

RTCU-MX2i eco+

Remote Telemetry and Control Unit

The RTCU MX2i eco+ is positioned strategically between the full powered MX2i pro and the low-cost MX2i basic. Compared to the full powered MX2i pro the RTCU MX2i eco+ still maintains crucial core functionality such as a high-capacity battery, 1-wire support, full I/O capabilities, and support for X32 enhanced memory for extremely huge programs! Fully supported by the RTCU IDE development tools and is of course fully backward compatible.



Now with SuperGPS!

The RTCU-MX2i eco+ product allows rapid development of custom specified applications combining mobile tracking / control / monitoring / datalogging with advanced communication techniques such as 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 eco+ 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.

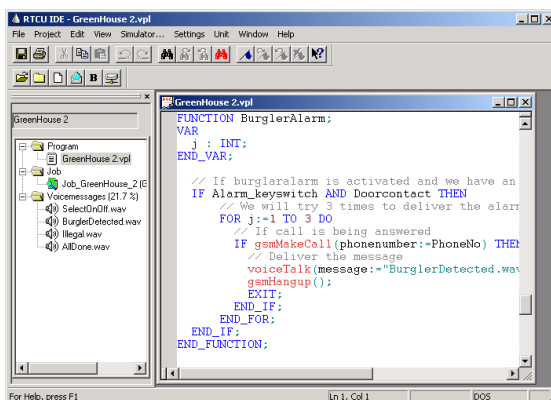
The RTCU-MX2i eco+ is fully programmable using the user-friendly Integrated Development Environment (RTCU IDE) running under Windows. In the environment the complete application is developed, simulated and finally transferred to the unit via a standard serial port, or alternatively using the GSM Datacall / GPRS capability.

The RTCU-MX2i eco+ includes many sophisticated features, including an 512 KByte internal flash drive with a FAT compatible file-system for easy sharing of files with a PC. The advanced power-management features on the RTCU-MX2i eco+ 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, change of digital inputs or a vibration sensor! The on-board high performance 66-channels **SuperGPS** receiver makes implementation of location based applications a swift.

These features open up for the use of the RTCU-MX2i eco+ in exciting 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.
- ❖ Mobile datalogging applications.
- ❖ Alarm / Security systems
- ❖ Mobile tracking applications
- ❖ Asset management.
- ❖ *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
- 512 Kbyte Dataflash for datalogging / parameters
- 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

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
- 1-Wire support for connecting a range of accessories, such as ID-Button reader, Temperature sensors, etc.
- 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.
- 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
 - SMS (Text and PDU)
 - GPRS. Multislot class 10.
 - CSD (Datacall)
- On-board ultra high-sensitivity low-power 66-channels **SuperGPS** receiver for deep urban/indoor use.
- Full SBAS (EGNOS / WAAS / MSAS) support for enhanced GPS precision
- Standard NMEA verbs can be output to the 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
- Mobile Data Terminal with backlit LCD and Keys as GUI
- Garmin Fleet Management Interface for advanced fleet management and navigation support.



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 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 50.000 units in operation worldwide
- Logic IO has D&B highest credit rating **AAA** (2007 and 2009)
- 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		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: RS232 Resume on: GSM <i>Typical measurements @ 12 VDC Supply.</i>	
Unit Active with GSM On		50		mA		
Unit Active with GPS On		65		mA		
Unit Active with GSM/GPS On		75		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"		7		mA		
Unit in "Wait for Event", GSM On		15		mA		
Digital inputs		Min	Typ	Max		
	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		
		-	-	36	VDC	Protected against: Short circuit, ESD and inductive (Relay) kickback up to 20mH.
		-	-	1.5	A	
Analog inputs		Min		Max		
		0	-	+10	VDC	Resolution is 10 bits. All inputs are protected against transients and low-pass filtered.
Storage temperature:	-30	-	+65	°C	External interfaces: • TYCO "Mate'n'Lock" connector for: ▪ RS232 port 1 (service port) ▪ Power, Digital I/O, Analog Input ▪ RS485, 1-wire • Three bi-color LED and one yellow status LED • SMA-Female connector for GSM antenna • SMB-Male for active 3 Volt GPS antenna • Standard 3 Volt SIM-Card reader (external access)	
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 <small>(Low temperature charging available)</small>	0	-	+45	°C		
Humidity (non condensing)	5	-	90	%		
Weight	0.300			Kg		All interfaces are externally accessible
External dimensions	W 97 x H 35 x D 132 mm				without SMA and SMB connectors	
Ingress Protection (IP)	IP40 (SIM/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

For more information:

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