

'Temperature + Humidity' Control and Recording System



PPI
The Perfection Experts

HumiTherm Plus 96

128 X 64 Pixels Monochrome Graphic Display
Built-in Data Recording & Self-Tune PID Control
Water Level & Door Status Monitoring
PC & Printer Interface with Optional SMS Alerts

Process Precision Instruments

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Graphic Display



Process & Event Alarms



Data Logging



PID Control



Compressor Control



Water Level Detection



Door Open Detection



Mains Fail Detection



21 CFR PC Interface



Printer Interface



SMS Alarm Alerts



Compact Size



Salient Features

- 128 X 64 Pixels Monochrome Graphic Display for Comprehensive Process Information
- Simultaneous Display of Process Values, Set Values, Heat Power, Humidifier Power and Compressor On-Off Status
- Intelligent 'Water Level' & 'Door Open' Monitoring with Status Indication & Alarm Output
- Universal Input for Temperature (RTD Pt100/mA/V) & %RH (mA/V) with Built-in Excitation Voltage (5 / 24 VDC)
- Self Tune PID Control Loops for Temperature & %RH
- SSR Drive Outputs for Heat, Humidifier & Compressor Control
- Compressor Switching with Programmable Time Delay
- RS 485 MODBUS RTU Serial Communication Port
- PV and Event Data Recording with Date / Time Stamping
- Serial Port for PC Interface with 21 CFR Compliance Software
- Printer Interface Module for Direct On/Off-Line Printing
- GSM Interface Module for SMS Alerts
- Universal Supply Voltage : 20 to 32 VDC (24 VDC Nominal)
- Size (mm) : 96(H) X 96 (W) X 84 (D)

General Information

Product Type 'Temperature + Humidity' Control and Recording System

Ordering Code

Versions

PC : PC Interface
PR : Printer Interface
PC+PR : PC & Printer Interface
PC+SMS : PC Interface & SMS Module

Excitation Voltage

1 : 5 VDC 2 : 24 VDC
Default : 5 VDC

HP96- -

Example Code : HP96-PC-1

Version : PC Interface

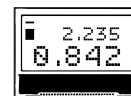
Excitation Voltage : 5VDC

Quantity	1 Unit
Accessories	(Optional) USB to RS485 Convertor
Similar Product	HumiTherm Ultra

'Temperature + Humidity' Control and Recording System

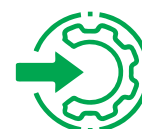
Operator Interface

Display	128 X 64 Pixels Monochrome Graphic LCD (Black Font on White Background)
Keys	4 Tactile Switches PAGE, DOWN, UP, ENTER



Channel Specifications

Temperature Input (User Configurable)	RTD Pt100, 3 wire DC Current : 0-20 mA / 4-20 mA DC Voltage : 0-5 VDC / 0-10 VDC / 1-5 VDC
Humidity (%RH) Input (User Configurable)	DC Current : 0-20 mA / 4-20 mA DC Voltage : 0-5 VDC / 0-10 VDC / 1-5 VDC
Accuracy	RTDs : $\pm 0.2\%$ of reading. Lead Resistance Compensation : Maximum 5 Ω per Lead for 3-wire RTD. DC mA / V : $\pm 0.1\%$ of reading
Display Range & Resolution	Temperature : -99.9 to 850.0°C for RTD & -99.9 to 999.9°C for DC mA/V (0.1 °C Fixed Resolution) Humidity : 0 to 100.0% (0.1 % Fixed Resolution)
Zero Offset	Independent for Temperature & Humidity (-50.0 to 50.0 °C / %RH)
ADC	16 Bit ($\pm 32,768$ Counts), Sigma-Delta ($\Sigma\Delta$)
Input Resistance	> 8 M Ω for Pt100 > 47 K Ω 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 (Factory Set)	5 VDC @ 15 mA (Standard) 24 VDC @ 50 mA (Optional)
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Water Level Monitoring

Input	- Digital Input (Potential-free Contacts) from Float Switch or Thermostat - Additional Digital Input for Float with Dual Switches (Low/High Levels or Low/Very-Low Levels)
Function	Alarm Alert & Automatic Boiler Heater Cut-off on Low Water Level Detection



Door Status Monitoring

Input	Digital Input (Potential-free Contacts) from Door Switch
Function	Alarm Alert on Door Remaining Open for Longer than Set Time



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Mains Power Fail Monitoring

Input	Digital Input (Potential-free Contacts) from Power Source Switching Gadget (like Relay)
Function	Alarm Alert & Automatic Cut-off of Air Heater, Boiler Heater & Compressor during Mains Power Fail



Alarm System

Process Alarms	Independent, Programmable High/Low Process Alarms for Temperature & Humidity
Door Open Alarm	Alarm on Chamber Door Remaining Open for More than Set Time Period (User Configurable. Can be disabled if not required.)
Water Level Alarm	Alarm on Boiler Water Level Low Detection (User Configurable. Can be disabled if not required.)
Mains Fail Alarm	Alarm on Change-over from Mains Power to Alternate Power Source (Battery, Inverter, etc.)
Audio Alert	Built-in Buzzer (Beeper)
SMS Alert	Optional. Through external add-on SMS Module for up to 10 Recipients.
Output	SSR Output (12 VDC @ 20 mA) for Remote Switching of Audio/Visual Gadget on Alarms
Alarm Acknowledge	- Rear Panel Digital Input for Connecting Remote Alarm Acknowledge (Mute) Button - Front Panel Alarm Acknowledge (Mute) on Enter Key



Heat Control

Type	Self Tune PID
Control Parameters	Proportional Band, Integral Time, Derivative Time, Cycle Time
Output	SSR Drive Voltage (12 VDC @ 20 mA)



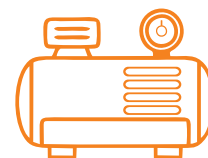
Humidity Control

Type	Self Tune PID
Control Parameters	Proportional Band, Integral Time, Derivative Time, Cycle Time
Output	SSR Drive Voltage (12 VDC @ 20 mA)



Compressor Control

Type	On-Off with Programmable Time Delay & Hysteresis
Control Strategy (Selectable)	- Manual Switching - Programmable Temperature SP Threshold : Compressor is ON for temperature SP below set threshold & OFF above - Cool Control : Switches ON-OFF based on temperature PV & SP
Output	SSR Drive Voltage (12 VDC @ 20 mA)



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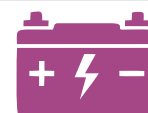
Data Recording

Storage Device	Non-volatile NOR-Flash Memory	
Storage Capacity	5,98,016 Records	
Recording Interval	User Programmable	
Recording Data (Date/Time Stamped)	• Process Values Measured Temperature, Measured Humidity • Events Power-up, Process Value Alarm Toggle Change in Temperature SP, Change in Humidity SP Change in Date/Time Settings, Change in Recording Interval Chamber Door Open/Close, Boiler Water Level Low Mains Power Fail/Resumption	



Power Supply

Type	Switch Mode (SMPS)
Supply Voltage	20 to 32 VDC (Nominal 24 VDC @ 0.5A Max.)
Consumption	12 VA Max



Physical

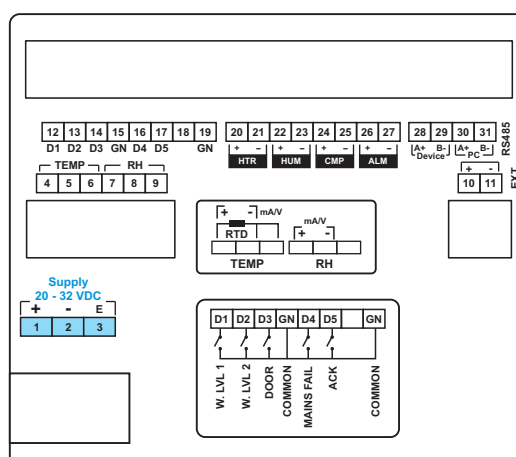
Mounting	Plug-in with Panel Mounting Clamps
Overall Dimensions	96(H) X 96(W) X 84(D), mm
Panel Cutout	92(H) X 92(W), mm
Terminals	Screw Type
Weight	400 gm, Appx.



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.

Terminals



'Temperature + Humidity' Control and Recording System

PC Interface

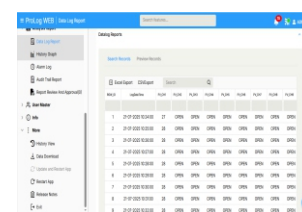
Serial Port	Port	: RS485, 2-wire, Half Duplex, Start-Stop Synchronized
	Slave ID	: Settable : 1 to 127
	Baud Rate	: 9600 bps
	Data Format	: 8E1 (8 bit data, Even parity, 1 Stop bit)
	Max. Units per Loop	: 31
	Max. Distance	: 1200 Meters



ProLog WEB PC Software (USFDA 21 CFR Part 11 Compliant)

Supported Operating Systems (OS)	• Non-Server System : Windows 10/11 & later • Server System : Windows 2012 & later • Linux : Ubuntu 20.04 & later
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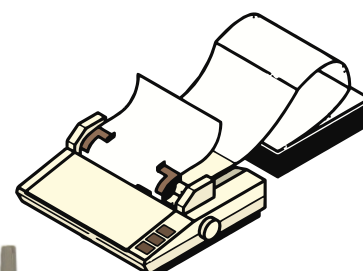
Minimum PC Configuration Requirements	• Intel Core i5 (8th Generation) or Equivalent AMD Processor • 256 GB SSD • 4 GB RAM
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Features	• Real-Time Monitoring & Visualization • Graphical & Tabular Online Display • Historical Data Analysis & Reports • Device Configuration & Management • User Access Control with Audit Logs • Color-Coded Status Display • Role-Based Access & Authorization Levels • Custom Report Headers/Footers/Themes • 21 CFR Part-11 Compliance Support with Electronic Signatures, Audit Trails, etc. • Manual & Automated Data Backup • Audit Trail with History of Actions	• Web Access from Any Modern Browser • Mobile-Friendly Interface • Supports Windows / Mac / Linux • Install on Own PC / Server • Mobile Alerts (SMS / Email) • Mobile App Based Notification Alerts • Cloud-Ready Architecture • Live Dashboard (Customizable) • Automatic Periodic Report Scheduling • Digital Signing & Report Approval • Batch Reporting & Templates • Simultaneous Application Access
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Printer Interface (Optional Add-on Device)

Controller Interface Port	RS485 Serial
Printer Interface Port	Centronix (Parallel Interface)
Printer Support	80/132 Column Dot-Matrix (EPSON LX-300-II or Equivalent)
Print Data	Well-Formatted, Date-Time Stamped Process value & Event Records (PC Tool for user Programmable Header & Footer)
Supply Voltage	10~30 VDC (24 VDC Nominal)



GSM Interface (Optional Add-on Device)

Controller Interface Port	RS485 Serial
Frequency Band	Quad (850/900/1800/1900 MHz)
SMS Alert Events	• High/Low Temperature & Humidity Alarms • Door Open Alarm • Low Boiler Water Level Alarm • Mains Failure Alarm
Information on Request through SMS	Process Values & Process Status
Recipients	Up to 10; User Programmable through SMS by Secured Access
Supply Voltage	10~30 VDC (24 VDC Nominal)



*** The Module does not support Jio SIM Card.**

Process Precision Instruments (An ISO 9001 : 2008 Company)

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