

# RTCU NX-200

## Advanced Automotive M2M / IoT Gateway

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

### For Professional M2M / IoT Applications

The RTCU NX-200 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 NX-200 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 twenty years Logic IO has been committed to offer the most sophisticated platform for advanced and highly demanding M2M / IoT applications.

The RTCU NX-200 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

- Powerful processor.
- Large memory capacity.
- World-wide LTE Cat.4 Cellular Engine.
- Multi-constellation GNSS.
- Wi-Fi.
- Bluetooth (Classic / Low Energy).
- Dual USB host port.
- Digital and analog input/outputs.
- Flex inputs (analog/digital mode).
- Dual Full CAN 2.0B support.
- Multiple RS232/RS485 channels.
- Modbus expandable I/O.
- Ethernet interface.
- 1-Wire bus.
- Digital audio with playback / record.
- Full range of motion sensors.
- Integrated battery backup.
- Compatible with the RTCU MX2 turbo.

### Platform Advantages

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

# RTCU NX-200 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:

- **World-wide LTE Cat. 4 Multi-Band Cellular Engine.**
- **Dual SIM-card readers** and support for eSIM.
- **Wireless LAN (Wi-Fi).**
- Classic and Low-Energy **Bluetooth.**
- **Multi-constellation GNSS with GPS, GLONASS and GALILEO.**
- **Optional: GNSS with Dead Reckoning.**

### Wired Communication:

- 100 Mbps **Ethernet** LAN interface.
- **2 x Full CAN 2.0B** controller with hardware filtering and multi-speed support.
- **1-Wire bus** for accessories such as ID-button reader, temperature sensors, etc.
- **2 x USB host** port for expandability.
- **2 x RS232** channels and **1 x RS485** channel.

### I/O Interfaces:

- **5 x digital inputs** and **4 x high-power solid-state digital outputs.**
- **4 x flex inputs** with dual-mode analog /digital operation.
- **2 x analog inputs with 12 bits resolution.**
- **Expandable I/O** with standard Modbus modules.

### User Interaction:

- **Digitized audio** with Speaker and Microphone jacks.
- **DTMF** support for Interactive Voice Response applications.
- High-speed **Mini-USB service-port** connector.
- Motion sensors: Accelerometer, Gyroscope and Magnetometer.

### Storage:

- Internal **flash drive** with up-to 512 MByte capacity.
- **Persistent memory** and circular **datalogger.**
- Standard **SD-CARD** reader.
- USB **flash media.**

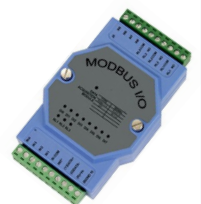


### Services Available

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

### Accessories

Modbus I/O extension modules.  
HD Camera with video stream.  
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 NX-200, please download the "**RTCU NX-200 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 NX-200 Specifications

## RTCU M2M Platform

- NX32L Execution Architecture.
- Fully NX32 compatible.
- Larger capacity and higher performance compared to NX32.
- Open and user-extendable API.
- RTCU M2M Platform SDK.

## NX32L Hardware Core

- Cortex-A5 32-bit ARM processor.
- Hardware floating point and DSP.
- 128 MByte LP-DDR RAM.
- 512 MByte NAND flash.
- 16 MByte NOR flash.
- 8 MByte Dataflash.
- 128 KByte SRAM with battery-backup.
- Real-time clock with battery-backup.

## Security

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

## Storage

- Persistent data flash.
- Non-volatile SRAM.
- Internal flash drive (Up-to 512 MByte).
- Circular datalogger.
- SD-CARD.
- USB flash media.

## Cellular Engine

- **LTE Cat.4 Engine(World Wide).**  
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, with Mini-SIM 1.8/3 volt.
- Application controlled SIM card.
- Optional eSIM.

## Wireless LAN

- WiFi at 2,4 GHz ISM bands.
- IEEE 801.11b/g/n/d/e/h/i.
- WPA/WPA2 certification.
- Up-to 150 Mbps.

## GNSS

- Multi-GNSS chip.
- GPS, GLONASS and GALILEO.
- 99 acquisition / 33 tracking channels.
- SBAS (WAAS,EGNOS,MSAS,GAGAN).
- A-GPS capable.
- Anti-jamming, Noise cancellation.
- Active 3 volt GNSS antenna.
- Optional: Dead Reckoning.

## Bluetooth

- Classic and Low Energy (LE).
- Bluetooth 2.1 + EDR up-to 3 Mbps
- Bluetooth 3.0 and 4.0 Dual mode.
- Intelligent co-existence with WLAN.

## Wired Communication

- 100BASE-T Ethernet interface.
- 2 x Full CAN2.0B with hardware filtering and multi-speed support.
- 2 x RS232. One with control signals.
- 1 x RS485.
- 1-Wire bus.
- 2 x USB host port. One with lock.
- USB service/programming port.

## Audio

- Fully digitized audio system.
- Transfer, store and play audio.
- Amplified speaker output.
- Microphone input.
- Digitized GSM audio.

## User Interaction

- 4 x bi-colour LED.
- DIP-switches.
- Virtual jumpers for RS485 and CAN termination.
- CAN write enable jumper on one port.
- Reset / recovery switch.



## Logic IO Worldwide Headquarters

Holmboes Allé 14  
8700 Horsens  
Denmark

Phone: +45 7625 0210

Fax: +45 7625 0211

Commercial enquiries: sales@logicio.com

Technical support: support@logicio.com

[www.logicio.com](http://www.logicio.com)

# RTCU NX-200 Specifications (continued)

## 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.
- 5 x digital inputs with ignition.  
Logic high: 8 to 40 VDC.  
Logic low: -5 to 3 VDC.  
Impedance: 14 kohm @ 12V.
- 4 x flex-inputs. Dual mode operation:  
Analog mode: 0..30VDC  
Digital mode: 0..30VDC.  
Impedance: 120 kohm @ 12V.  
Multi configuration support.
- 2 x analog inputs.  
Range is 0..10VDC.  
Resolution: 12 bit  
Accuracy: Typ. ±0.3% FSR @ 25°C.  
Impedance: 40 kohm (V).
- Protected against transients and low-pass filtered.

## Sensors

- Temperature sensor.
- 3-axis Accelerometer. ±16g@16b.
- 3-axis Gyroscope. ±2000dps @16b.
- 3-axis Magnetometer. ±50 gauss @16b.

## Electrical

- Operating voltage: 8 to 36 VDC.
- Short and reverse power protected.
- 5 VDC-out @ 300 mA.
- Dual USB 5 VDC @ 500 mA.

## Battery and Charger

- On-board 2.6Ah (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, Power change state.
- Wait for event, from: 0.4 mA@12V.
- Supervision of supply voltage / type.

## External Interfaces

- **Plug-compatible with the MX2 turbo.**
- SIM-card slots for mini-SIM card.
- SD-CARD slot.
- 2 x mini-jack for audio in/out.
- 4 x LED indicators and 2 x DIP switches.
- Reset/recovery switch.
- RJ45 for RS232 with full control signals.
- SMA Female connector for cellular.
- SMA-RP connector for WLAN and BT.
- SMA Female connector for GNSS.
- USB 2.0 Host port connectors.
- USB 2.0 Slave mini-USB connector.
- TE-Connectivity "Mate'n'Lok':  
RS232, RS485, CAN I/O, Power, Communicaton.

## Expandable

- I/O expansion Modbus modules.
- RFID-Reader\*.
- Additional Ethernet port.
- Additional RS232 / RS485 ports.
- Industrial USB hub.
- Camera with HD video streaming.
- Speaker and microphone.

## Physical Characteristics

- Encapsulation: Aluminium profile.
- Colour: Anodized natural grey.
- Material: Aluminum and plastic.
- Approx. 500 gram without accessories.
- W 148 x H 34 x D 122 mm.  
(without connectors / mounting flange).

## 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. 05 [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).



## Logic IO Worldwide Headquarters

Holmboes Allé 14  
8700 Horsens  
Denmark

Phone: +45 7625 0210

Fax: +45 7625 0211

Commercial enquiries: sales@logicio.com

Technical support: support@logicio.com

[www.logicio.com](http://www.logicio.com)

## Models Available

SKU: RT-NX200