

For IoT, M2M and industrial applications, long-term available



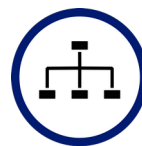
RGX-840 IoT Gateway

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, WiFi, Bluetooth, BLE, BLE5 long range



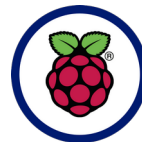
Comprehensive interfaces

LAN, CAN bus, RS485, RS232, USB, GPIO, 1-Wire, I2C, 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 Version V3.8, NodeJS V12, Java V11, PHP V7, 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

1.2GHz QuadCore, 1GB main memory eMMC and up to 128GB flash storage
RPi compatible system



TPM 2.0 Security

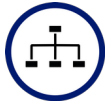
Optional integrated TPM 2 chip
TPM2Tools



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 V4.1. offers BLE functionality. For example battery-operated sensors according to the BLE standard can be connected. A Bluetooth interface of version 5.0 BLE long range is also optionally available.



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, 1-Wire, I2C, 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 compilability 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:

- 1.2 GHz QuadCore system with 1 GB RAM
- 4GB to 128GB onboard flash memory eMMC and microSD technology
- Compatible with industry standard Raspberry Pi
- Power consumption from 3-4 watts
- 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 Version V3.8, NodeJS V12, Java V11, PHP V7, 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 9/Stretch based Raspbian system with full access to software, tools and Rpi know-how		
Processor	1.2GHz Cortex A53 Quad core		
Flash	4 GB eMMC onboard alternatively up to 128GB microSD onboard Flash memory (factory option)		
Main memory	1GB Low Power DDR2 memory		
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 with external antenna connector (combined with external Bluetooth antenna if option is present)		
Integrated Bluetooth	Optional Bluetooth V4.1, V3.0+HS, V2.1+EDR 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 10/100 BaseT 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 (BT is disabled with this option)	0/1 x RS232 or 0/1 x RS485 (BT is disabled with this option)
Digital inputs	2 digital, isolated inputs	-	0/2 digital, isolated inputs
Digital outputs	2 digital outputs	-	0/2 digital outputs
HDMI Port	Optional: HDMI Interface Typ A connector		
RTC	Battery-buffered RTC		
Sensors	3-Axis acceleration: +-2G,+4G,+8G, Temperature sensor: -40°C..+85°C		
1-Wire	-	-	0/1
I2C Port	-	-	0/1
Status LEDs	1 x Power on, 1 x eMMC access, 4 user-programmable LED's LTE/4G status		
Hardware Watchdog	Hardware Watchdog for automatic reboot trigger Can be combined with Linux Watchdog		
ActionButton	Hidden button for starting a user-specific program or script		
Power supply	Wide range DC input 8..40 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, -30°C..+70°C non condensing with onboard microSD		
Case	Sturdy aluminum housing, Dimensions: ca. 102 x 95 x 31 mm		
Mounting options	Mounting brackets, DIN-Rail holder		