RTCU AX9 pro

Remote Telemetry and Control Unit

The RTCU AX9 pro is designed for a broad range of advanced wireless monitoring, control and remote access applications which require a product based on the most versatile and powerful platform available today. Being based on the well proven RTCU X32-architecture, the RTCU AX9 shares the same powerful features as the other members of this family with advanced features such as: ISM band RF communication, multiple RS485 ports with full Modbus slave/master support, transparent support for Modbus based I/O module extension and support for a M2M chip instead of a traditional SIM-card!

The RTCU AX9 pro has been designed ground up for professional wireless industrial applications with its strong on-board I/O capabilities and multiple communication interfaces such as: 1-Wire, USB, RS232 and dual RS485 channels. In addition to full quad-band GSM for long-range wireless communication the RTCU AX9 pro integrates support for RF ISM for short range wireless communication. The on-board I/O system can be expanded almost indefinitely and completely transparent by adding external Modbus compatible I/O modules! This unique I/O expansion capability, combined with the possibility to operate as a Modbus master and slave simultaneously, positions the RTCU AX9 pro as the perfect product for SCADA-like applications.

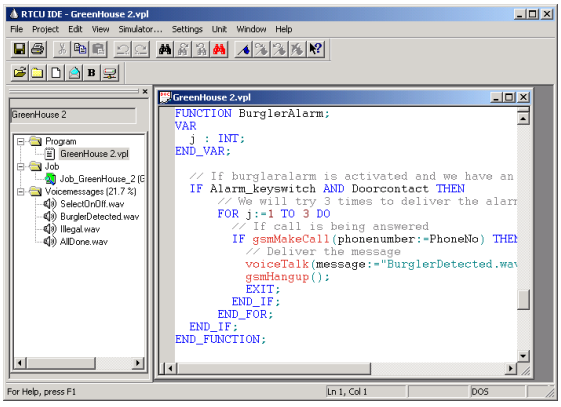
The RTCU AX9 pro offers many other sophisticated features such as: A 512 Kbyte internal flash drive and a Micro SD-CARD reader with a FAT32 compatible file-system for easy sharing of files locally and remotely. There is optional support for Bluetooth, Ethernet, Wi-Fi, Camera and a Mobile Data Terminal for user interaction.

The RTCU AX9 pro is based on the well proven RTCU X32-architecture sharing powerful features such as: IVR (Interactive Voice Response) implementation using Voice/DTMF, SMS/PDU messages, optimized host implemented TCP/IP stack with full support the Logic IO Gateway concept. Using the Logic IO VSMS (Virtual SMS) technology SMS, GPRS and CSD (Datacall) merges together allowing any RTCU application, that uses the VSMS-messages paradigm to transparently send / receive messages using either SMS, GPRS or CSD (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 AX9 pro is of course 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 USB port or remotely using GPRS or CSD (Datacall).

Some of the application areas includes:

- ❖ Surveillance and control of industrial equipment.
- ❖ Remote site control and data acquisition.
- ❖ Alarm and security systems.
- ❖ Process monitoring and reporting application.
- ❖ SCADA-like applications.
- ❖ *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, 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

X32 Architecture!

- Powerful industry leading dedicated 32-bit ARM7 Processor
- 1088 KByte RAM
- 2304 KByte Flash for application, database and voice messages
- 512 Kbyte Dataflash for datalogging / parameters.
  - Support for additional 8 MByte DataFlash (*future option*).
- 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
- Micro SD-CARD reader with FAT32 file-system support for standard PC-compatibility. Up to 32 GB capacity.

Extensive Range of Standard Features

- 4 digital relay outputs, 5 digital inputs, 4 analog outputs and 4 analog inputs.
- Digital input 1-4 can individually be configured to operate as IEC62053-31 Class A compliant inputs.
- All analog inputs and outputs can be configured individually to either 0-10V or 0-20mA range.
- Dedicated high-speed USB programming port providing improved communication speed.
- Primary RS232 serial port as a generic RS232 port.
- Secondary RS232 serial port with RTS/CTS handshake signals present.
- RS485 multidrop communication port with support for Modbus slave/master and IO extension modules.
- 1-Wire support for connecting a range of accessories, such as ID-Button reader, Temperature sensors, etc.
- Medium range 868 MHz ISM band RF transceiver with on-board antenna.
- Two user available bi-color LED-Indicators with 3 colors: Green, Red and Yellow.
- Three user accessible DIP-switches and one reset and system recovery switch.
- On-board temperature sensor.
- Wide AC/DC power range from 85..265 VAC / 8..36 VDC.
- Screw terminals for easy interfacing

State of The Art Communication Technology

- Quad Band (850/900/1800/1900 Mhz) GSM based on industry leading chipset solution
  - Voice. Digitized (182 seconds)
  - SMS (Text and PDU)
  - GPRS. Multislot class 10.
  - CSD (Datacall)
  - Voice, GPRS and CSD handled simultaneously by an advanced GSM host implementation.
- Support for optional Gemalto M2M chip solution instead of a removable SIM card (factory mounted).
- On-board quad-band GSM antenna for cost and installation saving, or SMA connector for external antenna.
- Digitized voice and DTMF decoding. User spoken dictionary for implementation of voice response systems

Advanced Power Management

- High-capacity (1900 mAh) Li-Ion battery pack. Advanced charging circuit is implemented.
- 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, Timeout, GSM-, or UART activity




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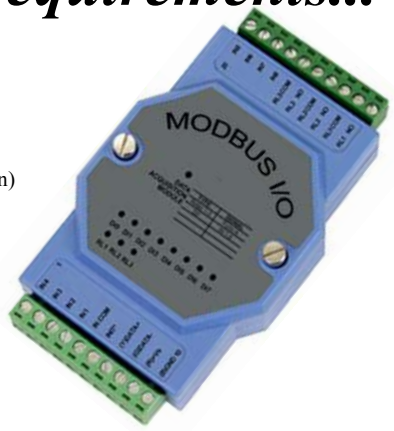
...ready to meet ALL your requirements...



Highly Expandable

- Additional RS485 port (for a total of 2 ports).
- Additional 8 MBytes of DataFlash for datalogging / parameters (future option)
- VGA CMOS Camera for intelligent remote surveillance.
- Bluetooth for wireless connection to Headset, PDA, PC, etc.
- Ethernet (cable) or Wi-Fi connection.
- Modbus based I/O extension modules.
- Mobile Data Terminal for advanced user interaction.
- Internal expansion slot for possible future modules:
  Zigbee, Ethernet, WiFi, Tetra, GPS etc.

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.
- 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

- Strong IP67 encapsulation for flexible installation options.
- 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 the highest credit rating AAA
- Awarded the Danish Gazelle Award 2007/08 for strong growth.

...and beyond!

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Technical Data

		Min	Typ DC	Typ AC	Max		
Power supply							
On-board Li-Ion Battery Pack			1900			mAh	
Operating Voltage AC		85	-	-	265	VAC	Fused
Operating Voltage DC		8	-	-	36	VDC	Protected against wrong polarity.
Unit Active			50 mA	8 VA			*Typical measurements @ 12 VDC / 220 VAC. All outputs are OFF*
Unit Active with GSM on			60 mA	8,5 VA			GSM idle @ -63 dBm
Unit Active with RF Sending			55 mA	8,5 VA			@ 10 dBm
Unit Active while charging			530 mA	17,5 VA			
Unit in Power-down			0,8 mA	6,6 VA			
Unit in "Wait for Event"			0,8 mA	7 VA			Resume on: DI, RTC
Unit in "Wait for Event"			6 mA	7 VA			Resume on: RS232
Unit in "Wait for Event", GSM On			20 mA	7 VA			Resume on: GSM
Digital Outputs (Relay SPST)		-	-		5	A	@ 250VAC / @ 30VDC
Digital Inputs	Logic "High"	6	-		40	VDC	All inputs are protected against transients and low-pass filtered
	Logic "Low"	-5	-		3	VDC	
Analog Outputs		0	-		10	VDC	Resolution is 10 bits. Max load: 250 Ω. Accuracy @ 25°C ±1,5 % FSR.
		0	-		20	mA	
Analog Inputs		0	-		10	VDC	Resolution is 10 bits. All inputs are protected against transients and low-pass filtered. Accuracy @ 25°C ±1,5 % FSR.
		0	-		20	mA	

• GSM Radio Frequency	850 / 900 / 1800 / 1900 MHz
• GSM Transmit Power	Class 4 (2W@850/900 MHz) Class 1 (1W@1800/1900 MHz)
• GPRS Packet Mode	Class B, Multislot 10

On-board ISM RF		
• Frequency	869,4 MHz	GFSK modulation
• Channel Spacing	250 kHz	Automatic frequency compensation
• Maximum Transmit Power	+10 dBm	Compliant with EN 300 220
• Receiver Sensitivity	-112 dBm	Operating range depends on the environment.
• Operating Range	Indoor: up to 15 m / Outdoor: up to 50 m	Outdoor range is at line-of-sight

Storage Temperature	-30	-	+65	°C
Operating Temperature (According to GSM 11.10 specification)	-25	-	+55	°C
Restricted Operation (deviation from the GSM specification may occur)	-30	-	+65	°C
Charging Temperature	-10	-	+45	°C
Humidity (non condensing)	5	-	90	%
Weight	0,680			Kg

External Interfaces:
- 3 PG11, 2 PG9(blind) cable glands for cable entry
- SMA-Female for GSM Antenna (Only with external GSM antenna)

Internal Interfaces:
- USB B
- Micro SD-card reader
- SIM-card reader
- Easy accessible screw terminals

External dimensions	W 130 x H 180 x D 60 mm Without SMA connector, and PG11 and PG9 cable glands
Ingress Protection (IP)	IP-67 (int. ant.) / IP-66 (ext. ant)
Approvals	EN 61000-6-2 EN 61000-6-3 **EU EMC Directive 2004/108/EU**

For more information:
Web: www.logicio.com
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Technical data subject to change

Version UK 1.05

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