

RTCU-MX2i *eco*

Remote Telemetry and Control Unit

The RTCU-MX2i *eco* is a low cost version of the popular RTCU-MX2i *eco+*. With a reduced feature set compared to the RTCU-MX2i *eco+* the product has a perfect balance between price and performance, and together the two products offers a unique platform for all kind of applications. The price-level of the RTCU MX2i *eco* belongs to the entry-level segment, but the advanced features are in a league of its own!



The RTCU-MX2i *eco* product allows rapid development of custom specified applications combining mobile tracking / control / monitoring / datalogging with advanced communication techniques 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 *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 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. Full software backward compatibility to previous generation of RTCU units, so that already written/tested applications can be reused.

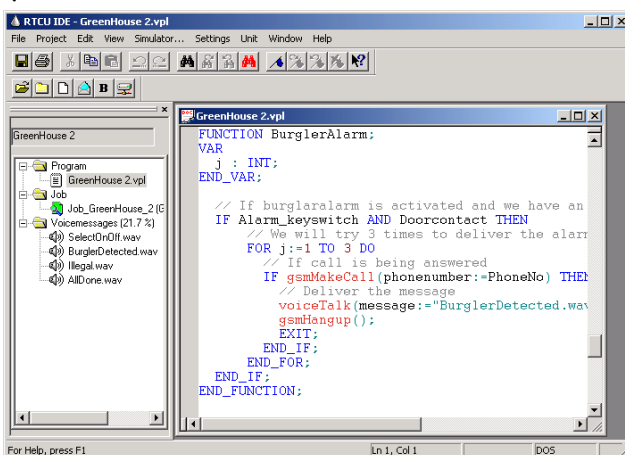
The advanced power-management features on the RTCU-MX2i *eco* allows the unit to stay in power-saving modes for a longer period of time still being connected to the GSM network and capable of waking up on for example GSM activity, change of digital inputs or a vibration sensor!

The on-board high performance 16-channel GPS receiver makes implementation of location based applications a swift.

These features open up for the use of the RTCU-MX2i *eco* 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.
- ❖ 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 and database.
- 512 Kbyte Dataflash for datalogging/parameters
- 8 KByte FRAM for fast access memory without any write endurance limitations

Extensive Range of Standard Features

- 5 Digital inputs and 4 Digital solid state outputs.
- RS232 serial port. Can be used as service port with special cable or as a standard RS232 port
- 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 and Power management.
- 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 high-performance 16 channel GPS-receiver with low-power consumption
- Full SBAS (EGNOS / WAAS / MSAS) support for enhanced GPS precision
- Prepared for A-GPS.
- Standard NMEA verbs can be output to the serial port or received by the VPL application

Advanced Power Management

- Supervision of supply voltage
- 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-, or UART activity
- Real time clock



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

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 600+ standard functions and 800 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
- 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 35.000 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.	
Unit Active		45		mA		
Unit Active with GSM On		50		mA	GSM idle @ -63 dBm	
Unit Active with GPS On		65		mA		
Unit Active with GSM/GPS On		75		mA	GSM idle @ -63 dBm	
Unit in Power-down		0.3		mA	Restart on: DI 5 and RTC	
Unit in "Wait for Event"		0.4		mA	Resume on: DI, Vibration, RTC	
Unit in "Wait for Event"		7		mA	Resume on: RS232	
Unit in "Wait for Event", GSM On		15		mA	Resume on: GSM <i>Typical measurements @ 12 VDC Supply.</i>	
	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	
	Min		Max			
Digital outputs (Solid state)	-	-	36	VDC	Protected against: Short circuit, ESD and inductive (Relay) kickback up to 20mH.	
	-	-	1.5	A		
Storage temperature	-40	-	+85	°C	External interfaces: • TYCO "Mate'n'Lock" connector for: ▪ RS232 port 1 (service port) ▪ Power, Digital I/O • 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) All interfaces are externally accessible	
Operating temperature (According to GSM 11.10 specification)	-25	-	+55	°C		
Restricted operation (deviations from the GSM specification may occur)	-30	-	+65	°C		
Humidity (non condensing)	5	-	90	%		
Weight	0.2			Kg		
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		
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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