

RailBox series

Rugged dual 802.11ac WiFi access point, client & repeater for railways



C-KEY READY



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

- Single or dual radio 802.11a/b/g/n/ac (MIMO 3T3R), up to 1.3 Gbps (radio bit rate), optional LTE mobile broadband router and GPS (coming soon)
- MESH, WMM QoS, multiple SSID and centralized RADIUS security supported
- Supports DFS and TPC
- Auto-sensing Gigabit 10/100/1000 Base TX auto MDI/MDIX network interface
- Dual insulated redundant power supply input 24 to 110 VDC (EN50155 nominal) or 12 to 36 VDC or PoE+
- Shock & vibration proof, rugged aluminum enclosure, IP66 seal rating



Introduction

RailBox is a rugged device designed for railway and light rail applications. It can be mounted in trains, subways, trams or in any equipment that requires robustness and mobility.

RailBox can be implemented by system integrators and rail vehicle manufacturers who are seeking to establish high availability for:

- uninterrupted train-to-trackside communications (CBTC, CCTV, VoIP, preventive maintenance, PIS...)
- carriage coupling (to support any train composition change and provide a redundant & reliable onboard network)
- reliable onboard vehicle network (WiFi onboard, train announcements, infotainment...)

The device relies on the multi-streams MIMO technology that contributes to an expanded coverage, higher data throughput and increased radio link reliability.

Furthermore it combines an optional LTE mobile broadband router plus a GPS allowing using the device as a mobile hotspot in transportation applications (coming soon).

It fulfills the most severe requirements in terms of operating environment: from -25°C to +70°C (extended : -40°C to +75°C), shock and vibration proof, protection against dust and water projections (IP66).

Technical characteristics overview

Ethernet link	2-port Gigabit Ethernet 10/100/1000 auto-sensing, water and vibration proof rapid connect 8-point M12 X-coded connectors (CAT-6A) plug & play mode & auto MDI/MDIX cross-over, optional Ethernet bypass that redirects the network traffic in case of device or power supply failure (for daisy chain topologies)
WiFi network	1 or 2 radios IEEE 802.11a/b/g/n or IEEE 802.11a/b/g/n/ac, MIMO 3T3R, 2.4 / 5 GHz
Wireless WAN/GPS	Optional (coming soon) : LTE mobile broadband router, dual SIM, GPS receiver
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	IEEE 802.1x (centralized RADIUS authenticator & supplicant), WPA2-PSK, WPA-PSK, legacy WEP supported
WiFi Modes	Access point, client, repeater, MESH point (IEEE 802.11s), infrastructure, AD-HOC, client router, WMM QoS, multicast, VPN, dynamic routing and firewall modes fully supported, fast roaming (less than 30 ms), redundancy (VRRP), carriage coupling system (SRCC)
Administration	Built-in WEB interface, the setup of the device is achieved using any web browser, SNMP agent, administration software for Windows/Linux (ACKSYS NDM), save / restore configuration key (C-Key)
LEDs Signaling	Radio : quality, activity and status Ethernet : link 10/100/1000, activity Power : on-off
Alarms & Inputs	One solid state relay output warning (with configurable action), 1 Form A, 60VDC 0.1A max & one input for external device control 24VDC max (3-pin Waterproof M8 connector)
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	Safety : EN45545-2 (HL3), NF F16-101 (I1F1) (Fire and Smoke) / EN60950-1 Radio : EN300-328 1.8.1 (2.4 GHz), EN301-893 1.7.1 (5 GHz, DFS) EMC : EN50155 / EN50121-3.2, EN301-489-1, EN301-489-17 Environmental : EN61373 (shocks and vibration), EN60068 (climatic)
Environment	IP66 seal rating Operating : -25°C to +70°C (HR 0-99%) or extended -40°C to +75°C (+85°C for 10 mn, EN 50155 class TX), storage: -40°C to +80°C GORE ® protective vent (dehumidifying membrane)

Ordering references

RailBox/RRXB Single or dual WiFi Access Point, Ethernet Bridge, Repeater, MESH point (IEEE 802.11a/b/g/n/ac) or LTE mobile broadband router for railway and mobile applications, shipped with a fixing plate (already mounted).

RailBox/RRXB			
Radio 1 coding	Radio 2 coding	Power supply coding	Bypass coding
0 = Not applicable 1 = WiFi 802.11n (fast roaming, Mesh) 2 = WiFi 802.11ac, -40°C to +75°C (+85°C for 10 mn, EN 50155 class TX) 4 = Not applicable 5 = WiFi 802.11n (fast roaming, Mesh), -40°C to +75°C (+85°C for 10 mn, EN 50155 class TX)	0 = No radio 1 = WiFi 802.11n (fast roaming, Mesh) 2 = WiFi 802.11ac, -40°C to +75°C (+85°C for 10 mn, EN 50155 class TX) 4 = 4G LTE + GPS 5 = WiFi 802.11n (fast roaming, Mesh), -40°C to +75°C (+85°C for 10 mn, EN 50155 class TX)	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 <i>The Ethernet bypass redirects the network traffic in case of device or power supply failure (useful for daisy chain network topologies)</i>
Configurations 2 & 0 are available as standard. Others, consult us. In the case of a 802.11n + 802.11ac mixed configuration, the 802.11ac card is necessarily placed in the radio 1 slot.		Configurations A & P are available as standard. Others, consult us.	Bypass is not compatible with PoE model.

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