SensorsX

SX-THHD Series

Temperature and Humidity Transmitter



IP65	Dual 4–20 mA	−40 to +85 °C
Ingress protection	Two-wire outputs	Ambient operation

■ OVERVIEW

The SX-THHD Series measures relative humidity and temperature in industrial applications. It features an IP65-rated enclosure and two 4–20 mA current-loop outputs, one for humidity and one for temperature. Wall, duct, remote-probe and DIN-rail mounting options are available, together with standard and high-precision sensor options, an optional LCD and PC-based configuration.



■ FEATURES

- ◆ IP65 compact enclosure with Ø15 mm probe
- ◆ Dual 4–20 mA, two-wire analog outputs
- ◆ Standard and high-precision sensing options
- ◆ Optional LCD display and Ex ia configuration
- ◆ Low-power circuit design for reduced self-heating and improved stability
- ◆ Configuration through a PC-based tool

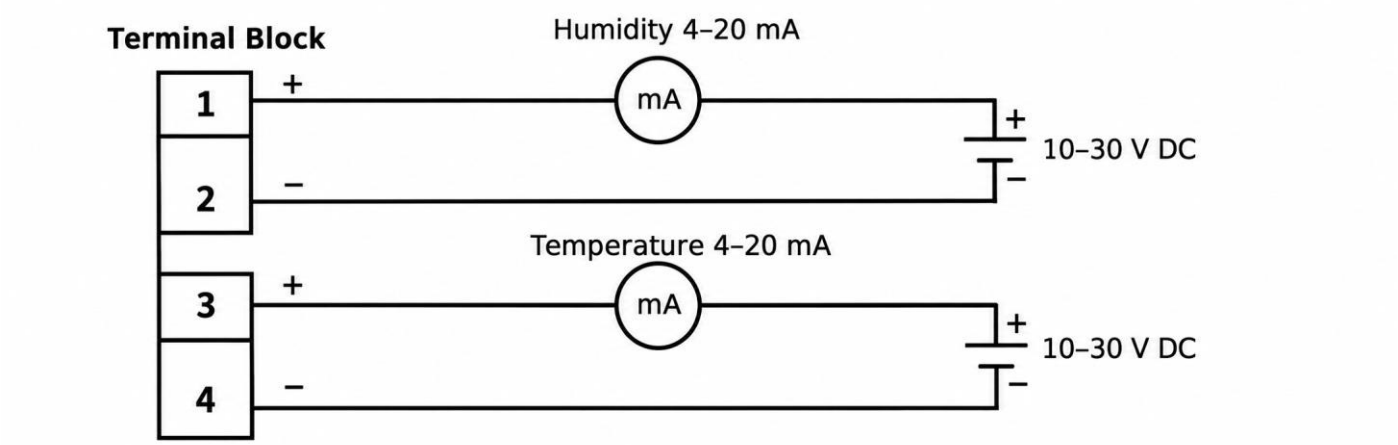
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■ TYPICAL APPLICATIONS

Application Fields

- Industrial process monitoring and control
- Industrial drying and humidification
- Electronics production environments
- Meteorological monitoring and environmental test chambers
- Food and pharmaceutical facilities
- Cleanrooms, cultivation rooms, and incubators
- Storage and cold rooms
- HVAC and building control
- Municipal utility tunnels
- Agriculture, greenhouses, and indoor pool facilities

■ ELECTRICAL CONNECTIONS

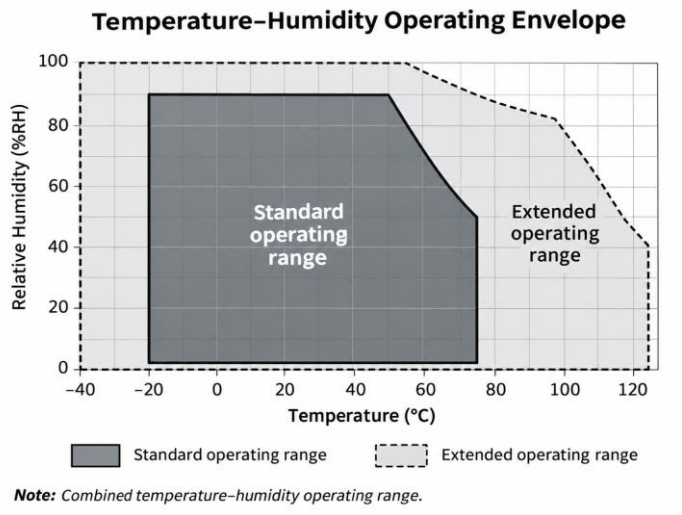


Terminal	Function
1	Humidity loop +
2	Humidity loop −
3	Temperature loop +
4	Temperature loop −

Each channel: 10–30 V DC supply, 4–20 mA two-wire current-loop output.

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■ OPERATING ENVELOPE



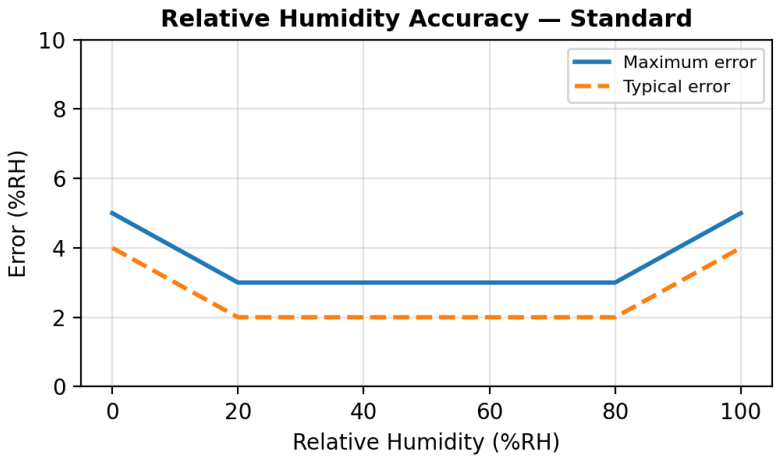
Note: *Combined temperature–humidity operating range.*

Continuous operation outside the standard operating range may temporarily increase the relative humidity measurement error, particularly at relative humidity levels above 80% RH. Measurement accuracy will recover after the sensor returns to the standard operating range. Recovery may be slower following exposure to high-temperature and high-humidity conditions.

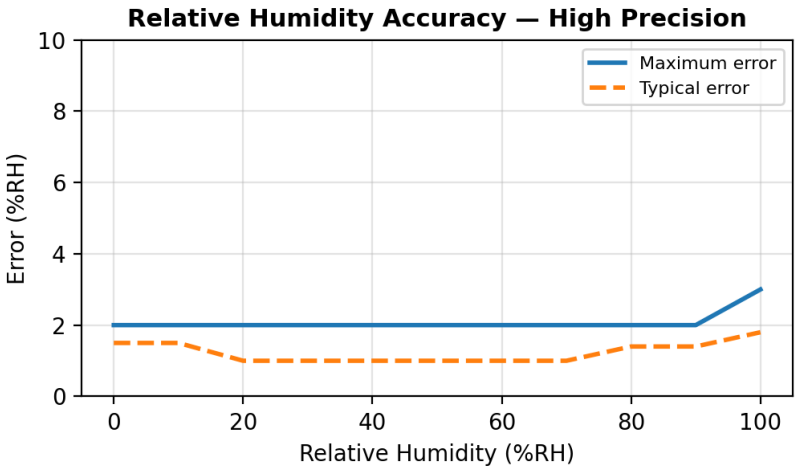
■ MEASUREMENT PERFORMANCE

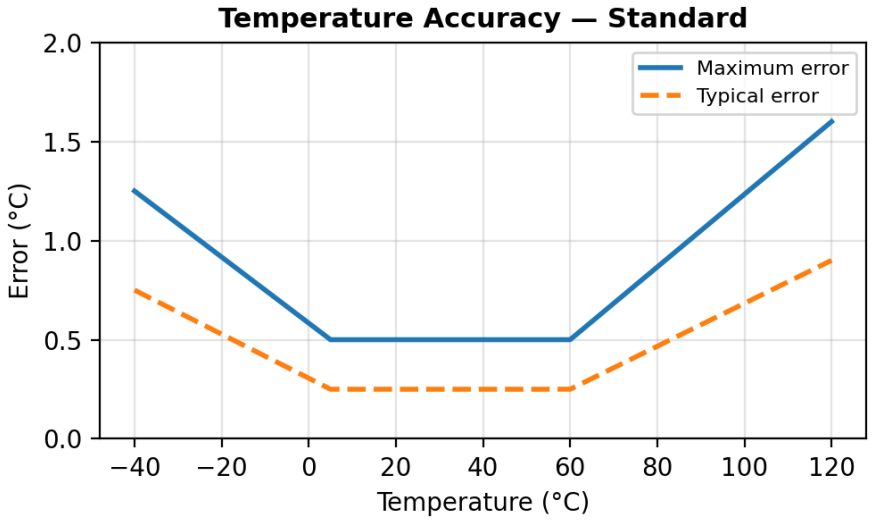
Measurement	Standard	High Precision
Relative humidity range	0–100% RH	0–100% RH
Humidity accuracy	±2% RH at 20–80% RH	±1% RH at 20–70% RH
Temperature accuracy	±0.3 °C	±0.1 °C
Temperature Range of Combined T/RH Sensor	−40 to +125 °C	−40 to +125 °C
Temperature Measurement Error	±0.3 °C at 5–60 °C	±0.1 °C at 5–60 °C

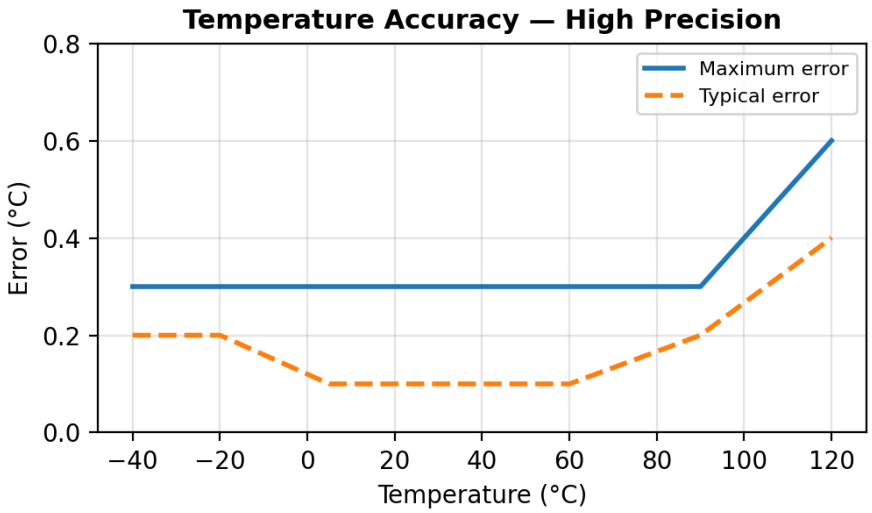
Typical and maximum relative humidity errors at 25 °C.



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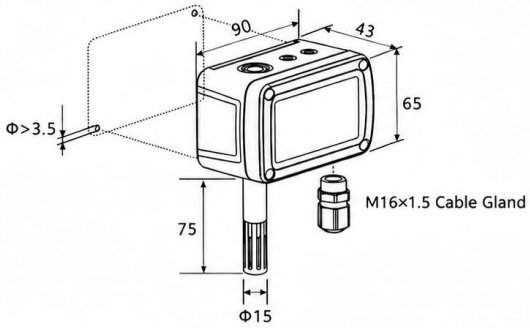
■ TECHNICAL DATA

EMC & Immunity	
Applicable EMC standards	EN 61326-1; EN 61326-2-3 — industrial environment
Burst immunity	Level 2
Output & Wiring	
Analog outputs	Two 4–20 mA, two-wire channels
Load resistance	$R_l \leq 750\ \Omega$ at 24 V
Fault indication	Output ≤ 3.6 mA or ≥ 21.5 mA
Maximum load	$(V_s - 10\ V) / 0.025\ A$
Current limit	≤ 25 mA
Terminal capacity	Maximum 1.5 mm²
Cable gland	M16 × 1.5
Power	
Supply voltage	10–30 V DC
Stability & Drift	
Temperature drift	0.008% FS/°C
Long-term stability	0.05%/year or ≤ 0.1 °C/year
Mechanical & Environmental	
Enclosure material	PC
Ingress protection	IP65
Operating environment	−40 to +85 °C; 0–95% RH, non-condensing
Storage environment	−40 to +85 °C; 20–80% RH

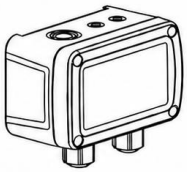
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■ PRODUCT DIMENSIONS AND INSTALLATION

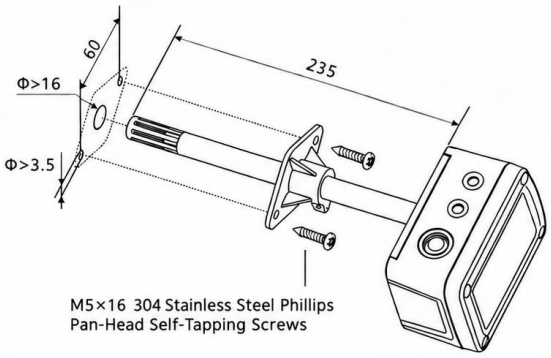
Wall Mounting



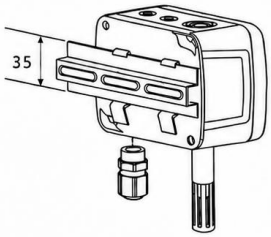
Remote Mounting



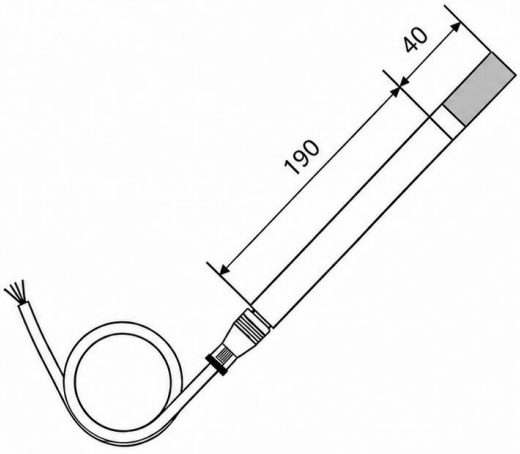
Duct Mounting



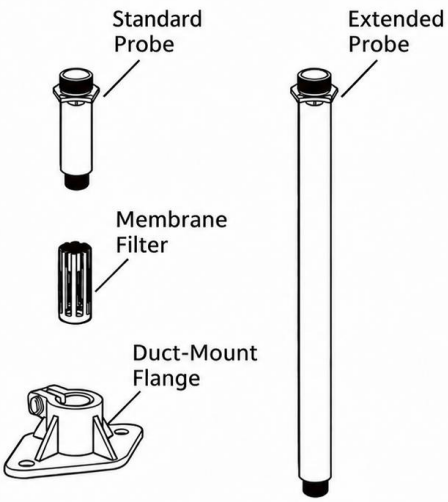
DIN-Rail Mounting



Remote Probe (SX-THRD)



Optional Accessories



All dimensions are in millimeters

Accessories include a configuration adapter, configuration software, a nylon cable gland （M16 × 1.5）, a duct mounting flange, an extended probe, a membrane filter, a wall-mount bracket, and remote probes in plastic or metal versions.

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■ ORDER INFORMATION- Temperature and Humidity Transmitter

Ordering Code Example: SX-THHD-A01110110

This example represents a wall-mounted transmitter with a 0 to +50 °C temperature range, standard temperature sensing accuracy (±0.3 °C), a 0–100% RH measurement range, standard humidity accuracy, dual 4–20 mA outputs, an LCD display, and no explosion protection.

Please confirm the final configuration and ordering code before placing an order.

Model Number	
SX-THHD	
Installation	
A	Wall mount
B	Duct mount
C	Remote mount
D	DIN-rail mount
Temperature Range	
01	0 to +50 °C
02	0 to +100 °C
03	−40 to +60 °C
04	−10 to +50 °C
05	−20 to +80 °C
06	−40 to +80 °C
07	−40 to +125 °C
Sensor Type	
1	Standard, ±0.3 °C
2	High precision, ±0.1 °C
3	Capacitive Sensor
Humidity Range	
1	0–100% RH
Humidity Accuracy	
0	Standard
Output	
1	4–20 mA
Display	
0	Without display (−40 to +85 °C ambient)
1	LCD (−20 to +70 °C ambient)
Explosion Protection	
0	Without
1	Intrinsically safe, Ex ia
Customized Information	
D	Optional configuration - specify requirements when ordering.

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■ ORDER INFORMATION- REMOTE PROBE

Model Number	
SX-THRD	
Probe Shaft	
2	Engineering Plastic Shaft
6	Metal Shaft
Filter	
PC	PE Membrane Filter
PS	Sintered Stainless Steel Filter
Connection Cable	
C2	Standard: 2 m PUR cable, −20 to +80 °C
H2	Shielded: 2 m PUR cable, −40 to +125 °C
Customized Information	
D	Optional configuration - specify requirements when ordering.

Notes:

For remote-mount configurations, order the remote probe separately (SX-THRD).

The default humidity measurement range is 0–100% RH.

The default fault alarm is low-current; special alarm behavior can be requested.

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