

# Temperature + Humidity Controller

## HumiTherm-cS Pro

Advanced 'Temperature + Humidity' Programmable Controller with Alarm & Retransmission Outputs

**Process Precision Instruments**  
 Vasai Road (E), Dist. Palghar - 401210,  
 Maharashtra, India

www.ppiindia.net

Sunlight-Readable  
 Large Bright Display



Reduced-Depth  
 Aesthetically-Improved  
 Enclosure



Pluggable Terminals  
 Easy Installation



Isolated  
 Retransmission &  
 Control / Alarm Outputs



### Salient Features

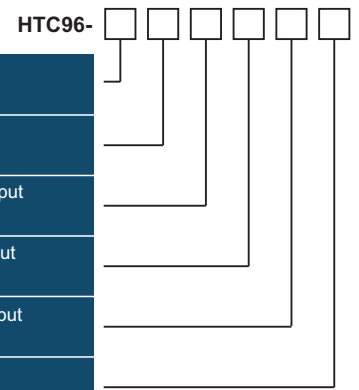
- 2 Rows of JUMBO Bright Green 0.8 inch 7-Segment LED Display, Designed for Sunlight Readability
- Universal Inputs (RTD/mA/V for Temperature & %RH) with Selection for Dry/Wet Configuration
- 24V or 12V or 5V DC Excitation Voltage for Transmitters
- Isolated Retransmission Outputs for Temperature & %RH
- Independent Programmable Alarms for Temperature & %RH with Common Relay Output
- Free PC Software for Online Data Monitoring & Recording
- Independent Self Tune PID or On-Off Control Loops for Temperature & %RH with Relay or SSR Drive Outputs
- Compressor Control Output with Time Delay
- Standby Mode for Use as Indicator with Alarms
- Digital Input for Low Water Level Detection or Remote Alarm Acknowledgment
- RS485 MODBUS/RTU Serial Communication Port
- Universal Supply Voltage : 85~264 VAC, 50/60 Hz
- DIN Standard Dimensions (mm) : 96(H) X 96(W) X 84(D)
- Flame-proof Enclosure (Gas Group IIA & IIB) Available

### General Information

**Product Type** Advanced 'Temperature + Humidity' Programmable Controller with Alarm & Retransmission Outputs

#### Ordering Code

Temp Control Output 1 : Relay 2 : SSR
RH Control Output 1 : Relay 2 : SSR
Compressor Control Output 1 : Relay 2 : SSR
"Temp + RH" Alarm Output 0 : None 1 : Relay
Temp & RH Retrans Output 0 : None 1 : mA 2 : V
Excitation 1 : 5V 2 : 12V 3 : 24V



#### Example Code : HTI96-222001

Temp Control Output : SSR, RH Control Output : SSR,  
 Compressor Control Output : SSR, "Temp + RH" Alarm Output : None,  
 Temp & RH Retrans Outputs : None, Excitation : 5V

**Quantity** 1 Unit

**Accessories** (Optional) USB to RS485 Converter

**Similar Modules** HumiTherm-i Pro, HumiTherm-iS Pro  
 HumiTherm-c Pro



# Temperature + Humidity Controller

## Operator Interface

Display	2 Rows of 4 Digits, 0.8" Luminous Green, 7 Segment LED
Status Indicators	8 Red LEDs
Keys	4 Tactile Switches PAGE, DOWN, UP, ENTER

## Channel Specifications

Temperature Input (User Configurable)	RTD Pt100, 3 wire (Dry Bulb) 0-20 mA / 4-20 mA 0-5 VDC / 0-10 VDC / 1-5 VDC
Humidity (%RH) Input (User Configurable)	RTD Pt100, 3 wire (Wet Bulb) 0-20 mA / 4-20 mA 0-5 VDC / 0-10 VDC / 1-5 VDC
Accuracy	RTD Pt100 : $\pm 0.25\%$ of reading $\pm 1$ LSD DC mA / Volts : $\pm 0.20\%$ of reading $\pm 1$ LSD
Resolution	Temperature : 0.1 °C Fixed Humidity : 0.1 % Fixed
Range	RTD Pt100 Input : -199.9 to 600.0 °C DC Linear mA / V : Adjustable from -199.9 to 999.9 Counts
Zero Offset	Independent for Temperature & Humidity (Adjustable over Full Range)
ADC	16 Bit ( $\pm 32,768$ Counts), Sigma-Delta ( $\Sigma\Delta$ )
Input Resistance	> 8 M $\Omega$ for Pt100 > 47 K $\Omega$ for Voltage Input 249 $\Omega$ Precision Shunt for mA Input
Common Mode Rejection	> 100dB at 50/60 Hz
Input Protection	ESD : 8KV      EFT : 2KV      Surge : 1KV
Input Conditioning	First Order Analog R-C Low-Pass Filter & Settable Digital Low-Pass Filter

## Excitation Voltage

Ratings	5 V @ 15 mA (Standard) 12 V @ 15 mA (Optional) 24 V @ 50 mA (Optional)
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## Alarms

Numbers	4, Independent (2 Each for Temperature & %RH)
Programmable Parameters	Type : Process Low, Process High Logic : Normal, Reverse Hysteresis : 0.2 to 99.9 Unit Counts Inhibit : No, Yes
Outputs	Relay Change-over Contacts (Common for Temperature & %RH)

# Temperature + Humidity Controller

## Compressor Control

Type	On-Off with Programmable Time Delay & Hysteresis
Control Strategy (Programmable)	<ol style="list-style-type: none"> <li>1) Can be Switched ON-OFF Manually.</li> <li>2) Based on Programmable Temperature SP Threshold. Compressor is ON for Temperature SP Below Threshold &amp; OFF Above.</li> <li>3) Cool Control. Switches ON-OFF Based on Temperature PV &amp; SP</li> <li>4) De-humidification Control. Switches ON-OFF Based on %RH (Humidity) PV &amp; SP</li> </ol>
Output	Relay Change-over Contacts or SSR Drive Voltage

## Temperature & %RH Control

Type	Self Tune PID or ON-OFF
Control Parameters	PID : Proportional Band, Integral Time, Derivative Time, Cycle Time ON-OFF : Hysteresis
Outputs	Independent, Relay Change-over Contacts or SSR Drive Voltage for Temperature & %RH

## Retransmission

Numbers	2 (1 Each for Temperature & %RH)
Signal Type	DC Current (0/4-20 mA) <b>OR</b> DC Volts (0-5/10 V)
PV Range	Independently Settable through 'Range Low' & 'Range High' Parameters for Temperature & %RH

## Digital Input

Type	Potential-free Contact Closure (Push button, etc.)
Function	User Selectable as Low Water Level Detection or Alarm Acknowledgment

## Electrical Specifications for Outputs

Relay	Contact Type : Potential-free Change-over Contacts Contact Rating : 5A Resistive @ 250 Vac Contact Life : > 5,00,000 Operations at Rated Voltage / Current
SSR Drive	12 VDC @ 30 mA
DC Linear	Current : 0-20mA, 4-20mA (into 500 Ohm Maximum) Voltage : 0-5V, 0-10V (into 1KOhm Minimum)
Isolation	All Outputs are Isolated from Power, Analog Inputs & Serial Communication Rating : 1500VAC for 1 second or 250VAC continuous Isolation.

## Serial Communication

Port	RS485, 2-wire, Half Duplex, Start-Stop Synchronized
Protocol	MODBUS RTU
Baud Rate	Settable : 4800, 9600, 19200
Parity	Settable : None, Even, Odd
Max. Units per Loop	31
Max. Distance	1200 Meters

# Temperature + Humidity Controller

## Power Supply

Type	Switch Mode (SMPS)
Line Voltage	85~264 VAC, 50/60Hz
Consumption	5 VA Max

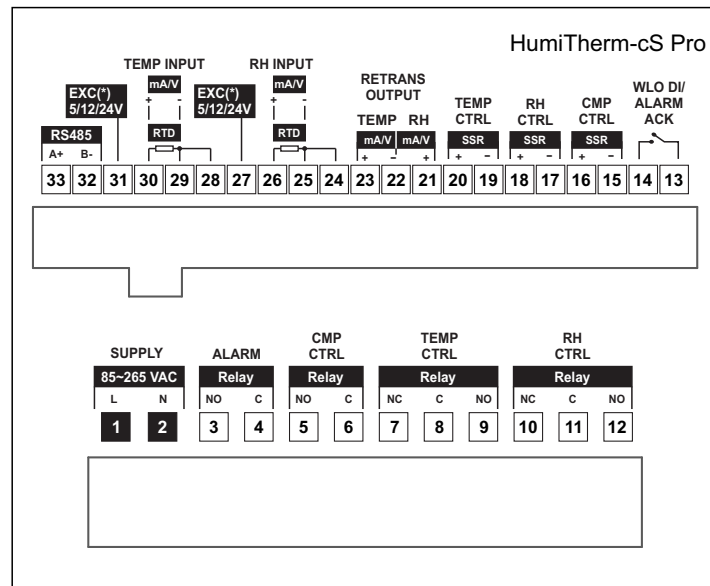
## Physical

Mounting	Plug-in with Panel Mounting Clamps
Overall Dimensions	96(H) X 96(W) X 84(D), mm
Panel Cutout	92(H) X 92(W), mm
Terminals	Screw Type
Weight	400 gm, Appx.





## Environmental

Operating Ambient	0 to 55°C & 5 to 90%RH Non-condensing
Storage Temperature	-10 to +70°C
Atmospheres	Not Suitable for use in Corrosive or Explosive Atmospheres. The Panel in which the Instrument is Mounted must be free of Electrically Conductive Pollution.

## Terminations



## Process Precision Instruments (An ISO 9001 : 2008 Company)

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