H2-Automotive in-vehicle router

Rugged embarked communications platform for vehicles with LTE and Wi-Fi

Introduction

The H2-Automotive router is the multi-service communications platform for vehicles. It provides reliable 4G/LTE and Wi-Fi broadband communications with redundancy, aggregation and advanced network security mechanisms options.

It is based on a rugged hardware design, with protection for the power supply and against vibrations, as well as specific mobility software, such as dynamic configurations (through positioning and communication quality) and delayed OFF. It is also easy to incorporate in management tools and Wi-Fi and Teldat or third party HotSpot platforms.

Product Highlights

▶ Multi-service communications platform

▶ Multiple simultaneous WAN (aggregation & balance)

▶ Power supply protection - MTBF improvements

▶ Geo-fencing: GPS-based dynamic configuration

▶ Isolation of standard-based services

▶ Manageable OFF to save battery

▶ Turnkey Wi-Fi solution (Management and HotSpot)

Interfaces

Interfaces	H2-Automotive
Up to 2 x 4G/LTE Module	Yes (Depends on the model)
Up to 2 x Wi-Fi 802.11n (Client and AP)	Yes (Depends on the model)
4+1 x Gigabit-Ethernet 10/100/1000Mbps	Yes
Asynchronous Serial Port (RS-232)	Yes
Embedded GPS (NMEA)	Yes
ON/OFF button	Yes
2 SMA LTE module connectors (MIMO)	Yes
2 SMA-RP Wi-Fi connectors (MIMO)	Yes

Competitive Advantage

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Simultaneous use several WWAN interfaces	Multiple LTE and/or Wi-Fi access links. Simultaneous use, with load aggregation and balance, or ensuring high application availability and continuity.
Rugged hardware design	Hardware design to support thorough vibration and overvoltage tests. Minimising maintenance costs and outages.
GPS and service-based automatisms	Communication monitoring (availability and quality) and positioning for dynamic application of routing policies for each service, link and position.
Corporate networking software	It embarks the latest IP network technologies available in the vehicle, providing secure, quality and user-friendly multi-service mass deployment.

Scenarios
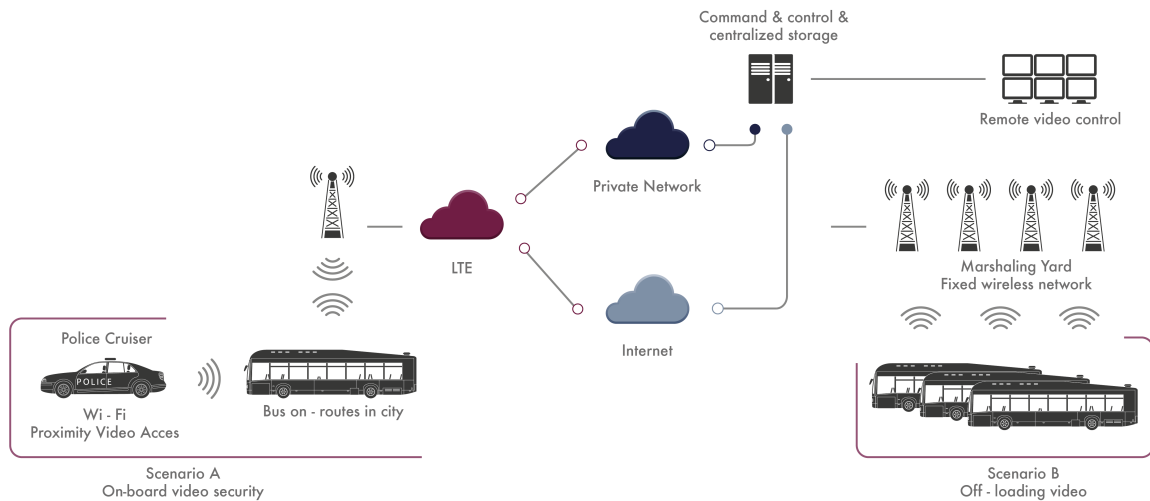
Figure: Connected bus: New public transport paradigm

Key Features

Broadband with simultaneous LTE connections Up to 2 WWAN modules (4G/LTE) can be installed. For separate operation or backup. One of the modules also supports Dual-SIM for operator redundancy.

4G/LTE dual-SIM for operator redundancy The double SIM facility with a single module for use by two telecommunications operators, using one as backup for the other using a single module.

2x Wi-Fi (802.11n) for high density or backup Wi-Fi Up to 2 Wi-Fi 802.11n modules enables and increase in Wi-Fi service capacity for high density environments. One of them can also operate as a client and the other as an AP to use external Wi-Fi networks as WAN.

Optimised hardware design for embarked environment Extended temperature range (0 to 50?C). Vibration-proof design. 12/240 Vdc for connection to batteries. Delayed OFF for application continuity after the vehicle is turned off, thus optimising battery consumption.

Protection power supply ISO7637-2 (MTBF improvement) Power supply protection stage that enables direct connection to vehicle batteries and minimises faults due to unstable power supply.

Aggregation/balance for application continuity Simultaneous use of WAN interfaces (LTE, Wi-Fi, Satellite, etc.) to share and/or aggregate the load from different services using different interfaces, optimising coverage areas and total performance solutions.

Isolated and secure multi-service communications The use of advanced products such as VRF, VLANs, QoS and Policy Routing together with multiple WAN links enables logical separation of each service and management of different solutions sharing the communications.

Embedded GPS (NMEA) easily integrated with 3rd parties Ideal for fleet management or telemarketing applications. The equipment comes with a GPS that can be accessed through a TCP port that supplies information on real time geo-positioning using NMEA data.

Dynamic performance based on positioning (GPS) Dynamic configuration according to the GPS position and use of Wi-Fi as an AP or client for data synchronisation in engine sheds or use of a SIM or other card to optimise coverage and data consumed.

Advanced troubleshooting (fine adjustment in the cloud) Advanced troubleshooting such as sniffer and syslog to analyse problems according to service, position and coverage on the path. Cloud management with self-provisioning allows for installation by non-qualified personnel.

HARDWARE TECHNICAL FEATURES

Up to 2 simultaneous WWAN Interfaces (LTE/HSPA+/HSPA/EDGE)

Up to 2 integrated hardware modules with HSPA+or LTE/HSPA + technology
2 external antennas with SMA connector per module
Additional support for additional USB modules (license optional)

Up to 2 Wi-Fi Interfaces (802.11abgn)

Access Point and client mode 802.11abgn selectable 2.4/5GHz
MIMO 2x2 with external antennas (SMA-RP connector) per module
WEP, WPA, WPA2 security. WMM QoS service quality Multi SSID

Dimensions and Weight

Length x Width x Height: 215 x 211 x 49 mm
Approximate weight: 1.9 Kg
Flexible installation: On a wall, ceiling and horizontal

Ethernet interfaces

4-port switch plus one optional WAN port (RJ45 connector)
802.3i (10BaseT), 802.3u (100BaseT), 802.3ab (1000BaseT)
Duplex support, speed link auto-negotiation IEEE 802.3u, VLAN y 802.1X

GPS interface

GPS antenna activates FME and NMEA protocol
Acquisition type (Hot Start 1s, Warm start 29s Cold Start: 32s)
Precision (Horizontal <2 m (50%); Altitude < 4 m (50%); Speed <0.2 m/s)

Environmental specifications

Temperature: 0 to 50 ?C
Relative humidity: 5 to 95%
Shock and vibration-proof (EN 60068-2)

SOFTWARE TECHNICAL FEATURES

Specific Wi-Fi functions

HotSpot Gateway function for HotSpot service support
WLAN controller function for Teldat embarked APs
Dynamic function (AP or client) according to position

IP protocol (2)

Multicast: IGMP (v1,v2, v3), PIM-SM, MSDP, MLD, MLDv2
IPSLA service probes (delay, package loss, jitter)
High availability: VRRP, TVRP (HSRP compatible)

security (2)

Certificates: CSR, SCEP, X.509v3, PKIX, LDAP revocation
Static and dynamic access lists and session-based Firewall
Detection of DoS and DDoS attacks

Service quality

Classification, marking, BW management, BW prioritisation and limitation
Up to 32 types 16 queues per interface
Strict policies (PQ), Low latency (LLQ), according weight/type (WFQ, CBWFQ)

Management

CLI configuration and storage in a plain text file
Assignment of user and group licenses
RADIUS and TACACS+ AAA support

IP protocol

ARP, ARP Proxy, MTU discovery, NAT, ECMP, BFD
RIP, OSPF, BGP, Policy based static and dynamic routing
Virtual Router Forwarding (Multi-VRF)

security

IPSec support in transport mode, tunnel and DMVPNs
Pre-shared authentication, RSA, Certificates, MDS, SHA-1
Encrypted: DES (56 bits), 3DES (168 bits), AES (128, 192 and 256 bits)

IP services

DHCP, DNS, FTP, SFTP, SSH, Telnet server and client
NTP, LDAP, Syslog, SCP client. TFTP server
DHCP, dynDNS relay

Specific WWAN functions

Automatic hand-over (passive and active probe-based detection)
Advanced link monitoring (package, latency, jitter error)
Triple SIM and double module associated with the hand-over mechanism

Management (2)

Netflow, RMON V5 and V9, SNMPv1, v2c y v3, Syslog support
Manageable via SMS
Remote Wireshark compatible traffic collection

ADDITIONAL TECHNICAL FEATURES

Asynchronous console and serial port interface

DB-9 connector with proprietary pinouts (including adapter)
Type RS232, N81
Default speed 9600 bps, maximum speed 115200 bps

VoIP

Protocols: SIP (UDP, TCP, TLS) and support for SIP terminals
GSM mediagateway for backup calls on a GSM network
Surviving services: Calls, hold, transfers

Traffic balance and broad band aggregation

Multipath per session (TCP/IP)
IPSec-based Smart Balancing aggregation mechanism
Use of DMVPNs and dynamic routing for application continuity

Embarked environment ruggedness and power supply protection

Power supply protection for direct battery power supply ISO7637-2
Certifications: EN 60068-2, EN60950-1, EN 55022, EN 55024
Delayed OFF (activated by the start-up motor)

FLEXIBLE
COMMUNICATIONS SOLUTIONS
THAT GROW WITH YOU.

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Teldat is a leading provider in Enterprise Communications equipment and Services for the top corporate to mid-sized and SME markets.

About TELDAT

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Teldat Group is a leading technology holding that desings, manufactures and distributes advanced Internetworking platforms for corporate environments, providing new and cutting-edge communication solutions without ever losing sight of its customers real requirements. Teldat's solutions development is based on proprietary technology, which is in the Group's DNA. This allows Teldat to be a leading provider in Enterprise Communications equipment and Services for the top corporate to midsized markets, as well as the SME and SoHo markets.

From a geographical viewpoint, Teldat Group has a presence in all continents, with its corporate headquarters located in Spain, and operational affiliates in Europe (Germany, Austria, Portugal, Italy and France) and in LATAM (Mexico and Brazil), as well as two business development offices in USA and China.

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