

TTS2-L Spec-sheet



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	-50°C to +250°C (or other ranges up to 200) -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) • Class 1/3DIN (±0.08°C at 0°C) • Class 1/10DIN (±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	Typ. 50,000+ readings / 20,000+ transmission (connected to ellenex platform and standard network quality)	

Physical

• 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

• 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

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|---------------------------|--|
| • Parameter Configuration | Over-the-air via LoRaWAN® downlinks
Locally via wireless connectivity |
| • Firmware Update | Locally via Wireless Connectivity, Over The Air |

NETWORK CONNECTION AND VISUALISATION

Network Integration

- Pre-configured to ellenex LNS or configurable to all main network servers (AWS, Netmore, ChirpStack, Helium, Kerlink, Kona Tectelic, Loriot, machine-Q, Orange, Orbiwise, Proximus, Swisscom, TATA, The Things Network (TTN), TTI and any other network)

Visualization 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, 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 customization available on request



Encrypted & ultra-low power



Integratable



Dynamic alerting



Multi-tenant



Scalable



Composable & API first


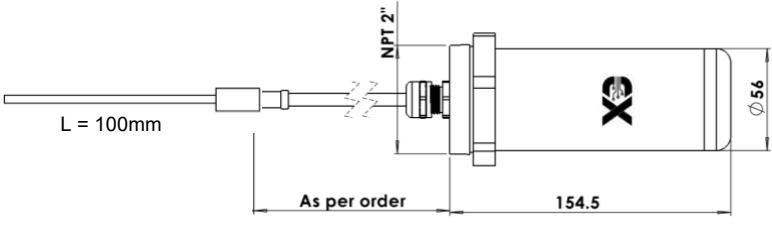

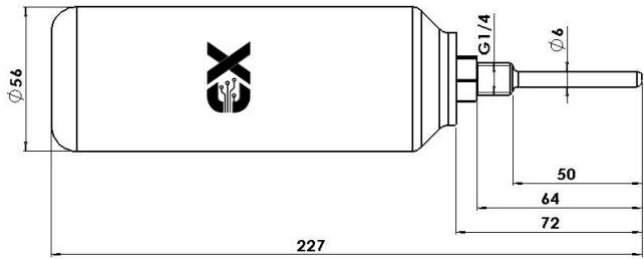

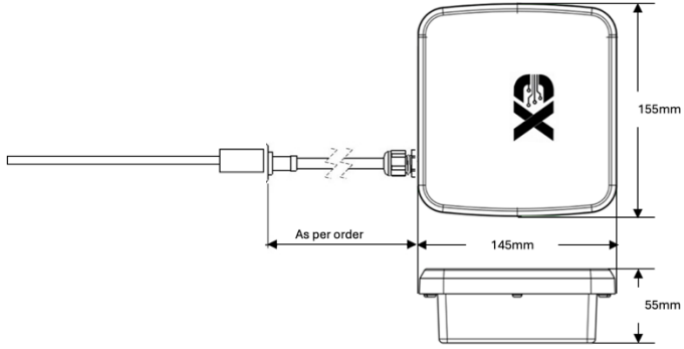
APPLICATIONS

- | | |
|---|---|
| <ul style="list-style-type: none">• Food Delivery Systems• Cold rooms Temperature Monitoring• Pump Performance Monitoring• Water Pipeline Temperature Monitoring | <ul style="list-style-type: none">• Fridges and Hot Chambers• Hydraulic and Pneumatic Systems Monitoring• Water and Liquid Temperature Monitoring• Chiller and Cooling System Monitoring |
|---|---|

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MODEL GUIDE

Model	Options:
<p>C Model:</p> 	 <p>IP68 sensor head and IP68 housing with cable (Length 3m or as per order), Sheath diameter of $\phi 6$ and length of 50mm or as per order</p>
<p>G Model:</p> 	 <p>IP68 temperature sensor with Thermowell diameter of $\phi 6$ and length of 50mm mounted on the housing</p>
<p>E Model</p> 	 <p>IP66 housing with 3m cable (or as per order), Sheath diameter of $\phi 6$ and length of 50mm or as per order</p>

INDUSTRIES



Food & Beverage



Transport & Logistics



Oil & Gas



Marine & Oceanography



Mining & Construction



Hospitals, Restaurants & Smart Buildings



Water & Environment



Agriculture & Farming



General Industrial Applications

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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: ϕ 6x110mm sensor head with 3m cable and cylindrical electronic housing			E3: ϕ 6x110mm 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:

- EPB:** sensor with external power supply connector for 12V supply with internal battery backup (only for E type enclosure, adaptor is not included)
- HG:** high-gain external antenna
- HCB:** high-capacity battery (only for E type enclosure)

