logic IO
The M2M Enabler

RTCU LX2 pro

Advanced Automotive M2M / IoT Gateway

State-of-the-art platform for tomorrows demanding applications

For Professional M2M / IoT Applications
The RTCU LX2 pro is designed for the most sophisticated M2M and Internet of Things applications that demand the most advanced product available on the market today.

The RTCU LX2 pro rests on the **RTCU M2M Platform,** that brings all the necessary tools together to develop, implement and maintain the most sophisticated M2M/IoT applications.

The **development task** is supported by the **free** RTCU IDE development environment, complemented by a large and comprehensive documentation and application example library.

The RTCU Communication Hub is the cornerstone of the **communication infrastructure** ensuring reliable two-way device communication in any network environment.

Deploying and maintaining new application and firmware versions for devices in the field are handled by the powerful RTCU Deployment Server.

Two decades of know-how in one product!

Experience and Know-how
For almost 25 years Logic IO has been committed to offer the most sophisticated platform for advanced and highly demanding M2M / IoT applications.

The RTCU LX2 pro is the result of this accumulated experience combined with valuable feedback from hundreds of professional and mission critical applications by major organizations around the world.

RTCU products are deployed **underground**, **stationary**, **on the road**, **at sea**, **on the rail** and **in the skies**! - In any imaginable application and environment.

Device Advantages

- **RTCU MX2 turbo compatible.**
- High-Performance LX IoT Core.
- Large 4 GB Internal Flash drive.
- Worldwide LTE Cat.4 Cellular Engine.
- Dual SIM card readers.
- Bluetooth LE 5.3.
- High-precision Dual-band GNSS.
- Dead Reckoning and RTK support.
- Accelerometer and Gyroscope.
- Dual full CAN 2.0B channels.
- Multiple RS232/RS485 channels.
- Modbus expandable I/O.
- 1-Wire bus.
- Digital and Analog input/outputs.
- Digital audio sub-system.
- Durable Aluminium encapsulation.
- Integrated battery backup.

Platform Advantages

- NX32L execution architecture.
- Secure platform.
- Hardware accelerated security.
- Free RTCU IDE development tool.
- Huge standard API.
- Open platform SDK.
- Comprehensive protocol support.
- Instrumented Execution.
- Sophisticated deployment tools.
- Fast and free email support.

World Leader in Advanced and Professional M2M / IoT Technology since 1999.

RTCU LX2 pro Highlights

Advanced Automotive M2M / IoT Gateway

Platform:
- Based on the **RTCU M2M Platform**.
- **NX32L (NX32 for Linux) execution architecture.**
  - RTCU IDE development tool.
  - Operates under a full and highly optimized Linux variant.
  - Secure communication with TLS and hardware assisted encryption/authentication.
  - Open and extendable with Platform SDK.

Wireless Communication:
- **Worldwide LTE Cat. 4 Multi-Band Cellular Engine.**
- **Dual SIM-card readers** and support for **eSIM**.
- **Bluetooth Low-Energy - BLE 5.3**.
- **High-precision Dual-band L1/L5 Multi-Constellation GNSS** positioning engine.
- **Optional: Dead-Reckoning** and **RTK** with sub-meter accuracy.

Wired Communication:
- **2 x Full CAN 2.0B** channels with hardware filtering and multi-speed support.
- **1-Wire bus** for accessories such as ID-button reader, temperature sensors, etc.
- **2 x RS232** channels and **1 x RS485** channel.

I/O Interfaces:
- **6 x digital inputs.**
- **4 x high-power** solid-state **digital outputs**.
- **2 x analog inputs with flexible range of 0..10VDC or 0..30VDC (12 bits).**
- **Expandable I/O** with standard Modbus modules.

User Interaction:
- **Digitized audio** subsystem.
- **DTMF** support for Interactive Voice Response applications.
- High-speed **Mini-USB service-port** connector.
- On-board **Accelerometer** and **Gyroscope**.

Storage:
- Internal **flash drive** with **4 GB** total capacity.
- **Persistent memory** and circular **datalogger**.

Encapsulation:
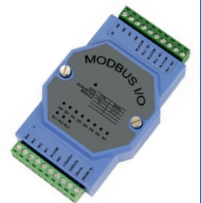- Housed in a durable **Aluminium** case.

Services Available

Technical Support.

Application development support.

Maintenance.

Hardware support.

Warranty services.

Accessories

Garmin Fleet Management.

Modbus I/O extension modules.

Antennas.

Cable parts.

1-Wire parts.

...and more.

Find out more and start developing today!

Learn more about the RTCU M2M platform and the NX32L architecture in the **"The RTCU M2M Platform"** data sheet.

To learn more about the technical details and usage of the RTCU LX2 pro, please download the **"RTCU LX2 pro Technical Manual"**.

Also make sure to get the **FREE RTCU IDE** Development Environment, **RTCU Communication Hub** and the **Deployment Server** to get a hands-on experience how rapid development/deployment of game changing M2M/IoT applications were meant to be.

RTCU LX2 pro Specifications

RTCU M2M Platform

- NX32L Execution Architecture.
- Fully NX32 compatible.
- Open and user-extendable API.
- RTCU M2M Platform SDK.

LX Hardware Core

- Powerful 32-bit ARM processor.
- Hardware floating point and DSP.
- 128 Mbyte RAM.
- Up-to 512 Mbyte NAND flash.
- Real-time clock with battery-backup.

Storage

- 4 GB Internal flash drive.
- Persistent data flash.
- Multiple circular dataloggers.

Cellular Engine

- **LTE Cat.4 Engine (Worldwide).**
  Max 150 Mbps(DL)/Max 50 Mbps(UL).
  LTE FDD: 15 bands.
  LTE-TDD: 4 bands.
  WCDMA: 7 bands.
  GSM: Quad-band.
- DTMF decoding / transmission.
- Digitized voice playback / IVR.
- Dual SIM card reader (int/ext).
- Mini-SIM 1.8/3 volt
- Application controlled SIM card.
- Optional eSIM.

Audio

- Fully digitized audio system.
- Transfer, store and play audio.
- Digitized cellular audio.

Bluetooth

- Bluetooth Low Energy 5.3.
- IEEE 802.15.4-2011 PHY
- Optional: Zigbee and OpenThread.

GNSS

- Multi-constellation.
- Dual-Band using L1 / L5 bands.
- GPS, Galileo, GLONASS, BeiDou, and QZSS.
- SBAS: WAAS, EGNOS, MSAS, and GAGAN.
- AGPS capable.
- RTCM v2.3 and v3.3 output capable.
- Accuracy: < 1m CEP (@-130 dBm).
- Anti-jamming, Noise cancellation.
- Active 3 volt GNSS antenna.
- RTK (optional) with sub-centimeter accuracy.
- Dead Reckoning with IMU (optional).
- Optional dual GNSS receiver.

Sensors

- Temperature sensor.
- 3-axis Accelerometer. ±16g@16b.
- 3-axis Gyroscope. ±2000dps @16b.

Wired Communication

- 2 x Full CAN2.0B with hardware filtering and multi-speed support.
- 1 x RS232 with control signals.
- 1 x RS232 with RX/TX.
- 1 x RS485 with Modbus support.
- 1-Wire bus.
- USB service/programming port.

I/O Interface

- 4 x digital solid-state digital output.
  Max. 36 volt / 1.5 A per. channel.
  Short-circuit, ESD, Inductive kick-back protected up to 20 mH.
- 6 x digital inputs with ignition.
  Logic high: 8 to 40 VDC.
  Logic low: -5 to 3 VDC.
  Impedance: 13 kohm @ 12V.
- 2 x analog inputs.
  Range is 0..10VDC or 0..30VDC.
  Resolution: 12 bit
  Accuracy: Typ. ±0.3% FSR @ 25°C.
  Impedance: 40 kohm.
- Protected against transients and low-pass filtered.

User Interaction

- 4 x bi-colour LED.
- 2 x DIP-switches.
- Switches for RS485 /CAN termination.
- CAN write enable switch.
- Reset / recovery switch.

RTCU LX2 pro Specifications (continued)

External Interfaces

- Plug-compatible with the MX2 turbo and the RTCU NX-200.
- SIM-card slot for a mini-SIM card
- SIM card tray presence detection.
- 4 x LED indicators and 2 x DIP switches.
- Reset/recovery switch.
- RJ45 for RS232 with full control signals.
- Dip-switch under frontplate:
    - CAN/RS485 termination.
    - CAN write enable.
- SMA Female connector for cellular.
- SMA-RP Female connector for BT.
- SMA Female connector for GNSS.
- USB 2.0 service port mini-USB.
- TE-Connectivity "Mate'n'Lok':
    - Power
    - I/O.
    - RS232 / RS485
    - CAN
    - 1-wire

Electrical

- Operating voltage: 8 to 36 VDC.
- Short and reverse power protected.
- 5 VDC-out @ 500 mA.

Battery and Charger

- On-board 2 Ah (nominal) Li-Ion battery.
- Intelligent charger with temperature throttle and sub-zero degrees support.

Power Management

- Low-power modes.
- Wait for Event:
  Timer, Digital input, Accelerometer, RS232, RS485, CAN, Cellular, and Power change state.
- Wait for event, from: 0.4 mA@12V.
- Supervision of supply voltage / type.

Physical Characteristics

- Encapsulation: Aluminium profile.
- Colour: Anodized natural grey.
- Material: Aluminum and plastic.
- Approx. 300 gram without accessories.
- W 97 x H 35 x D 132 mm. (without connectors).
- Optional mounting bracket

Environmental Specification

- Operating temperature: -40 to 65°C.
- Battery charge temperature: -10 to 45 °C.
- Recommended storage temperature: 0 to 45°C.
- Humidity: 5..90% (non condensing).
- Ingress Protection: IP20 .

Approvals

- 2007/46/EC UN ECE R10 Rev. 06 (E1).
- 2014/53/EU Radio Equipment Directive.
- 2011/65/EU RoHS Directive.
- Cellular:
  GCF/CE/FCC/PTCRB/IC/Anatel/SRRC/NAL/ CCC/KC/NCC/JATE/TELEC/RCM/IFETEL/ FAC/NBTC/ICASA.

Warranty

- Two-years return to factory parts and labor.
- Optional warranty up to 5 years. (restrictions apply).

Models Available
SKU: RT-LX2P
RTCU LX2 pro.