

EN 50155 5G and WLAN Router

Ibex-RT-630-5G

- **Mobile broadband 5G router**
 - 3GPP Release 16 - 5G NSA/SA
 - 5G sub 6 GHz 4x4 MIMO interface
 - Mobile communication Gateway 5G and WLAN
- **Designed for onboard usage**
 - EN 50155 and EN 45545-2 certified
 - Compact design with M12 interfaces
 - Wide temperature range
- **High bandwidth supports multiple applications**
 - Data offloading
 - Remote monitoring
 - Video surveillance
 - Preventive maintenance



EN 45545-2
Fire Protection

EN 50121-4
Railway Trackside

EN 50155
On Board Rail

The Ibex-RT-630-5G is a mobile 5G router for onboard usage in trains, trams, locomotives, mining vehicle and bus applications. The Ibex-RT-630-5G offers outstanding performance and rugged internet connectivity back-up to enable hybrid train-to-ground installations with a single device.

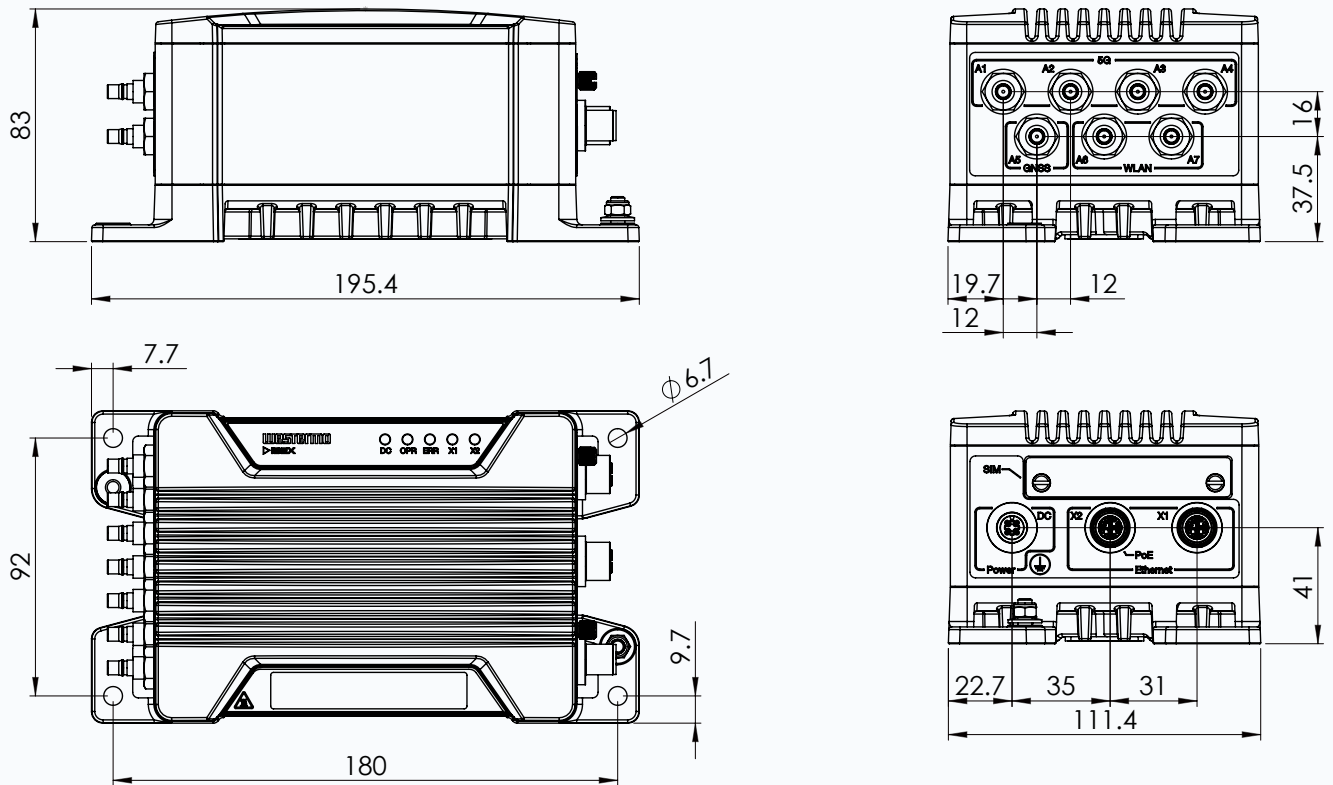
The Mobile Communication Gateway (MCG) router is designed to withstand the tough onboard environmental conditions and can be remotely managed using web browser or SNMP management tools. The MCG provides advanced firewall functionalities and high-performance VPN connectivity.

The router exceeds the high requirements for the most bandwidth-demanding applications worldwide and features wide range of bands. A compact design enables quick and easy installation into the tight spaces of trains, while configuration and unit replacement are simplified by a SIM card memory for configuration parameters. Dual SIM allows for further performance optimisations and carrier redundancy. IP66-rating and a wide temperature range from -40 °C to +70 °C ensure that the devices can be installed virtually anywhere, without the need of additional protection.

Meeting the requirements of the rail market, Ibex-RT-630-5G is very well-suited for any deployment in challenging environments. Adopting the 3GPP Rel-16 technology, it supports both 5G NSA and SA modes. The WLAN interface supports Westermo roaming feature and can be use as a private WLAN based WAN gateway as well.

Specifications - Ibex-RT-630-5G

Dimensional drawing



Technical data

Dimensions (W x H x D)	195.4 x 83 x 111.4 mm (7.69 x 3.27 x 4.39 inches)
Housing	Full metal
Weight	1.54 kg without antennas
Operating temperature	-40 to +70°C (-40 to +158°F)
Ingress protection	IP66
MTBF	283,858 hours (IEC 62380)
Rated voltage	24 VDC isolated, 0.6 A max. or PoE IEEE 802.3at Class 4

Interface

RF antenna	4 x QMA compatible antenna connectors for 5G/LTE/WCDMA 2 x QMA compatible antenna connectors for WLAN 1 x QMA compatible antenna connector for GNSS
Ethernet	2 x 10/100/1000 Base-T, 2 x M12 X-coded connectors

Wireless	
Mobile interface	4x4 MIMO 5G, sub 6GHz, 3GPP Release 16 NSA/SA operation, LTE fallback DL Cat 19 / UL Cat18, UMTS WCDMA
Mobile frequency bands	5G NR SA: n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n70/n71/n75/n76/n77/n78/n79 5G NR NSA: n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n70/n71/n75/n76/n77/n78/n79 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/B39/B40/B41/B42/B43/B48 LAA: B46 (TDD) UMTS-WCDMA: B1/B2/B4/B5/B8/B19
Mobile data rates (max^a)	5G SA: DL 2.4 Gbps; UL 900 Mbps 5G NSA: DL 3.3 Gbps; UL 600 Mbps LTE: DL 1.6 Gbps; UL 200 Mbps WCDMA: DL 42 Mbps; UL 5.76 Mbps
SIM cards	2 x Mini-SIM (2FF) card slots
WLAN operating modes	Access Point, Client, Bridge, Inter-consist link
WLAN standards supported	IEEE802.11b, 802.11g, 802.11a, 802.11n
WLAN data rates supported	802.11b: 1 Mbit/s, 2, 5.5, and 11 Mbit/s 802.11g and 802.11a: 6 Mbit/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 MCS15 130/144.4 Mbit/s 802.11n 40 MHz BW, LGI/SGI: from MCS0 13.5/15 Mbit/s to MCS15 270/300 Mbit/s
WLAN transmit power	Max. conducted transmit power, 802.11b/g/n: 1 port: +22 dBm for all data rates 2 ports: +25 dBm for all data rates
WLAN Receiver sensitivity	802.11g: -95 dBm (6 Mbit/s), -85 (36Mbit/), -80 dBm (54 Mbit/s) 802.11a: -95 dBm (6 Mbit/s), -85 (36Mbit/), -80 dBm (54 Mbit/s) 802.11ng HT20: -95 dBm (MCS0), -76 dBm (MCS7), -73 dBm (MCS15) 802.11na HT20: -95 dBm (MCS0), -76 dBm (MCS7), -73 dBm (MCS15) 802.11ng HT40: -92 dBm (MCS0), -73 dBm (MCS7), -70 dBm (MCS15) 802.11na HT40: -92 dBm (MCS0), -73 dBm (MCS7), -70 dBm (MCS15)
GNSS receiver	GPS L1 C/A, QZSS L1 C/A/S, GLONASS L10F BeiDou B1I, Galileo E1B/C SBAS L1 C/A: WAAS, EGNOS, MSAS, GAGAN
GNSS navigation update rate	25Hz (up to 4 concurrent GNSS receiver)
GNSS horizontal accuracy	1.5 m CEP (with SBAS) 2.0 m CEP (without SBAS)
GNSS protocols	NMEA 4.10/4.11, UBX

^aThe presented data rates are theoretical only, and the actual value depends on network conditions

Features	
Networking	Fixed fallback IP, IP aliases, MAC address control lists, VLAN support, Static/Policy/Multicast Routing, DHCP Server/Client/Relay, DNS Server/Client, Firewall L2/L3, Port forwarding, NAT, NTP Server/Client, RSTP, OpenVPN, IPsec, Wireguard, GRE/GRETAP, VXLAN
Cellular	Default/dedicated bearers, QCI, SIM rotation, Technology selection, Band restriction, Operator lock
Monitoring	Built-in monitoring sensors and diagnostics, SNMP notifications (TRAP/INFO), Syslog, CLI
Discovery	LLDP, SSDP, mDNS
Management	SNMP v2c/v3 with USM authentication and encryption support, HTTP/HTTPS web interface and WebAPI with user authentication (local or LDAP), CLI (SSH and Telnet), Certificate Management (SCEP)
SNMP MIB Support	MIB-2, RFC1213, HOST-RESOURCES, BRIDGE, ETHERLIKE, IF-MIB, LLDP-MIB, UCD-SNMPMIB, WESTERMO-SW6-MIB, WESTERMO-SW6-BRIDGE-MIB, WESTERMO-SW6-FIREWALL-MIB, WESTERMO-SW6-GNSS-MIB

Approvals and Standards	
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 • 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 • ETSI EN 301 489-24, Electromagnetic compatibility (EMC) and Radio spectrum Matters (ERM) for radio equipment and services - Part 24: Specific conditions for IMT-2000 CDMA Direct Spread (UTRA) for Mobile and portable (UE) radio and ancillary equipment • ETSI EN 301 489-52, Electromagnetic Compatibility (EMC) standard for radio equipment and services - Part 52: Specific conditions for Cellular Communication Mobile and portable (UE) radio and ancillary equipment
Climate	• 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
Mechanical (Shock and vibration)	• EN 61373, category 1, class A and B • EN 50125-3, Outside the track
Insulation (Coordination and test)	• EN 50124-1, Railway applications - Insulation coordination • 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 • IEEE 802.11, Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications • ETSI EN 301 908-1/2/13/25, IMT cellular networks • 3GPP Release 16 - 5G NSA/SA • 3GPP LTE Advanced standard • FCC-47-15, Radio frequency devices • FCC-47-22, Public mobile services • FCC-47-24, Personal communications services • FCC-47-27, Miscellaneous wireless communications services
Safety	• EN 45545-2, Fire protection on railway vehicles

Ordering information	
Art. no.	Description
3629-06301	Ibex-RT-630-5G-LV EU
3629-06302 ^a .	Ibex-RT-630-5G-LV NA

^aFCC release pending