Humidity and Temperature Controllers

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 1⁄8 DIN; the popular midsize 1⁄16 DIN square bezel with dual display; the 1⁄4 DIN vertical, and the 3⁄8 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 straightforward ASCII protocol. The C4EIT option includes Ethernet and RS485 ASCII on one device.

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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

Alarm 1 and 2 (Programmable):
1) Alarms are used for color changing sequence of alarm status (visual alarm)

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 @ 25°C -
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°C to 45°C (±1°F for 41 to 113°F); up to ±1.5°C for −40°C to 5°C and 45°C to 124°C (up to ±2.7°F for −40°C to 113°F and 124°F 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, HTTP/GET
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.

Control Outputs
-2 Analog output (Option 5) is not available with "-AL" units.
-2, -5 Analog output selectable as either control or retransmission of process value; 0 to 10 Vdc or 0 to 20 mA @ 500 Ω max & SSR.
-2, -5 Analog output 0 to 10 Vdc or 0 to 20 mA @ 500 Ω max & relay.
-2, -5 Analog output 0 to 10 Vdc or 0 to 20 mA @ 500 Ω max & pulse 10 V.

To Order
Model No. Description
DPIIH (***) Monitor version, no control outputs
CNITH (***) (**) Controller version, select 2 control outputs
i8DH Temperature and RH Input 1/16 DIN dual display horizontal
i8DV Temperature and RH Input 1/16 DIN dual display vertical
i16D Temperature and RH Input 1/8 DIN dual display
i32 Temperature and RH Input 1/8 DIN single display

Control Outputs
-2 2 solid state relays (SSR’s): 0.5 A @ 120/240 Vac continuous.
-3 SSR and relay: Form “C” SPDT 3 A @ 120Vac, 3 A @ 240Vac.
-4 SSR and pulsed 10 Vdc @ 20 mA (for use with external SSR).
-4 Pulses 10 Vdc @ 20 mA (for use with external SSR) and relay.
-4 Pulses 10 Vdc @ 20 mA (for use with external SSR).

Power Supply
-2 Standard power input: 90 to 240 Vac ±10%, 50 to 400 Hz, 110 to 300 Vdc, equivalent voltage ("no entry required").
-3 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
-C24 Isolated RS332 and RS485/422. 300 to 19.2 K baud.

-C4EIT Ethernet with Embedded Web Server + Isolated RS485/422 hub for up to 31 devices.

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

Ordering Examples: CNITH-i32H-5-C4EIT, horizontal 1/8 DIN dual display with pulse and relay outputs. a 127 mm (5") probe and Ethernet with embedded Web server. DPIITH-i16D-2-EIT, 1/8 DIN dual display with a 51 mm (2") probe and Ethernet with embedded Web server.