

EN 50155 LTE and WLAN Router

Ibex-RT-630 series

- **Mobile broadband Cat12 LTE-A and WLAN router/gateway**
 - Supports 3 x carrier aggregation and 256QAM
 - WLAN interface with access point and roaming client modes
 - Mobile Communication Gateway LTE and WLAN
- **Designed for mobile 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



EN 45545-2
Fire Protection

EN 50121-4
Railway Trackside

EN 50155
On Board Rail

NFPA 130
Fire Protection

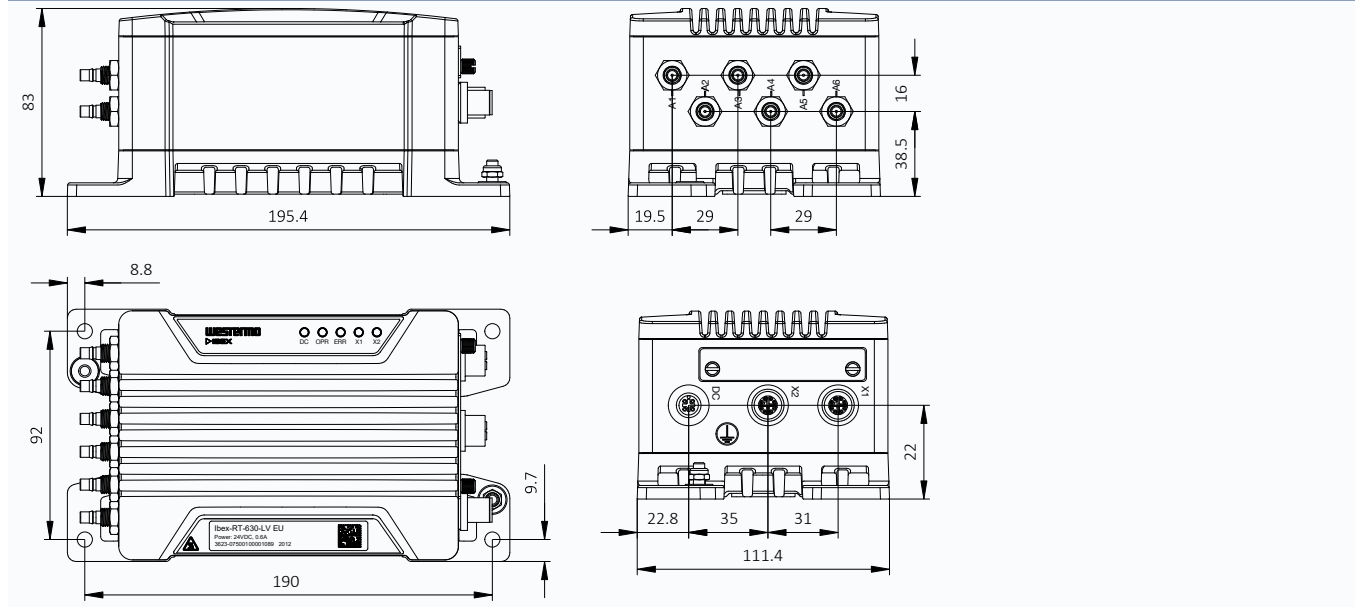
The Ibex-RT-630 is a mobile LTE and WLAN router for onboard usage in trains, trams, locomotives and busses. The Ibex-RT-630 offers outstanding performance and rugged internet connectivity back-up to enable hybrid train-to-ground installations with a single device. The Mobile Communication Gateway (MCG) 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 global LTE bands to support all current, as well as future, frequencies. 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, the Ibex-RT-630 is very well-suited for any deployment in challenging environments such as mining and industrial vehicle automation.

Specifications - Ibex-RT-630 series

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	1.65 kg without antennas
Operating temperature	-40 to +70°C (-40 to +158°F)
Ingress protection	IP66
MTBF	290,000 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	3 x QMA compatible connectors for WLAN 2 x QMA compatible connectors for LTE 1 x QMA compatible connector for GNSS
Ethernet	2 x 10/100/1000 Base-T, 2 x M12 X-coded connectors
SIM	2 x mini-SIM

Wireless	
Operating modes	Access Point, Client, Bridge, Inter-consist Link
Wireless standards supported	IEEE802.11b, 802.11g, 802.11a, 802.11n
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	802.11b: 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 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
RF transmit power 2400 to 2483.5 MHz ^a	Max. conducted transmit power, 802.11b/g/n: 1 port: +22 dBm for all data rates 2 ports: +25 dBm for all data rates 3 ports: +27 dBm for all data rates
RF transmit power 5150 to 5350 MHz ^a	Max. conducted transmit power, 802.11a/n: 1 port: BPSK, QPSK and 16QAM: +22 dBm, 64QAM: +20 dBm 2 ports: BPSK, QPSK and 16QAM: +25 dBm, 64QAM: +23 dBm 3 ports: BPSK, QPSK and 16QAM: +25 dBm, 64QAM: +25 dBm
RF transmit power 5470 to 5850 MHz ^a	Max. conducted transmit power, 802.11a/n: 1 port: +22 dBm for all data rate 2 port: +25 dBm for all data rates 3 port: +27 dBm for all data rates
Receiver sensitivity (typical)	802.11g: -95 dBm (6 Mbit/s), -85 (36Mbit/s), -80 dBm (54 Mbit/s) 802.11a: -95 dBm (6 Mbit/s), -85 (36Mbit/s), -80 dBm (54 Mbit/s) 802.11ng HT20: -95 dBm (MCS0), -76 dBm (MCS7), -73 dBm (MCS15), -70 dBm (MCS23) 802.11na HT20: -95 dBm (MCS0), -76 dBm (MCS7), -73 dBm (MCS15), -70 dBm (MCS23) 802.11ng HT40: -92 dBm (MCS0), -73 dBm (MCS7), -70 dBm (MCS15), -67 dBm (MCS23) 802.11na HT40: -92 dBm (MCS0), -73 dBm (MCS7), -70 dBm (MCS15), -67 dBm (MCS23)
MIMO features supported	Space Time Block Coding (STBC), RX Low Density Parity Check (LDPC), Maximum Likelihood Demodulation (MLD), Maximum Ratio Combining (MRC)
Mobile interface	2x2 MIMO LTE-A Cat 12, 3GPP E-UTRA Release 12
Mobile frequency bands	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B14/B17/B18/B19/B20/B21/B26/B28/B29/B30/B32/B66 LTE-TDD: B38/39/B40/B41 WCDMA Band: B1/B2/B3/B4/B5/B8/B9/B19
LTE-A carrier aggregation	DL 2CA: B1+3/5/18/19/20/26; B2+2/4/5/12/13/17/29/30/66; B3+3/5/7/8/19/20/28; B4+4/5/12/13/17/29/30; B5+7/30/66; B7+7/20/28; B12+30; B13+66; B19+21; B20+B32; B29+30; B38+38; B39+39; B39+39; B39+41 B40+40; B41+41; B66+66;12,29,30,5; B2+B14;B14+B30;B14+B66; (Note: B29, B32 only for secondary component carrier) DL inter-band 3CA: B1+3+5/7/8/19/20/28; B1+7+20, B2+4+5,B2+4+13, B2+5+30, B2+12+30, B2+29+30, B3+7+20, B3+7+28 , B3+7+8, B4+5+30, B4+12+30, B4+29+30, B5+66+2, B13+66+2, B66+12+30, B66+29+30, B66+5+30; B2+B14+B66 DL 2 intra-band plus inter-band 3CA: B2+2+5, B2+2+13, B3+3+7, B3+7+7, B3+3+20, B3+3+28,B3+3+1, B4+4+5, B4+4+13, B7+7+28, B5+66+66, B13+66+66, B66+66+2, B39+B39+B41; B39+B41+B41; B14+B66+B66 DL 3 intra-band 3CA: B40+40+40, B41+41+41, B66+66+66 UL Intra-band Continuous 2×CA: B3+3; B7+7; B38+38; B40+40; B41+41
Mobile data rates	LTE-FDD: Max 600 Mbps (DL)/Max 150 Mbps (UL) – DL 256QAM / UL 64QAM; LTE-TDD: Max 430 Mbps (DL), Max 30 Mbps (UL); DC-HSDPA: Max 42 Mbps (DL); HSUPA: Max 5.76 Mbps (UL); WCDMA: Max 384 Kbps (DL), Max 384 Kbps (UL)
GNSS	GPS L1C/A, SBAS L1C/A, QZSS L1C/A, QZSS L1 SAIF, GLONASS L1OF, BeiDou B1I, Galileo E1B/C, D-GPS

^aDepending on regulatory limitations

Features	
Security	WPA2 (CCMP), WPA3-Personal (SAE/OWE), WPA3-Enterprise (Suite-B), 802.11w, 802.1X, 802.11r
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)

Features	
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 - 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 - 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 301 489-19, Electromagnetic Compatibility (EMC) standard for radio equipment and services - Part 19: Specific conditions for Receive Only Mobile Earth Stations (ROMES) operating in the 1,5 GHz band - 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 - ECE E-Mark, Road Vehicles, E13 10R-06 15771 (valid for LV models only)
Mechanical (Shock and vibration)	- EN 61373, category 1, class A and B - EN 60068-2-27, 100 m/s², 30 ms - MIL STD 810G Method 516.7, 10 g, 11 ms
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 - ETSI EN 301 908-1, IMT cellular networks 3GPP LTE Advanced standard - IEEE802.11, Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications - 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/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
3623-075001	Ibex-RT-630-LV EU
3623-075002	Ibex-RT-630-LV NA
3623-075101	Ibex-RT-630-HV EU
3623-075102	Ibex-RT-630-HV NA
3623-0799	Factory Reset Plug X-code (Accessory)