



E-Senza®
Technologies

Leveraging Power of Wireless®

SenzaBlock SB110-T

Wireless Sensor with PT100

The SenzaBlock SB110-T family connects PT100 temperature sensors 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 family provides highly reliable performance even in harsh environments to ensure delivery of critical temperature measurements.

The integrated PT100 interface incorporates a 24-bit ADC for accurate conversion of the PT100 ohmic resistance value into temperature data, in accordance with the DIN EN60751 standard. When activated, the SB110-T adapter will automatically sample, log and transmit these readings in fully user-configurable intervals. Bi-directional communication is also supported, allowing the adapter to be wirelessly controlled and re-configured.

SB110-T 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	External	External
Antenna connector	Reverse-SMA	Reverse-SMA	Reverse-SMA	Reverse-SMA
Enclosure rating	IP65	IP54	IP65, rugged aluminum	IP40, temper proof ¹
Dimensions ²	126 x 64 x 38 mm (5 x 2.5 x 1.5")	126 x 64 x 38 mm (5 x 2.5 x 1.5")	126 x 64 x 35mm (5 x 2.5 x 1.4")	126 x 64 x 38 mm (5 x 2.5 x 1.5")
Weight ³	160 grams (5.6 oz)	160 grams (5.6 oz)	280 grams (9.9 oz)	180 grams (6.4 oz)
Operating temperature range	-20° C to +55° C ⁴	-20° C to +55° C ³	-20° C to +55° C ³	-20° C to +55° C ³
Order code	SB110-T-E65	SB110-T-E54	SB110-T-A65	SB110-T-TP40



Antenna type	-	External
Antenna connector	Hirose U.FL / Reverse-SMA (RF-cable)	Reverse-SMA
Enclosure rating	OEM module	IP54, DIN B
Dimensions ¹	Ø 45 mm (2.2")	350 x 80 x 70 mm (13.8 x 3.2 x 2.8") Sensor length 200 mm (7.9") ⁵
Weight	30 grams (1 oz) ⁶	200 grams (6.4 oz)
Operating temperature range	-	-20° C to +55° C ³
Order code	SB110-JT-O	SB110-JT-E54

¹ IP65 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


⁵ Other on request

⁶ Include weight of battery

Features and Benefits

- Integrated PT100 measurement transducer for direct connection to PT100 probes and sensors
- High accuracy by PT100 Class B, other on request
- Nodes can be line powered or run on batteries, with a battery life of multiple years
- Self-forming, self-healing mesh network topology 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	10 µA	Scan cycle (min.)	100 ms
Active measurement current	2 mA	Sensor interface	1 x PT100, 2-wire/3-wire/4-wire
Transmit current	55 mA	Sensor temperature range	-200 °C - +500°C
Receive current	50 mA	Resolution	0.1°C / 24-bit
Node-to-node hops (max.)	3	Battery lifetime ⁷ @ 3000 mAh	<ul style="list-style-type: none"> 15 min heartbeat - up to 7 years (Leaf), 3 years (Router) 5 min heartbeat - up to 5 years (Leaf), 18 months (Router)
Line of sight range (max.)	250 m (820') node-to-node	Accuracy (SenzaBlock)	0.1 °C ⁸
In-building range (typical)	70 m (230') node-to-node	Power source	2 x AA batteries (3,000 mAh) ⁹ or external 12 - 24 VDC
Receiver sensitivity	-92 dBm	Data log buffer	98 readings
Output power (max.)	2 dBm	Terminal cross-section	0.5 mm ² - 1.5 mm ²
Output power (typical)	0 dBm		
Certifications			
EMC noise immunity	According to DIN-EN61000		
EMC compatibility	According to EN55011, Class A		
Certifications	 R&TTE 1995/5/EC, EN300 440-2 V1.1.2, ETSI EN301 489-03 V1.4.1, EN60950-1:2001 + A11:2006, EN50371:2002, CE, FCC Title 47 Part 15 authorized for use in Europe & USA		

⁶ Higher capacity on request

⁷ Longer battery life on request

⁸ Overall accuracy depending on measurement range and sensor

Complementary E-Senza Products and Accessories

A 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
PT100 Sensor, 2-wire	ACC-DS-PT100	Battery pack, 3000 mAh	ACC-BP-LT
Antenna extension cable, 1 m (3')	ACC-RC-S-100	Battery pack, 4800 mAh, high temperature	ACC-BP-HT
Antenna extension cable, 3 m (10')	ACC-RC-S-300	Battery pack, 7200 mAh, high temperature	ACC-BP-HTH1
2 dB dipole antenna, IP54	ACC-AT-S-54	Battery pack, 14400 mAh, high temperature	ACC-BP-HTH2
2 dB dipole antenna, IP65	ACC-AT-S-65	Battery Pack for SB110-JT	ACC-BP-JT
5 dBi dipole antenna, IP54	ACC-AT-H-54	External power adapter	ACC-PS-SG
9 dBi dipole antenna, IP54	ACC-AT-H9-54		
2-way Antenna Splitter	ACC-AT-SP		

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