

CYBOX GW 2-P

MOBILE WIRELESS GATEWAY WITH 5G AND WI-FI 5 / WAVE 2

ELTEC

systems

WESTERMO



MADE
IN
GERMANY

KEY FEATURES

- Up to three 5G interfaces for channel-bundled WAN access
- Up to 4 SIM cards for each 5G interface
- Up to two Wi-Fi 11ac interfaces for dual band mode
- Optional Wave 2 interface with 4x4 MU-MIMO with up to 1733 Mbps
- Dual 1 Gigabit Ethernet on M12 X-coded connectors
- Up to 2 sockets for extensions (CAN, MVB, 2.5 GbE, M.2 PCIe SSD)
- Simultaneous Wi-Fi operation on 2.4 GHz and 5 GHz bands
- 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 2-P is a robust wireless communication gateway for railway applications. It offers stable, secure, and broadband 5G/LTE connections for train-to-ground communication and high-speed internet. The device hosts multiple 5G/LTE interfaces for parallel 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 5G/LTE/Wi-Fi standards are adopted for worldwide use in every type of train.

MULTIPLE RADIOS

There is mounting space for up to 4 radio modules within the CyBox GW 2-P. Each 5G/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. The gateway can be equipped with either two 11ac 3x3 MIMO modules or one Wave 2 module with 4x4 multi-user MIMO (MU-MIMO) support to boost network efficiency and maximize data throughput.

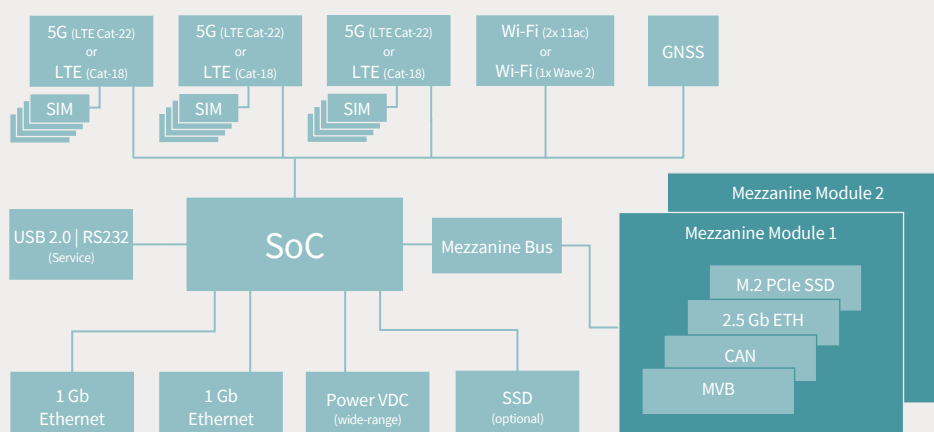
MEDIA SERVER

To enhance the CyBox GW 2-P media server capabilities with internal storage, mounting space for a M.2 solid state drive is supplied. It is connected to the CPU's dedicated SATA port and can be used for streaming local, on-vehicle video and audio data. In addition, a M.2 PCIe solid state drive can be equipped as a mezzanine extension for even higher storage capacity.

USER-INTERFACE AND SECURITY FEATURES

The CyBox GW 2-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 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

OPTIONS

Modules	various combinations of Wi-Fi and 5G/LTE modules
Antenna Connectors	QLS to SMA adapter
Interfaces	CAN, MVB (ESD+, EMD), 2.5 Gb ETH (M12X), M2. PCIe SSD

Order numbers on standard configuration sheet and www.eltec.com

MODULES

5G INTERFACE	
Transfer Rates	Up to 2.4 Gbps download / 500 Mbps upload
5G	n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n40, n41, n66, n71, n77, n78, n79
4G (LTE) Bands	B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B48, B66, B71
3G Bands	B1, B2, B3, B4, B5, B8
Antenna	4x RF antennas, with Diversity and Massive-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

EVALUATION KIT

ORDER NO.	DESCRIPTION
EVGWP-2010V0	based on model CYGWP-2010V0 2x 5G, 2x Wi-Fi 802.11ac, 2x 1 Gb ETH (M12X), 120 GB SSD, GNSS
EVGWP-2130V0	based on model CYGWP-2130V0 3x 5G, 2x 1 Gb ETH (M12X), GNSS

All kits incl. antennas, adapters, cables and power supply in ruggedized suitcase