

CYBOX RT 2-A

ELTEC

systems

AUTOMOTIVE WIRELESS ROUTER WITH LTE CAT-6 AND WI-FI 5



MADE
IN
GERMANY

KEY FEATURES

- Up to two LTE interfaces for channel-bundled WAN access
- Up to two SIM cards for each LTE interface
- Up to two IEEE802.11ac Wi-Fi interfaces
- Integrated 5-port Gigabit Ethernet switch
- Simultaneous Wi-Fi operation on 2.4 GHz and 5 GHz bands
- Up to two sockets for expansions (CAN, Wi-Fi, RS232 and more)
- Optional internal SSD storage up to 960 GB
- Integrated automotive power supply 12 to 24 VDC
- Integrated GNSS
- Built-in cyber security
- Maintenance-free design
- -40 °C to +75 °C operating temperature
- E1 compliant

TYPICAL APPLICATIONS

- Passenger Wi-Fi
- Passenger Entertainment
- Passenger Information
- Vehicle-to-Ground Communication
- Vehicle Data Logging

HIGH-END WIRELESS COMMUNICATION

The CyBox RT 2-A is a robust wireless communication router for automotive applications. It offers stable, secure, and broadband LTE connections for data exchange via vehicle-to-ground connections 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 five Gigabit Ethernet ports to attach the device to a backbone network. Country-specific LTE and Wi-Fi standards are adopted for worldwide use in every type of vehicle.

MULTIPLE RADIOS

There is mounting space for up to four radio modules within the CyBox RT 2-A. The radios can operate in different standards, including LTE and its predecessors. Each LTE module can be provided with up to two 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 to boost network efficiency and maximize data throughput.

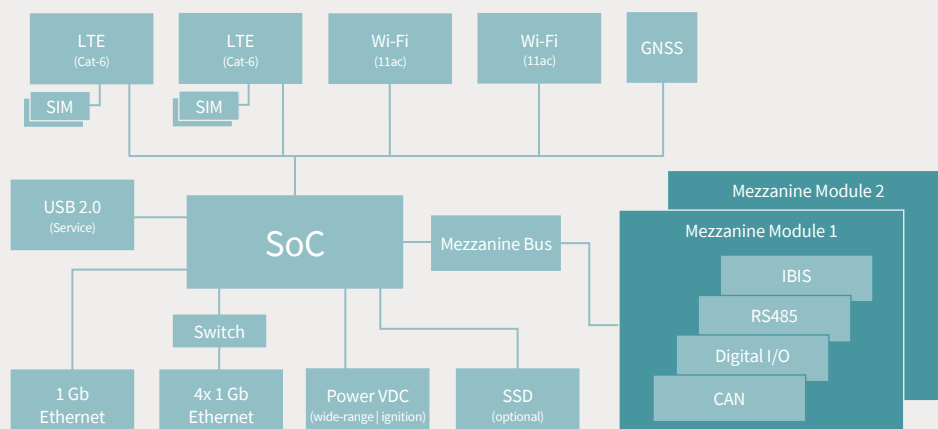
MEDIA SERVER

To enhance the CyBox RT 2-A 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 RT 2-A 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, 1200 MHz |
| Software | Linux OS OpenWrt |
| Antenna | QLS connectors |
| LAN | 5x 10/100/1000BaseT(X), RJ45 |
| USB | USB Type-A, USB 2.0 |
| Power Input | 3-pin male / ignition contact |
| Reset Switch | available on the front panel |

| ELECTRICAL SPECIFICATIONS | |
|---------------------------------|---|
| Power Supply | 12 to 24 VDC, wide-range power supply (compliant to E1) |
| Interruptions of Voltage Supply | compliant to ISO 16750-2 |
| Power Consumption | 12 W typ., 30 W max. |

| ENVIRONMENTAL CONDITIONS | |
|--------------------------|---|
| Ambient Temperature | -40.. +75 °C (+65 °C when using an SSD) operating, -40.. +85 °C storage |
| Humidity | max. 95 % non-condensing operating and storage |
| Altitude | up to +2000 m |

| RELIABILITY | |
|-------------|--------------------|
| MTBF | approx. ~220.000 h |

| MECHANICAL SPECIFICATIONS | |
|---------------------------|--|
| Dimensions | 251 (284) mm x 70 mm x 170 mm (w h d), (width mounting points) |
| Weight | up to 2800 g |
| Housing | IP40, aluminum, wall-mount, conductive cooling |

STANDARD CONFIGURATIONS

| ORDER NO. | DESCRIPTION |
|------------|---|
| CYRTA-2000 | 2x LTE, 2x Wi-Fi 802.11ac, 5x 1 Gb ETH (RJ45), QLS, 120 GB SSD, CAN, GNSS |
| CYRTA-2010 | 1x LTE, 2x Wi-Fi 802.11ac, 5x 1 Gb ETH (RJ45), QLS, GNSS |
| CYRTA-2100 | 2x LTE, 2x Wi-Fi 802.11ac, 5x 1 Gb ETH (RJ45), FAKRA, 120 GB SSD, CAN, GNSS |

Further information and order numbers on www.eltec.com

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, 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 | |
|--|--|
| 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 |
| 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

| | |
|------------------|--|
| Standards | ISO 16750-1, -2, -3, -4, -5 |
| E1 Type Approval | UN ECE R10, R118 |
| RED - 2014/53/EU | EMC radio spectrum health & safety |

OPTIONS

| | |
|--------------------|---|
| Modules | various combinations of Wi-Fi and LTE modules |
| Antenna Connectors | FAKRA |
| Interfaces | CAN IBIS, RS232, RS485, ODB2, digital I/O (future) |
| Evaluation Kit | available |