TTS2-N Spec-sheet

NB-IoT **LTE-M**

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)		°C
	-10 ~ +70 (electronic housing)		
• Accuracy:	IEC 60751		°C
	• 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		
• 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	
	(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:	~450	g
• 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)
	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:	• 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

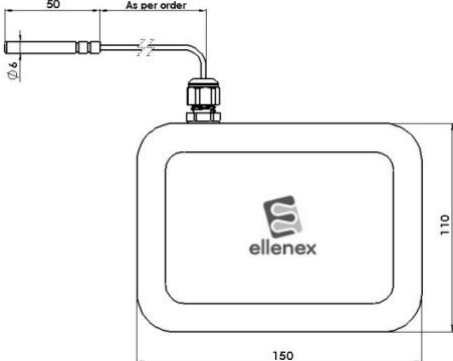|		
Encrypted & ultra-low power	Integratable	Dynamic alerting
Multi-tenant	Scalable	Composable& API first
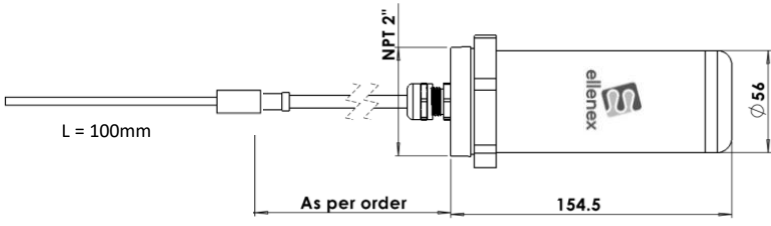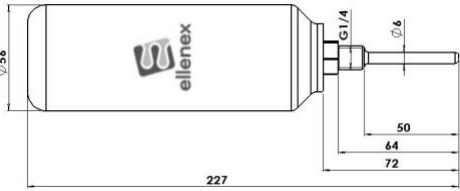
MODEL GUIDE

Model	Options:
C Model:	IP66 housing with 3m cable (or as per order), Sheath diameter of φ6 and length of 50mm or as per order
E Model:	IP66 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 Building
- Water & Environment
- Agriculture & Farming
- General Industrial Applications

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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								
	B: NB-IoT			**C:** Cat-M1					
		Temperature Range							
		A (Ambient: -20 to +85)		**Others** (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						
			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)[1]	
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)

Integrated IoT Solutions

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