

# TTS2-N



## NB IoT – Cat-M1 Operated Low Power Temperature Transmitter for Liquid and Gas Media

- Compatible with most standard communication Protocols (UDP, LwM2M, MQTT, NIDD, etc.)
- 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 (sensing element) -10 ~ +70 (electronic housing)
• Accuracy: (°C)	IEC 60751 <ul style="list-style-type: none"> <li>• Class B (+/- 0.12% or +/-0.3°C at 0°C)</li> <li>• Class A (+/- 0.15°C at 0°C),</li> <li>• Class1/3DIN (+/- 0.08°C at 0°C)</li> <li>• Class1/10DIN (+/- 0.03°C at 0°C)</li> </ul> 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:	50,000+ readings and 10,000+ transmission (With UDP protocol/ More than 10 years for most of applications)

### Physical Specification

• 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

• SIM Card Type	4FF Nano-SIM, from any Network Provider
• Firmware Update:	Over The Air, Locally via wireless connectivity
• Sampling Period:	Configurable via downlink (default 4 hours)
• Power Consumption:	Power Saving: < 5uA, Transmission: < 220mA
• Communication Standards	Cat-NB1 (NB-IoT)



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Sales@10sorex.com



+1 (424) 400-4964

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	Cat-M1 (option of back support by GPRS)
• Communication Bands	B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 and B39
• Data Rates:	Cat-M1: 375Kbps (DL)/375Kbps (UL) NB-IoT: 32Kbps (DL)/70Kbps (UL)
• TX Power:	23dBm
• Min Receiver Sensitivity:	Cat-M1: -107dBm NB-IoT: -113dBm
• Antenna:	Internal (Default)/ External (customised options available)
• Optional Features:	<ul style="list-style-type: none"> <li>• Attach without PDN (Packet Data Network)</li> <li>• Support for IPV6</li> <li>• SMS communication</li> <li>• Mobility support (Cat-M1 only)</li> </ul>

## NETWORK CONNECTION AND VISUALIZATION

### Network Integration

Pre-configured or configurable to all main narrow band networks (3, A1, AT&T, China Mobile, DU, Etisalat, KPN, M1 Singapore, Optus, Orange, Proximus, Spark, Sprint, Swisscom, Telefonica, Telstra, T-Mobile, Verizon, Vodafone, 1NCE, Emnify 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, TagIO, AllThingsTalk Maker, HPE IoT and any other major IoT platform).

### 10Sorex Platform Main Features

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



Encrypted & ultra-low power



Integratable



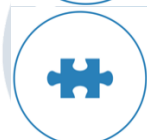
Dynamic alerting



Multi-tenant



Scalable


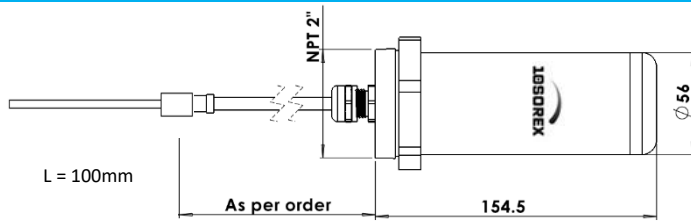

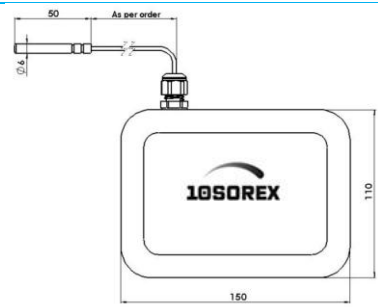

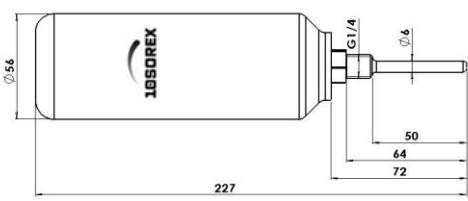


Composable & API first



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## MODEL GUIDE

Model	Options:	
<b>C Model:</b> 	IP66 housing with 3m cable (or as per order), Sheath diameter of $\phi 6$ and length of 50mm or as per order	
<b>E Model:</b> 	IP66 housing with 3m cable (or as per order), Sheath diameter of $\phi 6$ and length of 50mm or as per order	
<b>G Model:</b> 	thermowell temperature sensor with $\phi 6$ and length of 50mm sheath mounted on the cylindrical housing	

## INDUSTRIES



Food & Beverage



Transport & Logistics



Oil & Gas



Marine & Oceanography



Mining & Construction



Hospitals, Restaurants & Smart Building



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



# TTS2-N

## ORDERING CODE

TTS2-N									
Communication Type									
B: NB-IoT					C: Cat-M1				
Temperature Range									
A (Ambient: -20 to +85)					Others (on request)				
Sensor Type									
C3: $\phi 6 \times 110$ mm sensor head with 3m cable and cylindrical electronic housing									
E3: $\phi 6 \times 110$ mm sensor head with 3m cable and rectangular electronic housing									
G1/2: with 1/2" BSPP male thermowell and process port									
Others									
Sensing Element									
H: RTD PT100				K: RTD PT1000 (recommended for extended cable)					
Accuracy Class									
B: Class B			A: Class A			Others			
Device Activation									
S: on/off switch					X: No switch (always on)				
Antenna									
I: Internal					E: External				
Options									
(On request) <sup>1</sup>									
TTS2-N	B	A	C3	H	B	S	I		

### Sample Product Code:

- TTS2-N-B-A-C3-H-B-S-I

NB IoT temperature sensor, standard B-class RTD PT100 for ambient temperature range, with 3m cable and cylindrical housing, with on/off switch and internal 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)



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