



SB110-AI

Wireless 2-Channel Analog Input

The SB110-AI family connects sensor devices with analog interfaces without the expense and hassle of cabling. Its integrated low power IEEE 802.15.4 transceiver provides long battery life and seamless wireless connectivity in hard to reach areas, where portability is essential, or in locations where running cables is inconvenient or not cost-effective. Enabled by our industrial-grade mesh networking protocol, the SB110-AI family provides highly reliable performance even in harsh environments to ensure delivery of critical measurements.

The two integrated analog input channels are configurable and rely on a 12-bit ADC for accurate conversion of the analog data. When activated, the SB110-AI adapter will automatically sample, log and transmit these readings in user-configurable intervals. Bi-directional communication is also supported, allowing the module to be wirelessly controlled and re-configured. In addition, the SB110-AI features an internal DS75 temperature sensor.

SB110-AI nodes are available with a choice of enclosure ratings, antenna types and operating temperature ranges to suit most applications. In addition to its packaged products, Wireless Sensors also offers a functionally equivalent OEM module for integration in custom designs.



Antenna type ¹	External	External	-
Antenna connector	Reverse-SMA	Reverse-SMA	Hirose U.FL
Enclosure rating	IP65	IP54	OEM module
Dimensions ²	98 x 64 x 38 mm (3.9 x 2.5 x 1.5")	98 x 64 x 38 mm (3.9 x 2.5 x 1.5")	72 x 53 x 35 mm (2.8 x 2.1 x 1.4")
Weight ³	160 grams (5.6 oz)	160 grams (5.6 oz)	35 grams (1.2 oz)
Operating temperature range	-20°C to +65°C ⁴	-20°C to +65°C ⁴	-40°C to +85°C
Order code	SB110-AI-E65	SB110-AI-E54	SB110-AI-O

¹ Internal antenna available on request

² Excluding antenna

³ Weight specifications of IP54 and IP65 include weight of batteries. Subtract 40 grams (1.4 oz) for weight of the product when externally powered

⁴ -40°C to +85°C available on request

Features and Benefits

- Integrated analog signal conditioning for direct connection to sensors
- Nodes can be line powered or run on batteries, with a battery life of multiple years
- Self-forming, self-healing mesh network for maximum resilience and ease of deployment
- Up to 90% installation and commissioning cost savings over traditional cable-based solutions
- Time synchronization of all nodes assures accurate time stamping of individual measurements
- Embedded software provides autonomous data logging and reporting, triggers/alarms, battery condition monitoring, over-the-air configuration, firmware upgrades, and many other advanced capabilities

Specifications

Wireless		General	
Radio type	IEEE 802.15.4 compliant	Sample rate (max.)	1 kHz
Frequency band	2.4 GHz	Scan cycle (typical)	10 s - 1 day
Standby current	20 µA	Scan cycle (min.)	100 ms
Active measurement current	2 mA	ADC resolution	12-bit
Transmit current	55 mA	Accuracy	±0.1 % of maximum range
Receive current	50 mA	Power source	2 x AA batteries (3,000 mAh) or external 12 - 24 VDC
Node-to-node hops (max.)	3 ⁵	Data log buffer	98 readings
Line of sight range (max.)	250 m (820') node-to-node ⁶	Terminal cross-section	0.5 mm ² - 1.5 mm ²
In-building range (typical)	70 m (230') node-to-node	Input	
Receiver sensitivity	-92 dBm	Interfaces	2 x 0-20 mA, 4-20 mA, 0-2 V, 0-10 V ⁷
Output power (max.)	2 dBm	Input resistance 0-20 mA	<100 Ω at 20 mA
Output power (typical)	0 dBm	Input resistance 0-10 V	>12.5 MΩ
Certifications		ADC linearity	± 2%
EMC noise immunity	According to DIN-EN300328, DIN-EN50371	Integration time	ca. 5 ms
EMC compatibility	According to DIN-EN60950	Settling time	<10 µs
Certifications	R/TTE, DIN-EN301489-1, DIN-EN301489-1, CE authorized for use in Europe	Conversion time	7.5 µs

⁵ Extendable to up to 5 hops

⁶ Extendable to up to 2 km (6,500')

⁷ 0 - 10 V possible only when externally powered

Complementary Products and Accessories

A Gateway device is required to establish and manage the wireless mesh network and to provide connectivity to backend systems and is specified separately.

Accessory	Order Code	Accessory	Order Code
Antenna extension cable, 10 cm (4")	ACC-RC-S-10	2 dB dipole antenna, IP54	ACC-AT-S-54
Antenna extension cable, 1 m (3')	ACC-RC-S-100	2 dB dipole antenna, IP65	ACC-AT-S-65
Antenna extension cable, 3 m (10')	ACC-RC-S-300	Battery pack, 3,000 mAh	ACC-BP-S
		External power adapter	ACC-PS-SB

. Specifications are subject to change without notice.



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