TTS2-N Spec-sheet

NB-IoT

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:	-50°C to +250°C (sensing element) -10 ~ +70 (electronic housing)	°C
• Accuracy:	IEC 60751 • Class B (+ /- 0.12% or +/-0.3°C at 0°C) • Class A (+ /- 0.15°C at 0°C), • Class1/3DIN (+ /- 0.08°C at 0°C) • Class1/10DIN (+ /- 0.03°C at 0°C) Other accuracies available on request	°C
• Sensing Element:	Pt100 Pt1000 (or other sensors available on request)	
• Long term stability (1 year):	≤ 0.2	%Span

Power

• Power Supply:	Built-in Replaceable Lithium Battery, External Power (option)	
• Rated Voltage	3.6	V
• Battery Lifetime:	50,000+ readings and 10,000+ transmission (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:	~450	g
• Protection rate:	IP65 /IP67, 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	Dual mode (Cat-M1 and Cat-NB1) Cat-NB1 (NB-IoT) Cat-M1 (option of back support by GPRS)	

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• 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:	• Attach without PDN (Packet Data Network) • Support for IPV6 • SMS communication • Mobility support (Cat-M1 only)

NETWORK CONNECTION AND VISUALISATION

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)

Visualisation and Data Management

Ellenex 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 Maker, HPE IoT and any other major IoT platform).

Ellenex 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 customisation available on request


Encrypted & ultra-low power


Integratable


Dynamic alerting

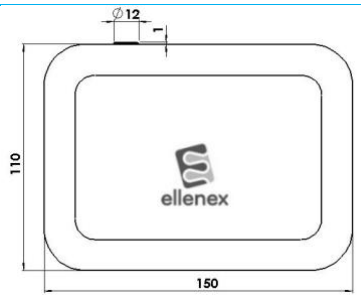
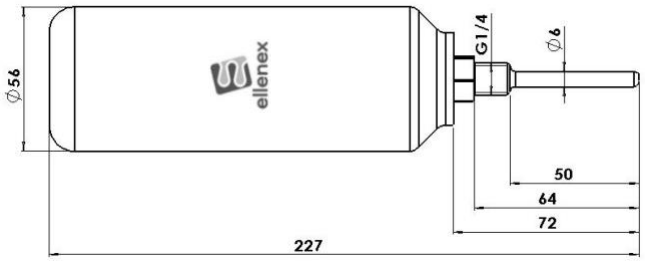
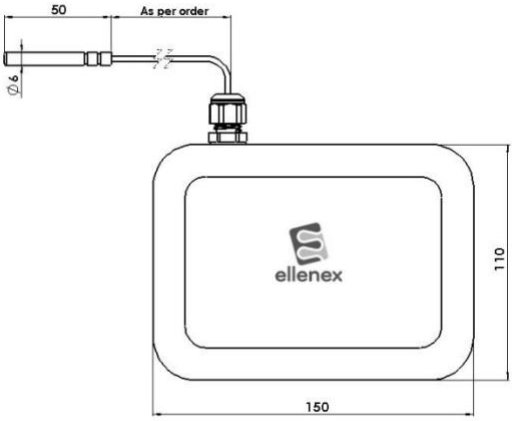

Multi-tenant


Scalable


Composable& API first

TTS2-N Spec-sheet

MODEL GUIDE

Model	Options:
M Model: 	 Type B (button type): IP66 button type temperature sensor mounted on the housing
G Model: 	 Type 1: IP66 (Sheath diameter of ϕ6 and length of 50mm temperature sensor mounted on the housing
C Model: 	 IP68 sensor head and IP65 housing with cable (Length 3m or as per order), Sheath diameter of ϕ6 and length of 50mm or as per order

INDUSTRIES

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

TTS2-N Spec-sheet

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

ORDERING CODE

TTS2-N

Communication Type

D (Dual mode NB-IoT and Cat-M1)	**B** (NB-IoT only)	**C** (Cat-M1 only)

Temperature Range

A (Ambient: -20 to +85)	**Others** (on request)

Sensor Type

M (mounted on housing)	**G** (with thermowell and process port)	**C** (with extended cable)
	Process Port	**Cable Length**
	G1/2(1/2" BSPP male)	**3** (m)
	Others	**O**thers

Sensing Element

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

Sheath Type/ Dimension

B: Button Type	**1**: ϕ6x50mm
2: ϕ6x100mm	**3**: ϕ3x50mm

Accuracy Class

B: Class B	**A**: Class A	**3**: Class	**5**: Class

Device Activation

S: on/off switch	**N:** NFC (by mobile phone)
X: No switch (always on)	**D:** Dual switch (on/off + Trigger)

Antenna

I: Internal	**E:** External

Options

(On request)

TTS2-N	D	A	M	H	B	B	S	I	

Sample Product Code:

- **TTS2-N-D-A-M-H-B-B-S-I**
  Temperature sensor operated on dual mode of NB-IoT and LTE Cat M1, ambient temperature range, button type PT100 sensing element mounted on the housing, class B accuracy, activated by on-off switch and internal antenna.

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Integrated IoT Solutions
E:sales@ellenex.com
W: www.ellenex.com