

# H7400 Series Digital Humidity Controllers Modulating or On/Off Step Control Outputs

## SPECIFICATION



## GENERAL

The H7400 series digital humidity controller is an industrial microprocessor-based controller with combination of modulating and/ or up to 4 stages of on/ off humidify or dehumidify control.

The enhanced proportional plus integral (PI) algorithm provides high performance modulating control output. Together with single to multi-stage on/ off outputs, they are able to meet versatile application requirements.

## FEATURES

- Optional Built-in a compensated industrial CMOS process relative humidity with temperature sensor (Only for built-in sensor type)
- Low drift and long-term stability
- Digital display of ambient humidity or temperature and user selected humidity setting on demand
- Proportional plus integral (PI) advanced control
- Stage control for multiple Humidify or Dehumidify outputs
- 0(2) to 10 VDC or 10 to 0(2) VDC analog output signal
- Optional 0 to 5 VDC, 0 to 10 VDC or 4 to 20mA analog input signal
- Selectable direct / reverse acting output
- Energy saving mode-external energy savings input (ESI) from hotel card key or occupancy sensors
- Adjustable unoccupied set-point for Humidify and Dehumidify mode control
- Optional Timer off (0 to 24 hours) control output function
- Optional Fan speed control
- Non-volatile memory (EEPROM) retains user settings during power loss
- Self-diagnostic feature
- Adjustable Humidify and Dehumidify mode control
- Adjustable maximum and minimum set-point limits
- Control off output when system switch at "OFF" position
- Auxiliary dry contact output with system switch position

## PRODUCT ORDERING INFORMATION

MODEL	Product Description
H74	H7400 Series Digital Modulating with On/ Off Humidify/ Dehumidify Controller

CODE	Dehumidify Outputs
0	None
1	1 Modulating, 0(2) to 10 VDC
3	1 Modulating, 0(2) to 10 VDC, 1 On/ Off
5	1 Modulating, 0(2) to 10 VDC, 2 On/ Off
2	1 On/ Off
4	2 On/ Off

CODE	Humidify Outputs
0	None
1	1 Modulating, 0(2) to 10 VDC
3	1 Modulating, 0(2) to 10 VDC, 1 On/ Off
5	1 Modulating, 0(2) to 10 VDC, 2 On/ Off
2	1 On/ Off
4	2 On/ Off
6	3 On/ Off

CODE	Application
A	Dehumidify only
B	Manual Selectable Dehumidify or Humidify
C	Auto Changeover Dehumidify or Humidify
D	Humidify only
E	Manual Selectable (Shared Dehumidify and Humidify device)
X	Specified

CODE	FAN Control
0	None
1	Automatic FAN On/Off
4	Automatic 3-speed FAN
X	Specified

CODE	FAN Power
0	None
1	110VAC
2	230VAC
3	24VAC

CODE	Color for Case
1	Ivory
2	Pure White

CODE	Color for LCD Backlit
0	None
1	Yellow-Green

CODE	Type of Input Signal
None	Built-in Sensor
HA	0-5VDC from External Transmitter
HB	0-10VDC from External Transmitter
HC	4-20mA from External Transmitter

H74	1	1	C	0	0	1	0	-	HC
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Example: H7411C0010-HC, 1 modulating Humidify, 1 modulating Dehumidify, auto changeover, no fan, Ivory color for case, No backlit, 4-20mA External Humidity Signal Input

## SPECIFICATIONS

**Supply Voltage :**

24Vac ( $\pm 10\%$ ), 50/60 Hz

**Default Set-point Range :**

30 to 80%RH,

**Display Range :**

0 to 100.0 %RH, -40 to 123 °C (-40.0 to 254.9 °F)

**Display :**

9 icons, 4-digit and 1 decimal point LCD display

**Display Resolution :**

0.1%RH/ 0.1 °C or 0.1 °F

**Setting Unit :**

1 %RH / step

**Indication Accuracy : (If built-in sensor)**

$\pm 3.0\%$ RH over 20~80 %RH, 3 to 5%RH linear over other ranges

$\pm 0.4$  °C or 0.8 °F at 25°C

**Humidity Drift : (If built-in sensor)**

<0.5 %RH/ year

**System Switch :**

On / Off

**Electrical Rating :**

2A run, 12A inrush up to 250 VAC

**Set-point Adjust :**

Mode selection or up and down arrows

**Control Performance :**

Proportional plus integral (PI) control

**Analog Output Signal :**

0(2) to 10 VDC or 10 to 0(2) VDC

**Relay Output :**

Up to 4 SPST relays with adjustable software differential

Electrical Rating : 2A run, 12A inrush, Optional 4A run

**Analog Output Load :**

Maximum 5mA for over load protection

**Remote Sensor ( RS ) Input :**

0 to 5 VDC, 0 to 10 VDC or 4 to 20mA analog input

**Control action :**

Selectable direct or reverse actuators

**Actuator Action**

Actuator	Signal	Action
Direct	0(2) to 10 VDC	Close to Open
Reverse	10 to 0(2) VDC	Close to Open

**Energy Savings Input ( ESI ) :**

Accepting normally closed (N.C.) or normally opened (N.O.) dry contact signal input

**Power Consumption :**

4 VA for H7400 series only, if includes two modulating control valves, the 40 VA transformer is recommended.

**Operating Ratings :**

0 ~ 50°C, 5 ~ 95% RH (non-condensing)

**Mounting :**

Mounts directly onto wall, panel, standard 65x65 mm junction box (hole pitch 60 mm) or standard 2x4 inch vertical junction box (hole pitch 83.5 mm)

**Dimensions :**

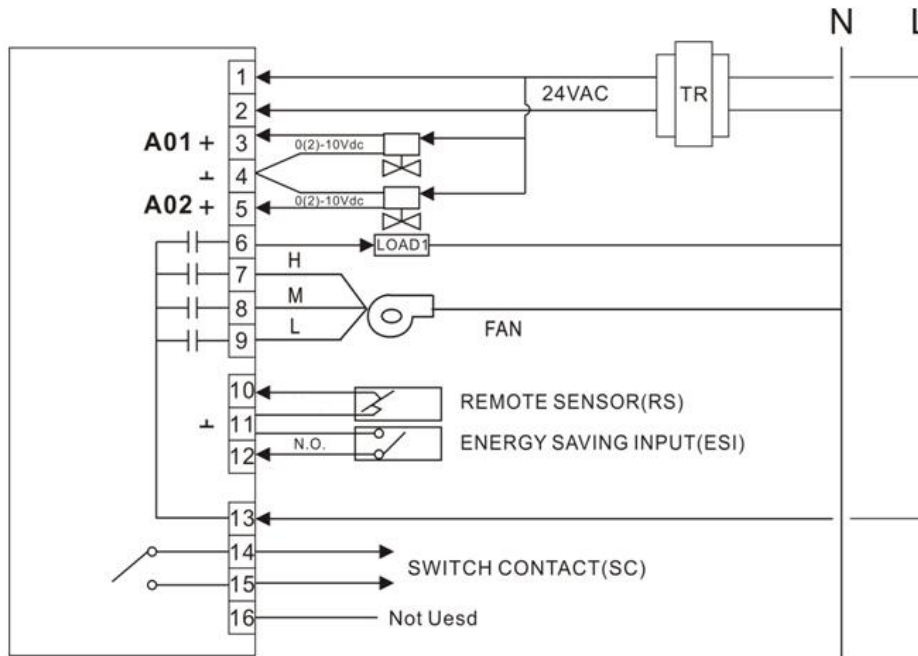
76x120x30 mm (W x H x D)

**Wiring :**

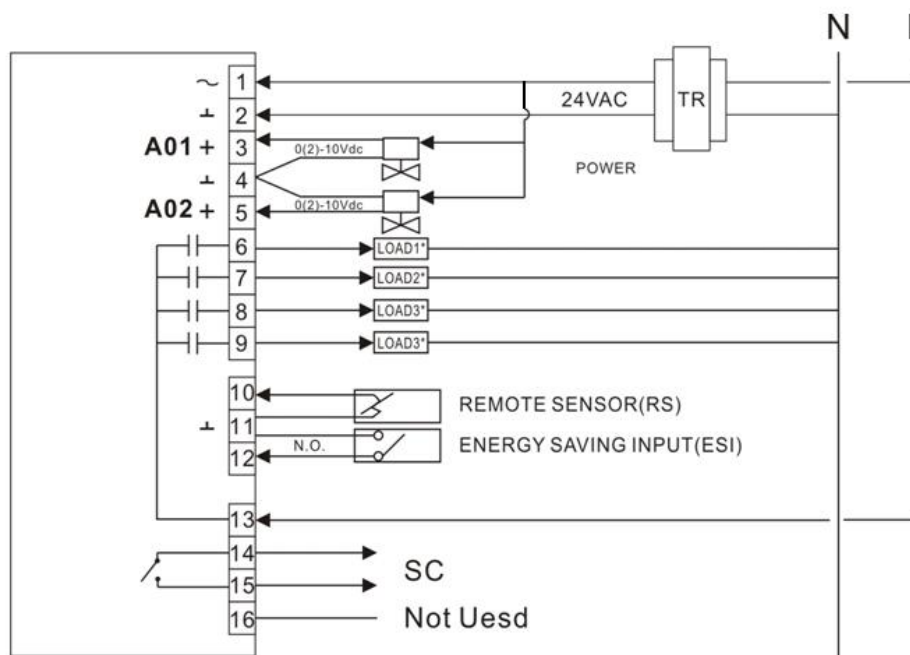
16 Screw-in terminals, each terminal capable of accepting 14 to 22 AWG wires or 1.5 mm<sup>2</sup> wires

## WIRING

The modulating and on/off terminal assignment shall be referred to the following table according to the number of modulating and on/off of Dehumidifying and Humidifying.



**Modulating with FAN Control TYPE**



**Modulating with On/Off Step Control TYPE**

The modulating and on/off terminal assignment shall be referred to the following table according to the number of modulating and on/off of dehumidifying and humidifying.

## Models for Modulating with Auto 3-speed Fan Control Outputs

Model NO.	Analog Terminal Designation		ON-OFF Terminal Designation			
	AO 1	AO 2	Load 1	H	M	L
H7401D4	Humidify 1 (Modulating)			FAN Hi	FAN Med	FAN Lo
H7410A4	Dehumidify 1 (Modulating)			FAN Hi	FAN Med	FAN Lo
H7411B4	Dehumidify 1 (Modulating)	Humidify 1 (Modulating)		FAN Hi	FAN Med	FAN Lo
H7411C4	Dehumidify 1 (Modulating)	Humidify 1 (Modulating)		FAN Hi	FAN Med	FAN Lo

NOTE: If the fan used in the system is only 1-speed fan, please contact sales in advance.

## Models for Modulating with On/Off Step Control Outputs

Model NO.	Analog Terminal Designation		ON-OFF Terminal Designation			
	AO 1	AO 2	Load 1	Load 2	Load 3	Load 4
H7401	Humidify 1 (Modulating)					
H7403	Humidify 1 (Modulating)		Humidify 2 (On/Off)			
H7405	Humidify 1 (Modulating)		Humidify 2 (On/Off)	Humidify 3 (On/Off)		
H7407	Humidify 1 (Modulating)		Humidify 2 (On/Off)	Humidify 3 (On/Off)	Humidify 4 (On/Off)	
H7410	Dehumidify 1 (Modulating)					
H7412	Dehumidify 1 (Modulating)		Humidify 1 (On/Off)			
H7414	Dehumidify 1 (Modulating)		Humidify 1 (On/Off)	Humidify 2 (On/Off)		
H7416	Dehumidify 1 (Modulating)		Humidify 1 (On/Off)	Humidify 2 (On/Off)	Humidify 3 (On/Off)	
H7411	Dehumidify 1 (Modulating)	Humidify 1 (Modulating)				
H7413	Dehumidify 1 (Modulating)	Humidify 1 (Modulating)	Humidify 2 (On/Off)			
H7415	Dehumidify 1 (Modulating)	Humidify 1 (Modulating)	Humidify 2 (On/Off)	Humidify 3 (On/Off)		
H7417	Dehumidify 1 (Modulating)	Humidify 1 (Modulating)	Humidify 2 (On/Off)	Humidify 3 (On/Off)	Humidify 4 (On/Off)	
H7421	Humidify 1 (Modulating)		Dehumidify 1 (On/Off)			
H7423	Humidify 1 (Modulating)		Dehumidify 1 (On/Off)	Humidify 2 (On/Off)		
H7425	Humidify 1 (Modulating)		Dehumidify 1 (On/Off)	Humidify 2 (On/Off)	Humidify 3 (On/Off)	
H7430	Dehumidify 1 (Modulating)		Dehumidify 2 (On/Off)			
H7431	Dehumidify 1 (Modulating)	Humidify 1 (Modulating)	Dehumidify 2 (On/Off)			
H7433	Dehumidify 1 (Modulating)	Humidify 1 (Modulating)	Dehumidify 2 (On/Off)	Humidify 2 (On/Off)		
H7435	Dehumidify 1 (Modulating)	Humidify 1 (Modulating)	Dehumidify 2 (On/Off)	Humidify 2 (On/Off)	Humidify 3 (On/Off)	