CyBox LTE 2-W

RAILWAY ROUTER WITH LTE CAT-7 AND WI-FI 5

KEY FEATURES

- Up to 2 LTE interfaces for channel-bundled WAN access
- Up to 4 SIM cards for each LTE interface
- Optional Wi-Fi 5 radio with 3x3 MIMO up to 1300 Mbps
- Dual 1 Gigabit Ethernet on M12 X-coded connectors
- Optional internal high-speed Ethernet switch
- Optional cold bypass for daisy chaining
- Power over Ethernet (PoE+) according to IEEE 802.3at
- 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
- Ticketing System
- Fleet Management
- Video Surveillance

HIGH-END WIRELESS COMMUNICATION

The CyBox LTE 2-W is a member of the CyBox family – robust wireless communication routers for railway applications. It offers stable, secure, and broadband LTE connections for train-to ground communication and high-speed internet. The device hosts up to two LTE interfaces for parallel LTE channel use and thus maximized throughput or one Wi-Fi 5 interface combined with an LTE interface to boost network efficiency and connect to client devices such as mobile phones. Country-specific LTE/Wi-Fi standards are adopted for worldwide use in every type of train.

BACKBONE CONNECTIVITY

On the fixed network side, the router features two Gigabit Ethernet ports which are, as an option, internally connected to an unmanaged switch and can be used either for redundancy to increase the availability of services, or to connect a second CyBox LTE 2-W. The bypass relay option ensures a high-speed connection even if the router is powered down.

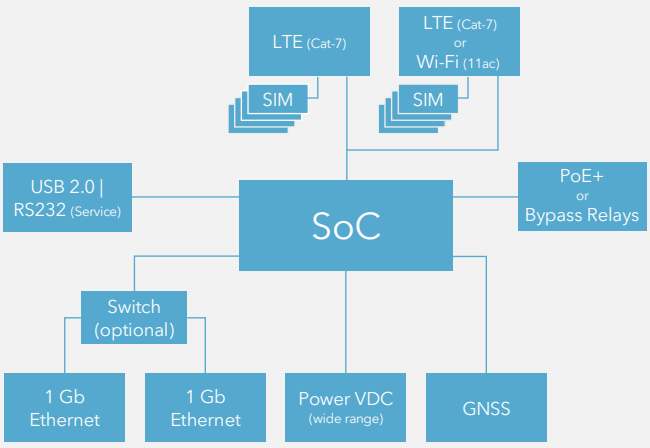
MULTIPLE POWER OPTIONS

The CyBox LTE 2-W provides flexible powering options by either an internal power supply or Power-over-Ethernet (PoE+). The PoE daisy chaining offers wireless connectivity with two routers using just one cable – a noticeable cost saving factor especially in retrofit programs.

USER-INTERFACE AND SECURITY FEATURES

The CyBox LTE 2-W 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	Dual-Core CPU T1023, 1200 MHz 1 GB RAM, 128 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)
Power over Ethernet	PoE+, Class-4 powered device, IEEE 802.3at
Interruptions of Voltage Supply	EN 50155, Class S2
Power Consumption	15 W typ., 25 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. ~280.000 h (acc. to IEC 62380)
Mission Profile	40 °C ambient temperature, 75 % working time ratio with 365 days annual cycle

MECHANICAL SPECIFICATIONS	
Dimensions	105 (130) mm x 55 mm x 206 mm (w h d) (incl. mounting points)
Weight	up to 1350 g
Housing	IP40, aluminum, wall-mount, conductive cooling

MODULES

LTE INTERFACE CAT-7 ADVANCED	
Transfer Rates	up to 300 Mbps download / 150 Mbps upload
4G (LTE) Bands	B1, B3, B7, B8, B20, B28, B32, B38, B40, B41, B42, B43
3G Bands	B1, B5, B8
Antenna	with Diversity and 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 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, QZSS constellations
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
Order numbers on standard configuration sheet and www.eltec.com	

EVALUATION KIT

ORDER NO.	DESCRIPTION
EVLTE-1052V0	based on model CYLTE-1052V0
	2x LTE, 2x 1 Gb ETH (M12X), PoE+, GNSS
All kits incl. antennas, adapters, cables and power supply in ruggadized suitcase	

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