S15S IO-Link Temperature, Humidity, and Dew Point Sensor Product Manual

Features

The temperature, humidity, and dew point sensor works in a variety of environments to provide temperature, humidity, and dew point measurements via IO-Link.

- Temperature, humidity, and dew point monitoring in one device
- Rugged over-molded design
- Ships with aluminum grill filter cap
- Optional stainless steel 10 µm sintered filter available separately
- Continuous process data values for temperature, humidity, and dew point
- Ideal for tracking ambient conditions in critical applications
- IO-Link interface for configuration and communication
- Process data profiles available for Smart Sensor and floating point formats for both Fahrenheit and Celsius
- Configurable high and low thresholds for discrete output

Models

Model Number	Function	Control	Connectors
S15S-TH-KQ	Female connector: Temperature, humidity, and dew point sensor	Male connector: IO-Link	Integral 4-pin M12 male/female quick-disconnect connectors

IO-Link®

IO-Link® is a point-to-point communication link between a master device and a sensor and/or light. It can be used to automatically parameterize sensors or lights and to transmit process data. For the latest IO-Link protocol and specifications, please visit www.io-link.com.

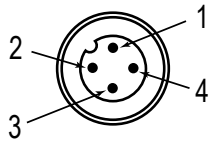
For the latest IODD files, please refer to the Banner Engineering Corp website at: www.bannerengineering.com.

Configuration

The measured sensor values are available via Process Data In.

For more information, see Banner P/N 242289 *S15S IO-Link Temperature, Humidity, and Dew Point Sensor - IO-Link Data Reference Guide* and Banner P/N 242291 *S15S-TH-KQ IO-Link IODD*.

Wiring Diagrams

Male (IO-Link Master)	Pin	Wire Color	Signal Description
	1	Brown	18 V DC to 30 V DC
	2	White	Discrete (OUT)
	3	Blue	Ground
	4	Black	IO-Link

Status Indicators

Power LED Indicator (Green)

- Solid Green = Power On
- Off = Power Off

IO-Link Communication LED Indicator (Amber)

- Flashing Amber (900 ms On, 100 ms Off) = IO-Link communications are active
- Off = IO-Link communications are not present

Sensor Value Communication LED Indicator (Amber)

- Solid Amber = Temperature, humidity, and dew point sensor values are between the low threshold and the high threshold.
- Off = Temperature, humidity, or dew point sensor values are less than the low threshold OR greater than the high threshold.
- Default Values for Temperature (Configurable):
  - Low Threshold = 0 °C (32 °F)
  - High Threshold = 49 °C (120 °F)
- Default Values for Humidity (Configurable):
  - Low Threshold = 0%

Original Instructions
04-Nov-24

242208
p/n: 242208 Rev. B

    - High Threshold = 100%
- Default Values for Dew Point (Configurable):
    - Low Threshold = 0 °C (32 °F)
    - High Threshold = 49 °C (120 °F)

S15S Specifications

Supply Voltage
18 V DC to 30 V DC at 50 mA maximum

Power Pass-Through Current
1 A maximum

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Leakage Current Immunity
400 µA

Resolution
14-bits

Indicators
Green LED: Power
Amber LED 1: IO-Link communications active
Amber LED 2: Analog value present

Connections
Integral 4-pin M12 male/female quick-disconnect connectors

Construction
Coupling Material: Nickel-plated brass
Connector Body: PVC translucent black

Temperature and/or Humidity Input
Sample Rate: 3 seconds

Humidity
Measuring Range: 0 to 100% relative humidity (RH)
Resolution: 0.1% RH
Accuracy:
± 3% at 0 °C to +70 °C (+32 °F to +158 °F) and 10% to 90% RH
± 7% at 0 °C to +70 °C (+32 °F to +158 °F), and 0% to 10% or 90% to 100% RH

Temperature
Measuring Range: –40 °C to +85 °C (–40 °F to +185 °F)
Resolution: 0.1 °C (32.18 °F)
Accuracy:
-40 °C to 0 °C (-40 °F to +32 °F): ± 0.8 °C (± 1.5 °F)
0 °C to +60 °C (+32 °F to +140 °F): ± 0.7 °C (± 1 °F)
+60 °C to +85 °C (+140 °F to +185 °F): ± 1.3 °C (± 2.2 °F)

Operating Conditions
Temperature: –40 °C to +70 °C (–40 °F to +158 °F)
90% at +70 °C maximum relative humidity (non-condensing)
Storage Temperature: –40 °C to +80 °C (–40 °F to +176 °F)

Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.
Supply wiring leads < 24 AWG shall not be spliced.
For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	1.0	30	0.5

Certifications

Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

Product Identification

FCC Part 15 Class B for Unintentional Radiators

(Part 15.105(b)) This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

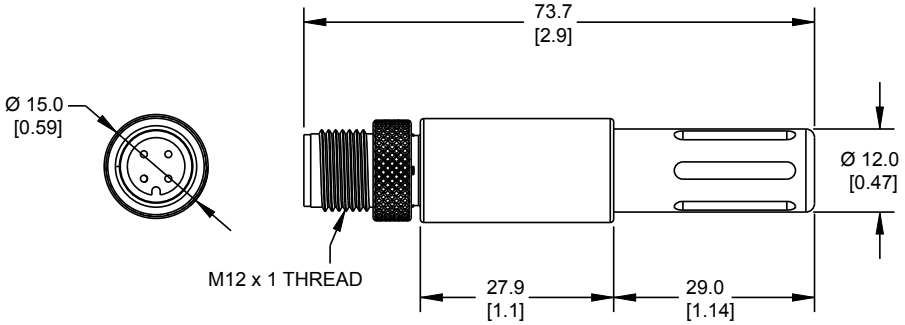
Industry Canada ICES-003(B)

This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.

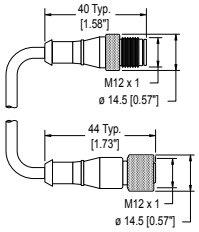
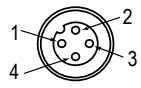
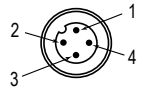


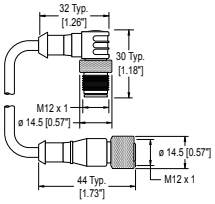
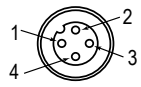
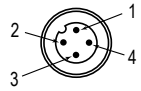
S15S Accessories

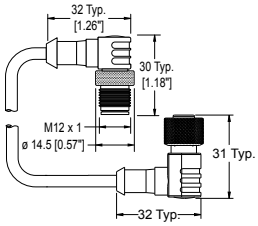
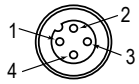
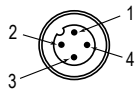
Temperature-Humidity Filter Caps

FTH-FIL-001 • Aluminum grill filter cap • Factory default, ships with the S15S-TH*Q, M12FT*Q, and Q45 All-in-One sensors		**FTH-FIL-002** • Stainless steel • Sintered to 40-micrometer porosity (for high dust environments.)	

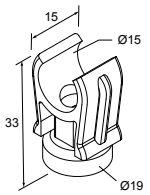
Cordsets

4-pin A-Code Double-Ended M12 Female to M12 Male Cordsets				
Model	**Length**	**Dimensions (mm)**	**Pinouts**	
BC-M12F4-M12M4-22-1	1 m (3.28 ft)		Female  Male 	1 = Brown 2 = White 3 = Blue 4 = Black
BC-M12F4-M12M4-22-2	2 m (6.56 ft)			
BC-M12F4-M12M4-22-5	5 m (16.4 ft)			
BC-M12F4-M12M4-22-8	8 m (26.25 ft)			
BC-M12F4-M12M4-22-10	10 m (30.81 ft)			
BC-M12F4-M12M4-22-15	15 m (49.2 ft)			

4-pin A-Code Double-Ended M12 Female to M12 Male Right-Angle Cordsets				
Model	**Length**	**Dimensions (mm)**	**Pinouts**	
BC-M12F4-M12M4A-22-1	1 m (3.28 ft)		Female  Male 	1 = Brown 2 = White 3 = Blue 4 = Black
BC-M12F4-M12M4A-22-2	2 m (6.56 ft)			
BC-M12F4-M12M4A-22-5	5 m (16.4 ft)			
BC-M12F4-M12M4A-22-8	8 m (26.25 ft)			
BC-M12F4-M12M4A-22-10	10 m (30.81 ft)			
BC-M12F4-M12M4A-22-15	15 m (49.2 ft)			

4-pin A-Code Double-Ended M12 Female Right-Angle to M12 Male Right-Angle Cordsets				
Model	**Length**	**Dimensions (mm)**	**Pinouts**	
BC-M12F4A-M12M4A-22-0.3	0.3 m (1 ft)		Female  Male 	1 = Brown 2 = White 3 = Blue 4 = Black
BC-M12F4A-M12M4A-22-1	1 m (3.28 ft)			
BC-M12F4A-M12M4A-22-2	2 m (6.56 ft)			
BC-M12F4A-M12M4A-22-5	5 m (16.4 ft)			
BC-M12F4A-M12M4A-22-8	8 m (26.25 ft)			
BC-M12F4A-M12M4A-22-10	10 m (30.81 ft)			
BC-M12F4A-M12M4A-22-15	15 m (49.2 ft)			

Bracket

LMBS15MAG • Attaches to S15 housing • White polypropylene • 11.8 kg (26 lb) pull force • One piece	

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