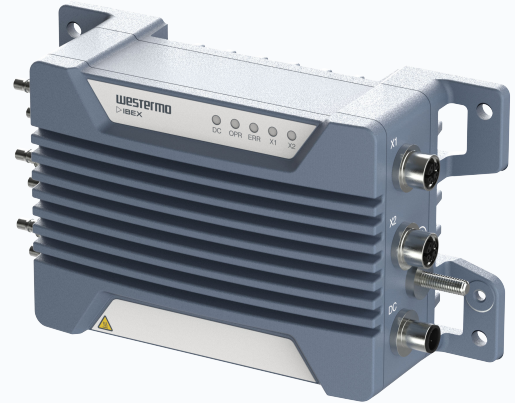


EN 50155 WLAN 802.11ac Dual Concurrent Access Point

Ibex-RT-610 series

- **Compact WLAN access point**
 - 2.4 GHz and 5 GHz
 - Flexible and easy set-up
- **Designed and built for extreme operational environments**
 - Extended operating temperature range with guaranteed performance across the range
 - High-level isolation enables direct DC power connectivity
 - EN 50155 approved for usage onboard trains and locomotives
- **Latest generation 802.11 design**
 - IEEE802.11ac Wave2 for maximum capacity
 - 4x4 Multi-User MIMO



The Ibex-RT-610 consists of concurrent dual-band 802.11ac Wave2 Wireless LAN Access Points for on-board and stationary applications. They ensure reliable, high-speed data, airtime fairness, band steering, client steering, and can be used as passenger hotspots or as access points for connecting wireless industrial clients.

The Ibex-RT-610 is designed to withstand the tough environment on-board trains, exposing the access point to constant vibration, extreme temperatures, humidity and a demanding electromagnetic environment.

A GORE-TEX® membrane prevents internal condensation. High-level isolation between all interfaces enables direct connectivity to vehicle auxiliary power and protects against overvoltage and spikes/surge. IP66 protection prevents ingress of water and dust even at the quick connect QMA connectors.

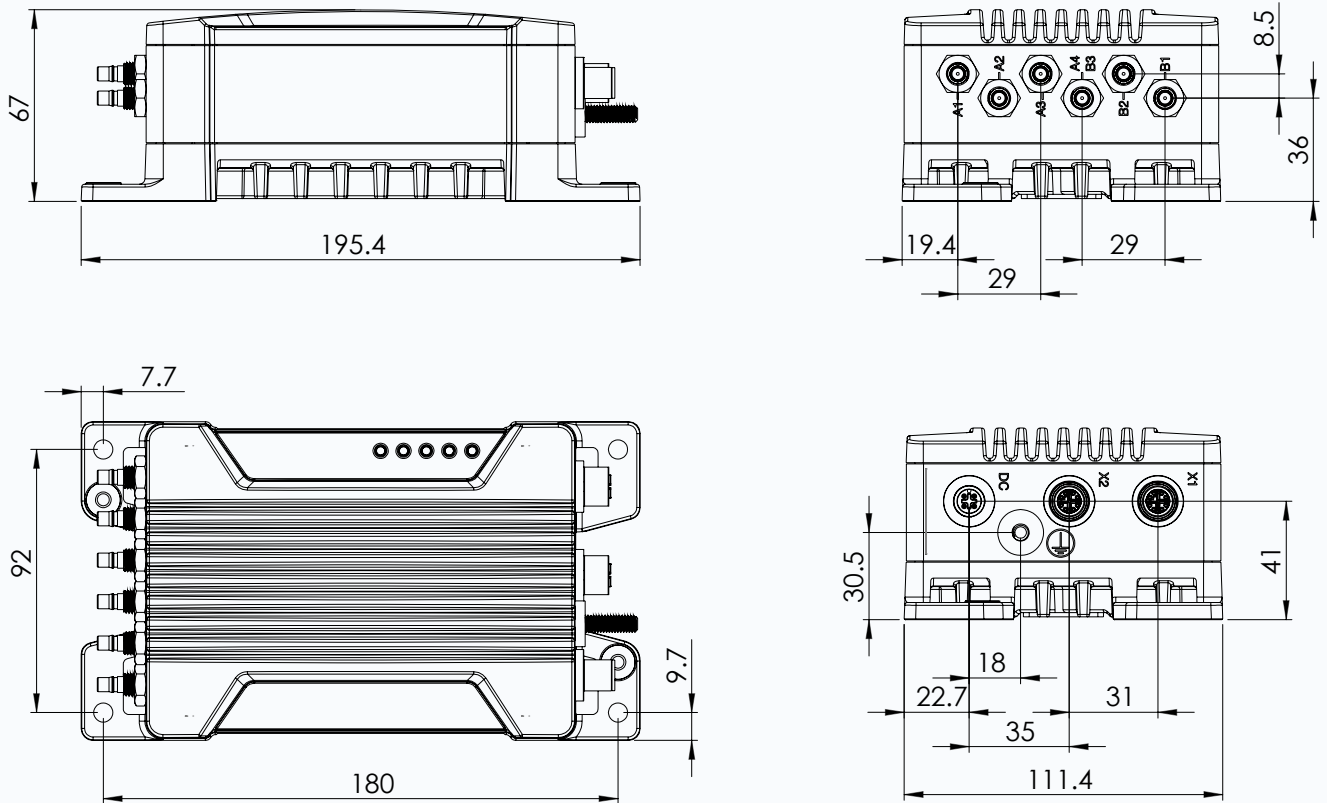
An overall optimised design results in a compact form factor in combination with very high MTBF for easy integration in space restricted installations and low lifecycle cost.

Thorough type testing at independent labs certifies the compliance to a wide range of standards, not least EN 50155 and FCC.

Meeting the requirements of the railcar market, the Ibex-RT-610 is very well suited for deployment in any other application with severe operating conditions and tough environments, for instance in the mining or shipping industry.

Specifications - Ibex-RT-610 series

Dimensional drawing



Technical data

Dimensions (W x H x D)	195.4 x 67 x 111.4 mm (7.69 x 2.64 x 4.39 inches)
Housing	Full metal
Weight	1.45 kg without antennas
Operating temperature	-40 to +70°C (-40 to +158°F)
Ingress protection	IP66
MTBF	420,000 hours (IEC 62380)
Power feed	LV: 24 VDC isolated, 0.6 A max. or IEEE 802.3 at type 1 powered device HV: 72 to 110 VDC isolated, 0.2 A max.

Interface

RF antenna	4 x QMA compatible antenna connectors, 4x4 MU-MIMO for 5GHz 2 x QMA compatible antenna connectors, 2x2 MIMO for 2.4GHz
Ethernet	2 x 10/100/1000 Base-T, 2 x M12 X-coded connectors

Wireless	
Operating modes	Access Point, Client, Bridge
Wireless standards supported	IEEE802.11g, 802.11a, 802.11n, 802.11ac
Frequency range	2.400 to 2.4835 GHz 5.150 to 5.350 GHz, 5.470 to 5.725 GHz, 5.725 to 5.875 GHz
Data rates supported	802.11a/g: 6Mbit/s, 9, 12, 18, 24, 36, 48 and 54 Mbit/s 802.11n 20 MHz BW, LGI/SGI: from MCS0 6.5/7.2 Mbit/s to MCS23 195/216.7 Mbit/s 802.11n 40 MHz BW, LGI/SGI: from MCS0 13.5/15 Mbit/s to MCS23 405/450 Mbit/s 802.11ac 20 MHz BW, LGI/SGI: from VHT0 6.5/7.2 Mbit/s to VHT9 312/346.7 Mbit/s 802.11ac 40 MHz BW, LGI/SGI: from VHT0 13.5/15 Mbit/s to VHT9 720/800 Mbit/s 802.11ac 80 MHz BW, LGI/SGI: from VHT0 29.3/32.5 Mbit/s to VHT9 1560/1733.3 Mbit/s 802.11ac 160 MHz BW, LGI/SGI: from VHT0 58.5/65 Mbit/s to VHT9 1560/1733.3 Mbit/s (2SS)
RF transmit power 2.4 GHz ^a	Max. conducted transmit power, 802.11g/n, up to +18 dBm for all data rates
RF transmit power 5 GHz ^a	Max. conducted transmit power, 802.11a/n/ac, up to +18 dBm for all data rates
Receiver sensitivity (typical)	-95 dBm (6 Mbit/s), -85 (36Mbit/s), -80 dBm (54 Mbit/s) 20 MHz: -95 dBm (MCS0), -79 dBm (MCS7), -75 dBm (MCS8) (max. 4SS) 40 MHz: -92 dBm (MCS0), -77 dBm (MCS7), -71 dBm (MCS9) (max. 4SS) 80 MHz: -88 dBm (MCS0), -74 dBm (MCS7), -67 dBm (MCS9) (max. 4SS) 160 MHz: -88 dBm (MCS0), -74 dBm (MCS7), -67 dBm (MCS9) (max. 2SS)
MIMO features supported	Space Time Block Coding (STBC), RX Low Density Parity Check (LDPC), Maximum Likelihood Demodulation (MLD), Maximum Ratio Combining (MRC), Multi-User-MIMO (MU-MIMO), Transmit Beamforming (TxBF)

^aDepending on the regulatory limitations and selected antennas

Features	
Security	WPA2-Personal (CCMP), WPA2-Enterprise, WPA3-Personal (SAE/OWE), WPA3-Enterprise (Suite-B), 802.11w, 802.1X
Ethernet routing/networking and VPN	Fixed fallback IP, IP aliases, MAC address control lists, Port forwarding, Routing, Multicast Routing, DHCP Server/Client, NAT, VLAN support, NTP client, SNMP v2c and v3 with USM authentication and encryption support, SNMP Traps, RSTP, Firewall, IP Masquerading (NAT/NAPT), Port Forwarding, Stateless NAT (1-1 NAT), SSL VPN (Client and Server), Certificate Authentication, Pre-shared Key (PSK) Point-to-Point Mode, Layer-2 and Layer-3 VPN, Layer-2 VPN bridging, Address pool and address per CN, TLS Authentication), Generic Routing Encapsulation (GRE)
Client management	ATF (Air Time Fairness), load balancing between 2.4 GHz and 5 GHz, Multi-AP Steering
Monitoring features	Built-in monitoring sensors and diagnostics
Device management	SNMP, HTTP/HTTPS with user authentication, CLI (SSH and Telnet)
SNMP MIB Support	MIB-2, RFC1213, HOST-RESOURCES, BRIDGE, ETHERLIKE, IF-MIB, LLDP-MIB, UCD-SNMP-MIB, WESTERMO-SW6-MIB, WESTERMO-SW6-BRIDGE-MIB, WESTERMO-SW6-FIREWALL-MIB, WESTERMO-SW6-ICL-MIB, WESTERMO-SW6-GNSS-MIB, WESTERMO-SW6-NVM-MIB, WESTERMO-SW6-PWN-MIB

Approvals and Standards	
Climate	<ul style="list-style-type: none"> • EN 50155, class OT4 Railway applications - Electronic equipment used on rolling stock • EN 50125-3, Railway applications – Environmental conditions for equipment, Part 3: Equipment for signalling and telecommunications
EMC	<ul style="list-style-type: none"> • EN 50155, Railway applications - Electronic equipment used on rolling stock • EBA EMV 06, German Federal Railway Authority, Radio compatibility of rail vehicles (valid for LV models only) • EN 50121-3-2, Railway applications – Electromagnetic compatibility, Part 3-2: Rolling stock – Apparatus • EN 50121-4, Railway applications - Electromagnetic compatibility. Part 4: Emission and immunity of the signalling and telecommunications apparatus • ETSI EN 301 489-1, Electromagnetic compatibility (EMC) and Radio spectrum Matters (ERM) for radio equipment and services - Part 1: Common technical requirements • ETSI EN 301 489-17, Electromagnetic compatibility (EMC) and Radio spectrum Matters (ERM) for radio equipment - Part 17: Specific conditions for Broadband Data Transmission Systems • ECE E-Mark, Road Vehicles, E13 10R-06 15771 (valid for LV models only) • EMV06, Technical Rules for Electromagnetic compatibility (valid for LV models only)
Mechanical (Shock and vibration)	<ul style="list-style-type: none"> • EN 61373, category 1, class A and B • EN 50125-3, Outside the track
Insulation (Coordination and test)	<ul style="list-style-type: none"> • EN 50124-1, Railway applications – Insulation coordination • EN 50155, Railway applications - Electronic equipment used on rolling stock
Radio communication	<ul style="list-style-type: none"> • ETSI EN 300 328, Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques • ETSI EN 301 893, 5 GHz RLAN • IEEE802.11, Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications • FCC-47-15, Radio frequency devices
Safety	<ul style="list-style-type: none"> • EN/IEC 62368-1, Safety Requirements for audio/video, information and communication technology equipment • EN 45545-2, Fire protection on railway vehicles • NFPA 130, Fire protection for fixed guideway transit and passenger rail system

Ordering information	
Art. no.	Description
3623-073001	Ibex-RT-610-LV EU
3623-073002	Ibex-RT-610-LV NA
3623-073101	Ibex-RT-610-HV EU
3623-073102	Ibex-RT-610-HV NA
3623-0799	Factory Reset Plug X-code (Accessory)