

RTCU-MX2i pro/pro+

Remote Telemetry and Control Unit

The RTCU MX2i pro/pro+ is the most powerful variants in the versatile MX2i family, and includes a list of advanced features only available on these *State of The Art* top products. Both products are especially suited for mobile tracking applications with on-board ultra high sensivity 66-channels SuperGPS-receiver and advanced power-management features. The units is fully supported by the RTCU IDE development tool and is fully back-ward compatible with previous generation of RTCU units. The RTCU MX2i pro+ variant additionally has 8 MByte of dataflash for the most memory demanding applications.



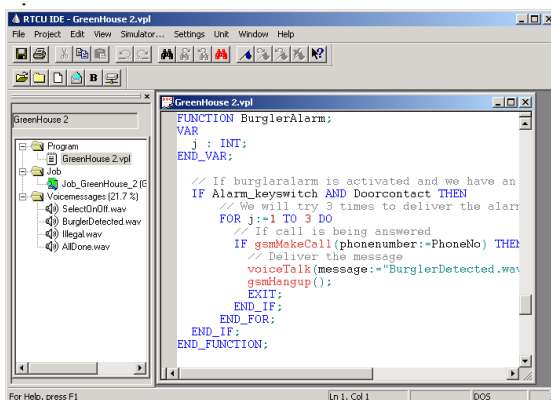
The RTCU-MX2i pro/pro+ product allows rapid development of custom specified applications combining mobile tracking / control / monitoring / datalogging with advanced communication techniques such as Voice / DTMF interaction (voice response systems), alarm / messages send to / from the unit as SMS (both as SMS and PDU) messages or via data-transfer directly to / from a Windows application. The RTCU-MX2i pro/pro+ includes a full TCP/IP stack and therefore fully support the GPRS technology. Using the Logic IO proprietary VSMS (Virtual SMS) technology SMS, GPRS and Datacalls (CSD) merges together allowing any RTCU application that uses SMS-messages to transparently send / receive messages using either SMS, GPRS or Datacall *without* any changes to the software already developed. The unit has full SMTP support for sending e-mails with attachments and file transfer with FTP for easy exchange of information with external sources.

The RTCU-MX2i pro/pro+ includes many sophisticated features, including a CAN-bus interface for connection to vehicle bus networks, 512 Kbyte internal flash drive and a SD-CARD reader with a FAT compatible file-system for easy sharing of files with a PC environment. There is optional support for Bluetooth, Ethernet, Wi-Fi, Camera module and a Mobile Data Terminal for user interaction. Also offered is full integration with Garmin Navigation devices for advanced Fleet Management, Messaging and Navigation applications.

The advanced power-management features on the RTCU-MX2i pro/pro+ combined with the on-board high-capacity Li-Ion battery allows the unit to stay in power-saving modes for a longer period of time capable of waking up on for example GSM activity, CAN-bus or RS232 activity, change of digital inputs or the vibration sensor! These features open up for the use of the RTCU-MX2i pro/pro+ in exciting new application areas where extremely low power consumption and flexible wake-up conditions are a crucial parameter for successful product integration.

Some of the application areas includes:

- ❖ Fleet management system with Navigation.
- ❖ Mobile tracking applications
- ❖ Mobile datalogging applications.
- ❖ Asset management.
- ❖ Alarm / Security systems
- ❖ *Your applications...*



The RTCU-IDE Integrated Development Environment for the RTCU, is an easy-to-use program for all aspects in the development of applications for the RTCU. The RTCU-IDE contains a broad range of features, such as project control, comprehensive online help, built-in syntax highlighting editor, code generating wizard, voice recorder etc. A built-in simulator enables complete simulation of all features on the RTCU: GSM, GPRS, SMS messaging, GPS, Analog / Digital I/O etc. A remote update feature allows the application developer to download new versions of a program, firmware or voice messages to a remote RTCU, via a modem connection or over GPRS. Together, all of these features enables the user to cut development time to a minimum.

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Powerful and Flexible Platform...

High Performance 32-bit Processor with Large Memory Capacity

- Powerful industry leading dedicated 32-bit ARM7 Processor
- Up to 10 times faster execution than previous RTCU generations
- 1088 KByte RAM
- 2304 KByte Flash for application, database and voice messages
- Large Dataflash for datalogging / parameters
 - 512 Kbyte on the RTCU MX2i pro
 - 8512 Kbyte on the RTCU MX2i pro+
- 512 Kbyte internal flash drive with FAT compatible file-system, for easy sharing of files with a PC.
- 8 KByte FRAM for fast access memory without any write endurance limitations
- Standard SD-CARD reader with FAT file-system support for standard PC-compatibility. Up to 32 GB capacity.

Extensive Range of Standard Features

- 5 Digital inputs, 4 Digital solid state outputs and 2 Analog inputs
- Primary RS232 serial port. Can be used as service port with special cable or as a standard RS232 port
- Secondary RS232 serial port with all control signals present
- Full CAN 2.0B Controller with hardware filtering and multi speed support
- Basic support for J1939 and FMS Automotive CAN bus protocols
- 1Wire support for connecting a range of accessories, such as ID-Button reader, Temperature sensors, etc.
- Nokia compatible headset connector with on-board audio amplifier
- Piezo buzzer for audible notification
- Two user available bi-color LED-Indicators with 3 colors: Green, Red and Yellow
- One bi-color and one yellow system LED indicating state of GSM, Power management, Battery charging etc.
- Two user accessible DIP-switches and one reset and system recovery switch
- Vibration sensor with user definable sensitivity
- Temperature sensor

State of The Art Communication Technology

- Quad Band (850/900/1800/1900 Mhz) GSM based on industry leading Texas Instruments Chipset solution
 - Voice. Digitized (182 seconds) and headset
 - SMS (Text and PDU)
 - GPRS. Multislot class 10. Support for simultaneous Voice and GPRS (suspended)
 - CSD (Datacall)
- Digitized voice and DTMF decoding. User spoken dictionary for implementation of voice response systems
- Ultra high-sensitivity low-power 66-channels **SuperGPS** receiver for deep urban/indoor use.
- Full SBAS (EGNOS / WAAS / MSAS) support for enhanced GPS precision
- Prepared for A-GPS.
- Standard NMEA verbs can be output to any serial port or received by the VPL application

Advanced Power Management

- On-board high-capacity (1900 mAh) Li-Ion battery pack with advanced charging circuit
- Supervision of supply voltage and supply type
- Several power-saving modes: Power-down, 'Wait for Event' and 5 Processor execution steps
- Wakeup from Power-down using Ignition (Digital input 5) and optional timer
- Wakeup from 'Wait for Event' using: Digital input, Vibration, Timeout, GSM-, CAN- or UART activity
- Real time clock with battery back-up



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...ready to meet ALL your requirements...

Highly Expandable

- RS485 Multidrop communication
- Li-Ion battery pack with support for low-temperature charging
- VGA CMOS Camera for intelligent remote surveillance
- High-sensitivity GPS-receiver capable of in-door tracking
- Bluetooth for wireless connection to Headset, PDA, PC, etc.
- Ethernet (cable) or Wi-Fi connection
- Mobile Data Terminal with backlit LCD and Keys as GUI
- Full integration to Garmin Navigation devices for advanced Fleet management / Messaging and Navigation applications.



Development Tools for Rapid Application Development

- Programmable using the FREE RTCU IDE full-feature development environment
- Easy to learn VPL high-level programming language based on EIC 1131-3 industrial standard
- More than 700+ standard functions and 900+ pages of on-line documentation suits every application
- Many example programs available to "kick-start" application development
- Full feature Microsoft Windows Simulator allowing test of complete application without use of physical unit
- VSMS technology seamlessly supports SMS, GPRS, CSD, Ethernet, Wi-Fi without application/server changes
- Full TCP/IP with simultaneous session support for GPRS Gateway, TCP/IP, UDP/IP, SMTP and FTP(coming).
- Seamless upgrade to future technologies
- 100% backward compatible with previous generation RTCU products

Industry Leading Deployment Features

- Full Logic IO GPRS Gateway Professional / Upgrade & Deployment server compatible
- Upgrade of application, firmware and parameters over CSD, GPRS and Cable
- Upgrade can occur during full unit operation minimizing the impact on the customer
- Unattended and fully automatic upgrade and deployment
- Automatic "bootstrap" of un-programmed unit on first time installation

Innovative Design

- Encapsulated in a compact custom designed aluminum housing
- All interfaces externally accessible for easy and safe installation
- Designed and developed in Denmark. Produced in EU.



Proven Technology from Logic IO

- All Hardware and Software developed by Logic IO
- In the GSM/GPRS/GPS business since 1999
- Practical experience from more than 40+ GSM networks
- Network of Partners around the globe
- More than 75.000 units in operation worldwide
- Logic IO has D&B highest credit rating **AAA** (2007/2009/2010)
- Rewarded the Gazelle Award 2007 / 2008 for strong growth






...and beyond!

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Technical Data

| | | | | | | |
|--|--|-----|-----|---|---|---|
| Power supply | Min | Typ | Max | | | |
| Operating Voltage | 8 | - | 36 | VDC | Protected against wrong polarity. | |
| On-board Li-Ion Battery Pack | | 1.8 | 2 | Ah | | |
| Unit Active | | 45 | | mA | GSM idle @ -63 dBm GSM idle @ -63 dBm Restart on: DI 5 and RTC Resume on: DI, Vibration, RTC Resume on: CAN Resume on: RS232 Resume on: GSM <i>Typical measurements @ 12 VDC Supply.</i> | |
| Unit Active with GSM On | | 55 | | mA | | |
| Unit Active with GPS On | | 60 | | mA | | |
| Unit Active with GSM/GPS On | | 70 | | mA | | |
| Unit Active while Charging | | 650 | | mA | | |
| Unit in Power-down | | 0.4 | | mA | | |
| Unit in "Wait for Event" | | 0.4 | | mA | | |
| Unit in "Wait for Event" | | 10 | | mA | | |
| Unit in "Wait for Event" | | 8 | | mA | | |
| Unit in "Wait for Event", GSM On | | 15 | | mA | | |
| | | Min | Typ | Max | | |
| Digital inputs | Logic "High" | 8 | 12 | 40 | VDC | All inputs are protected against transients and low-pass filtered. |
| | Logic "Low" | -5 | - | 3 | VDC | |
| Digital outputs (Solid state) | Min | | | Max | | Protected against: Short circuit, ESD and inductive (Relay) kickback up to 20mH. |
| | - | - | | 36 | VDC | |
| | - | - | | 1.5 | A | |
| Analog inputs | Min | | | Max | | Resolution is 10 bits. All inputs are protected against transients and low-pass filtered. |
| | 0 | - | | +10 | VDC | |
| Storage temperature: | -30 | - | +65 | °C | External interfaces: • TYCO "Mate'n'Lock" connector for: ▪ RS232 port 1 (service port) ▪ Power, Digital I/O, Analog Input ▪ CAN, RS485 • RJ45 for RS232 port 2 (EIA-561 compliant) • Three bi-color LED and one yellow status LED • Two DIP-Switches • SMA-Female connector for GSM antenna • SMB-Male for active 3 Volt GPS antenna • Standard 3 Volt SIM-Card reader (external access) • Nokia compatible Micro-Jack headset connector All interfaces are externally accessible | |
| Operating temperature <small>(According to GSM 11.10 specification)</small> | -25 | - | +55 | °C | | |
| Restricted operation <small>(deviations from the GSM specification may occur)</small> | -30 | - | +65 | °C | | |
| Charging Temperature | -10 | - | +45 | °C | | |
| Humidity (non condensing) | 5 | - | 90 | % | | |
| Weight | 0.300 | | | Kg | | |
| External dimensions | W 97 x H 35 x D 132 mm | | | without SMA and SMB connectors | | |
| Ingress Protection (IP) | IP30 (SIM/SD/Connectors in use) | | | Aluminum enclosure with | | |
| Approvals | EN-61000-6-3;2001 Emission EN-61000-6-2;2001 Immunity | | |  10R-024899  034899  | | |

Technical data subject to change



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