

BluCloud Remote Level Monitor

Cellular Liquid Level Monitoring Device · Made in the USA

All-in-one cellular liquid level monitoring device. Integrates a submersible pressure sensor, cellular modem (LTE-M / NB-IoT), long-life internal battery, and cloud connectivity into a single IP65-rated rugged polycarbonate enclosure — no WiFi, no gateway, no site visits required.

CONNECTIVITY

LTE-M / NB-IoT

BATTERY LIFE

3–5+ years

ENCLOSURE

IP65

UNIT OP TEMP

–40 to +85 °C

SENSOR INPUT

0–5V / 4–20mA

OTA UPDATES

Yes

ORIGIN

Made in USA

CORE ELECTRONICS & PROCESSING

PARAMETER	VALUE
Cellular SoC	LTE-M / NB-IoT cellular SoC
SoC operating temp	–40 °C to +85 °C
SoC PSM sleep current	<2.5 µA (PSM mode)
Device sleep current (system)	<10 µA @ 3.6 V
LTE TX peak current	490 mA
External flash	On-board NOR flash
Local data backup	SD card — stores readings locally; syncs when connectivity restored

ⓘ SYSTEM TEMPERATURE LIMIT

The cellular SoC is the thermal ceiling for the complete device unit, capping system operation at **+85 °C**. Compatible submersible sensors are typically rated well above this.

ENCLOSURE & PHYSICAL

PARAMETER	VALUE
Enclosure	Rugged polycarbonate, IP65
IP67 option	Available upon request
Ext. dimensions	3.2 × 3.1 × 2.1 in (82 × 80 × 55 mm)
Impact rating	NEMA 4X (UL certified)
Country of manufacture	United States
Certifications	FCC · IC · CE · GCF · PTCRB (cellular module) · UL/cUL E194432, NEMA 4X (enclosure)
Unit operating temp	–40 °C to +85 °C
Sensor element op temp	Per sensor datasheet (typically –10 to +70 °C or higher)
Assembled weight	0.55 lbs (250 g)
Warranty	1 year

ⓘ IP67 UPGRADE AVAILABLE

Units requiring IP67 protection are available — same footprint, polycarbonate, clear cover. Contact BluCloud.



CELLULAR CONNECTIVITY

PARAMETER	VALUE
Technology	LTE-M (Cat-M1) / NB-IoT
Generation	4G / 5G compatible
SIM support	Multi-SIM / multi-carrier
Antenna	Integrated; substantial antenna space in enclosure
OTA firmware updates	Yes — remote configuration & monitoring
LTE-M bands	B1, B2, B3, B4, B5, B8, B9, B12, B13, B17, B18, B19, B20, B25, B26, B28, B66
NB-IoT bands	B1, B2, B3, B4, B5, B8, B12, B13, B17, B18, B19, B20, B25, B26, B28, B66
US key bands	B2, B4, B12, B66 (T-Mobile) · B12, B13 (AT&T) · B13 (Verizon)

SENSOR INTERFACE

PARAMETER	VALUE
Analog input	0–5 V and 4–20 mA
Digital protocols	0–5 V / 4–20 mA (current) · MODBUS RTU / RS-485 — coming soon
Max cable length	0–200 ft
Sensor cable entry	Gasket-sealed on underside of unit
Sensor power control	Power-controlled supply (ultra-low-power)
LED indicators	4-color diagnostic (see LED table)
Conformal coating	Coming soon — PCB-level moisture protection for extreme environments
External controls	2 switch connections; tap mechanism

POWER & BATTERY

PARAMETER	VALUE
Battery (default)	3.6 V · 9,000 mAh · field-replaceable
Battery temp range	–55 °C to +85 °C (exceeds electronics range)
Battery options	Customer-specified — compatible LiPo packs can be customer-supplied. Contact BluCloud for guidance on compatible voltage/size specifications. Low-temperature rated LiPo packs available — specify at order.
Target battery life	3–5+ years (field conditions, standard check-in interval)
Battery replacement	Field-replaceable — no depot return required
External power	Supported (recharges LiPo option; can power unit independently)
Charging port	USB-C (on-board)

BATTERY NOTE

Default battery: 3.6 V · 9,000 mAh · field-replaceable. The ER26500 temperature range (–55 to +85 °C) exceeds the electronics ceiling — the battery is never the thermal limiting factor. LiPo pack options are customer-supplied; contact BluCloud for compatible voltage/size guidance.

HARDWARE CONFIGURATION OPTIONS

- All-in-one board or modular design
- Module-based designs preferred for repairability
- Electronics-only delivery option available
- PCB from scratch or existing hardware + firmware
- External flash storage on board
- Four-color LED indicators (panel-visible through enclosure lid)
- Two external switch connections

DIAGNOSTIC LED INDICATORS

FAULT CONDITION	LED COLOR
Low battery	Red
Critical battery	Red
Low connectivity	Red Flash
Radio not responding	Lights Flash
SIM absent	Lights Flash
No tower / registration failed	Lights Flash
TCP server issue	None
Call aborted (power loss / AT command failure)	None

SECURITY

- Data protection in transit and at rest
- Device integrity safeguards
- OTA firmware signing (remote update security)

DATA COLLECTION & CLOUD

PARAMETER	VALUE
Check-in interval	Configurable: hourly to daily
Sampling rate	User-configurable — sub-second to daily; typically 1 sec–1 hr for battery longevity
Remote configuration	Yes — OTA & remote monitoring
Tap-to-transmit	3 taps → reading transmitted 30 sec after last tap
Water contact protection	Tap mechanism prevents water from shorting contacts
Dashboard	Web dashboard + iOS & Android mobile app
Alerts	Email, SMS, push notification

i TEMPERATURE NOTE

Unit (electronics enclosure) is limited to −40 to +85 °C by the cellular SoC. Compatible submersible sensors typically exceed this range — the sensor element is not subject to the unit's thermal ceiling.

DEPLOYMENT CONFIGURATIONS

Below-Grade Well Deployment

- Lower submersible sensor**
into well casing or vessel to desired depth.
- Route cable**
up through well cap to BluCloud enclosure above grade.
- Connect sensor**
to waterproof BluCloud device connector.
- Device activates**
and connects over cellular — readings begin automatically.

Existing Infrastructure Retrofit

- Disconnect existing sensor**
from legacy data logger or SCADA system.
- Connect existing 0–5V / 4–20 mA sensor**
to BluCloud sensor input port.
- Mount BluCloud**
enclosure at existing sensor head location.
- Cellular link**
established automatically — data streams to BluCloud dashboard.