

# CyBox GW 2-P

MOBILE WIRELESS GATEWAY WITH 5G AND WI-FI 5

WESTERMO



## 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, 3x3 MIMO with up to 1300 Mbps
- Dual 1 Gigabit Ethernet on M12 X-coded connectors
- Cold bypass for daisy chaining
- Simultaneous Wi-Fi operation on 2.4 GHz and 5 GHz bands
- Up to 2 sockets for extensions (2.5 GbE, M.2 PCIe SSD)
- 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 four 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 two 11ac 3x3 MIMO modules to boost network efficiency and maximize data throughput.

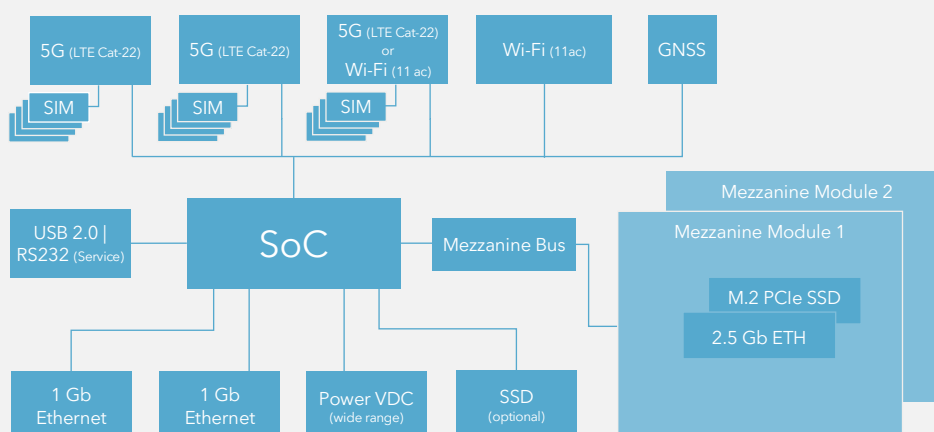
## DATA STORAGE

To provide the CyBox GW 2-P with internal storage, mounting space for a M.2 solid state drive is supplied. It can be used for local content or data storage.

## 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



## TECHNICAL DATA

| PHYSICAL INTERFACES |                                                         |
|---------------------|---------------------------------------------------------|
| System Architecture | Octa-Core CPU T2081, 1800 MHz<br>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<br>(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<br>Class OT4, -40.. +70 °C (85 °C) operating or<br>Class OT3, -25.. +70 °C (85 °C) operating<br>-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 (acc. to IEC 62380)                                           |
| Mission Profile | 40 °C ambient temperature, 75 % working time<br>ratio with 365 days annual cycle |

| MECHANICAL SPECIFICATIONS |                                                                  |
|---------------------------|------------------------------------------------------------------|
| Dimensions                | 251 (284) mm x 76 mm x 246 mm (w h d)<br>(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         | 2.5 Gb ETH (M12X), M2. PCIe SSD                  |

Order numbers on standard configuration sheet and [www.eltec.com](http://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 |                                                                    |
|----------------------------------------|--------------------------------------------------------------------|
| Transfer Rates                         | up to 1300 Mbps                                                    |
| Frequency Range                        | 2.412 GHz to 2.472 GHz, or 4.920 GHz to 5.825 GHz, selectable band |
| RF                                     | 3x RF antennas, 3x3 MU-MIMO technology                             |
| Encryption                             | AES, TKIP, WPA, WPA2, WPA3                                         |
| Operational Feature                    | up to 128 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-2110V0 | based on model CYGWP-2110V0<br>2x 5G, 2x Wi-Fi 802.11ac, 2x 1 Gb ETH (M12X),<br>GNSS, incl. 120 GB SSD |
| EVGWP-2130V0 | based on model CYGWP-2130V0<br>3x 5G, 2x 1 Gb ETH (M12X), GNSS,<br>incl. 120 GB SSD                    |

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