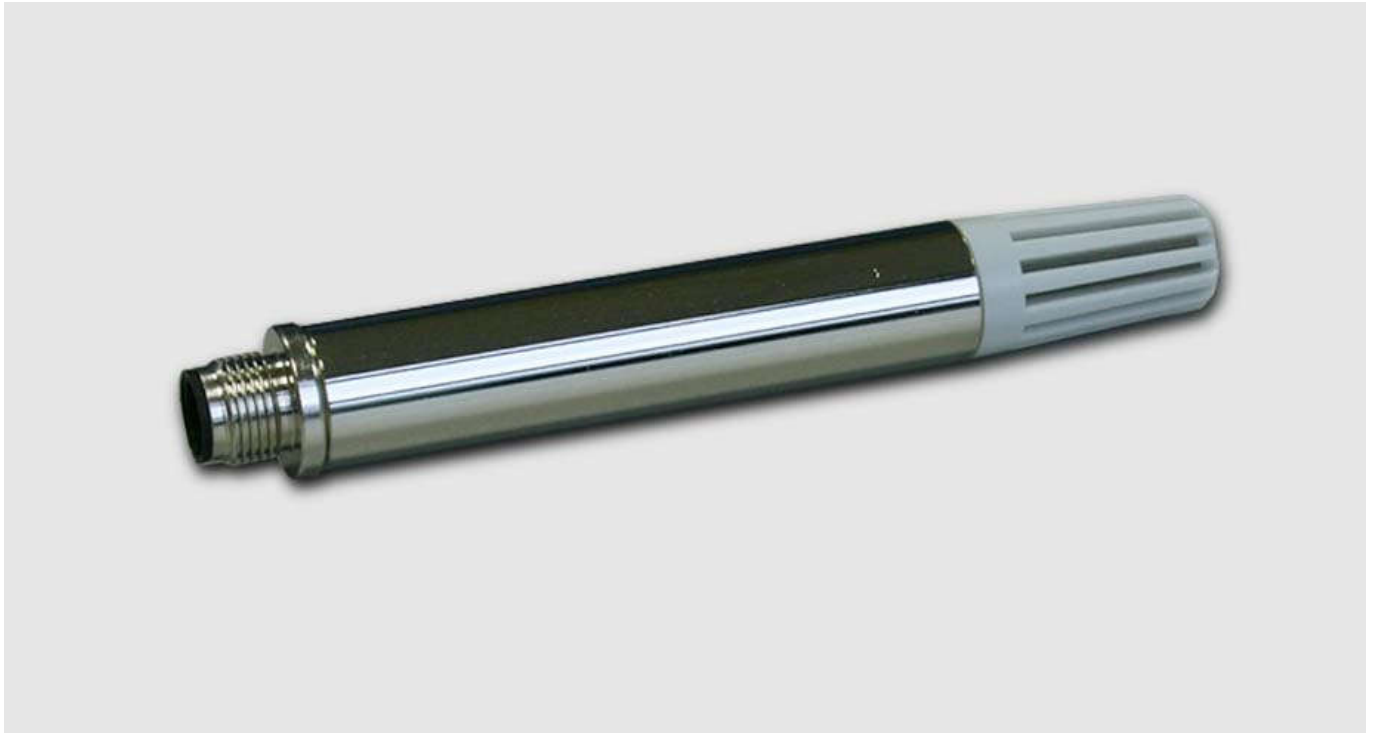


CAEL-S16B/S16/S16A Series Probe Humidity and Temperature Transmitter



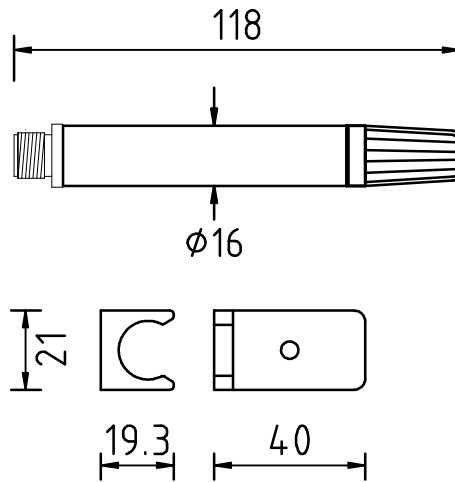
Features

- Metal probe reduce electromagnetic interference
- Interchangeable sensor for rapid maintenance
- 0 ... 100%RH measurement,
- Probe pressure up to 10 bar
- Calculated hygrometric outputs
- Two channel with selectable physical quantity
- Unit support metric or imperial

Applications

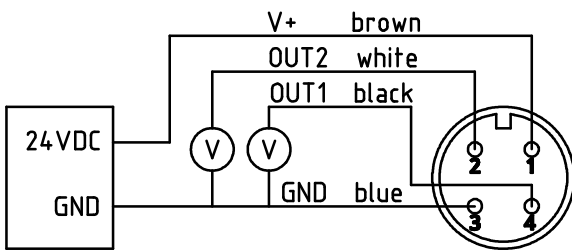
- Semiconductor and microelectronics industry
- Food production and packaging
- Agriculture, farms
- Environmental chambers, drying equipment, spraying equipment
- Greenhouse, storage room, cooling chamber
- HVAC

Dimensions (mm)

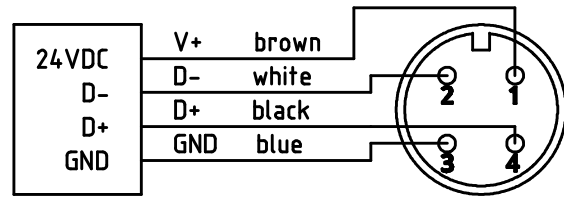


Connection Diagrams

0...10V output



RS485 output



Physical Quantity Output Range

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

Technical Data

Humidity

Measurement range 0 ... 100 %RH
Accuracy (including non-linearity, hysteresis, and repeatability)

CAEL-S16A ±1.5%RH@25°C (20 ... 80%RH)
±2%RH@25°C (0 ... 20/80 ... 100%RH)

CAEL-S16 ±2%RH@25°C (20 ... 80%RH)
±3%RH@25°C (0 ... 20/80 ... 100%RH)

CAEL-S16B ±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 drift¹ < 0.25%RH/year

Response time T63² 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 drift³ < 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 RL > 10k ohm

RS485 Modbus RTU

ID 1...247

Baud rate 9600/19200/38400/57600/115200

Data format N81/N82/E81/E82/O81/O82

Psychrometrics (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 (25 °C, V+ 24 VDC)

Analog output typ. 3mA

RS485 output 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

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.

Ordering Guide

Model	Output	Temperature Scale	Psychrometrics (Option)
CAEL-S16A	0 ... 10V	0 ... 50°C	Yes
CAEL-S16	0 ... 5V	0 ... 100°C	No
CAEL-S16B	0 ... 1V	By order	
	RS485	None	

Example

CAEL-S16-31M

Humidity accuracy: $\pm 2\%RH$ (20...80%RH) **S16**
 Output: 0 ... 10V **3**
 Temperature Scale: 0 ... 50°C **1**
 Option - Psychrometric calculations: Yes **M**

Accessories

SA020002 Stainless steel sintered, pores size: 30 μ m		SA020401 NPT 1/2" stainless steel sample block, with NPT 1/4" inlet & outlet ports	
SA020004 Stainless steel mesh, pores size: 75 μ m		SA020201 NPT 1/2" Stainless steel fitting	
SA020003 Probe adapter from 16mm to 12mm		SA010001 M12 4-pin 5M female cable	

