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▶ IBEX

EN 50155 Wi-Fi 6 Access Point
Ibex-1510 series

- **Reliable, compact and secure WLAN access point**
  - Dual Wi-Fi 6 802.11ax WLAN interfaces
  - Concurrent 2.4 GHz and 5 GHz
  - Low power consumption
  - Cybersecurity features supporting critical infrastructure installations
- **Designed for onboard usage**
  - EN 50155 and EN 45545-2 certified
  - Compact design with M12 interfaces
  - Wide temperature range
  - MACsec and Secure Boot for TCMS
- **Latest generation 802.11 design**
  - IEEE802.11ax for maximum efficiency
  - Client management features
  - Flexible and easy setup

CE   FC   **EN 45545-2** Fire Protection   **EN 50155** On Board Rail   **NFPA 130** Fire Protection
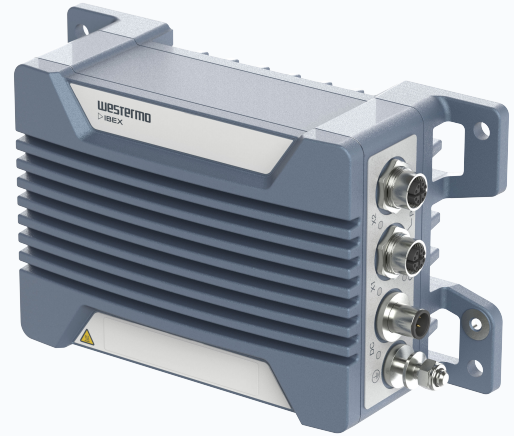
The Ibex-1510 is a concurrent dual-band 802.11ax WLAN access point and client product for onboard and stationary applications. It provides reliable efficient high-speed data transfers and can be used for maintenance access, as part of a TCMS network or as a passenger hotspot.

The Ibex-1510 is designed to withstand the tough environment on-board trains, exposed 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, including EN 50155.

Powered by the SW6 operating system, the Ibex-1510 is equipped with the latest cybersecurity features and updates.

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Specifications - Ibex-1510 series

Dimensional drawing
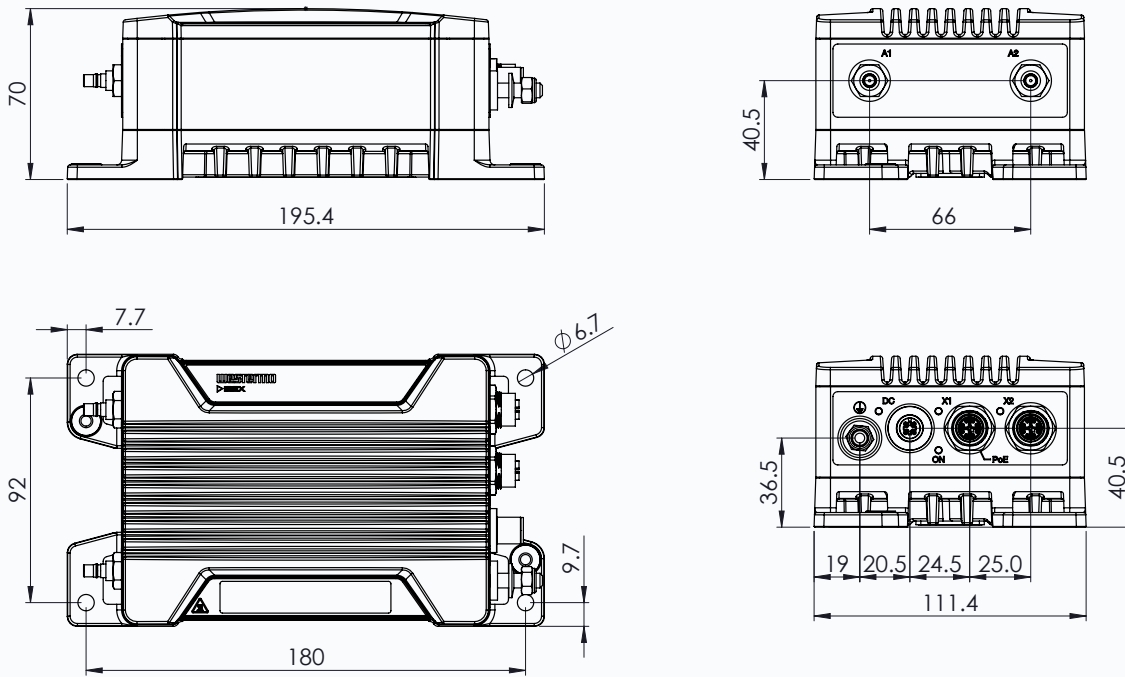
Technical data

Dimensions (W x H x D)	195 × 70 × 111 mm (7.68 × 2.76 × 4.37 inches)
Housing	Full metal
Weight	1.5 kg without antennas
Operating temperature	-40 to +70°C (-40 to +158°F)
Ingress protection	IP66
MTBF	>400,000 hours
Rated voltage	24 to 110 VDC
Operating voltage	16.8 to 143 VDC (14.4 to 154 VDC for 100 ms)
PoE	IEEE802.3at type 1 and 2 PD

Interface

RF antenna	2 x QMA compatible antenna connector for Wi-Fi 6
Ethernet	2 x 10/100/1000/2.5G Base-T, 2 x M12 X-coded connectors

Wireless

Operating modes	Access Point, Client, Bridge
Interfaces	Dual Band Dual Concurrent 2×2 MU-MIMO (total 4 Spatial Streams)
Standards supported	IEEE802.11g, 802.11a, 802.11n, 802.11ac, 802.11ax
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	Up to 802.11ax 80 MHz 2SS BW HE11: 1201 Mbit/s in each band
RF transmit power 2.4 GHz[a]	Max. conducted transmit power per port: 22 dBm
RF transmit power 5 GHz[a]	Max. conducted transmit power per port: 22 dBm
Receiver sensitivity per radio	20 MHz: -94 dBm (HE0), -68 dBm (HE9), -63 dBm (HE11) 40 MHz: -91 dBm (HE0), -65 dBm (HE9), -61 dBm (HE11) 80 MHz: -88 dBm (HE0), -63 dBm (HE9), -58 dBm (HE11)

[a]Depending on the regulatory limitations and selected antennas

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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-NWM-MIB, WESTERMO-SW6-PWN-MIB

Approvals and Standards

Climate	• EN 50155, class OT4 Railway applications - Electronic equipment used on rolling stock
EMC	• EN 50155, Railway applications - Electronic equipment used on rolling stock • EN 50121-3-2, Railway applications – Electromagnetic compatibility, Part 3-2: Rolling stock – 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 • EMV06, Technical Rules for Electromagnetic compatibility • ECE E-Mark, Road Vehicles, E13 10R-06 15771
Mechanical (Shock and vibration)	• EN 61373, category 1, class A and B • EN 50125-3, Outside the track
Insulation (Coordination and test)	• EN 50155, Railway applications - Electronic equipment used on rolling stock
Radio communication	• 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	• 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
3628-15101	Ibex-1510-T2G2.5 EU
3628-15102	Ibex-1510-T2G2.5 NA
3628-15111	Ibex-1510-T2G2.5-PoE EU
3628-15112	Ibex-1510-T2G2.5-PoE NA