

For IoT, M2M and industrial applications

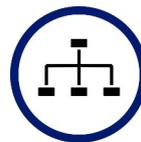


RGX-840 IoT Gateway

The RGX-840 LTE / 4G IoT Gateway was specially developed to implement a wide range of industrial and mobile IoT applications with the least possible time and development effort. The system is based on a freely programmable Debian Linux system with full Node-RED support. The powerful and extremely energy-saving, industrial RPi-compatible ARM quad-core platform is compatible with modern software packages and ensures fast execution even with demanding applications.



Modern radio technology
LTE / 4G, GNSS (GPS/GLONASS),
WiFi, Bluetooth, BLE



Comprehensive interfaces
LAN, CAN bus, RS485, RS232, USB,
GPIO, M-Bus
Custom designs possible



Node-RED ready to run
Applications in graphical user interface,
created quickly and easily
Ready-to-use node for interfaces
Development support available



Industrial RPi
Industrial version of the RPi system,
compatible with Raspberry Pi
Considerable time and cost savings
for administration and software creation



Free programmability
C/C++, Python, NodeJS, Java, PHP, HTML,
CSS, SQL etc.



Standard Debian System
Freely configurable and programmable
Full functionality
Adjustment support possible



Cloud connection quick and easy
MS Azure, Amazon AWS, Google Cloud,
Cumulocity, Private Server etc.



Extensive VPN support
OpenVPN, IPSEC, Wireguard
Installation support possible



Powerful computer platform
1.5GHz QuadCore, main memory 1GB
(2/4/8 GB on request)
up to 128GB flash storage
Rpi compatible system



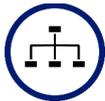
TPM 2.0 Security
Optional integrated TPM 2 chip
TPM2Tools



Modern radio technology

The integrated 4G / LTE technology of the RGX-840 ensures reliable, wireless internet access. The automatic fallback to 3G and 2G guarantees optimal internet availability. A fail-safe permanent link technology was developed for the cellular connection. The connection is established automatically and automatically restored at any time in the event of an interruption. The radio module can be fully controlled and also reset by software.

The integrated WiFi module can be operated in both client and access point mode. Both at the same time are also possible. The also integrated Bluetooth interface of version V5.0 offers BLE functionality. For example battery-operated sensors according to the BLE standard can be connected.



Extensive range of interfaces

An extensive set of industry standard interfaces is available for coupling and collecting the data on site:

- LAN
- RS485/RS232 Ports and terminal connection
- CAN Ports
- Digital-IO, M-Bus
- Acceleration, onboard temperature
- HDMI Display Port
- Customizations and Extensions are possible at any time



Quick and easy implementation of the application with NodeRED

The RGX-840 system supports a ready-to-use Node-RED installation in the latest version. The version is equipped with full functionality including the compatibility of nodes. Specially developed nodes are included for the operation of all hardware components. Furthermore, nodes for standard protocols such as Modbus-TCP, Modbus-RTU etc. are available.

Node-RED typically reduces the development time for specific application systems considerably and can be used for professional productive systems at any time. Axotec also offers development support for new developments or modifications of nodes and applications.



Powerful and energy-saving industrial RPi computer platform

IoT applications are characterized by very different ranges of requirements. The powerful and extremely energy-saving computer architecture with simultaneous compatibility with the RPi platform, which is widely used in the industry, ideally meets the requirement:

- 1.5 GHz QuadCore system with 1 GB RAM (2/4/8 GB on request)
- 16GB to 128GB onboard flash memory
- Compatible with industry standard Raspberry Pi
- low power consumption
- extended temperature range
- Powercontrol



Free programmability

For programming the RGX-840, all common programming languages are available in their current version through the use of the standard Debian system. Examples are C / C ++, Python, NodeJS, Java, PHP, HTML, CSS and SQL etc. Proven systems such as Netbeans, Eclipse, Remote-GDB etc. are available as development systems.



Open standard Debian system

RGX-840 comes with an operational Debian Linux. It is a fully featured standard Debian system. This means that practically all common software packages are available and can be installed automatically at the push of a button. Examples are Apache, LightTPD, NPM, MySQL, SQLite, PostgreSQL, Docker, Paho, Codesys etc.

The standard Debian operating system is of course freely configurable. Access to the command line is already set up and accessible via the serial terminal interface and via network and ssh access. Axotec offers development support for the connection of specific hardware such as RFID readers, barcode readers, USB adapters, sensors, etc.



Cloud connection to the leading providers or to your own cloud

The connection to the common cloud providers such as Microsoft Azure / Amazon AWS / Google Cloud / Cumulocity is possible without any problems.

A connection to a private cloud is also easy to implement. The common required services and protocols such as MQTT and REST are ready for operation.



Support of all common VPN technologies

VPN technology is regularly used for secure data transmission. Often the VPN technology used cannot be freely selected due to existing infrastructures or other reasons. Therefore, the RGX-840 supports the common VPN technologies OpenVPN and IPsec. OpenVPN, StrongSwan and Wireguard can be used directly as packages. Axotec can offer support with the configuration and commissioning of VPN technology.



TPM-Security

An integrated TPM chip is optionally available. This has a wide range of possible uses in the area of security for IoT applications, for example for storing cryptographic keys, for generating real random numbers and for authentication. TPM2 software stack support is available as well as e.g. authentication with cloud services.



Codesys

A ready-to-use Codesys implementation is also available for the RGX-840 system. With this RGX-840 can e.g. operated as a soft PLC. CANopen and J1939 stacks are automatically included.

	RGX-840 CAN	RGX-840 RS485	RGX-840 FLEX
Linux Operating System	Debian 11/Bullseye based Raspbian system with full access to software, tools and Rpi know-how		
Processor	1.5GHz Cortex A72 Quad core		
Flash	16GB onboard flash memory, optional up to 128GB (factory option)		
Main memory	1GB main memory (2/4/8 GB on request)		
LTE/4G	Dual-Band TDD-LTE B38/B40, Five-Band FDD-LTE B1/B3/B7/B8/B20, Dual-Band UMTS/HSDPA/HSPA+ B1/B8, Dual-Band GSM/GPRS/EDGE 900/1800 MHz Powercontrol and Reset of the module can be controlled independently via software		
4G antenna connector	SMA female connector, Optional: auxiliary antenna connector, optional FAKRA connector		
GNSS (GPS, GLONASS)	Protocol: NMEA-0183, GPS supports MS/UE-based, MS/UE-assisted and hybrid modes with AFLT (CDMA), NMR (GSM), and MRL(UMTS, WCDMA, LTE), standalone and network-aware modes , A-GPS Accuracy: 2.5m (CEP50) TTFF (Open Sky), Hot start <1s, Cold start 35s , GPS: Cold start sensitivity: -148dBm, Tracking sensitivity: 159 dBm, GLONASS: Tracking sensitivity -158 dBm		
GNSS antenna connector	SMA female connector, integrated power supply for active antennas, optional FAKRA connector		
Integrated WiFi	Optional WiFi 802b/g/n/ac with external antenna connector (combined with external Bluetooth antenna if option is present)		
Integrated Bluetooth	Optional Bluetooth V5.0, BLE with external antenna connector (combined with external WiFi antenna if option is present)		
CAN-Bus, 2.0A/2.0B	2	-	0/1/2
Network	1 x GBit Ethernet Port		
USB Host	2 x USB host 2.0 high speed 480MBit/s, Power supply of each USB port can be controlled by software So the USB device can be reset by software without user intervention		
RS232 Console	1 x RS232 - Console interface		
RS232 / RS485	-	1 RS485	0/1 x RS232 or 0/1 x RS485
Digital inputs	2 digital, isolated inputs	-	0/2 digital, isolated inputs
Digital outputs	2 digital outputs	-	0/2 digital outputs
HDMI Port	HDMI Interface Typ A connector		
RTC	Battery-buffered RTC		
Sensors	3-Axis acceleration: +-2G,+-4G,+-8G, Temperature sensor: -40°C..+85°C		
Status LEDs	1 x Power on, 1 x Flash access, 4 user-programmable LED's LTE/4G status		
Hardware Watchdog	Hardware Watchdog for automatic reboot trigger Can be combined with Linux Watchdog		
Power supply	Wide range DC input 9..34 Volts with polarity protection, Industrial connector		
Powercontrol	The optional power control input can e.g. be directly attached to the ignition terminal. If the ignition is switched off, the application gets a switch-off request.		
Temperature	Storage: -40°C..+85°C, Standard operational: 0°C..+70°C non condensing Wide Temperature models, operational extended: -25°C..+70°C non condensing		
Case	Sturdy aluminum housing, Dimensions: ca. 102 x 95 x 31 mm		
Mounting options	Mounting brackets, DIN-Rail holder		