TTS2-L

LoRaWAN®

LoRaWAN® Operated Low Power Temperature Transmitter for Liquid and Gas Media

- Compatible with all LoRaWAN® frequencies
- Wide range of industrial applications
- High accuracy
- Designed to meet outdoor applications
- Long-term durable performance in harsh environment
- Ultra-low power
- Suitable for liquids and gases compatible with SS

TECHNICAL SPECIFICATION

Sensor

• Range (°C)	-50°C to +250°C (or other ranges up to 200)
	-10 ~ +70 (electronic housing)
• Accuracy (°C) IEC 60751	• **Class B** (±0.12% or ±0.3°C at 0°C)
	• **Class A** (±0.15°C at 0°C)
	• **Class 1/3DIN** (±0.08°C at 0°C)
	• **Class 1/10DIN** (±0.03°C at 0°C) other accuracies available on request
• Sensing Element	Pt100
	Pt1000 (or other sensors available on request)
• Long Term Stability (1 year) (%Span)	≤ 0.2

Power

• Power Supply	Built-in Replaceable Lithium Battery, External Power (option)
• Rated Voltage (V)	3.6
• Battery Lifetime	100,000+ readings and 20,000+ transmission (More than 10 years for most applications)

Physical

• Materials	Sheath: SS316 (3mm or 6mm OD), Silicone Rubber Cable
• Process connection	G1/4 Male (only for type G)
• Weight (g)	~450
• Protection Rate	IP66, UV Protected (other options available upon request)

Communication

• LoRaWAN® Version, Class	1.0.2revB, Class A (Class C on request)
• LoRaWAN® Frequency Zone	AS923, EU868, US902-928, AU915-928 (other zones available on request)
• LoRaWAN® Activation Type	OTA (default), ABP
• Sampling Type	Periodic (default), Event triggered
• Sampling Period	Configurable via downlink (default 4 hours)
• Transmission Type	Per sample (default), Event triggered, Conditional
• Parameter Configuration	Over-the-air via LoRaWAN® downlinks
	Locally via wireless connectivity
• Firmware Update	Locally via Wireless Connectivity, Over The Air

www.10sorex.com

Sales@10sorex.com

+1 (424) 400-4964

TTS2-L

NETWORK CONNECTION AND VISUALIZATION

Network Integration

- Integratable to all main networks (Actility, Alibaba, Cisco, Digita, Everynet, Helium, Kerlink, kpn, Loriot, machine-Q, Objenious, Orange, Orbiwise, Proximus, Senet, Sens, Swisscom, TATA, The Things Network(TTN), TTI and any other network)

Visualization And Data Management

- 10Sorex white label microservice platform, and Integratable to all main IIoT platforms directly or through the api (AWS, Azure, PTC ThingWorx, Bosch IoT, Cisco Jasper & Kinetic, Sierra Numerex, MathWorks, ThingSpeak, GE Digital Predix, LandisGyr, Siemens MindSphere, Cumulocity, myDevices, Ubidots, TagoIO, AllThingsTalk, HPE IoT and any other major IoT platform).

10Sorex Platform Main Features

- Encrypted ultra-low power communication protocol
- Advanced device inventory
- Integration APIs for enterprise systems
- Multi-tenant role-based access control
- Data export and import
- White-label platform for enterprise runs on private account
- Variable alarm setting for high and low thresholds and multi-channel alerting
- Sampling and transmission interval configuration
- Transmission condition configuration
- Other configurations and customization available on request

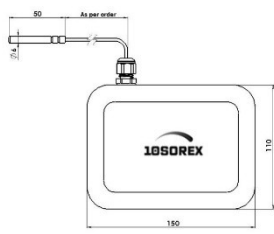|		
Encrypted & ultra-low power	Integratable	Dynamic alerting
Multi-tenant	Scalable	Composable & API first

www.10sorex.com
Sales@10sorex.com
+1 (424) 400-4964
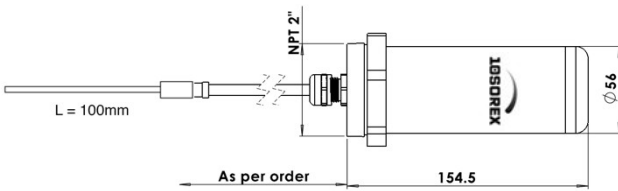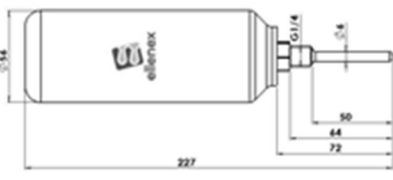
TTS2-L

MODEL GUIDE

Model	Option / Schematic
C Model	IP66 cylindrical housing with 3m cable (or as per order), Sheath diameter of φ6 and length of 50mm or as per order
E Model	IP66 rectangular housing with 3m cable (or as per order), Sheath diameter of φ6 and length of 50mm or as per order
G Model	Thermowell temperature sensor with φ6 and length of 50mm sheath mounted on the cylindrical housing

INDUSTRIES

- Food & Beverage
- Transport & Logistics
- Oil & Gas
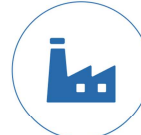- Marine & Oceanography
- Mining & Construction
- Hospitals, Restaurants & Smart Buildings
- Water & Environment
- Agriculture & Farming
- General Industrial Applications

APPLICATIONS

- Food Delivery Systems
- Cold rooms Temperature Monitoring
- Pump Performance Monitoring
- Water Pipeline Temperature Monitoring

- Fridges and Hot Chambers
- Hydraulic and Pneumatic Systems Monitoring
- Water and Liquid Temperature Monitoring
- Chiller and Cooling System Monitoring

www.10sorex.com
Sales@10sorex.com
+1 (424) 400-4964

TTS2-L

ORDERING CODE

TTS2-L										

LoRaWAN Frequency Zone

AS (AS923)	**AUx** (AU915-928) (Sub Band x)	**EU** (EU868)	**USx** (US902-928) (Sub Band x)

LoRaWAN Activation

A (Over The Air Activation - OTAA)	**P** (Activation By Personalization - ABP)

Temperature Range

A: Ambient (-20°C to +85°C)	**Other** options available on request

Sensor Type

C3: ϕ6x110mm sensor head with 3m cable and cylindrical electronic housing	**E3:** ϕ6x110mm sensor head with 3m cable and rectangular electronic housing	**G1/2:** with 1/2" BSPP male thermowell and process port
Other options available on request		

Sensing Element

H: RTD PT100	**K:** RTD PT1000 (recommended for extended cable)

Accuracy Class

B: Class B	**A:** Class A
Other options available on request	

Device Activation

S: With On/Off Switch	**X:** No Switch (Always On)

Antenna Option

E: External	**I:** Internal

Options

(On request)1

TTS2-L	AS	A	A	C3	H	B	S	E		

Sample Product Code:

- **TTS2-L-AS-A-A-C3-H-B-S-E**
  LoRaWAN® temperature sensor, frequency of AS923, Over The Air Activated, standard B class RTD PT 100 for ambient temperature range, with 3m cable and cylindrical housing, activated by on-off switch and equipped with external antenna.

1) Product Options:

- **EP**: sensor with external power supply connector for 12V supply (only for E type enclosure, adaptor is not included)
- **EPB**: connector for 12V supply with internal battery backup (only for E type enclosure)
- **HG**: high-gain external antenna
- **WF**: Active WiFi module on device for communication/ firmware update through Mobile phone NFC module (only for E type enclosure)
- **HCB**: high-capacity battery (only for E type enclosure)

www.10sorex.com

Sales@10sorex.com

+1 (424) 400-4964