Humidity and Temperature Controllers

OMEGA®

iSeries

DPiTH Series
CNiTH Series

5 YEAR WARRANTY

c UL us

- Output 1: Humidity, Output 2: Temperature
- High Accuracy ±0.5°C and ±3% RH
- 4 Popular DIN Sizes
- Ethernet and Serial Communications (Optional)
- User-Friendly, Simple to Configure
- Full Autotune PID Control
- Choice of Relays, SSR, DC Pulse, Analog Voltage and Current
- Programmable Ramp and Soak for Humidity and/or Temperature
- RH/Temperature Probe Included
- RoHS 2 Compliant

SENSOR INCLUDED!

All models shown smaller than actual size.

The OMEGA® iTH Series instruments monitor and control both temperature and relative humidity. All meters and controllers in the series are high quality, highly accurate instruments featuring OMEGA's award-winning iSeries technology, uncompromising accuracy, backed by an extended 5-year warranty.

The instruments are simple to configure and use, while providing tremendous versatility and a wealth of powerful features.

The OMEGA iTH Series instruments are available either as monitors or controllers. The monitors are extremely accurate programmable digital panel meters displaying humidity, temperature, or dew point. The controllers also provide single output control for humidity and temperature and are easily programmed for any control or alarming requirement from simple on-off to full autotune PID control.

The iTH family of meters and controllers are available in four true DIN sizes: the ultra compact 1/32 DIN; the popular midsize 1/16 DIN square bezel with dual display; the 1/8 DIN vertical, and the 1/8 DIN horizontal with the big bright 21 mm (0.87") digits.

The OMEGA iTH Series LED displays can be programmed to change color between **GREEN**, **AMBER**, and **RED** at any setpoint or alarm point.

The iTH controller models offer a choice of 2 control or alarm outputs in almost any combination: solid state relays (SSR); form "C" SPDT (single pole double throw) relays; pulsed 10 Vdc output for use with an external SSR; or analog output selectable for control or retransmission of the process value.

The networking and communications options (highly recommended) include direct Ethernet LAN connectivity with an embedded Web server, and serial communications. The C24 serial communications option includes both RS232 and RS485. Protocols include a straight forward ASCII protocol. The C4EIT option includes Ethernet and RS485 ASCII on one device.

The iTH Series meters and controllers are designed for easy integration with popular industrial automation, data acquisition and control programs as well as Microsoft Visual Basic® and Excel®. OMEGA provides free configuration software which makes it fast and easy to get up and running. Available for download at OMEGA.

Specifications

Control

Action: Reverse (heat) or direct (cool)

Modes: Time and amplitude proportional control modes; selectable manual or auto PID, proportional, proportional with integral, proportional with derivative with anti-reset windup and ON/OFF

Rate: 0 to 399.9 seconds

Reset: 0 to 3999 seconds

Cycle Time: 1 to 199 seconds; set to 0 for ON/OFF operation

Gain: 0.5 to 100% of span; setpoints 1 or 2

Damping: 0000 to 0008

Soak: 00.00 to 99.59 (HH:MM), or OFF

Ramp to Setpoint: 00.00 to 99.59 (HH:MM), or OFF

Autotune: Operator initiated from front panel for 1 input at a time only

Outputs

Two Physical Outputs: Output 1 = RH, output 2 = temperature; functions are set up as outputs (PID or ON/OFF), or alarms

Ordering Outputs Choices:

Relay: 250 Vac @ 3 A or 30 Vdc @ 3 A (resistive load); Form C SPDT

SSR: 20 to 265 Vac @ 0.05 to 0.5 A (resistive load); continuous

DC Pulse: Non-isolated; 10 Vdc @ 20 mA (used with external SSR)

Analog Output (Output 1 Only): Non-isolated, control or retransmission 0 to 10 Vdc or 0 to 20 mA, 500Ω maximum, ±1% of full scale accuracy

Control Output 1 and 2

Operation:

Action: Reverse (heat) or direct (cool)

Modes: Time and amplitude proportional control modes; selectable manual or auto PID, proportional, proportional with integral, proportional with derivative with anti-reset windup and ON/OFF

Alarm 1 and 2 (Programmable):

1) Alarms are used for color changing sequence of alarm status (visual alarm)

2) Alarm functions are active, in addition to the color changing functions, if output 1 and 2 are (menu) disabled
3) If alarms are disabled, output menus (PID or ON/OFF) are active; color change is still active

Operation: High/low, above/below, band, latch/unlatch, normally open/normally closed and process/deviation; front panel configurations

-AL Limit Alarm Version: Output 1 and 2 submenus used for PID are eliminated from menu; color sequence based on alarm setpoints is still available

Input

Accuracy/Range @ 25C - Non-condensing:
±3% for 10 to 90%;
±3.5% for 5 to 10% and 90 to 95%
±4% for 0 to 5% and 95 to 100%
Hysteresis: ±1% RH
Non-linearity: ±3%
Temperature Accuracy/Range*
±0.5°C for 5° to 45°C (±1°F for 41 to 113°F); up to ±1.5°C for -40° to 5°C and 45° to 124°C (up to ±2.7°F for -40° to 41°F and 113° to 255°F)
Resolution: 0.1%, 12bit for RH; 0.1°C, 14 bit for temperature
Response Time: 8 seconds, tau 63% for RH; 5 to 30 seconds, tau 63% for temperature
***Note:** Extended temperature range is for industrial probe only, the controller's operating temperature is 0 to 50°C.*

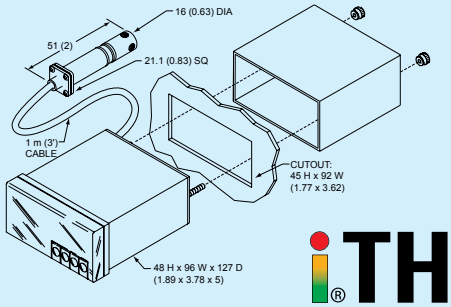
Network and Serial Communications (For Options -C24, -C4EIT, -EIT)

Ethernet: Standards compliance IEEE 802.3 10Base-T
Supported Protocols: TCP/IP, ARP, HTTPGET
RS232/RS422/RS485: Selectable from menu; both ASCII and MODBUS protocol selectable from menu; programmable 300 to 19.2 K baud; complete programmable setup capability; program to transmit current display, alarm status, min/max, actual measured input value and status
RS485: Addressable from 0 to 199
Connection: Screw terminals

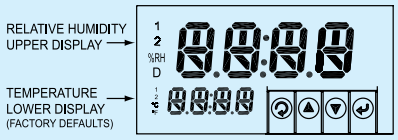
General

A/D Conversion: 12-bit RH and 14-bit temp
Reading Rate: 2 samples per sec max
Digital Filter: Programmable
Decimal Selection: None, 0.1 for temperature and humidity
Display: 4-digit, 9-segment LED
i32, i16D, i8DV: 10.2 mm (0.40")
i8: 21 mm (0.83")
i8DH: 10.2 mm (0.40") and 21 mm (0.83")
RED, **GREEN** and **AMBER** programmable colors for process variable, setpoint and temp units
Operating Temperature: 0 to 50°C (32 to 122°F), 90% RH non-condensing
Protection:
i32, i16D: NEMA 4X (IP65) front bezel
i8DH, i8DV: NEMA 1 (IP23) front bezel
Power: Refer to ordering guide

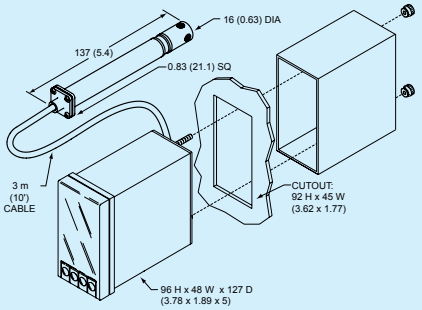
CNiTH-i8DH shown with -2 Probe

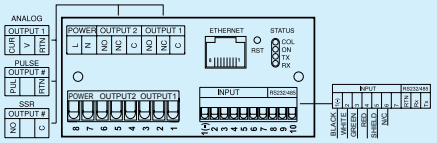


For other mechanical drawings please visit OMEGA for more information.



CNiTH-i8DV shown with -5 Probe





To Order

Model No.			Description
DPiTH-	**(****)**		Monitor version, no control outputs
CNiTH-	**(****)**	**(* *)**	Controller version, select 2 control outputs
	i8DH		Temperature and RH Input ⅛ DIN dual display horizontal
	i8DV		Temperature and RH Input ⅛ DIN dual display vertical
	i16D		Temperature and RH Input 1/16 DIN dual display
	i32		Temperature and RH Input 1/32 DIN single display*2
Control Outputs			
		2 2	2 solid state relays (SSR's): 0.5 A @ 120/240 Vac continuous
		2 3	SSR and relay: Form "C" SPDT 3A @ 120Vac, 3A @ 240Vac
		2 4	SSR and pulsed 10 Vdc @ 20 mA (for use with external SSR)
		3 3	2 Relays: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac
		4 2	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and SSR
		4 3	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and relay
		4 4	2 pulsed 10 Vdc @ 20 mA (for use with external SSR)
		5 2	Analog output selectable as either control or retransmission of process value; 0 to 10 Vdc or 0 to 20 mA @ 500 Ω max & SSR
		5 3	Analog output 0 to 10 Vdc or 0 to 20 mA @ 500 Ω max & relay
		5 4	Analog out 0 to 10 Vdc or 0 to 20 mA @ 500 Ω max & pulse 10 V
			-AL limit alarm version (simplified menu; no PID control)*1
RH/Temperature Probe (Must Select One)			
-2			51 mm (2") probe for iTH with 1 m (3') cable
-5			127 mm (5") probe for iTH with 3 m (10') cable
Power Supply			
*			Standard power input: 90 to 240 Vac ±10%, 50 to 400 Hz, 110 to 300 Vdc, equivalent voltage (*no entry required)
-DC			Low voltage power option: 20 to 36 Vdc, 24 Vac ±10%; 12 to 36 Vdc, 24 Vac ±10% for iTH-32
Network Options			
-EIT			Ethernet with Embedded Web Server*2
-C24			Isolated RS232 and RS485/422. 300 to 19.2k Baud
-C4EIT			Ethernet with Embedded Web Server + Isolated RS485/422 hub for up to 31 devices*2

Accessories

Software	
OPC-SERVER LICENSE	OPC server/driver software license (requires network option)
iTHP-2	51 mm (2") replacement probe for iTH with 1 m (3') cable
iTHP-5	127 mm (5") replacement probe for iTH with 3 m (10') cable

1 Analog output (Option 5) is not available with **"-AL" units.*
**2 -C4EIT or -EIT option is not available on the 1/32 DIN. Refer to the iServer section for other Ethernet devices that can connect to a CNiTH-i32xx-x-C24.*
Units can be powered safely with 24 Vac power, but no certification for UL are claimed.
***Ordering Examples: CNiTH-i8DH43-5-C4EIT,** horizontal ⅛ DIN dual display with pulse and relay outputs, a 127 mm (5") probe and Ethernet with embedded Web server.*
***DPiTH-i16D-2-EIT,** 1/16 DIN dual display with a 51 mm (2") probe and Ethernet with embedded Web server.*