



E-Senza[®]
Technologies

SenzaBlock SB110-IO

Wireless Adapter with 2-Channel Digital Input/Output

The SenzaBlock SB110-IO family connects digital sensors, meters, and actuators 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, when portability is essential, or in locations where running cables is inconvenient or not cost-effective. Enabled by our industrial-grade SenzaNET mesh networking protocol, the SB110-IO family provides highly reliable performance even in harsh environments to ensure delivery of critical measurements and commands.

In addition to two integrated pulse/digital input and digital output channels, the SB110-IO features an internal DS75 temperature sensor. When activated, the SB110-IO adapter will automatically sample, log and transmit sensor readings in user-configurable intervals. The end-to-end latency of wireless transmissions is low and predictable, due to time synchronization of all nodes and employment of a TDMA scheme. Furthermore, the adapter itself can be wirelessly controlled and re-configured.

SB110-IO 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, E-Senza also offers a functionally equivalent OEM module for integration in custom designs.



Antenna type	External	External	Internal	-
Antenna connector	Reverse-SMA	Reverse-SMA	-	Hirose U.FL
Enclosure rating	IP65	IP54	IP65	OEM module
Dimensions ¹	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")	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 ²	160 grams (5.6 oz)	160 grams (5.6 oz)	160 grams (5.6 oz)	35 grams (1.2 oz)
Operating temperature range	-20°C to +65°C ³	-20°C to +65°C ³	-20°C to +65°C ³	-40°C to +85°C
Order code	SB110-IO-E65	SB110-IO-E54	SB110-IO-I	SB110-IO-O

¹ Excluding antenna

² Weight specifications of IP54 and IP65 include weight of batteries. Subtract 40 grams (1.4 oz) for weight of the product when externally powered

³ -40°C to +85°C available on request

Features and Benefits

- Integrated pulse/digital interfaces for direct connection to sensors, meters, and actuators
- Up to 90% installation and commissioning cost savings over traditional cable-based solutions
- Embedded software provides data logging and reporting, triggers/alarms, battery monitoring, over-the-air configuration, firmware upgrades, and many other advanced capabilities

Specifications

Wireless		General	
Radio type	IEEE 802.15.4 compliant	Input interfaces	2 x digital, pulse S0
Frequency band	2.4 GHz	Output interfaces	2 x digital
Standby current	20 µA	Sample rate (max.)	1 kHz
Active measurement current	2 mA	Scan cycle (typical)	10 s - 1 day
Transmit current	55 mA	Scan cycle (min.)	100 ms
Receive current	50 mA	Power source	2 x AA batteries (3,000 mAh) or external 12 - 24 VDC
Node-to-node hops (max.)	3 ⁴	Data log buffer	98 readings
Line of sight range (max.)	250 m (820') node-to-node ⁵	Terminal cross-section	0.5 mm ² - 1.5 mm ²
In-building range (typical)	70 m (230') node-to-node	Pulse Input	
Receiver sensitivity	-92 dBm	Signal voltage (low)	0 - 1.2 VDC
Output power (max.)	2 dBm	Signal voltage (high)	2.4 - 60 VDC
Output power (typical)	0 dBm	Input current (max.)	50 mA
Certifications		Isolation resistance	>1 MΩ
EMC noise immunity	According to DIN-EN300328, DIN-EN50371	Input pulse duration (min.)	1 ms
EMC compatibility	According to DIN-EN60950	Input pulse pause (min.)	80 ms
Certifications	R/TTE, DIN-EN301489-1, DIN-EN301489-1, CE authorized for use in Europe	Edge detection	Falling edge
Digital Output		Pulse counter	Internal, reset via software
Signal voltage (low)	<0.2 V	Digital Input	
Signal voltage (high)	>Vcc-0.2 V to 60 V	Signal voltage (low)	0 - 1.2 VDC
Load	Resistive	Signal voltage (high)	2.4 - 60 VDC
Switching frequency (max.)	Heartbeat	Input current (max.)	50 mA
Output current (max.)	500 mA	Input resistance	>1 MΩ

⁴ Extendable to up to 5 hops

⁵ Extendable to up to 2 km (6,500')

Complementary E-Senza Products and Accessories

A SenzaCoordinator or SenzaGate device is required to establish and manage the wireless mesh network and to provide connectivity to backend systems.

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