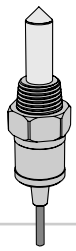
S24 Dew Point Sensor

Features

The S24 Dew Point Sensor monitors compressed air quality to help prevent damage to equipment and manufactured goods.



- Monitors dew point, humidity, and temperature in a compressed air system
- Stainless steel housing with an integrated 1/2 NPT process connection
- Provides serial data output for use in a control system
- Installs in the main distribution line or downstream line

Models

Model	Function	Connector
S24AS-D-MQP	Dew point sensor with Modbus	Process connection: One 1/2" Male NPT 12-inch cable with a molded 4-pin M12 quick disconnect connector

Configuration Instructions

Sensor Configuration Software

The Sensor Configuration Software offers an easy way to manage the sensor Modbus settings, retrieve data, and visually show sensor data. The Sensor Configuration Software runs on any Windows machine and uses an adapter cable (BWA-UCT-900, p/n 19970) to connect the sensor to the computer.

Download the most recent version of the Sensor Configuration Software from the Banner Engineering website: https://info.bannerengineering.com/cs/groups/public/documents/software/b_3128586.exe.

Modbus Registers

Sensor Data - Read Only

Sensor Address	Description	I/O Range		Holding Register Registration	
		Min Value	Max Value	Min (Dec)	Max (Dec)
40001	Humidity (%RH)	0	100%	0	10000
40002	Temperature (°C)	-1638.4	1638.3	-32768	32767
40003	Temperature (°F)				
40004	Dew Point (°C)				
40005	Dew Point (°F)				

The temperature = (Modbus register value) ÷ 20. The humidity = (Holding register value) ÷ 100. The dew point = (Holding register value) ÷ 100.

COMs Settings

Sensor Address	Description	I/O Range	Comments	Default	Access
40601	Baud Rate	0 = 9.6k 1 = 19.2k 2 = 38.4k	0 = 9600 1 = 19200 2 = 38400	1	RW
40602	Parity	0 = None 1 = Odd 2 = Even	0 = None 1 = Odd 2 = Even	0	RW
40603	Address	1-254	-	1	RW
40605	Restore Factory Configuration	0 = No Operation, 1 = Restore	-	-	WO

Device Information

Sensor Address	Description	I/O Range	Comments	Default	Access
40606-40615	Banner Name	0-65535	-	Banner Engineering	RO
40616-40631	Product Name	0-65535	-	S24AS-D-MQP	RO
40632	Item H	0-65535	814716 split into two registers	12	RO

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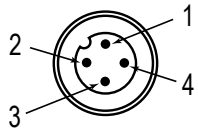
Sensor Address	Description	I/O Range	Comments	Default	Access
40633	Item L	0-65535		28284	RO
40634	Serial Number 1 (H)	0-65535	-	-	RO
40635	Serial Number 2	0-65535	-	-	RO
40636	Serial Number 3	0-65535	-	-	RO
40637	Serial Number 4 (L)	0-65535	-	-	RO
40644-40659	User Define Tag	0-65535	User writable space	More Sensors. More Solutions.	RW

S24 Installation Best Practices

The sensor can be installed directly into a pressurized air pipe using the integrated pipe fitting to secure and seal the connection.

- Install the sensor in a vertical or horizontal pipe
- Install the sensor in the top of a horizontal pipe to prevent liquid accumulation
- Verify the probe tip is exposed to the air stream for a proper reading
- Avoid mounting the sensor in a dead-end where airflow can be stagnant

Wiring Diagrams

4-Pin Male M12 Quick Disconnect Connector	Pin	Wire Color	Sensor Connection
	1	Brown	10 V DC to 30 V DC
	2	White	RS485/D1/B/+
	3	Blue	Ground (-)
	4	Black	RS485/D0/A/-

Specifications

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

Supply Current
Active Comms at 30 V DC: 4.5 mA

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Indicators
Green LED: Power
Amber LED (Flashing): Modbus communications active

Connections
12-inch cable with a 4-pin M12 quick disconnect connector

Construction
Housing: 316L Stainless Steel
Coupling: Nickel-plated brass
Process connection: 1/2" Male NPT
Strain relief: PVC

Vibration and Mechanical Shock
Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 0.5 mm amplitude, 5 minutes sweep, 30 minutes dwell)
Meets IEC 60068-2-27 requirements (Shock: 15G 11 ms duration, half sine wave)

Environmental Rating at M12 Connection
IP65, IP67, IP68

Temperature and/or Humidity Input
Sample Rate: 3 seconds

Dew Point
Measuring Range: -116 °C to 85 °C (-176 °F to 185 °F)
Resolution: 0.1 °C (0.18 °F)
Accuracy:
- ±4.5 °C (20-90% RH)
- ±7 °C (10-20% RH)

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)
Storage Temperature: –40 °C to +80 °C (–40 °F to +176 °F)
Operating Pressure: 1 to 13 bar (14.5 to 188 PSIG)
Permissible Over Pressure: 27.58 bar (400 PSIG)

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

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Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
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

SNAP SIGNAL®

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.

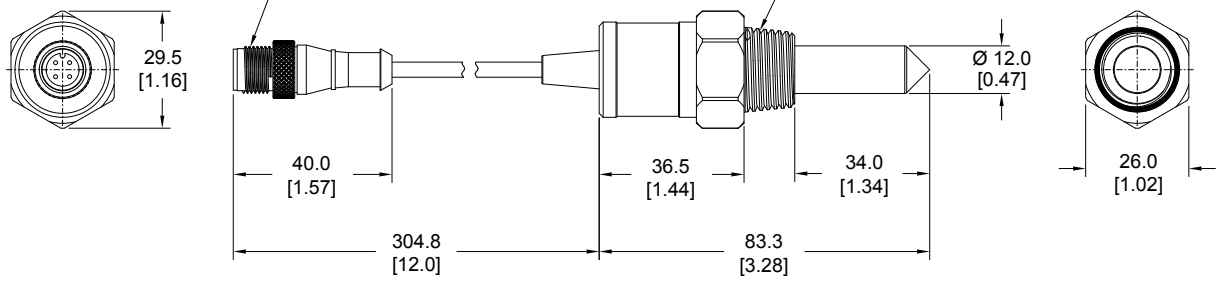
Industry Canada ICES-003(B)

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

S24 Dimensions

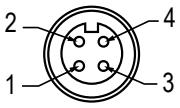


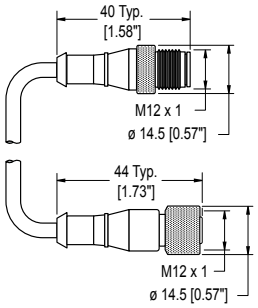
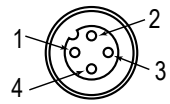
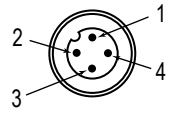
Accessories

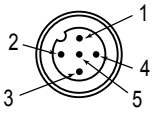
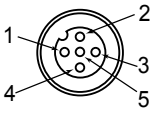
Replacement filters:

FTH-FIL-002 Stainless steel, sintered to 40 micrometer porosity (for high dust environments.)	

Cordsets

4-Pin M12 Female RS-485 to USB Adapter Cordset, with Wall Plug				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**
BWA-UCT-900	1 m (3.28 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black

4-Pin Double-Ended M12 Female to M12 Male Cordsets				
Model	**Length**	**Style**	**Dimensions**	**Pinout**
MQDEC-401SS	0.31 m (1 ft)	Male Straight/Female Straight		Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black
MQDEC-403SS	0.91 m (2.99 ft)			
MQDEC-406SS	1.83 m (6 ft)			
MQDEC-412SS	3.66 m (12 ft)			
MQDEC-415SS	4.58 m (15 ft)			
MQDEC-420SS	6.10 m (20 ft)			
MQDEC-430SS	9.14 m (30.2 ft)			
MQDEC-450SS	15.2 m (49.9 ft)			

5-Pin M12 Female to M12 Male Splitter Tee			
Model		**Pinout (Male)**	**Pinout (Female)**
CSB-M1250M1250-T • Two 5-pin M12 female quick-disconnect connectors • One 5-pin M12 male quick-disconnect connector • Parallel wiring		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray	 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray

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