

DATASHEET
SFX-TC51



Highlights

- OleumTech® field-proven technology running on the global Sigfox Low-Power Wide Area (LPWA) network
- Supports a J or K-type thermocouple sensor
- Single temperature input, 24-bit ADC
- Powered by a replaceable internal battery pack
- Battery life up to 8 years¹
- IP66 / -40 °C to 70 °C (-40 °F to 158 °F)
- Industrially-hardened self-contained design
- A global solution – Zones RCZ1/2/4
- Remote antenna-ready option available
- Class I, Division 1 (Zone 0), Intrinsically Safe



OleumTech Sigfox Ready Transmitters



Sigfox Base Stations



Sigfox Cloud™



Third-Party Customer IT

Unlock the True Potential of IoT (Internet of Things)

Easiest Way to Get Data in the Cloud

The OleumTech® Sigfox Ready SFX-TC51 Wireless Thermocouple Transmitter is designed for deployment anywhere in the world that Sigfox has network coverage. By leveraging the Sigfox Low Power Wide Area (LPWA) network, you can take advantage of the world's leading Internet of Things (IoT) connectivity service, offering a software-based communications solution where all the network and computing complexity is managed in the Sigfox CLOUD™.

Designed for Use in Hazardous Locations

The SFX-TC51 is certified for use in Class I, Division 1 (Zone 0) hazardous locations. It is Intrinsically Safe, designed not to cause a spark, and can be serviced without being removed from a process. The SFX-TC51 is designed for integration with a third-party J or K-type thermocouple sensor.

Inherently Secure

The Sigfox Ready Transmitters take advantage of the built-in firewall since they are not directly connected to the internet and do not use Internet Protocol. Layered on top of this secure foundation, OleumTech provisions each device with a unique symmetrical authentication key. Each message sent by the transmitter contains a cryptographic token that is computed based on this authentication key and verified by each Sigfox Base Station.

Extremely Reliable

The Sigfox architecture is based on multiple base stations receiving each broadcasted and repeated message, building redundancy into the solution. Data Integrity, availability, and confidentiality are at the core of the offering.

Technical Specifications

HARDWARE FEATURES

Device Functionality	· Class I, Division 1 (Zone 0) IoT Wireless Transmitter Supporting Thermocouple Type J/K Sensors
Embedded Controller	· Ultra-Low Power RISC Microcontroller with Internal FLASH (Field Upgradeable)
Configuration	· OleumTech Sigfox Configuration Tool via RS232 Serial
ADC Resolution	· 24-bit High Resolution Delta-Sigma ADC
Thermocouple Input	· Supports Type J or K (Temperature Range Depends on Actual Sensor)
Reportable Values	· Temperature Level / Battery Voltage
Device Diagnostics	· Health Tag: Battery Voltage

WIRELESS COMMUNICATIONS

	· RCZ1: Europe, Oman, South Africa Certificate ID: P_009D_53CD_01
Sigfox Radio Zones/Regions Supported	· RCZ2: USA, Canada, Mexico, Brazil Certificate ID: P_009D_D78E_01
	· RCZ4: Australia, New Zealand, Colombia, Peru, Singapore Certificate ID: P_009D_C7B7_01
Wirelessly Connects To	· Sigfox Base Stations
Data Reporting Modes	· Interval Only

CERTIFICATIONS & COMPLIANCE

EMC/EMI · FCC Part 15 (USA), IC ICES-003 (Canada), ACMA (Australia)

Safety · Class I, Division 1, Groups A, B, C, D T3C; Ex ia IIC T3
 · Class I, Zone 0; AEx ia IIC T3
 · ATEX: Sira 13ATEX2142X; Ex ia IIC T3 Ga; II 1 G
 · IECEx: SIR 13.0054X; Ex ia IIC T3 Ga

MECHANICAL SPECIFICATIONS

Dimensions	· 5" (W) x 12.3" (H) x 6.4" (D) / 127 mm (W) x 313 mm (H) x 163 mm (D) - Excludes Compression Fitting
Package Dimensions	· 10.25" (W) x 14" (H) x 6.5" (D) / 260 mm (W) x 356 mm (H) x 165 mm (D)
Weight, RT1	· Net: 4.75 lbs /2.1 kg; Gross: 5.75 lbs/ 2.6 kg
Connection Fitting	· 3/4" NPT Female
Enclosure Casing Material	· Aluminum, NEMA 4X, IP66
Mounting Holes	· (4) M5 Female Threads; Horizontal Spacing: 2.76" (70 mm); Vertical Spacing: 3.70" (94 mm)

ELECTRICAL SPECIFICATIONS

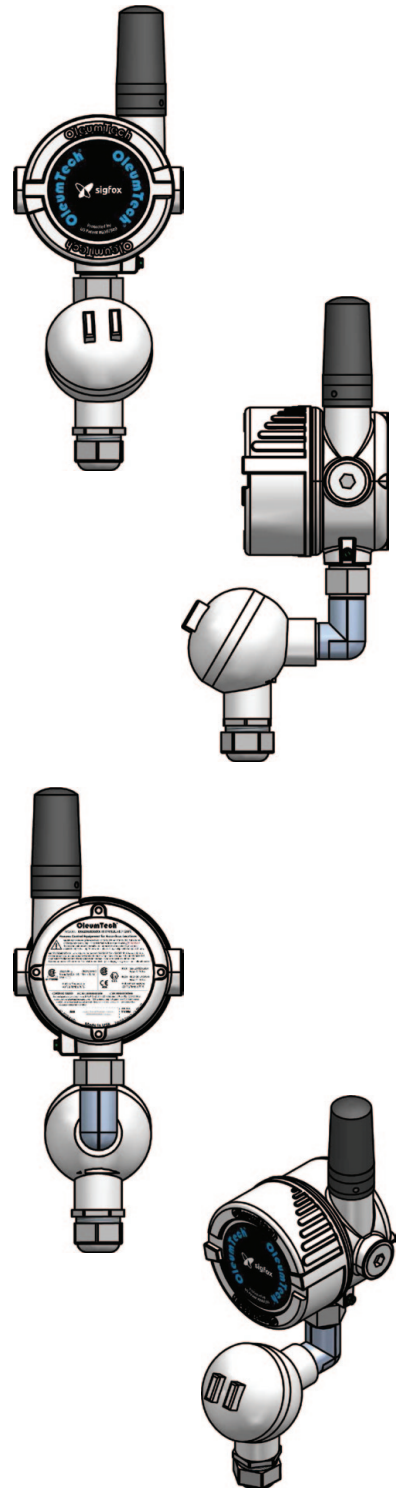
Power Source	· SX1000-BP3, Internal 3.6 Vdc Lithium Battery
Internal Battery Life	· Up to 8 Years, Based on User Defined Reporting Intervals ¹

GENERAL SPECIFICATIONS

Operating Conditions	· Ambient Temperature (Class I, Division 1 / Zone 0): -40 °C to 70 °C (-40 °F to 158 °F) · Ambient Temperature (ATEX/IECEx): -30 °C to 70 °C (-22 °F to 158 °F) · Humidity: 0 to 99 %, Non-Condensing
Warranty	· 2-Year Parts and Labor
Country of Origin	· USA

ORDERING INFORMATION

Model Number(s)	· RCZ1: SFX-RCZ1-TC51 / Remote Antenna-Ready Option, N Connector: SFX-RCZ1-TC51-P · RCZ2: SFX-RCZ2-TC51 / Remote Antenna-Ready Option, N Connector: SFX-RCZ2-TC51-P · RCZ4: SFX-RCZ4-TC51 / Remote Antenna-Ready Option, N Connector: SFX-RCZ4-TC51-P
Battery Model Number	· Use Only SX1000-BP3, 3.6 V Lithium Battery Pack
Configuration Cable	· SX1000-CC2, 20-ft All-in-One Configuration Cable



¹ Ambient temperature and 140 transmissions per day were used to calculate battery life. The data only applies to a new battery part number SX1000-BP3. Actual battery life may vary depending on environmental factors, application, and usage. Use data shown above only as general point of reference.

