RailBox LTE

Cellular router for railway environment

- 2G/3G/4G/LTE router (dual SIM)
- 802.11n or 802.11ac WiFi interface
- Multi-constellation GNSS (GPS, GLONASS...)
- Advanced security, VPN, firewall...
- Rugged device : dual insulated redundant input (EN50155 nominal), shocks & vibrations proof, IP66
- Operating System : WaveOS

C-KEY

Top «C-KEY» for quick configuration, save & restore

Introduction

RailBox LTE is a rugged cellular router equipped with a dual-band WiFi interface (2.4 / 5 GHz), a multi-constellation GNSS interface (GPS, GLONASS ...), 2 Ethernet ports 10/100/1000, one alarm output and one digital input. RailBox LTE is designed to be mounted on trains, subways, trams or any other mobile equipment in harsh environment.

RailBox LTE uses dual-SIM 4G/LTE and WiFi 802.11n/ac MIMO radios to guarantee broadband data transfers in motion or stationary (station or depot). Its cellular interface provides a secure backup connection for maintenance applications along the journey; its WiFi interface adds high speed communications wherever the WiFi coverage is available (depot, station, covered sections along the journey ...).

Definitely designed for mobility, RailBox LTE complies with all EN50155 standards and meets the most stringent environmental requirements: shocks and vibrations proof, IP66, operating temperature up to -40°C/+70°C. RailBox LTE features a dual insulated power supply, M12 hardened connectors and C-KEY for quick backup/restore of the product configuration.

Digital I/O can be used to remotely control a device thanks to a relay and to read the logic state of an input signal.

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Technical characteristics overview

Ethernet interface	2-port Gigabit Ethernet 10/100/1000 auto-sensing, 2 Gbps link aggregation, water and vibration proof rapid connect 8-point M12 X-coded connectors (CAT-6A) plug & play mode & auto MDI/MDIX, optional Ethernet bypass that redirects the network traffic in case of device or power supply failure (for daisy chain topologies)
Cellular interface + navigation	1 LTE radio category 4, 3GPP E-UTRA release 10, MIMO DL with Rx diversity Dual SIM LTE, UMTS/HSPA+, GSM/GPRS/EDGE (worldwide) Multi-constellation GNSS (GPS, Galileo, GLONASS, Beidou). Requires an active antenna.
Cellular radio data rate	150 Mbps ↓ & 50 Mbps ↑
Cellular operating frequencies	FDD LTE: B1/B2/B3/B4/B5/B7/B8/B12/B13/B19/B20/B25/B26/B28 TDD LTE: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B6/B8/B19 GSM: 900/1800
WiFi interface	IEEE 802.11a/b/g/n or IEEE 802.11a/b/g/n/ac, MIMO 3T3R, 2.4 / 5 GHz, ANI (Adaptive Noise Immunity)
WiFi radio data rate	802.11a: 6, 9, 12, 18, 24, 36, 48 and 54 Mbps 802.11b/g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48 and 54 Mbps 802.11n: MCS0-7, 3 streams (6.5 to 450 Mbps) 802.11ac: MCS0-9, 3 streams (6.5 Mbps to 1.3 Gbps)
Operating frequencies	ISM : 2.4-2.483 GHz (up to 14 channels) UNII : 5.15-5.25 GHz (up 4 channels) UNII-2 : 5.25-5.35 GHz (up to 4 channels) UNII-2 ext : 5.470-5.725 GHz (up to 11 channels) UNII-3 : 5.725-5.825 GHz (up to 4 channels) Supports DFS and TPC
Output power	Up to 24dBm (aggregate), depending on radio card model
Radio connectors	3 or 6 QMA connectors (no antenna provided)
Security	Firewall, DoS, https, MAC filtering, WPA/WPA2-Personal & Enterprise (IEEE 802.1X/RADIUS), WEP, tunnels L2 (GRE), VPN (OpenVPN), SNMP V3
WiFi modes	AP, client, MESH (IEEE 802.11s), infrastructure, AD-HOC, fast roaming (less than 30 ms), WMM QoS
Ethernet networking	Frames filtering, bridging, repeater, STP/RSTP, VLAN, DHCP (server & client), DNS relay
Ethernet routing	Multicast (PIM), IP redundancy (VRRP), static routes, NAT router, router, carriage coupling system (SRCC)
Administration	http, https, SNMP agent (V1, V2C, V3), WaveManager administration software, save / restore configuration key (C-Key)
LEDs Signaling	Radio : quality, activity and status | Ethernet : link 10/100/1000, activity | Power : on-off
Alarms & Inputs	A 3-pin Waterproof M8 connector with : - one solid state relay output warning (with configurable action), 1 Form A, 60VDC 80mA max - one input for external device control 24VDC max
Power supply	Dual insulated redundant input (1500V insulation, M12 connectors 4-pole A-coded) 24 to 110 VDC (EN50155 nominal) or 12 to 36 VDC depending on the model, with ground lug. PoE + (IEEE 802.3at Type 2 Class 4) model with ground lug also available.
Consumption	16W typical power consumption (dual radio), 20W max
Dimensions & weight	Product : compact shockproof rugged aluminum enclosure, (L: 80 x l: 175 x h: 57 mm), 900g Removable fixing plate : 4-point fixing plate with ground lug (L: 80 x l: 225 x h: 4 mm), 200g
Standards and certifications	Radio : • WiFi : EN 300 328 (2.4 GHz), EN 301 893 (5 GHz, DFS) • LTE : EN 301 908 [-1, -2, -13] • GSM : EN 301 511 • GNSS : EN 303 413 EMC : • WiFi : EN 301 489 [-1], [-17] • LTE : EN 301 489 [-19], [-52] • Railway : EN 50155, EN 50121-3.2 Safety : EN45545-2 (HL3), NF F16-101 (M1F1), NFPA 130 (Fire and Smoke), EN 62368-1:2014+A11, EN62311 Environmental : • Shocks & vibration : EN 61373 (CAT 1 CLASS B) • Climatic : EN60068-2 [-1, -2, -30]
Environment	IP66 seal rating - GORE ® protective vent (dehumidifying membrane) Operating : -25°C to +70°C (HR 0-99%) or extended -40°C to +70°C (+85°C for 10 mn, EN 50155 class TX), storage: -40°C to +80°C

Ordering references

RailBox/RRXB	Rugged cellular router with 802.11n or 802.11ac dual-band WiFi interface (2,4 / 5 GHz) + multi-constellation GNSS interface for railway applications. Shipped with a fixing plate (already mounted).

RailBox/RRXB

Radio 1 coding	Radio 2 coding	Power supply coding	Bypass coding
1 = WiFi 802.11n (fast roaming, Mesh), -25°C to +70°C **2** = WiFi 802.11ac, -40°C to +70°C (+85°C for 10 mn, EN 50155 class TX) **5** = WiFi 802.11n (fast roaming, Mesh), -40°C to +70°C (+85°C for 10 mn, EN 50155 class TX)	**4** = 4G LTE (EMEA, Korea, Thailand, India) + GNSS, -40°C to +70°C **7** = Global 4G LTE + GNSS, -40°C to +70°C	**A** = +24VDC to +110VDC (EN 50155 nominal) **B** = +12VDC to +36VDC **P** = PoE+ (IEEE 802.3at Type 2 Class 4)	**0** = No Bypass **Y** = Bypass *The Ethernet bypass redirects the network traffic in case of device or power supply failure (useful for daisy chain network topologies)*
		Configurations A & P are available as standard. Others, consult us.	**Bypass is not compatible with PoE model.**

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