 ~ 760°C	1 °C	± 1 °C
Cr-AL(K) T/C	-99 ~ 1300°C	1 °C	
(R) T/C	0 ~ 1700°C	1 °C	
(S) T/C	0 ~ 1700°C	1 °C	
Pt-100(RTD)	-100 ~ 450°C	1 °C	± 0.3 °C
Pt-100(RTD 0.1)	-99.9 ~ 450.0°C	0.1 °C	

- Sampling Time : 125 msec.
Resolution : 1°C/0.1°C(Only for RTD)
CJC for TC : Built in automatic
LWC for Pt-100 : Built in up to 18E max.
Digital Filter : 1 to 10 Sec.

3. **RELAY OUTPUT**
Contact Type : N/O, CM, N/C
Contact Rating : 5A @ 250VAC or 30 VDC
Life Expectancy : > 5,00,000 operations
Isolation : Inherent

4. **SSR DRIVE OUTPUT**
Drive Capacity : 12V @ 30mA.
Isolation : Non-Isolated.

5. **FUNCTION**
Output 1 : Main Control output
Output 2 : Programmable
1) Auxiliary control
2) Alarm
3) Soak timer

- Control Action : ON-OFF/T.P (user selectable)
Control Mode : Heat/Cool (user selectable)
Compliance : ----

6. **ENVIRONMENTAL**
Operating Range : 0 ~50°C, 5~90% Rh
Storage Humidity : 95% Rh (Non-Condensing)

7. **POWER SUPPLY**
Supply Voltage : 90~270VAC, 50/60Hz.
Consumption : 4W Maximum.

8. **PHYSICAL**
Housing : ABS Plastic.

Model No.	AI-5982
Weight (gms.)	240

SAFETY INSTRUCTION :

This controller is meant for temperature control applications. It is important to read the manual prior to installing or commissioning of controller. All safety related instruction appearing in this manual must be followed to ensure safety of the operating personnel as well as the instrument.

GENERAL

- ❖ The controller must be configured correctly for intended operation. Incorrect configuration could result in damage to the equipment or the process under control or it may lead personnel injury.
- ❖ The controller is generally part of control panel and in such a case the terminals should not remain accessible to the user after installation.

MECHANICAL

- ❖ The Controller in its installed state must not come in close proximity to any corrosive/combustible gases, caustic vapors, oils, steam or any other process by-products.
- ❖ The Controller in its installed state should not be exposed to carbon dust, salt air, direct sunlight or radiant heat.
- ❖ Ambient temperature and relative humidity surrounding the controller must not exceed the maximum specified limit for proper operation of the controller.
- ❖ The controller in its installed state must be protected against excessive electrostatic or electromagnetic interferences. Ventilation holes provided on the chassis of the instrument are meant for thermal dissipation hence should not be obstructed in the panel.

ELECTRICAL

- ❖ The controller must be wired as per wiring diagram & it must comply with local electrical regulation.
- ❖ Care must be taken not to connect AC supplies to low voltage sensor input.
- ❖ Circuit breaker or mains s/w with fuse (275V/1A) must be installed between power supply and supply terminals to protect the controller from any possible damage due to high voltage surges of extended duration.
- ❖ Circuit breaker and appropriate fuses must be used for driving high voltage loads to protect the controller from any possible damage due to short circuit on loads.
- ❖ To minimize pickup of electrical noise, the wiring for low voltage DC and sensor input must be routed away from high current power cables. Where it is impractical to do this, use shielded ground at both ends.
- ❖ The controller should not be wired to a 3-Phase supply with unearthed star connection. Under fault condition such supply could rise above 264 VAC which will damage the controller.
- ❖ The Electrical noise generated by switching inductive loads might create momentary Fluctuation in display, alarm latch up, data loss or permanent damage to the instrument. To reduce this use snubber circuit across the load.
- ❖ It is essential to install a over Temp. Protection device to avoid any failure of heating system. Apart from spoiling the product, this could damage the process being controlled.

PROGRAMMING



Press and Hold SET & UP Key Simultaneously for 3 Sec.

Press and Hold SET & DOWN Key Simultaneously for 3 Sec.

Press SET Key Once in Run Mode

Configuration			
Display	Default	Parameter Name	Range
LOCK	15	Lock Code	1 ~ 9999
InPt	J	Input Type	J, K, R, S, N, T, B RTD, RTD.1
LSPL	0	Lower Set Point Limit	Ref Table 1
HSPL	400	Higher Set Point Limit	Ref Table 1
OFFSE	0	Process Value Offset	-25 ~ 25 -25.0 ~ 25.0 (RTD.1)
FLtr	5	Input Filter	1 ~ 10
modE	PId	Control Mode	PID, On-Off
LoGc	HEAt	Control Logic	Heat, Cool
◆ OP2	AUctn	Output 2 Function	None, Aux, Alarm, Soak, AL.ST
◆ SP2	AbS	Setpoint 2	Absolute, Deviation
◆ OP2L	HEAt	Output 2 Logic	Heat, Cool
SP1	EnbL	Setpoint 1	Enable, Disable
★ SP2	EnbL	Setpoint 2	Enable, Disable
★ ALty	LoY	Alarm Type	Low, High, Deviation, Band
★ ALLo	dIr	Alarm Logic	Direct, Reverse
★ ALIH	YES	Alarm Inhibit	Yes, No
★ ALAP	AUctD	Alarm ACK.	Auto, Manual, Both
ULOC	15	User Lock Code	1 ~ 9999

Control List			
Display	Default	Parameter Name	Range
LOCK	15	Lock Code	1 ~ 9999
⚙ Pband	5.0	Proportional Band	0.5 ~ 99.9 °C
⚙ CYct	15.0	Cycle Time	1.0 ~ 100.0 Sec.
■ HY1	2	Control Hysteresis	1 ~ 100 0.1 ~ 100.0 (RTD.1)
■ dLY1	0	Delay 1	0 ~ 500 Sec.
◆ HYS2 ★	2	Hysteresis 2	1 ~ 100 0.1 ~ 100.0 (RTD.1)
◆ dLY2	0	Delay 2	0 ~ 500 Sec.
● Stbd	0.0	Soak Band	0.0 ~ 99 °C

User List			
Display	Default	Parameter Name	Range
SP1	0	Control Setpoint	LSPL ~ HSPL
◆ SP2	0	Setpoint 2	LSPL ~ HSPL
● SttEn	0030	Soak Time	1 Sec ~ 9999 Hrs.

Parameter will display according to below symbols	
⚙	Control Mode = PID
■	Control Mode = ON-OFF
◆	OP2 = Auxiliary
★	OP2 = Alarm & Alarm Soak
●	OP2 = Soak & Alarm Soak

CAUTION: To prevent the risk of electrical shock, switch off the power before making/removing any connection or removing the controller from its enclosure.

MECHANICAL INSTALLATION

The label on the controller identifies the serial number, wiring connections and batch number.

OVER ALL DIMENSIONS & PANEL CUT OUT (IN MM)

MODEL:- AI - 5982

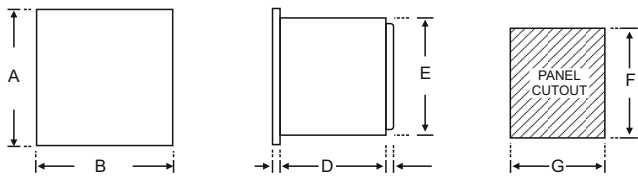


TABLE : 1

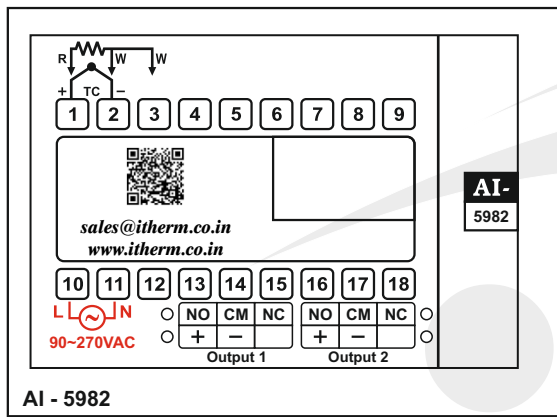
Dim Model	A	B	C	D	E	F	G	H
AI-5982	96	96	10	45	89	92	92	9

INSTALLATION GUIDELINES

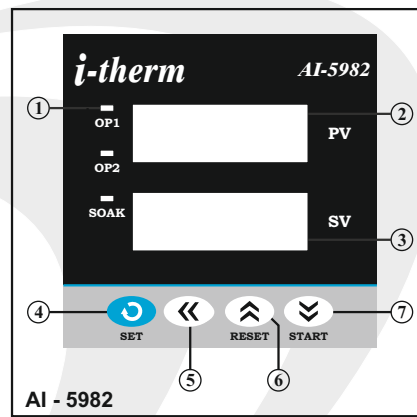
1. Prepare the cut-out with proper dimension as shown in figure.
2. Remove clamp from controller.
3. Push the controller through panel cut-out and secure the controller in its place by tightening the side clamp.

ELECTRICAL INSTALLATION

The electrical connection diagram is shown on the controller enclosure as below.



FRONT PANEL LAYOUT



FRONT PANEL LAYOUT DESCRIPTION :

Sr.	NAME	FUNCTION
1	OP1 LED	Glows when OP1 is ON & flashes when delay time (dly1) is in operation(if selected mode is ON-OFF)
	OP2 LED	Glows when OP2 is ON & flashes when alarm condition persists even after acknowledged. or delay time (dly2) is in operation(if selected mode is ON-OFF).
	SOAK LED	Glows when Soak mode is selected & flashes when Soak timer is in operation.
2	UPPER DISPLAY	It will display (1) Measured value of selected input or Error messages in run mode. (2) Parameters Value in program mode.
3	LOWER DISPLAY	It will display (1) SP (Main set point) / SP2 (Auxiliary/Alarm) set value / Set Soak time value/ balance or elapsed soak time in run mode. (2) Parameter code in program mode.
4	SET KEY	(1) For SP programming. (2) To access Control mode. (3) To access Configuration mode along with UP key. (4) To scroll the parameter & to store its value.
5	SHIFT KEY	(1) To increase/alter parameter value in program mode with Up / Dn Key. (2) Press for 3Sec in Programming this will help to go back to previous parameter.
6	UP KEY	(1) To increase/alter parameter value in program mode. (2) To Enter in configuration mode (with SET key) . (3) To acknowledge Alarm. (4) To Reset the SOAK timer
7	DOWN KEY	(1) To decrease / alter parameter value in program mode. (2) To start Soak timer.

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