CYBOX GW-P

MOBILE WIRELESS GATEWAY WITH LTE CAT-6 AND WI-FI 5 / WAVE 2

ELTEC systems

Westermo

MADE IN GERMANY

KEY FEATURES

- Up to 5 LTE interfaces for channel-bundled WAN access
- Up to 4 SIM cards for each LTE interface
- 1x Wave 2 / 4x4 multi-user MIMO with up to 1733 Mbps
- Dual 1 Gigabit Ethernet on M12 X-coded connectors
- Simultaneous Wi-Fi operation on 2.4 GHz and 5 GHz bands
- Up to 2 sockets for expansions (CAN, MVB)
- Optional internal SSD storage up to 960 GB
- Ultra-wide-range power supply 24 to 110 VDC
- Integrated GNSS
- Built-in cyber security
- Maintenance-free design
- -40 °C to +70 °C operating temperature
- EN 50155 compliant

TYPICAL APPLICATIONS

- Passenger Wi-Fi
- Passenger Entertainment
- Passenger Information
- Train-to-Ground Communication

HIGH-END WIRELESS COMMUNICATION

The CyBox GW-P is a robust wireless communication gateway for railway applications. It offers stable, secure, and broadband LTE connections for train-to-ground communication and high-speed internet. The device hosts multiple LTE interfaces for parallel LTE channel use and thus maximized throughput, multiple Wi-Fi interfaces to connect to client devices such as mobile phones, as well as dual Gigabit Ethernet ports to attach the device to a backbone network. Country-specific LTE/Wi-Fi standards are adopted for worldwide use in every type of train.

MULTIPLE RADIOS

There is mounting space for up to five radio modules within the CyBox GW-P. The radios can operate in different standards, including LTE and its predecessors. Each LTE module can be provided with up to four SIM cards for an optimal net coverage and maximum provider flexibility. The Wi-Fi interfaces allow for connecting clients at high data rates on each interface. One of the interfaces is prepared for Wave 2 modules with multi-user MIMO (MU-MIMO) support to boost network efficiency and maximize data throughput.

MEDIA SERVER

To enhance the CyBox GW-P media server capabilities with internal storage, mounting space for a M.2 solid state drive is supplied. It is attached to the CPU's dedicated SATA port and can be used for streaming local, on-vehicle video and audio data.

USER-INTERFACE AND SECURITY FEATURES

The CyBox GW-P firmware provides a convenient management interface via a web service. Besides global setup parameters the open source software OpenWrt allows the configuration of the radio interfaces, including provider information and the login dialog, as well as the setup of the stateful firewall. The access point and router configurations as well as the management firmware can be updated remotely. Furthermore, the built-in fully configurable stateful firewall and multi-VPN support with hardware-accelerated encryption ensures communication security.

BLOCK DIAGRAM
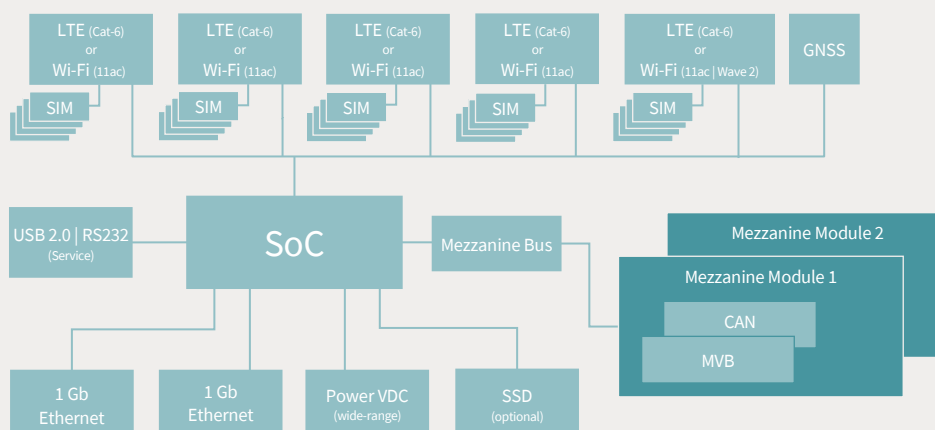
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TECHNICAL DATA

PHYSICAL INTERFACES

System Architecture	Quad-Core CPU T1042, 1400 MHz Octa-Core CPU T2081, 1800 MHz up to 4 GB RAM, 256 MB Flash
Software	Linux OS OpenWrt
Antenna	QLS connectors
LAN	2x 10/100/1000BaseT(X), M12 X-coded
USB/Serial Port	M12 8-pin female A-coded, USB 2.0, RS232
Power Input	M12 4-pin male A-coded
Reset Switch	available on front panel

ELECTRICAL SPECIFICATIONS

Power Supply	24 to 110 VDC, wide-range power supply (compliant to EN 50155)
Interruptions of Voltage Supply	EN 50155, Class S2
Power Consumption	36/46 W typ., 40/50 W max.

ENVIRONMENTAL CONDITIONS

Ambient Temperature	depending on temperature class of Wi-Fi module Class OT4, -40.. +70 °C (85 °C) operating or Class OT3, -25.. +70 °C (85 °C) operating -40.. +85 °C storage
Humidity	max. 95 % non-condensing operating and storage
Altitude	Class AX, up to +2000 m
PCB Protection	conformal coating

RELIABILITY

MTBF	approx. ~180.000 h

MECHANICAL SPECIFICATIONS

Dimensions	251 (284) mm x 76 mm x 246 mm (w h d) (incl. mounting points)
Weight	up to 4250 g
Housing	IP40, aluminum, wall-mount, conductive cooling

MODULES

LTE INTERFACE CAT-6 ADVANCED

Transfer Rates	up to 300 Mbps download / 50 Mbps upload
4G (LTE) Bands	B1, B2, B3, B4, B5, B7, B8, B12, B13, B20, B25, B26, B29, B30, B41
3G Bands	B1, B2, B3, B4, B5, B8
Antenna	with Diversity and MIMO

WI-FI INTERFACE IEEE 802.11 a/b/g/n/ac/ac Wave 2

Transfer Rates	up to 1733 Mbps
Frequency Range	2.412 GHz to 2.484 GHz, or 5.180 GHz to 5.825 GHz, selectable band
RF	4x RF antennas, 4x4 MU-MIMO technology
Encryption	AES, TKIP, WPA, WPA2, WPA3
Operational Feature	up to 256 clients per radio
Security	stateful firewall with multi-level client isolation

GNSS INTERFACE

Frequency Band	GPS (L1), GLONASS (L1, FDMA), Galileo (E1) ready, Beidou
Protocol Standards	NMEA, RTCM 104
Accuracy	up to 1.5 m
Time To First Fix	cold start < 35 s, warm start 1 s

STANDARDS AND SPECIFICATIONS

Directive (EU) 2016/797	EN 50155 (IEC 60571)
	EN 45545-2 (HL 1 to HL 3)
	EN 61373 (Category 1, Class B)
RED – 2014/53/EU	EMC
	radio spectrum
	health & safety

OPTIONS

Modules	various combinations of Wi-Fi and LTE modules
Antenna Connectors	QLS to SMA adapter
Interfaces	CAN, MVB (ESD+, EMD)
Order numbers on standard configuration sheet and www.eltec.com	

EVALUATION KIT

ORDER NO.	DESCRIPTION
EVGWP-1031V0	based on model CYGWP-1031V0
	3x LTE, 2x Wi-Fi 802.11ac, 2x 1 Gb ETH (M12X), 120 GB SSD, GNSS
All kits incl. antennas, adapters, cables and power supply in ruggadized suitcase	

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