

Humidity and Temperature Controllers

(Product Code 14.1.1 To 14.1.3)



Model Wise Description:

Sr. No	Model	Product Description
14.1.1	DTH-723-A	Microcontroller based High / Low Alarm output for Temperature & %Rh Two input and Four SSR Outputs.
14.1.2	DTH-966-A	Micro controller based High/Low Alarm output for Temperature & %Rh Two input and Four Relay Outputs.
14.1.3	DTH-966-C	Micro controller based PID / On-OFF Temperature & %Rh controller Two input and Four SSR Outputs designed for Stability Chamber, Walk in Chamber etc...

Description:

Libratherm offers two new models of Temperature and Humidity indicator & Controller Model DTH-723 and DTH-966, designed using the latest high-speed microcontroller. These controllers are most suitable for Stability Chamber, HVAC and other similar applications.

DTH-723-A and DTH-966-A: These models accept inputs from standard T + RH sensor or transmitter (as given in table below). The instrument displays the temperature in the range of -40.0 to $60.0^{\circ}\text{C}/150.0^{\circ}\text{C}$ and humidity in the range of 0.0 to 100.0 % RH on 4 digit 0.3"/0.5" 7-segment Red / Green LEDs. High and Low alarm outputs in the form of DC pulse and relay contacts are available for each parameter and are settable using front panel key boards.

DTH-966-C: This model accepts inputs from standard T + RH sensor or transmitter (as given in table below). The instrument displays the temperature in the range –40.0 to 60.0 °C and humidity in the range of 0.0 to 100.0 % RH on 4 digit 0.5"7-segment Red/Green LED display. The outputs are made available for controlling temperature and %RH in stability chamber, walk in chamber or other similar systems. The DC pulse outputs for a) controlling Air heater in PID/On-Off mode b) Cooling compressor with time delay in AUTO/ON/OFF mode and c) Boiler Heater in PID/On-Off mode. d) Common Alarm output for Temperature and humidity both e) De-Humidifier output. This model also accepts 2 nos. of external potential free contacts to detect the water level of the boiler used for generating the steam and to monitor the status of the front door of the chamber – through limit switch contacts. The Door operating command can be issued externally from the PC .

Software and Touch Screen Panel: To interface DTH-966 with the computer for data acquisition, PC based 21 CFR – part 11 complied Software is also available. This software allows user to operate and set the control parameters, view the temperature and %Rh data with real time in the form of graph or in the form of Table. Software versions are available to acquire the datas from single controller or from multiple controllers (2 to 32). Touch screen panel (MMI) can also be interfaced with this controller for ease of operation and online viewing of process parameters with graphical representation. Standard or customized softwares can be provided as per the customer's requirement. Please write to us for more details.

Features:

- ❖ Microcontroller based design.
- ❖ Elegant appearance, easy to operate and compact in size.
- ❖ Highly accurate and sturdy in operation.
- ❖ Dual display for simultaneous indication of T and RH.
- ❖ Field proven Algorithm, tested successfully for various HVAC control applications.

Technical Specifications:

No. Of Inputs	2 (one each for Temperature and Relative Humidity).
Input	From Standard T + RH sensor / transmitter (Refer table given below)
Range	-40.0 to 60.0 °C / 150.0 °C and 0.0 to 100.0 %RH. (Subject to type of Sensor)
Resolution	0.1°C / 0.1% Rh.
Indicating Accuracy	Better than ± 0.1% for temperature and ± 0.1% for RH. (Actual accuracy will depend on specified accuracy of selected Sensor / Transmitter).
Display	4 digit 0.3" / 0.5" Red 7-segment display for temperature 4 digit 0.3" / 0.5" Red / Green 7-segment display for %RH (model dependent)
Tuning (*)	Manual tuning of PID values.
Control Action (*)	PID for heat, Humidity or De-Humidity, On/Off with time delay for cool.
Control Outputs(*)	DC pulse (0-10VDC) to operate external Solid State Relays (SSR)
Compressor mode*	Auto/ON/OFF with programmable time delay of 10 to 120 seconds.

Logic Inputs (*)	Potential free switch contacts for Water Level Low indication and Door Open status. Control outputs will be put off in the event of water level low.
(*)	Applicable only for model DTH-966-C (Stability chamber control application)
Alarm Outputs	High / Low alarm each for temperature and RH (total 4 outputs) DTH-966-A --- 4 SSR and /or 4 Relay Outputs. One of the SSR output can be used to sound extra beeper output under alarm condition, with keyboard acknowledge facility.
Retransmission Output	4-20mA proportional to specified temperature range 4-20mA proportional to 0 to 100% Rh. (Optional)
Open Sensor Indication	Display shows Open and control outputs 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.
Serial Interface	Two wire RS485 on Modbus RTU Protocol for PC interface. (Optional feature)
Supply	Universal supply of (90-250)VAC,50/60Hz.
Size	72 x 72 x 120 mm. (DTH-723) , 96 x 96 x 120 mm (DTH-966)
Panel cut out	68 x 68 mm +/- 0.5 mm.(DTH-723) , 92 x 92 +/-0.5 mm (DTH-966)
Enclosure	ABS plastic with polycarbonate front.

Note : Technical specifications are subject to change due to continuous product up gradation and the discretion of manufactures. For any special requirement please contact us.

Input Sensor / Transmitter and Range Selection Table:

(Which can be used with above controllers)

Sensor / Transmitter	A1	A2	A3
Model	HYGROTX-3000	HYGRO CLIP –CP	H290
Type	Transmitter	Sensor	Transmitter
Make	Libratherm	Rotronic – Swiss make	Rotronic
Temp. Sensor	Hygroclip-CP	In-built	In-built
Supply	18-24VDC	(5-24) VDC	(5-24) VDC
%Rh O/P	4-20mA	0 TO 1 VDC	(4-20) mA DC
% Rh Range	0 to 100%	0 to 100%RH	0 to 100%
Accuracy	+/-1.5% @ 23°C	+/- 1.5 %RH @23°C	+/- 1% RH
Temp. O/P	4-20mA	0 to 1 VDC	(4-20) mA DC
Temperature	-40 to 60°C	-40 to 60°C	-40 to 150°C.
Accuracy	+/- 0.5%	+/- 0.5%	+/- 0.5%
Std. Cable Length	1 meter with sensor	2 meter	2 meter
Transmitter Enclosure	ABS IP 65	--	ABS-IP65
Transmitter Size	85 x 85 x 55 mm.	--	120 x 85 x 55 mm.
Sensor Size	15 x 140 mm.	15 x 140 mm.	15 x 200 mm.


HYGROTX-3000

HYGROCLIP-CP SENSOR

H290 TRANSMITTER

Ordering Information:

Model	A-Input	B- Logic Input	C- Output 1	D- Output 2	E- Output 3	F- Output 4	G- Output 5	H- Retrans - mission	I- RS-485 Communication
DTH-723- A	A1-(HYGORTX)	B1- (Water Level Input)	C1- (DC pulse)	D1- (DC pulse)	E1- (DC pulse)	F1- (DC pulse)	G1- (DC pulse)	H1- (4-20mA x2)	I1- (Yes)
DTH-966 -A	A2-(HYGROCLIP)	B2- (Door switch Input)	C2-(Relay)	D2-(Relay)	E2-(Relay)	F2-(Relay)	00 -None	00 -None	00 -None
DTH-966 -C	A3-(H290)	B3- (Both Input) 00 -None					G1 is for Buzzer output Available only in DTH 966 - A	Optional feature	

Examples:

Model	A-Input	B- Logic Input	C- Output 1	D- Output 2	E- Output 3	F- Output 4	G- Output 5	H- Retrans mission	I- RS-485 Communication
DTH-723-A	A2	B4	C1	D1	E1	F1	00	H2	I1
DTH-966-A	A1	B4	C2	D2	E2	F2	G1	H2	I2
DTH-966-C	A3	B3	C1	D1	E1	F1	00	H1	I2

Example	Ordering Code	Description
1	DTH-723-A-A2-B4-C1-D1-E1-F1-00-H2-I1	This is T + RH controller with Hygroclip sensor as the input and with 4 dc pulse outputs and RS 485 serial output.
2	DTH-966-A-A1-B4-C2-D2-E2-F2-G1-H2-I2	This is T + RH controller with transmitter input and 4 relay outputs and buzzer or beeper output.
3	DTH-966-C-A3-B3-C1-D1-E1-F1-00-H1-I2	This is T + RH controller for stability chamber with transmitter input and with 4 DC pulse output and 4-20mA retransmission output for T and RH.

REMARK :