RailTrack series

Rugged 802.11ac WiFi access point & backbone repeater for trackside network

C-KEY READY

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

- Triple radio 802.11a/b/g/n/ac (MIMO 3T3R), up to 3 x 1.3 Gbps (radio bit rate), up to 29 dBm output power
- MESH, WMM QoS, multiple SSID and centralized RADIUS security supported
- WaveManager centralized management software
- Auto-sensing dual Gigabit 10/100/1000 Base TX auto MDI/MDIX network interface
- 2 SFP slots: 1000 base X fiber optic or 10/100/1000 copper
- 100 VAC to 240 VAC
- Rugged aluminum enclosure, IP66 seal rating

Introduction

RailTrack is a ruggedized WiFi access point specially designed for railway and certified for trackside and tunnel infrastructures.
It can be connected to the ground network through either Gbps fiber optic or copper connections.

Thanks to an oversized CPU architecture (Quad-Core 64-bit) and three independent 802.11ac high-speed radio cards (3 streams) delivering more than 900 Mbps (UDP) each, RailTrack access point allows the construction of high performance architectures such as «wireless backbone» to overcome Ethernet cables along tracksides and tunnels : 2 radios can be used to build the wireless infrastructure on the trackside while the 3rd radio is used as local AP to provide communication between trackside and onboard clients (train).

Featuring an IP66 housing and rugged M12 connectors, RailTrack is ideal for wall mounting in a tunnel or mast mounting outdoor. Its all-in-one compact footprint integrates 3 radios, a 4-port Ethernet switch (2 x 10/100/1000 on M12 connectors & 2 x Gigabit optic fiber on SFP slots) with optional Ethernet bypass (daisy chain topologies) and an AC power supply. A removable key (C-KEY) allows the device configuration backup. It can thus be instantaneously restored on site in less than 2 minutes in case of maintenance or replacement of a RailTrack.

RailTrack (trackside AP unit) combined to RailBox (on-board WiFi unit) is the comprehensive connected architecture for «train-to-trackside communication in motion» by ACKSYS. This ACKSYS solution allows reliable and very high-speed broadband train-to-trackside communications, particularly suited to broad band radio system (BBRS) for real-time video surveillance, internet on board for passengers as well as CBTC applications.

ACKSYS COMMUNICATIONS & SYSTEMS
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Technical characteristics overview

Ethernet interface	› 2-port Gigabit Ethernet 10/100/1000 auto-sensing, waterproof 8-point M12 X-coded connectors (CAT-6A), 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), 1-port PoE+ PSE optional (IEEE 802.3at Type 2 Class 4) › 2 SFP slots IP67 OSIS by Radiall™ : 1000 base X fiber optic or 10/100/1000 copper
WiFi interface	3 radios 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 29 dBm (aggregate), depending on radio card model
Radio connectors	9 N-type 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, 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
Administration	http, https, SNMP agent (V1, V2C, V3), WaveManager administration software, save / restore configuration key (C-Key)
LEDs Signaling	Radio : activity and status | Ethernet (copper) : link 10/100/1000 and activity | Ethernet (fiber) : link and activity | PoE+ PSE : on-off | Power : on-off | Diagnostic | C-Key
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	100 VAC to 240 VAC (M12 3 poles S-coding connector), 50/60Hz, M6 ground screw
Consumption	30 W max (PoE powered device consumption excluded)
Dimensions & weight	Rugged aluminum enclosure, L: 305 x l: 200 x h: 75 mm with fixing points, 3.5 Kg
Standards	CE (RED) Safety : EN 62368-1:2014+A11, EN62311 EMC : EN 301 489 [-1], [-17] Radio : EN 300 328 (2.4 GHz), EN 301 893 (5 GHz, DFS) Railway EMC : EN 50121-4 Environmental : Climatic EN60068-2 [-1, -2, -30] Fire/smoke : EN45545-2 (HL3), NF F16-101 (M1F1)
Environment	IP66 seal rating Operating : -25°C to +70°C (HR 0-99%) or extended -40°C to +75°C, storage: -40°C to +80°C GORE ® protective vent (dehumidifying membrane)

Ordering references

RailTrack/RRRXB	Triple WiFi access point, backbone repeater & MESH point (IEEE 802.11a/b/g/n/ac) for trackside network, 100 VAC to 240 VAC (M12 field attachable connector included). Cables and SFP transceivers must be purchased separately. SFP transceivers must be compatible with the SFF-8472 standard (1000 Mbps).

RailTrack/RRRXB

Radios coding	Power supply coding	Option coding
111 = 3 x WiFi 802.11n (Mesh), -25°C to +70°C **222** = 3 x WiFi 802.11ac, -40°C to +75°C (+85°C for 10 mn, EN 50155 class TX) **333** = 3 x WiFi 802.11ac, high power 29 dBm, -40°C to +75°C (+85°C for 10 mn, EN 50155 class TX) **555** = 3 x WiFi 802.11n (Mesh), high power 29 dBm, -40°C to +75°C (+85°C for 10 mn, EN 50155 class TX)	**A** = 100 VAC to 240 VAC	**0** = no option **Y** = Ethernet Bypass (copper ports only) **P** = POE+ PSE (802.11at Type 2 Class 4) *The Ethernet bypass redirects the network traffic in case of device or power supply failure (useful for daisy chain network topologies)*

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