Humidity and Temperature Transmitter User's manual

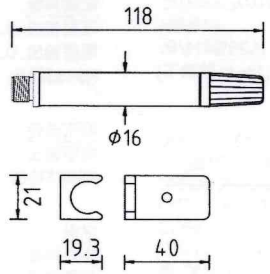
Warning

- If the process temperature is much higher than the environment, it will cause the measuring inaccuracy.
- Do not remove the sensor cover and not touch or wipe the sensing element.
- Do not connect 110V or 220V to the sensor.
- In a stressful environment, be sure to secure the device to avoid a pop-up accident.
- Mount the probe with horizontally for prevent water onto the sensor.
- Do excess the power supply voltage, this may permanently harm the sensor.

Analog output

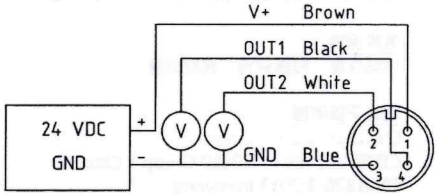
- Analog output with two channels, OUT1 and OUT2.
- RS485 Modbus RTU default setting as ID1, 9600, N81

DIMENSIONS (mm)

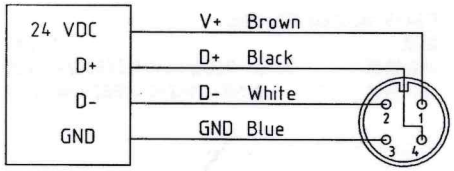


CONNECTION DIAGRAME

Analog output



RS485 output



PHYSICAL QUANTITY OUTPUT RANGE

Item	Metric	Imperial
Temperature T	-40 ... 120 °C	-40... 248 °F
Relative Humidity RH	0 ... 100 %	0 ... 100 %
Dew point Td	-20 ... 100 °C	-4 ... 212 °F
Frost/dew point Tf	-20 ... 100 °C	-4 ... 212 °F
Wet bulb temperature Tw	-40 ... 100 °C	-40 ... 212 °F
Water vapor pressure E	0 ... 1013 mbar	0 ... 14.7 psi
Mixing ratio R	0 ... 30000 g/kg	0 ... 210000 gr/lb
Absolute humidity A	0 ... 550 g/m^3	0 ... 240 gr/ft^3
Enthalpy S	-40 ... 40000 kJ/kg	-10 ... 20000 BTU/lb

TECHNICAL DATA

Humidity

Measurement range	0 ... 100 %RH
Accuracy (including non-linearity, hysteresis, and repeatability)	±1.5/2/3 %RH@25°C (20 ... 80%RH)
Temperature coefficient (from 0°C to 80°C)	typ. ±0.02%RH/°C
Humidity Hysteresis	±1%RH
Long term drift[1]	< 0.25%RH/year
Response time T63[2]	8 second (at 1m/s air flow)

Temperature

Measurement range	-40 ... 120 °C
Accuracy (including non-linearity, hysteresis, and repeatability)	±0.2°C@25°C ±0.7°C (-40 ... 5°C) ±0.3°C (5 ... 60°C) ±0.9°C (60 ... 120°C)
Long term drift[3]	< 0.02°C/year

Analog output (two channels)

Voltage version	0 ... 1 V / 5 V / 10 V
Accuracy of analog outputs at +25 °C	±0.1% full scale
Temperature dependence	±0.005%/°C full scale
External loads voltage output	0 ... 1 V output RL > 2k ohm 0 ... 5 V and 0 ... 10 V outputs RL > 10k ohm

RS485 Modbus RTU

ID	1...247
Baud rate	9600/ 19200/38400/57600/115200
Data format	N81/N82/E81/E82/O81/O82

[1] Typical value for operation in normal RH/T operating range. Max. value is < 0.5%RH/year. Value may be higher in environments with vaporized solvents, outgassing tapes, adhesives, packaging materials, etc.
[2] Time for achieving 63% of a step function, valid at 25°C and 1m/s airflow.
[3] Max. value is < 0.04°C/year.

Psychometric calculations (option)
(Td) dew point temperature, (A) absolute humidity,
(Tf) frost/dew point temperature, (R) mixing ratio,
(S) enthalpy, (Tw) wet bulb temperature,
(E) water vapor pressure

Power supply

Analog output 0...1V	5...28VDC
Analog output 0...5V / 10V	15...28VDC
RS485 output	12...28VDC

Power consume

Voltage version	typ. 3mA
RS485 version	typ. 3mA

Mechanics

Filter material	PC, Polycarbonate
Probe material	brass nickel-plated
Probe pressure	10bar
Housing classification	IP65
Cable	M12 4-pin 2M female

Operation Temperature range
-40 ... 120 °C (-40 ... 248 °F)

Electromagnetic compatibility
EN61326-1:2013 Emission
CISPR11:2009+A1:2010 Group 1 Class B
EN61326-1:2013 Immunity
IEC 61000-4-2:2008
IEC 61000-4-3:2006+A1:2007+A2:2010
IEC 61000-4-8:2009