

NB-IoT Gateway

ECL-GW-T8-NB



ECL-GW-T8-NB is a state of the art NB-IoT Gateway designed mainly for use in remote water meter reading applications. It can be provided with Wired M-Bus, Wireless M-Bus, RS485 interface options. Its software can be customized and be adapted to different reading standards, meter brands, models, data processing scenarios and data formats that can be requested by Head-End Systems and can be easily updated over the air in a secure manner.



Physical Specifications

- Size: 106 x 107 x 55 mm
- Weight: ~300 grams
- Sealable Terminal Cover, IP54
- Flame retardant (UL94V-0)
- DIN Rail and Wall Mounting

Environmental Specifications

- -35 ... +75°C operating temperature

Power Input

- 55 ... 435 VAC operating voltage
- 6 KV impact resistance

Frequency Bands

- B1 @ H-FDD: 2100 MHz
- B3 @ H-FDD: 1800 MHz
- B8 @ H-FDD: 900 MHz
- B5 @ H-FDD: 850 MHz
- B20 @ H-FDD: 800 MHz
- B28 @ H-FDD: 700 MHz

Data

- Data Transmission:
Single Tone: DL: 25.2 kbps UL: 15.625 kbps
Multi Tone: DL: 25.2 kbps UL: 54 kbps
Extended TBS/2 HARQ: DL: 125 kbps UL: 150 kbps
- Protocol Stacks: IPv4 IPv6 UDP CoAP LwM2M Non-IP DTLS TCP MQTT

SMS

- Point-to-point MO and MT
- PDU Mode

Other NB-IoT Module Characteristics

- NB1 according to 3GPP Rel.13
- 3GPP TS 27.007 V14.3.0 (2017-03) and Quectel Enhanced AT Commands
- USIM × 1: Supports 1.8/3.0 V USIM Card
- Maximum Output Power: 23 dBm ±2 dB
- Sensitivity: -129 dBm ±1 dB
- Power Consumption (Typical) : 3 µA @ PSM 0.5 mA @ Idle Mode, DRX = 2.56 s, ECL0
- LTE Cat NB1 Connectivity:
250 mA @ Radio Transmission, 23 dBm (B1/B3)
220 mA @ Radio Transmission, 23 dBm (B8/B5/ B20)
280 mA @ Radio Transmission, 23 dBm (B28)
130 mA @ Radio Transmission, 12 dBm (B1/B3/ B8/B5/B20/B28)
70 mA @ Radio Transmission, 0 dBm (B1/B3/B8/ B5/B20/B28)
60 mA @ Radio Reception

Enhanced Features

- DFOTA: Delta Firmware Upgrade Over-The-Air
- RAI: Release Assistance Indication
- ECID: Enhanced Cell ID
- OTDOA: Observed Time Difference of Arrival

NB-IoT Gateway

ECL-GW-T8-NB



NB-IoT Module Regulatory Approvals

- GCF (Global)
- CE (Europe)
- Anatel (Brazil)
- KC (South Korea)
- NCC (Taiwan, China)
- JATE/TELEC (Japan)
- RCM (Australia/New Zealand)
- NBTC (Thailand)
- IMDA (Singapore)
- Others: RoHS Compliant ATEX (Europe)

Other Hardware Features

- SMA Female Antenna Connectors
- ARM Microprocessor (32-bit ARM® Cortex®-M4 120Mhz 1Mbyte Flash)
- Real Time Clock (RTC)
- Built In Flash Memory (4Mbyte)
- Hardware Watchdog
- LED Status Indicators IPv4, IPv6, UDP, CoAP, LwM2M, Non-IP, DTLS, TCP protocol stacks
- Can send last-gasp message to server in case of power cut-off with help of Super Capacitors
- CE Certified

Hardware Variants and Optional Interfaces

- WMB1 - Wireless M-Bus Module (1 Slave)
- WMB64 - Wireless M-Bus Module (64 Slaves) (Alternative to Wired M-Bus)
433 or 868 MHZ Operation
1500 meters line of sight
TX at +10 dBm: 13.4 mA
Receiver Sensitivity -124 dBm
Long-Range Mode, -110 dBm at 50 kbps
Selectivity (± 100 kHz): 56 dB
Blocking Performance (± 10 MHz): 90 dB
Programmable Output Power up to +15 dBm
- MB1 - Wired M-Bus Module (1 Slave)
- MB64 - Wired M-Bus Module (64 Slaves) (Alternative to Wireless M-Bus)
1.5mA Idle Mode Current Supply Per Slave
Overload protection



- Cable length can be up to 10 km
- Up to 19200 bps communication
- RS - RS485 Interface
Modbus Protocol for Bulk Water Meters
300–115200 bps
7E1, 8N1, 8E1, 8O1 framing
Automatic Data Direction Control