ER01 - General Features

- High accuracy DR supported GNSS positioning
- Transparent handover between UDR/ADR and GNSS
- Mediatek MT7621A Router processor with WRT OS
- CORTEX-M0 management microcontroller
- LTE or 5G modem with eSIM/nanoSIM support
- 10/100/1000Mbit Ethernet, 10/100Mbit Ethernet
- 1x CAN, 1x RS-485 ports
- 2x 24VDc DIN, Emergency button and Ignition
- Separate 3D accelerometer for driver monitoring
- Electronic serial number EEPROM
- Optional 802.11n WiFi
- 8-38VDC input with railway grade PSU
- EN50155 Compliant

Applications:

- High accuracy bus/train navigation systems
- Vehicle PIS upgrade and modernization programs
- Passenger counter gateway
- Onboard data router for vehicle IoT
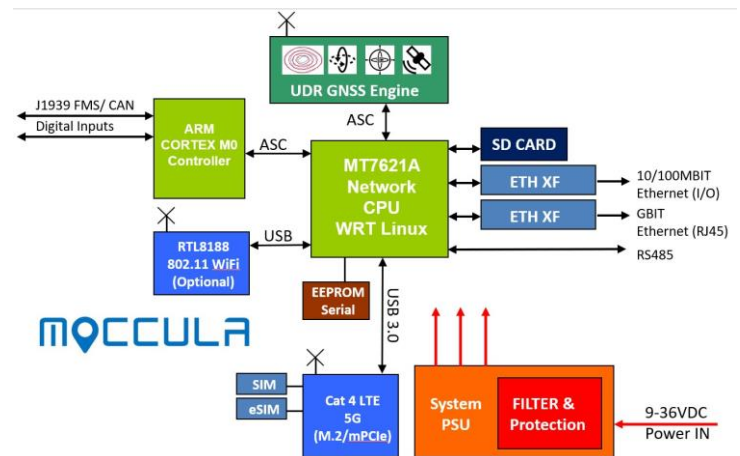
ER01 – Embedded Router

The Deal Comp ER01 is a powerful stand-alone EDGE Router which includes high accuracy UDR enhanced GNSS location device targeting demanding railway applications. The navigation subsystem leverages the latest technologies in sensor-based and sensor assisted GNSS location. Handover between navigation technologies is seamless and transparent.

The ER01 is based on a WRT Router Linux on dedicated MT7621A hardware accelerated networking processor, which is supported by a dedicated system management microcontroller. Local Flash storage is used for the WRT OS and supporting application software. An additional externally accessible uSD-card can be used for local data logging. External interfaces include Gbit and Fast Ethernet, RS-485 and J1939 CAN bus ports. Two 0-24VDC range digital inputs can be used for general purpose I/O or as dedicated inputs are available for emergency pushbutton and ignition key sensing.

The emergency pushbutton input can connect to normally-closed chained emergency plungers for passengers and/or the driver. The ER01 software can be customized to support different actions based on emergency pushbutton activation. The ER01 is a fully fledged Open-Source EDGE gateway router with the ability to extract vehicle or device data from the vehicle's CAN-bus.

Onboard PIS systems are being incrementally upgraded to IP-based solutions connected to back-end systems using modern LTE or 5G modems.

The ER01 is an open platform, which is programmable and upgradeable to support different project requirements and back-end data API's. Please contact Deal Comp for details on such support and services.

Ready interface API are available for the Taipale Telematics SENSIOR Driver performance and asset monitoring software as well as for the Trackobit AVL/AVM backend software.

The design of the power supply has extensive input filtering exceeding the requirements of EN50155 and ECE Reg 10. The input contains an active protection circuit and multi-stage filter to ensure lowest emissions and best immunity. The input is reverse protected up to 350V and will withstand indefinite overvoltage up to 350VDC. The operating temperature range is -20 to +70C.

Specification	
GNSS (Option)	Constellations: GPS, GLONASS, BeiDou, Galileo and QZSS 48 tracking channels -162 dBm tracking sensitivity Antenna open-short detection FAKRA connector for antenna
UDR/ADR	Embedded 6-axis MEMS sensor with J1939 CAN Speed/Dir
MODEM	LTE CAT 4 modem or 5G (MiniPCIe or M.2 interface) eSIM and uSIM, software selectable uSIM front accessible B1, B3, B5, B7, B8, B20 B38, B40, B41 band support 2x FAKRA connectors for MIMO antennas (5G)
CPU 1	WRT Linux MT7621A network processor SD-card memory expansion Secure unique serial number EEPROM for device identification 3D accelerometer for driver performance monitoring
CPU 2	ARM CORTEX A0 system management controller
Interfaces	10/100/1000 Mbit Ethernet (RJ-45) 10/100Mbit Ethernet (I/O connector) Optional 802.11n ATHEROS WiFi (SMA) RS-485, 1x CAN port, 2x 0-24VDC Digital IN, Emergency, Ignition IN 2x Open Collector MOSFET outputs (1A)
Power	8-36VDC input range
Indicators	1x MODEM Status, 1x User configurable
Firmware	Location modem streaming, Location to IP Routing functions based on Open WRT System configuration using LUCY web interface API Interface to Taipale Telematics SENSIOR Driver Monitoring SW API Interface to Trackobit AVL/AVM Software