

RTCU LX9 pro

Advanced Industrial M2M / IoT Gateway

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

For Professional M2M / IoT Applications

The **RTCU LX9 pro** has been designed for the most demanding M2M and Internet of Things applications that demands the absolutely most advanced product available on the market.

The **RTCU LX9 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 M2M Studio** development environment complimented by a large and comprehensive documentation and application example library.

The RTCU Communication Hub is the corner-stone 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.

More than two decades of know-how in one product!

Experience and Know-how

For twenty years Logic IO has been committed to offer the most sophisticated platform for advanced and highly demanding M2M / IoT applications.

The **RTCU LX9 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

- High-Performance LX IoT Core.
- Large 4 GB Internal Flash drive.
- Worldwide LTE Cat.4 Cellular Engine.
- GNSS positioning engine.
- 3-axis accelerometer.
- Wireless LAN interface.
- Bluetooth LE 5.3.
- Ethernet interface.
- 1-Wire bus.
- Multiple RS232/RS485 channels.
- Modbus expandable I/O.
- Digital and Analog input/outputs.
- AC/DC relay outputs.
- Digital audio subsystem.
- Integrated battery backup.
- IP65 Ingress Protection.

Platform Advantages

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

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

RTCU LX9 pro Highlights

Advanced Industrial M2M / IoT Gateway



Platform:

- Based on the **RTCU M2M Platform**.
- **NX32L (NX32 for Linux) execution architecture**.
 - RTCU M2M Studio 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**.
- **Wireless LAN (Wi-Fi)**.
- **Bluetooth Low-Energy - BLE 5.3**.
- **Multi-constellation GNSS with GPS, GLONASS and GALILEO**.

Wired Communication:

- 100 Mbps **Ethernet** LAN interface.
- **1-Wire bus** for accessories such as ID-button reader, temperature sensors, etc.
- **2 x RS232** channels and **2 x RS485** channels.

I/O Interfaces:

- **4 x analog inputs** with 0..10 volt / 0..20 mA.
- **4 x analog outputs** with 0..10 volt / 0..20 mA.
- **5 x digital inputs** and **4 x high-power AC/DC relays**.
- 4 digital inputs can be configured as **IEC62053-31 Class A** compliant.
- **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.
- High-performance **3-axis accelerometer** with 16g scale.

Storage:

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

Encapsulation:

- Housed in an IP65 ruggedized plastic encapsulation for outdoor usage.

Services Available

Technical Support.
Application development support.
Maintenance.
Hardware support.
Warranty services.

Accessories

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 LX9 eco, please download the **"RTCU LX9 pro Technical Manual"**.

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

Please visit www.logicio.com

RTCU LX9 pro Specifications

RTCU M2M Platform

- NX32 for Linux - NX32L.
- Fully NX32 compatible.
- Larger capacity and higher performance compared to NX32.
- 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.
- 512 Mbyte system NAND flash.
- Real-time clock with battery-backup.

Security

- Embedded firewall.
- TLS/SSL support with full certificate management.
- TLS/SSL support for SMTP, MQTT, FTP, HTTP, RTCU Communication Hub and TCP/IP sockets.
- Hardware assisted strong encryption/authentication: AES-128, AES-192, AES-256, DES, TripleDES, HASH, RND and RSA signature.

Storage

- 4 GB Internal flash drive.
- Persistent data flash.
- Non-volatile SRAM.
- Circular datalogger.

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.
- Internal mini SIM-card reader.
- Mini-SIM 1.8/3 volt
- Optional eSIM.

Bluetooth

- Bluetooth Low Energy 5.3.
- IEEE 802.15.4-2011 PHY
- Optional: Classic Bluetooth.

Wireless LAN

- WiFi at 2,4 GHz ISM bands.
- IEEE 802.11 a/b/g/n/ac.
- WPA/WPA2/WPA3 encryption.
- Up-to 433 Mbps.
- AP and STA modes supported.

GNSS

- GPS, GLONASS, GALILEO and QZSS.
- Active 3 volt GNSS antenna.
- Antenna and short-circuit detection.

Sensors

- Temperature sensor.
- 3-axis accelerometer. 12 bit @ $\pm 16g$.

Wired Communication

- 100BASE-T Ethernet interface.
- 2 x RS232. One with control signals.
- 2 x RS485.
- 1-Wire bus.
- USB service/programming port.

Audio

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

User Interaction

- 4 x bi-colour LED (external).
- DIP-switches.
- I/O configuration jumpers for analog and digital operating modes.
- Jumpers for RS485 termination
- Reset / recovery switch.



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RTCU LX9 pro Specifications (continued)

Digital I/O Interface

- 4 x relay output.
Max. 5A @ 250VAC / 30 VDC
- 5 x digital inputs.
Logic high: 8 to 40 VDC.
Logic low: -5 to 3 VDC.
Impedance: 13.8kohm @ 12V.
- 4 x IEC62053-31 Class A input.
- I/O expansion Modbus modules.

Analog I/O Interface

- 4 x analog inputs.
Range is 0..10VDC or 0..20 mA
Resolution: 12 bit
Accuracy: Typ. $\pm 0.2\%$ FSR @ 25°C
Impedance: 40 kohm (V)/500 ohm (C).
- 4 x analog outputs.
Range is 0..10VDC or 0..20 mA
Resolution: 12 bit
Accuracy: Typ. $\pm 0.1\%$ FSR @ 25°C.
- Protected against transients and low-pass filtered.
- I/O expansion Modbus modules.

Electrical

- Supply operating range:
8 to 36 VDC.
100 to 260 VAC.
- Short and reverse power protected.
- 12/24V DC-out @ 500/250 mA.
- 5 V DC-out @ 300 mA.

Battery and Charger

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

Power Management

- Low-power modes.
- Wait for Event: Timer, Digital input, RS232/RS485, Cellular, Power change.
- Power consumption:
down to 0.3 mA@12V.
- Supervision of supply voltage / type.

Internal Interfaces

- Plug-compatible with the NX-900.
- Mini SIM-card slot.
- Service-port (Mini USB-B).
- RJ45 for LAN with LED indicators.
- Screw-terminals for:
Power, I/O and DCOUT.
- Angled screw-terminals for:
RS232, RS485, 1-Wire and DC-out.
- Jumpers for RS485, I/O and DC-out operating modes.

External Interfaces

- 3 x M20 cable glands.
- SMA female connector for cellular.
- SMA female connector for GNSS.
- RP-SMA female connector for BLE.
- RP-SMA female connector for WLAN.

Physical Characteristics

- Encapsulation:
Durable Polycarbonate plastic.
- TPE gasket.
- Colour: RAL 7035—light grey.
- Approx. 690 gram without accessories.
- W 130 x H 180 x D 60 mm.
[without external connectors]

Environmental Specification

- Operating temperature: -40 to 60°C.
- Battery charge temperature:
-10 to 45 °C
- Recommended storage temperature:
0 to 45°C.
- Humidity: 5..90% (non condensing).
- Impact resistance: IK08 [EN62262]
- UV resistance: UL 508.
- Flammability Rating: UL746C 5"
- Ingress Protection: IP65 [EN60529].

Approvals

- 2014/53/EU Radio Equipment Directive.
- 2014/30/EU EMC 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].



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Models Available

SKU: RT-LX9P