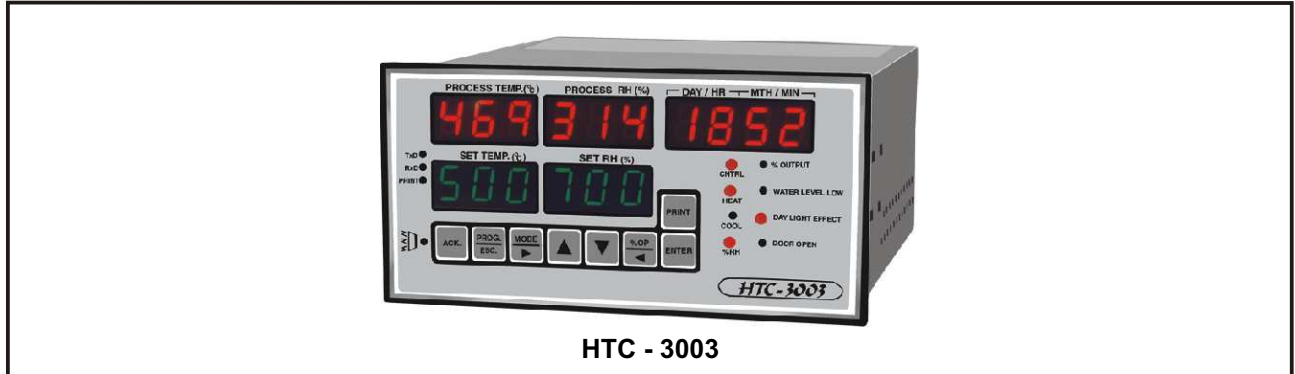


(H4) MICROPROCESSOR BASED TEMPERATURE / HUMIDITY INDICATOR - CONTROLLER



MODEL WISE DESCRIPTIONS :

SR.NO.	MODEL	DESCRIPTION
9.8	HTC - 3003	Microprocessor based Temperature & %RH PID-On/Off controller (2 inputs and 4 outputs) with RTC, Printer port, RS-485/RS-232 Serial port and Extra 128KB memory bank for HVAC application (Simultaneous Display of Temp/%RH)

DESCRIPTION :

Libratherm offers Microprocessor based Humidity and Temperature Controller Model HTC-3003, which has same features as the Model HTC-3000, except that it has 3 digit display for simultaneous indication of both temperature and %RH value.

The controller accepts input from the standard (Pt-100) temperature sensor and from the capacitive type RH sensor or temperature/humidity transmitter. The process values and set values are displayed simultaneously in the range 0.0-99.90°C and 0.0 99.90% RH respectively on 4 independent 3 digit 7-segment Red LED displays,

Since the controllers are basically designed for the stability chambers, the accurate control of temperature and humidity is achieved by operating the air heater and the boiler heater in the PID control action. and the compressor is operated in ON/OFF action with time delay facility. Since the compressors are not required to be ON at certain level of temperature, the user selectable mode is provided to program the compressor operation in AUTO, Continuous ON or Continuous OFF mode. To de-humidify the system, an extra ON/OFF output can also be optionally provided. The control output are in the form of SSR drivers of (0 10) VDC pulse to control the Air heater, boiler heater and

compressor, dehumidifier.

In addition to this the instrument has many other useful features such as 4 digit display to indicate Real time clock / calendar. In-built storage facility, which can be retrieved on demand or can be down loaded on to a computer or on a printer for hard copy via the provided printer port. The storage capacity depends on the logging time. MAX. 480 records can be stored which can be printed in OFF line mode. For larger storage, additional memory card increases the capacity up to 3000 records.

The controllers are ready with the serial communication port RS 232 / RS 485 for interfacing to the computer for data logging and storage.

Specially designed window based **E-Chamber Software** does the on line data logging and plot the online / offline graph on the PC and also allows user to enter the set points and control parameters through PC and the controller. (i.e. bi-directional communication). Two level Pass Word protected (operator & supervisory) for unauthorized alteration of the set parameters and stored data is also provided.

FEATURES :

- * Microprocessor based design.
- * Separate display for Temperature, RH, Set point and real time clock.
- * Easy front panel keyboard programmable.
- * Independent 4 control outputs for Temperature/%RH control.
- * Digital input for water level, door switch etc..
- * PID or ON/OFF control action for Air heater, Boiler heater and ON/OFF control action for Compressor with programmable time delay.
- * Direct dot matrix parallel / centronics printer output for EPSON printer model LX-300 and LX-300+ or Equivalent.
- * RS-485 or RS-232 PC computer interface

APPLICATION :

- Environmental Test Chambers
- Walk In Chambers
- BOD Incubator etc

TECHNICAL SPECIFICATIONS:

No. of Input	2 (one each for °C and %RH).
Input	Temperature and %RH sensor / Transmitter (Pt-100 / Capacitance based).
Range	-80.0 to 99.9 °C and 0.0 to 99.9 %RH.
Resolution	0.1 °C / %Rh
Accuracy	Better than ± 0.1% for temperature and ± 2% for RH.
Display	3 digit 0.5" Red 7-segment LED display for Process Temperature. 3 digit 0.5" Red 7-segment LED display for Process Humidity. 3 digit 0.5" Green 7-segment LED display for Set Temperature. 3 digit 0.5" Green 7-segment LED display for Set Humidity. 4 digit 0.5" Red 7-segment LED display for RTC.
Tuning	Manual tuning of PID values.
Control Action	PID or On/Off for Heat, Cool, Humidity & De-humidity.
Open Sensor Indication	Display shows FI-1 or FI-2 and relays will be turned OFF.
Settings	Using front panel membrane keyboard to set the various values.
Memory Backup	Retention of PID and set values in the non-volatile memory in the event of power failure.
Event Output	2 Extra Relay outputs can be used as High/Low or Deviation Alarms or Day Light Effect event (Relay changeover contacts rated for 5A @ 230VAC)
Control Output	DC pulses to drive external SSR.
External Input	Logic input for water level & door switch.
Data Logging	Real Time with programmable log and storage time.
Data Storage	2K to 128K memory bank
Interface	Serial (RS232/RS485) for PC interface with Window based software on Modbus ASCII Protocol
Supply	230VAC / 110 VAC ± 10% (10VA), 50/60Hz or 24VDC @ 500mA.
Size	192 x 96 x 200 mm
Panel cut out	188 x 92 mm +/- 0.5 mm.
Enclosure	Metal Powder coated.

MODEL	INPUT (°C) (A)	RANGE (°C) (B)	INPUT %RH (C)	RANGE %RH (D)
HTC-3003	EE06 (0-1)VDC (A1)	0.0 to 65.0 (B1)	EE06 (0-1)VDC (C1)	0.0 to 100.0 (D1)
	Pt-100 (A2)	0.0 to 100.0 (B2)	HS220 (1-3)VDC (C2)	0.0 to 99.9 (D2)
	(4-20) mA (A3)	0.0 to 60.0 (B3)	(4-20) mA (C3)	Other (D3)
	Other (A4)	Other (B4)	(1-4)VDC (C4)	
			Other (C5)	

OUTPUT (DC PULSE) (E)	EVENT RELAY (F)	REMOTE INPUT (G)	COMM. PORT (H)	SUPPLY (I)
Air Heater (E1)	Day Light Effect (F1)	Water Level (G1)	RS 232 (H1)	230VAC (I 1)
Boiler Heater (E2)	Other (F2)	Door Switch (G2)	RS 485 (H2)	110VAC (I 2)
Compressor (E3)	None (F3)	Tune Lock (G3)	Printer (H3)	
Buzzer (E4)		Other (G4)	Extra storage (H4)	
Dehumidify (E5)			None (H5)	
Other (E6)				

EXAMPLE:

MODEL	A	B	C	D	E	F	G	H	I
HTC-3003	A 1	B 1	C 1	D 1	E1, E2, E3, E4	F 1	G1, G2, G3	H 5	I1

This is Temperature / Humidity controller Model HTC-3003 with Sensor input for temperature as (0-1)VDC having range (0.0-65.0)°C and Sensor input for humidity as (0-1)VDC having range (0.0-100.0)%RH with DC Pulse output for Air Heater, Boiler Heater, Compressor & Buzzer and Event output Relay for Day Light Effect and Remote input as Water Level, Door Switch & Tune Lock and Operating on 230VAC supply