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The M2M Enabler

DATA SHEET

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.

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 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.
- Worldwide LTE Cat.4 Cellular Engine.
- Multi-constellation L1 GNSS.
- Dead Reckoning (NX-200DR+).
- WLAN.
- 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.

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.

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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:

- **Worldwide LTE Cat. 4 Multi-Band Cellular Engine.**
- **Dual SIM-card readers** and support for **eSIM.**
- **Wireless LAN** (Wi-Fi).
- Classic and Low-Energy **Bluetooth**.
- **NX-200+: Multi-constellation L1 GNSS.**
- **NX-200DR+: GNSS with UDR / ADR.**

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.

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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.
- 128 KByte SRAM with battery-backup.
- Real-time clock with battery-backup.

Security

- Embedded firewall.
- TLS/SSL support with full certifcate 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 (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, with Mini-SIM 1.8/3 volt.
- Application controlled SIM card.
- Optional eSIM.

Wireless LAN

- WiFi at 2,4 GHz ISM bands.
- IEEE 802.11b/g/n/d/e/h/i.
- WPA/WPA2 certification.
- Up-to 150 Mbps.

GNSS

- Multi-constellation L1 positioning.
- GPS, GLONASS, Galileo, BeiDou and QZSS.
- SBAS: WAAS, EGNOS, MSAS, GAGAN.
- Active 3 volt GNSS antenna.

NX-200+

- Quectel LC26G engine.
- AGNSS (EASY / EPO) capable.
- 1.5 m CEP horizontal accuracy.
- Active interference cancellation.

NX-200DR+

- u-blox NEO-M9V with integrated IMU.
- Untethered Dead Reckoning (UDR).
- Automotive Dead Reckoning (ADR).
- Accuracy: 1.5 m CEP with SBAS; 2.0 m CEP without SBAS.
- Jamming and spoofing detection.

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.



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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.
- 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).



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Models Available
SKU: RT-NX200+
SKU: RT-NX200DR+

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