

Temperature + Humidity Controller

HumiTherm-cS Pro

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

Process Precision Instruments
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www.ppiindia.net

Sunlight-Readable Large Bright Display



Pluggable Terminals Easy Installation



Reduced-Depth Aesthetically-Improved Enclosure



Isolated Retransmission & Control / Alarm Outputs



Salient Features

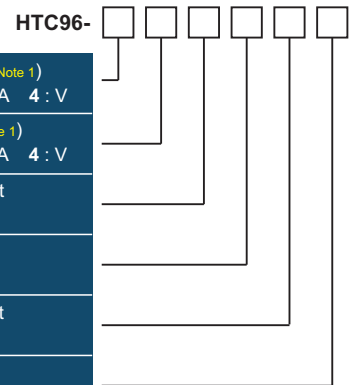
- 2 Rows of JUMBO Bright Green 0.8 inch 7-Segment LED Display, Designed for Sunlight Readability
- Universal Inputs (RTD/mA/V) for Temperature & %RH with Selection for Dry/Wet Configuration
- 24V or 12V or 5V DC Excitation Voltage for Transmitters
- Isolated Retransmission Outputs for Temperature & %RH
- 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/SSR/mA/V Outputs
- Compressor Control Output (Relay / SSR) 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 (Refer Note 1) 1 : Relay 2 : SSR 3 : mA 4 : V
RH Control Output (Refer Note 1) 1 : Relay 2 : SSR 3 : mA 4 : V
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



Note 1 : When selecting mA or V control signals :
 (a) The Relay & SSR are not available for Temp & RH control.
 (b) The Temp & RH control signals must be the same type (either both mA or both V).

Example Code : HTC96-222001

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



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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	: ± 0.25% of reading ± 1 LSD	
	DC mA / Volts	: ± 0.20% of reading ± 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 (± 32,768 Counts), Sigma-Delta (ΣΔ)		
Input Resistance	> 8 MΩ for Pt100 > 47 KΩ for Voltage Input 249 Ω 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)		

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Compressor Control

Type	On-Off with Programmable Time Delay & Hysteresis
Control Strategy (Programmable)	<ol style="list-style-type: none"> 1) Can be Switched ON-OFF Manually. 2) Based on Programmable Temperature SP Threshold. Compressor is ON for Temperature SP Below Threshold & OFF Above. 3) Cool Control. Switches ON-OFF Based on Temperature PV & SP 4) De-humidification Control. Switches ON-OFF Based on %RH (Humidity) PV & SP
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 / SSR / (0/4-20) mA / (0-5/10) V for Temperature & %RH

Retransmission

Numbers	2 (1 Each for Temperature & %RH)
Signal Type	DC Current (0/4-20 mA) OR 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

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Power Supply

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

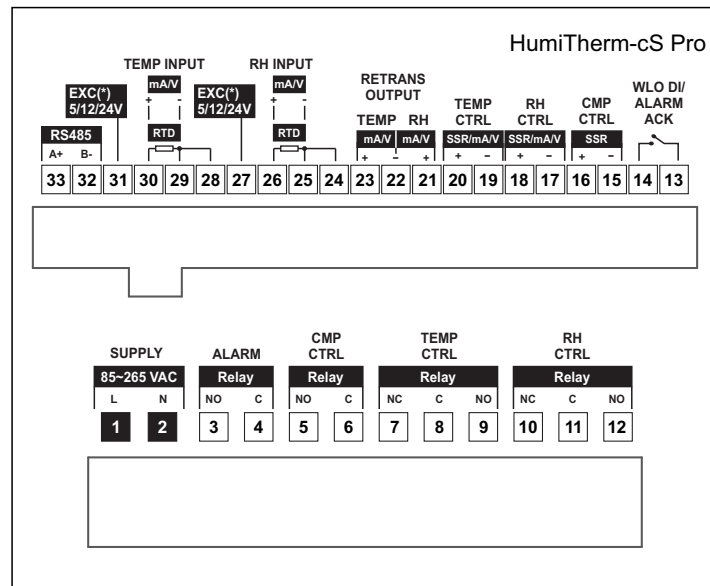
Physical

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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