Humidity / Temperature transmitter

TH 200

New

CE

- *Ranges from 0-100% RH and -40 to +356°F (probe dependent)*
- *Configurable intermediate ranges*
- *Functions : relative and absolute humidity, dew point, wet and dry temperature, enthalpy.*
- *Smart-Pro system interchangeable probes (PC or Stainless Steel)*
- *On-site calibration*
- *Simultaneous display of 2 parameters*
- *2 outputs 4-20 mA or 0-10V (4 wires), RS 232, 2 RCR relays 6A/230 Vac*
- *2 visual (dual color LED) and audible (buzzer) alarms*
- *Output diagnostics*
- *ABS IP 65 housing, with or without 2-line backlit display.*
- *Quick and easy mounting using the "1/4 turn" system with wall-mounting plate.*

TH200 ***remote*** TH200 ***standard***

PC *or* ***St. Steel*** *probe*

WITH or WITHOUT **display**

Transmitter features

Humidity

Measuring range .....0 to 100 %RH
Units of measurement .....%RH
Accuracy* *(Repeatability, linearity, hysteresis)* ±1.5%RH *(from 3 to 98%RH and if 15°C≤T≤25°C)*
Temperature dependence .....±0.04 x I(T-20)I%RH *(if T<15°C or T>25°C)*
Response time .....<10 sec. (from 10% RH to 80%RH, V_{air}=400fpm)
Resolution .....0.1 %RH
Factory calibration uncertainty .....±0.88%RH
Type of sensor .....capacitive
Type of fluid.....air and neutral gases (high resistance to solvents)

Temperature

Measuring range.....from -4 to +248°F (polycarbonate probe)
from -40 to +356°F (st.steel probe)
Units of measurement.....°F, °C
Accuracy *.....±0.3% of reading ±0.5°F
Response time..... $t_{0,9}$ = 9 sec. for V_{air}= 200 fpm
Resolution.....0.1°F
Type of sensor .....Pt 100 1/3 as per DIN IEC 751
Type of fluid .....air and neutral gases

* All accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranted for measurements carried out in the same conditions, or carried out with calibration compensation.
As per NFX 15-113 and the *Charter 2000/2001 HYGROMETERS*, GAL (Guaranteed Accuracy Limit) which has been calculated with a coverage factor value of 2 is ±2.58%RH between 64 and 82°F on the measuring range from 3 to 98%RH. Sensor drift is less than 1%RH/year.

Part number

To order, just add the codes to complete the part number :

Power supply / Output
- **B M H** — 24 Vac/Vdc • 0-10 V or 4-20 mA / 115 Vac • 0-10 V or 4-20 mA / 230 Vac • 0-10 V or 4-20 mA

Probe
- **P** — Polycarbonate
- **I** — Stainless steel

Display
- **O** — With display
- **N** — Without display

Probe mounting
- **S** — Standard
- **D** — Remote

Probe length
- **100** — 4" (standard)
- **150** — 6" (remote)
- **300** — 12" (remote)

TH200- [ ][ ][ ] **/ STH -** [ ][ ][ ]

Example : TH200-BN/STH-PD300 = humidity transmitter type TH200, with 24Vac/Vdc power supply, without display, with polycarbonate remote probe length of 12".

Functions

Class 200 transmitters have 2 analog outputs which correspond to the 2 parameters displayed. You can activate 1 or 2 outputs and for each output, you can choose between humidity, temperature and the functions below:

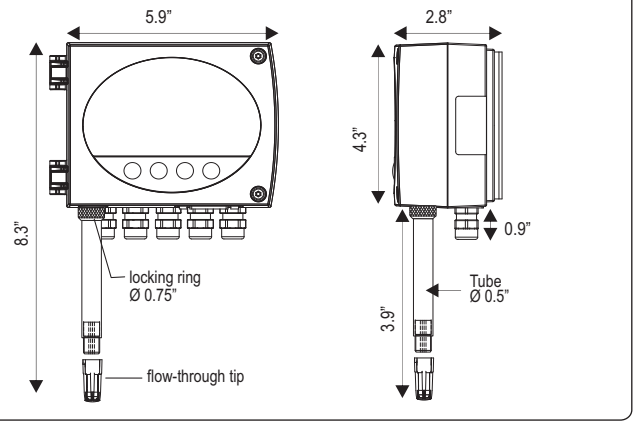
Features / *Functions*	*Measuring ranges*	*Units and resolutions*
Mixing ratio	from 2 to 900 g/Kg	0.1 g/kg
Dew point	from -112 to +356°F	0.1 °F - 0.1 °C
Wet temperature	from -4 to +356°F	0.1°F - 0.1 °C
Enthalpy	from 0 to 15,000 Kj/Kg	0.1 Kj/Kg

- **Easy maintenance with the new SMART-PRO system digital probes.**
- **Totally interchangeable :** they are individually adjusted and are automatically recognized by the transmitter.

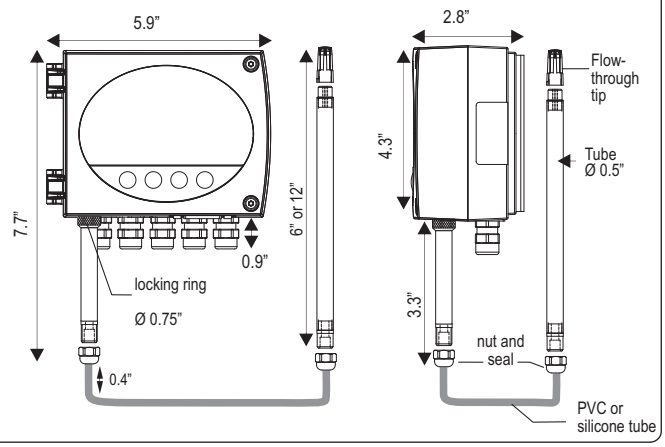
Housing dimensions

(including wall-mounting plate)

Standard



Remote



Housing features

Housing .....ABS
Fire-proof classification .....V 0 as per UL 94
Protection .....IP 65
Display .....alphanumeric, 2 lines of 16 digits, 3.9" x 0.9", backlit
protection screen made of PMMA
Connection fittings .....polyamide for cables Ø 0.275" max.
Weight .....1.8 lbs. (with display)

Relays and Alarms

Class 200 transmitters have 4 stand-alone and configurable alarms : 2 visual alarms (dual color LED) and 2 relays (contacts).

You can set :

- the parameter (humidity, temperature, dew point)
- 1 or 2 set points (high and low) for each alarm
- the time-delay / 60 sec. max
- the alarm action : rising or falling
- the relay operation mode : positive or negative security
- the audible alarm (buzzer) activation.

Probes features

Polycarbonate probes

Measuring range.....-4 to +248°F
Standard probe.....Length 4"
Remote probe .....Length 6" or 12"
Cable .....PVC Ø 0.2", Length 6'

Polycarbonate probes are supplied with a flow-through polycarbonate protection tip with st. steel filter 25 (ref. EPP2).

Stainless steel probe

Measuring range.....-40 to +356°F
Standard probe.....Length 4"
Remote probe .....Length 6" or 12"
Cable .....silicone Ø 0.2", Length 6'

Stainless steel probes are supplied with a flow-through stainless steel protection tip with a st. steel filter 25 (ref.EPI25).

Tip selection

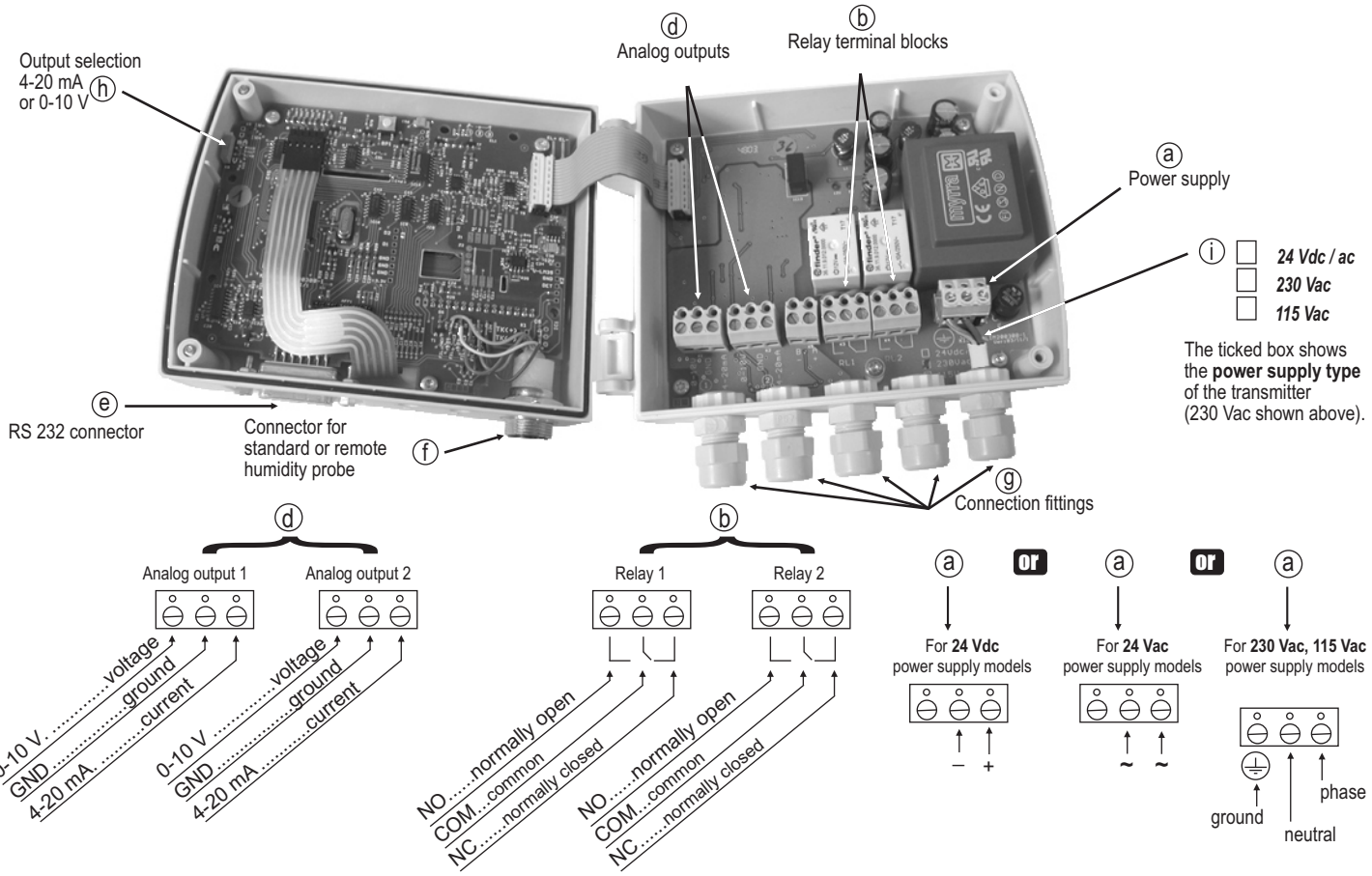
Specifications \ Part number	EPP2	EPI25	EPI100	EPFI	EPFT
Tip material	PC(1)	St.steel(3)	St.steel(3)	St.steel(3)	PTFE(2)
Filter material	St.steel	St.steel	St.steel	St.steel	PTFE
Filter type	meshed	meshed	meshed	sintered	sintered
Maximum particles	25	25	100	10	50
Maximum air velocity	5000fpm	5000fpm	4000fpm	6000fpm	5000fpm
Maximum temperature	248°F	356°F	248°F	356°F	356°F
Maximum relative humidity	95%RH	95%RH	100%RH	90%RH	90%RH
Length	*1.2"*	*1.2"*	*1.2"*	*1.2"*	*1.2"*
Applications					
HVAC air-conditioning system	yes	yes			
Cold storage room			yes		yes
Industry	yes	yes	yes	yes	yes
Pharma plants / Electronics	yes	yes	yes	yes	yes
Dryer				yes	yes
Curing				yes	
Swimming-pool			yes		yes
Harsh environments					
Water droplets					yes
Shavings/cuttings		yes		yes	
Dust			yes		
Chemical products					yes
Grease					yes

(1) PC : Polycarbonate - (2) PTFE : Teflon® - (3) St. steel: 316 L

Technical Specifications

Power supply.....24 Vac / Vdc ±10%
115 Vac or 230 Vac ±10%, 50-60 Hz
Output .....2 x 4-20 mA or 2 x 0-10 V (4 wires)
maximum load : 500 Ohms (4-20 mA)
minimum load : 1 K Ohms (0-10 V)
Galvanic isolation .....inputs and outputs (115 Vac/230 Vac models)
outputs (24 Vac/Vdc models)
Consumption.....5 VA
Relays .....2 RCR relays 6A / 230 Vac
Visual alarms .....2 dual color LED
Audible alarm .....buzzer
Electro-magnetical compatibility....EN 61 326
Electrical connection.....screw terminal block
RS 232 communication.....Digital : ASCII, proprietary protocol
Working temperature (housing).....32 to 122°F
Working temperature (probe).....-4 to +248°F (polycarbonate)
-40 to +356°F (st. steel)
Storage temperature.....14 to 158°F
Environment.....air and neutral gases

Connection



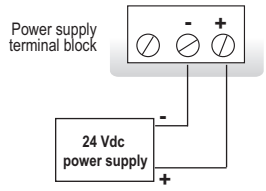
Electrical connections - *as per* ***NFC15-100*** *norm*

⚠ This connection must bemade by a qualified technician. **When making the connection, the transmitter must not be energized.**

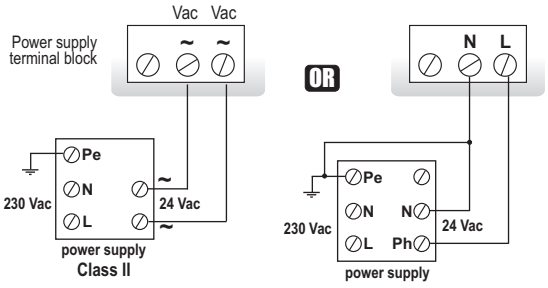
Power supply connection :

⚠ **Before making the connection, you must first check the power supply which is indicated on the transmitter board (see ⓘ on connection drawing).**

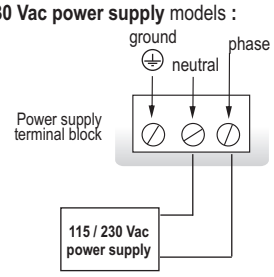
• For **24 Vdc power supply** models :



• For **24 Vac power supply** models :

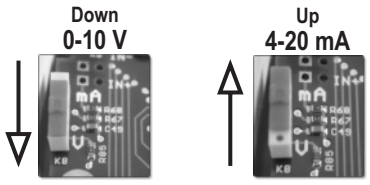


• For **115 or 230 Vac power supply** models :



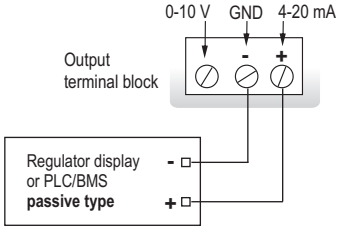
Output signal selection voltage (0-10 V) or current (4-20 mA)

The on-off switch located on the left top of the transmitter (see ⓗ on connection drawing) allows selection of the required outputs.

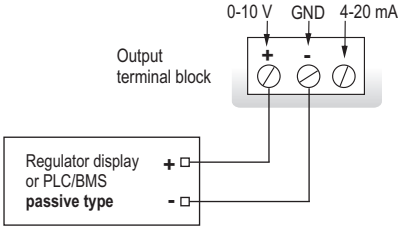


Output connection :

• **4-20 mA current output :**

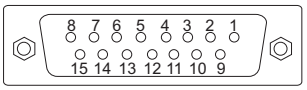


• **0-10 V voltage output :**



Connection of **SUB-D15**

RS 232
(see ⓔ on connection drawing)



Pin #	Description
1	NC *
2	NC *
3	NC *
4	NC *
5	NC *
6	NC *
7	NC *
8	NC *
9	RX (RS 232)
10	NC *
11	TX (RS 232)
12	NC *
13	NC *
14	NC *
15	GND (RS 232)

⚠ CAUTION :
NC * --> DO NOT CONNECT

Digital communication

RS 232 communication

• Via the RS 232 connection, the TH200 **can transmit its measurements to a Class 300 transmitter.**
Example : a CP300 can display (in addition to the pressure) other parameters such as humidity and temperature from a TH 200.

• Via the RS 232 connection, you can also configure your transmitter with the LCC-300

• The RS 232 connection cable is available in 6', 16' or 32' (maximum) lengths.

Configuration

You can configure all the parameters of the transmitter (**units, measuring ranges, alarms, outputs, channels, calculation formula)** via the different methods shown below :

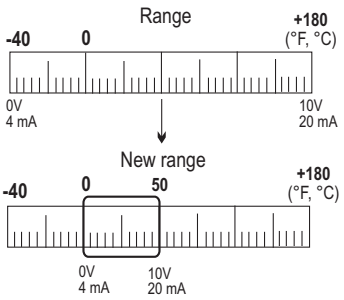
☛ **Via keypad :** only on models with display
A code-locking system combined with keypad guarantees the security of the installation. See configuration manual.

☛ **Via software** (optional) : on all models.
Simple user-friendly configuration. See LCC-300 user manual.

Configurable analog outputs

Configure the range according to your needs: outputs are automatically adjusted to the new measuring range.

Range with center zero (-40/0/+40°F), with offset zero (-30/0/70°F), or standard range (0/100°F) => you can configure your own intermediate ranges according to your needs, between 10% and 100% of the full scale.
The minimum configurable range is 10% of the full scale.



Options

- LCC-300 configuration software with RS 232 cable
- Calibration certificate

Optional accessories

- EHK 500 reference portable instrument
- Mounting brackets
- Sliding fittings
- Connection fittings
- Protection tips
- Caps for tips
- Wall-mounting support bracket for remote humidity probe.

Calibration

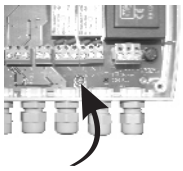
On-site adjusting and calibration :
The EHK 500 is a reference portable instrument which enables you to adjust at one point on the TH 200 and TH 300, by correcting any offset whilst measuring in a single ambient environment, housing both sensing elements. You can also adjust at several points.

Output diagnostics :
With this function, you can check with a multimeter (or a regulator/display, or a PLC/BMS) if the transmitter outputs work properly. The transmitter generates a voltage of 0 V, 5 V and 10 V or a current of 4 mA, 12 mA and 20 mA.

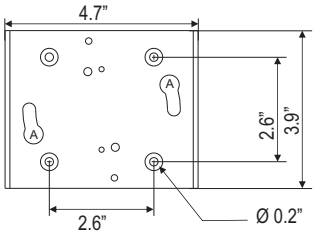
Certificate :
- Class 300 transmitters are supplied with adjusting certificates. Calibration certificates are offered as an option.
- The Smart-Pro humidity probes are supplied with adjusting certificates and can also be supplied with calibration certificates offered as an option.

Mounting

To install the transmitter on a wall: fix the stainless steel plate to the wall (this plate is supplied with the transmitter).
Drill 0.3" holes and mount the plate with the screws and wall-plugs supplied with the transmitter.
Insert the transmitter on the plate (see A on the drawing shown below), by aligning it at 30°. Rotate its housing in clockwise direction until you hear a "click" which confirms that the transmitter is correctly installed. Then, open the housing, lock the clamping system of the housing on the plate, with the screws as shown (to remove the transmitter from the plate, remember to remove the screws first).



316 L stainless steel plate



Maintenance

Avoid aggressive solvents.
Protect the transmitter and probes from any cleaning product containing formol, which may be used for cleaning rooms or ducts.

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