



## AT A GLANCE

### -196 °C

Cryogenic-grade low range with the ultra-low-temperature RTD probe

### Up to 10 yr

Battery life on a single Li-SOCl<sub>2</sub> cell – no mains, no wiring

## KEY FEATURES

- Wireless ultra-low-temperature monitoring for LN<sub>2</sub> cryostorage, -80 °C freezers, and cold-chain logistics
- Long-range LoRaWAN Class A connectivity – no Wi-Fi, no Ethernet, no mains power required
- 3-wire PT100 RTD input with an ultra-low-temperature probe rated to -196 °C
- Up to two independent temperature channels from a single transmitter
- Battery-powered with up to a decade of life on a replaceable Li-SOCl<sub>2</sub> cell
- On-board datalog buffers readings during gateway outages and backfills on reconnect

### Built for the Coldest Storage

DGN-T-LTC2-LB pairs an ultra-low-temperature RTD probe with multi-year battery life – ideal for cryobanks, ultra-low freezers, and unpowered remote assets where wiring is impractical.

## CERTIFICATIONS

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## MEASUREMENT PERFORMANCE

Parameter	Ultra-Low Probe	Standard Probe
3-wire PT100 RTD input	✓	✓
Measurement range	-196 °C to 150 °C	-60 °C to 200 °C
Range (imperial)	-320 °F to 302 °F	-76 °F to 392 °F
Temperature channels	Up to 2	Up to 2
ADC	16-bit	16-bit
Cryogenic-rated	✓	–

## TECHNICAL SPECIFICATIONS

Parameter	Specification
<b>WIRELESS CONNECTIVITY</b>	
Technology	LoRaWAN 1.0.3, Class A
Frequency bands	EU868 / US915 / AU915
RF output power	Max +22 dBm
RF sensitivity	-139 dBm
Cloud platform	ATEK platform – readings, trends, and alarms per uplink
<b>TEMPERATURE</b>	
Sensor type	3-wire PT100 RTD probe
Ultra-low range	-196 °C to 150 °C (-320 °F to 302 °F)
Standard range	-60 °C to 200 °C (-76 °F to 392 °F)
Channels	Up to 2 temperature channels
ADC	Dual internal 16-bit, factory-calibrated
Accuracy	(unverified – confirm against probe certificate)
Resolution	(unverified)
<b>PHYSICAL &amp; POWER</b>	
Power	Replaceable 8500 mAh Li-SOCl <sub>2</sub> battery, 2.5–3.6 V
Battery life	Up to 10 years (mode & coverage dependent)
Sleep current	5 µA @ 3.3 V
Operating temperature	-40 °C to 85 °C (electronics)
Enclosure dimensions	(unverified)
Ingress protection	(unverified)

**WHERE IT'S USED**

- Liquid-nitrogen (LN<sub>2</sub>) cryostorage & biobanks
- -80 °C ultra-low-temperature freezers
- Cryogenic sample & cell-line storage
- Cold-chain logistics & transport
- Unpowered remote assets & outbuildings
- Wide-area campus & warehouse coverage

**ORDERING INFORMATION**

ATEK Part Number	Description
DGN-T-LTC2-LB	LoRaWAN ultra-low temperature transmitter — PT100 RTD, -196 to 150 °C, Class A, battery-powered

Specify frequency band (EU868 / US915 / AU915) at order. Contact ATEK for probe options, deployment kits, and calibration certificate options.

**ATEK PLATFORM INTEGRATION**

- Ultra-low-temperature readings, trends, and alarms within seconds of each LoRaWAN uplink
- Automated compliance reporting — scheduled CSV / PDF / Excel exports with hourly, daily, and monthly aggregations
- Multi-channel alerts — email, SMS, voice call, and webhook on excursion
- Immutable time-series storage with tamper-evident audit logs
- 21 CFR Part 11 controls on the ATEK platform — user-level audit trails, e-signatures, ALCOA+ data integrity (validate for your intended use)
- Calibration tracking — each probe's certificate auto-associates by serial number with expiry alerts and audit trail
- Gateway-outage resilience — on-board datalog backfills automatically once LoRaWAN coverage is restored