

TGU-R Access

TGU-R Access is a rugged Telematics gateway unit aimed at customers requiring secure communication across multiple media in a harsh environment. TGU-R Access reduces time-to-market by providing an off-the-shelf solution. The adaptable open-source platform opens the door to improved fleet and asset management as well as reduced total cost of ownership (TCO). TGU-R Access is available in two regional cellular variants. A single 'worldwide' variant will be added at the end of 2020.

ACTIA's knowhow in Telematics combined with its long history in diagnostics, will give any OEM an unprecedented edge to compete and grow market share.

TGU-R Access is suitable for hosting a number of Telematics services such as trace and tracking, fleet management and remote diagnostics. User applications are simple to implement using the onboard software development kit (SDK). This can be done directly by the customer or by ACTIA.

The configurable hardware platform provides a variety of electrical and wireless interfaces such as LTE (4G), WiFi, Bluetooth, CAN, RS232, USB and Ethernet. The optional backup supply supports operation in the event of main supply loss.



Wireless:

LTE Cat 3 with 3G/2G fallback. WiFi ac 'access point' and 'station mode' WiFi ac. GNSS. Bluetooth Classic and Low Energy. Integrated antennas for LTE2, Bluetooth and WiFi. Ports for LTE1, GNSS and WiFi external antennas.



Subscription:

SIM or eSIM. Support for eUICC negotiable on customer request.



Network:

Ethernet 100 Base-TX port, USB2.0, CAN, RS232, 1 Wire, LIN.



Processing:

System operation is managed by a 'system on chip' with a 32 bit ARM V7 Cortex A9 core offering up to 2000 DMIPS. DDR3 RAM 256MB and 4GByte eMMC as standard (both can be scaled upwards).



Middleware:

Software Development Kit (SDK) with libraries provides full support for customer applications such as data management and processing.



Security:

Container solution based on LXC with separate capabilities for each container. Signed update images handled on application level. All interfaces including debug ports closed as default



Upgrade:

Software download is supported via the electrical network/s and 'over the air' via the cellular or WiFi radio link.



Interfaces:

Generic inputs/outputs and main supply. Analogue, digital and frequency inputs. Digital high side output



Supply:

The flexible supply concept supports operation with 12V, and 24V systems (extendable supply range to 52V). The optional battery ensures that critical functions continue if the main supply is lost and ensures clean shutdown and network de-registration.



Peripherals:

Standard peripherals include a XYZ-axis accelerometer and gyro, two LEDs for diagnostics, real time clock and a temperature sensor.

Technical specification

Cellular modem

2G/3G NAD or 2G/3G/4G (LTE) NAD

- 2 regional variants: EU/W, US (China and Japan not supported)
- Worldwide 2G/3G/4G variant (available 2021 Q1)

WiFi and Bluetooth

Access point (AP) and station mode (STA) operation 801.11 b/g/n/ac operation on 2.4GHz and 5.0GHz. Bluetooth 4.1.

Positioning

Satellite position based on GPS and Glonass. 1 position/sec. Accuracy <3m.

CPU

Single core 32 bit ARM V7 Cortex A9 processor
Memory RAM 256MB (up to 1 GB) / NAND Flash 256MB (up to 512MB) / eMMC Flash 4 GB (up to 32 GB)

Supply

Primary supply:

- Operating voltage: 8V to 32V (extendable to 52V)
- Consumption (@24V): 1A (norm), 250µA (sleep)

Optional backup battery:

- 1000mAh

Wakeup sources:

- Cellular activity (standby mode)
- Wake input
- CAN (1 x non-isolated interface)
- RTC trigger
- Internal Accelerometer/Gyro
- Main supply disconnect / Backup supply low

Internal sensors and indicators

- 3 x LEDs (Red, Green, Blue)
- XYZ accelerometer 2g – 16g
- XYZ gyro 125°/s – 2000°/s
- Temp sensor -40°C – 125°C
- RTC supplied via backup battery

Interfaces

- 3 x Analogue inputs
- 2 x Digital or frequency inputs
- 4 x High side output (500mA)
- 1 x LIN / K-Line
- 1 x Digital 'wake' input
- 1 x One wire interface

Serial data interfaces:

- 1 x Ethernet 100 Base-Tx
- 1 x Isolated CAN and 1 x non-isolated CAN
- 1 x USB 2.0 OTG Full speed / High Speed

Connectors

- 1 x Main connector: Tyco 34-pin Superseal
- 1 x USB connector: Rosenberg HSD
- 1 x Ethernet connector: Rosenberg HSD
- 3 x FAKRA connectors (LTE1 Tx/Rx, GNSS, WiFi)

Dimensions

- 216 mm X 176 mm X 46 mm / 700 g

Environment

- Qualification to ISO standards in accordance with OEM requirements for off highway usage
- Temperature: -40°C – +85°C / -55°C – +90°C (storage)
- IP67 / IP6K9K with connectors mated

Certification

- RED, PTCRB, FCC

