

# USER'S OPERATING MANUAL FOR HUMIDITY AND TEMPERATURE CONTROLLER (Models: Humi-Temp)



**Humi-Temp**  
(96 X 96)

**SPECIFICATIONS : -**

1. **Display Type** : 8 - Digit 7 segment LED
 

Model no.	Humi-Temp	Color
Display height (Upper Display)	0.80"	White
Display height (Lower Display)	0.56"	Green
2. **Temperature Input** (Selectable)
  - Sensor input : RTD & RTD.1 (Pt-100)
  - Analog Input : 0~20mA, 4~20mA, 0~1VDC, 0~10VDC
3. **Humidity Input**
  - Analog Input : 0~20mA, 4~20mA, 0~1VDC, 0~3.3VDC, 0~5VDC, 0~10VDC, RH-20, RH-35 (Selectable)
4. **Input Specification**
  - Sampling Time : 125 msec.
  - Resolution : 1, 0.1, 0.01, 0.001 (Selectable)
  - LWC for Pt-100 : Built in up to 18E max.
  - Excitation Voltage : 5V, 12V 24V (Jumper Selectable)
5. **Serial Communication**
  - Port : RS485, 2 Wire, Half Duplex
  - Protocol : Modbus RTU
  - Baud Rate (Selectable) : 9600, 19200, 31250, 38400, 76800
  - Parity (Selectable) : None, Odd, Even
  - Stop Bits (Selectable) : One (1), Two (2)
6. **Control Output Function**
  - Available Output Type : Relay, SSR, mA, Volt, TRIAC (Factory Set)
  - Control Action : ON-OFF/PID (Select)
  - Control Mode : Heat/Cool (Select)
7. **Relay Output**
  - Contact type : N/O, COM
  - Contact Rating : 5A @ 250VAC or 30 VDC
  - Life expectancy : > 5,00,000 operations
  - Isolation : Inherent
8. **SSR Drive Output**
  - Drive Capacity : 12V @ 30mA.
  - Isolation : Non-Isolated.
9. **DC Linear Output / Retransmission**
  - Current (Selectable) : 0~20mA, 4~20mA (500 Ohms Max.)
  - Voltage : 0~10Volt (1KOhms Max.)

10. **Environmental**
  - Operating Range : 0 ~50°C, 5~90% Rh
  - Storage Humidity : 95% Rh (Non-condensing)
11. **POWER SUPPLY**
  - Supply Voltage : 90~270VAC, 50/60Hz.
  - Consumption : 4W Maximum.
12. **PHYSICAL**
  - Housing : ABS Plastic

**INSTALLATION GUIDELINES**

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

**SAFETY INSTRUCTION**

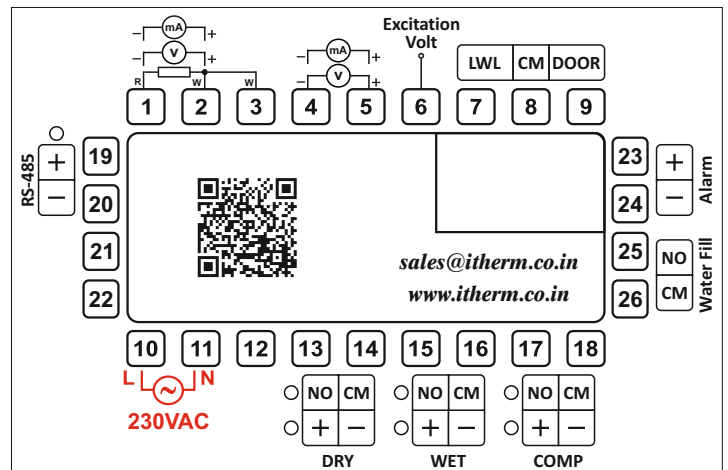
**MECHANICAL**

- ❖ Ambient temperature and relative humidity surrounding the Controller must not exceed the maximum specified limits.
- ❖ The Controller in its installed state must be protected against excessive electrostatic or electromagnetic interferences.

**ELECTRICAL**

- ❖ The Controller must be wired as per wiring diagram & it must comply with local electrical regulation.
- ❖ The Electrical noise generated by switching inductive loads might create momentary Fluctuation in display, latch up, data loss or permanent damage to the instrument. To reduce this use snubber circuit across the load.

**TERMINAL CONNECTIONS :**



**PROGRAMMING**

Header Parameter List			
Display	Default	Parameter Name	Range
L0CP	15	Lock Code	15
L1St	t.CFG	Header List	t.CFG, H.CFG, t.Ctr, H.Ctr, Comp, t.ALM, H.ALM, Supr, d.IP, Comm

1 Temperature Config List (t.CFG)			
Display	Default	Parameter Name	Range
L0CP	15	Lock Code	15
t.InP	rtd	Temp. Input Type	RTD, RTD.1, 0~1, 0~20, 4~20
t.SGL	000	Temp. Input signal Low	00.00 ~ 20.00
t.SGH	2000	Temp. Input signal High	00.00 ~ 20.00
r.rES	0	Temp. Range Resolution	-1999 ~ rE.Hi
t.RL	0	Temp. Analog Input Low Value	Ref Table 2
t.RH	1000	Temp. Analog Input High Value	Ref Table 2
d.rES	0	Temp. Display Resolution	Ref Table 2
t.LSP	0	Temp. Lower SP Limit	Ref Table 1
t.HSP	400	Temp. Higher SP Limit	Ref Table 1
t.OFF	0	Temp. Process Value Offset	0
t.FIL	4	Temp. Input Filter	6
L.CAL	0	Temp. User Low Calibration	0
H.CAL	0	Temp. User High Calibration	0
dEF	n0	Temp. User Calibration Default	Yes, No

2 Humidity Config List (H.CFG)			
Display	Default	Parameter Name	Range
H.InP	0-33	Humidity Input Types	0~1, 0~3.3, 0~5, 0~10, rH20, rH35 0~20, 4~20
H.SGL	000	Humidity Input Signal Low	0
H.SGH	2000	Humidity Input Signal High	0
r.rES	0	Humidity Range Resolution	Ref Table 2
H.RL	0	Humidity Analog Input Low Value	Ref Table 2
H.RH	1000	Humidity Analog Input High Value	Ref Table 2
d.rES	0	Humidity Display Resolution	Ref Table 2
H.LSP	0	Humidity Lower SP Limit	Ref Table 1

H.HSP	400	Humidity Higher SP Limit	Ref Table 1
H.OFS	0	Humidity Process Value Offset	Ref Table 2
H.FIL	4	Humidity Input Filter	6
L.CAL	0	Humidity User Low Calibration	6
H.CAL	1000	Humidity User High Calibration	6
dEF	YES	Humidity User Calibration Default	Yes, No

3 Humidity Control List (H.Ctr)			
Display	Default	Parameter Name	Range
OP2	rLY	Output 2 type	Relay, SSR, mA
H.nA	4~20	mA Output Type	0 ~ 20, 4 ~ 20
CLO	16.70	Integral Time	16.70
CHO	85.50	Derivative Time	85.50
d.nA	YES	mA Default	Yes, No
H.nOd	PId	Control Mode	PID, On-Off
OP2L	HEAt	Control Logic For Output 2	Heat, Cool
HPb	50	Proportional Band	5.0 °C
H.InT	240	Integral Time	240
H.dT	60	Derivative Time	60
H.Ct	16.0	Cycle Time	16.0 Sec.
H.S.tn	50	Soft Start Time	50 Sec.
H.HY2	2	Control Hysteresis 2	2 °C
H.dL2	0	Delay 2	0 Sec.
H.PH1	100	Output Power Limit	100%

4 Temperature Control List (t.Ctr)			
Display	Default	Parameter Name	Range
OP1	rLY	Output 1 type	Relay, SSR, mA
t.nA	4~20	mA Output Type	0 ~ 20, 4 ~ 20
CLO	16.70	Integral Time	16.70
CHO	85.50	Derivative Time	85.50
d.nA	YES	mA Default	Yes, No

t.nOd	PId	Control Mode	PID, On-OFF
OP1L	HEAt	Control Logic For Output 1	Heat, Cool
t.Pb	50	Proportional Band	5.0
t.InT	240	Integral Time	240
t.dT	60	Derivative Time	60
t.Ct	16.0	Cycle Time	16.0 Sec.
t.S.tn	50	Soft Start Time	50 Sec.
t.HY1	2	Control Hysteresis 1	2 °C
t.dL1	0	Delay 1	0 Sec.
t.PH1	100	Output Power Limit	100%
t.GP1	00	Gap 1	0 °C

5 Compressor List (COMP)			
Display	Default	Parameter Name	Range
OP3	rLY	Output 3 type	Relay, SSR
OP3	CO.nP	OP 3 Mode	COMP, ALrM
C.P.nO	AU.tO	Comp. Mode	Auto, On, Off
C.P.U.P	0	Comp. Higher Cut-Off Limit	40 °C
C.P.L.O	YES	Comp. Lower Cut-Off Limit	-20 °C
C.P.SP	00	Comp. Set Point	0 °C
C.P.HY	2	Comp. Hysteresis	2 °C
C.P.dL	0	Comp. Delay	90 Sec.

6 Temperature Alarm List (t.ALM)			
Display	Default	Parameter Name	Range
t.A.tY	LO.Y	Alarm type	Low, High, Lodu, Hi.du, Band
t.A.L.G	dIr	Alarm Logic	Direct, Reverse
t.A.L.I	YES	Alarm Inhibit	Yes, No
t.A.L.P	AU.tO	Alarm Acknowledge	Auto, Manul, Both
t.A.L.H	2	Alarm Hysteresis	2 °C

7 Humidity Alarm List (H.ALM)			
Display	Default	Parameter Name	Range
H.A.tY	LO.Y	Alarm type	Low, High, Lodu, Hi.du, Band
H.A.L.G	dIr	Alarm Logic	Direct, Reverse
H.A.L.H	YES	Alarm Inhibit	Yes, No
H.A.L.P	AU.tO	Alarm Acknowledge	Auto, On, Both
H.A.L.H	2	Alarm Hysteresis	2 °C

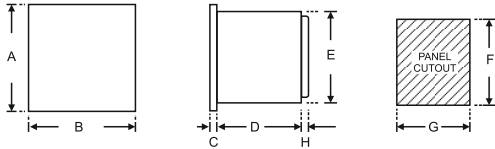
8 Supervisory parameter List (SUPr)			
Display	Default	Parameter Name	Range
t.U.nE	EnbL	Auto Tune	Enable, Disable
t.SP	EnbL	Temp. Set Point	Enable, Disable
r.H.SP	EnbL	Humidity Set Point	Enable, Disable
t.AL	EnbL	Temp. Alarm Set Point	Enable, Disable
r.H.AL	EnbL	Humidity Alarm Set P.Oint	Enable, Disable
U.L.O.C	15	User Lock Code	15

9 Communication parameter List (COMM)			
Display	Default	Parameter Name	Range
Id-1	1	Device ID Number 1	1 ~ 255
Id-2	2	Device ID Number 2	1 ~ 255
b.A.U.d	9600	Baud Rate	9600, 1920, 3125, 3840, 7680
P.A.r	n_81	Parity	n_81, n_82, o_81, o_82, E_81, E_82
C.n.t.u	1	RS-485 Response Interval	1 (20ms)

10 Digital Input List (d.IP)			
Display	Default	Parameter Name	Range
IP.F.1	n0.nE	Digital Input 1 Function	WA.LL
Y.A.L.L	OPE.n	Water Level Logic	Open, Close

11 Auto Tunning List			
Display	Default	Parameter Name	Range
t.t.U.n	YES	Temp. Auto Tuning Mode	Yes, No
H.t.U.n	OPE.n	rH Auto Tuning Mode	Yes, No

## Overall Dimensions & Panel Cutout (in mm) :-



Model \ Dim	A	B	C	D	E	F	G	H
Humi-Temp	96	96	10	65	89	92	92	9

**Table 1 :- Range of Different Sensor Types.**

Sensor Type	Range	Resolution	Accuracy
Pt-100 (RTD)	-100 ~ 450°C	1 °C	± 1 °C
Pt-100 (RTD 0.1)	-99.9 ~ 450.0°C	0.1 °C	± 0.3 °C

**Table 2 :- Range as per Resolution.**

Resolution	Analog Input High / Low	Process Value Offset	Alarm Band	Alarm Hysterisis
0000	-1999 to 9999	-25 to 25	-50 to 50	1 to 25
000.0	-199.9 to 999.9	-25.0 to 25.0	-50.0 to 50.0	0.1 to 25.0
00.00	-19.99 to 99.99	-15.00 to 25.00	-19.00 to 50.00	0.01 to 25.00
0.000	-1.999 to 9.999	-1.500 to 2.500	-1.900 to 5.000	0.001 to 2.500

### Error Message:-

Display Message	Selected Input	Descriptions
"OPEN"	RTD or RTD.1	Open Circuit of Control Sensor
"HHHH"	RTD or RTD.1	If input is above HSPL it will display "HHHH" message.
"HHHH"	0~20 / 4~20 / 0~10	If input is above range it will display "HHHH" message.
"LLLL"	RTD or RTD.1	If input is below LSPL it will display "LLLL" message.
"LLLL"	0~20 / 0~10	If input is below '0' it will display "LLLL" message.
"LLLL"	4~20	If input is below "3.8mA" and above "3.2mA" it will display "LLLL" message.
"L.BRK"	4~20	If input is less than "3.2mA" it will display "L.BRK" (Loop Break) message.
"C.E.R.R."	Any Input Selected	The device is out of calibration and need to be sent to factory for re-calibration.



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