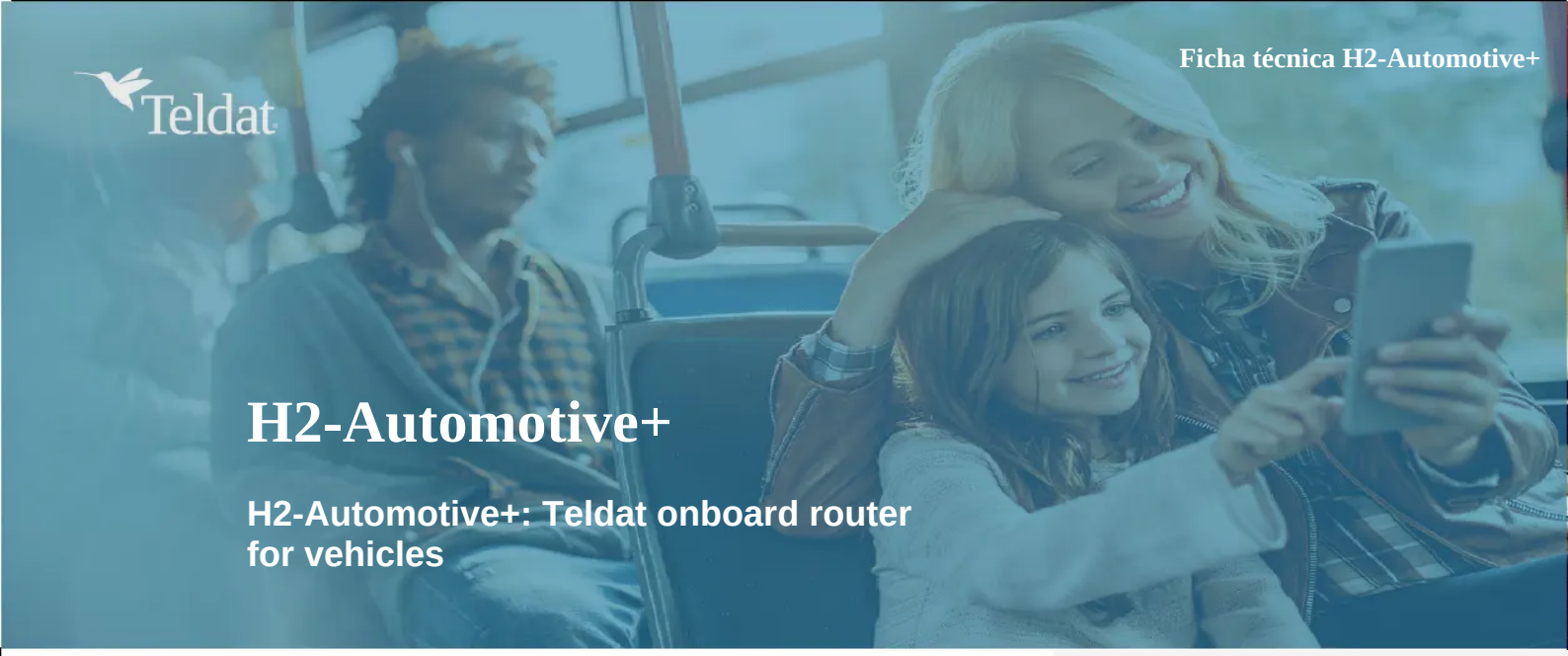


H2-Automotive+

H2-Automotive+: Teldat onboard router for vehicles

Introduction

The H2-Automotive+ is Teldat's new multiservice communications platform for vehicles. It provides 4G/LTE/LTE-A broadband and Wi-Fi with redundancy and aggregation options, advanced network security mechanisms, and an extended operating temperature range.

Based on a ruggedized hardware design, the router is both vibration and dust resistant and features power surge protection, specific mobile software, dynamic configurations (based on location and communications quality data), and has a delayed power off feature. Furthermore, it provides seamless integration with any third party management tool or hotspot platform.

Destacar

- **Multi-service communications platform**
- **Concurrent multiple WANs (aggregation&balancing)**
- **Power supply protection (enhanced MTBF)**
- **Geo-fencing: GPS-based dynamic configuration**
- **Standards-based service isolation**
- **Battery-saving feature: remote/managed power off**
- **Passengers Wi-Fi, CCTV, Management, ...**

Interfaces

Up to 4 x 4G/LTE Module	Yes (depending on the model)
Four SIM card slot for Dual-SIM	Yes
Up to 2 x 802.11ac Wi-Fi (client & AP)	Yes (depending on the model)
4x 10/100/1000 Mbps Gigabit-Ethernet	Yes
Asynchronous serial port (RS-232)	Yes
Built-in GPS (NMEA)	Yes
2 x SMA connectors per LTE module (MIMO)	Yes
2 x SMA-RP connectors for Wi-Fi (MIMO)	Yes

Competitive Advantage

Concurrent multiple WWAN interfaces	Up to four simultaneous LTE and/or Wi-Fi access links with bandwidth aggregation and load balancing for maximum availability and application continuity.
Ruggedized hardware	Designed and exhaustively tested to withstand vibrations and power surges. Minimal maintenance costs and service outages. Extended operating temperature range.
Service and GPS-based automation	Communication monitoring (availability and quality) and GPS location tracking for per-service/link dynamic routing.
Professional Network Management	A Cloud based Network Management allow the automatic configuration deployment for the complete bus fleet.

Key Features

- **Broadband with multiple concurrent LTE connections** Increased bandwidth and optimize the service continuity by up to four WAN connections (LTE, Wi-Fi, etc.).
- **2 x Wi-Fi (802.11a/b/g/n/ac)** Two 802.11a/b/g/n/ac Wi-Fi modules for increased Wi-Fi service capacity in high-density environments. Intelligent algorithms allow good performance for more than 120 simultaneously user.
- **ISO7637-2 power supply protection (enhanced MTBF)** ISO7637-2 power supply protection allows the device to be directly connected to the vehicle's battery and protects against failures caused by an unstable power supply. Temperature sensor for automatic shut-down.
- **Secure, isolated multi-service communications** By using advanced protocols with multiple WAN, it allows the services and management of the different solutions sharing the communications to be logically separated from each other.
- **Location-based (GPS) dynamic behavior** The device can behave differently depending on its GPS position. The Wi-Fi can be used as AP or client for data synching at depots while the SIM selection feature can be used to optimize coverage and data consumption.
- **4G/LTE dual-SIM for operator redundancy** It has quad-SIM support in order to provide redundancy and maximize connection availability by using one of the telecoms operators to back up the others (if, for example, a connection drops) in a single module.
- **Optimized hardware design for onboard environments** Extended operating temperature range (-25 to 70°C). Shock and vibration isolation. Voltage range from 9 to 36 VDC for direct battery connection. Delayed power off for continuity when the vehicle has been turned off.
- **Bandwidth aggregation/load balancing** Concurrent use of multiple WAN interfaces(LTE, Wi-Fi, satellite, etc.)to distribute and/or aggregate load from multiple services on different interfaces, thus optimizing coverage areas and enhancing overall performance.
- **Embedded GPS (NMEA): full integration of third parties** Ideal for telemarketing and fleet management. The router incorporates a GPS (accessible via a TCP port) that provides real-time geo-location data in NMEA format.
- **Professional Network Management** Cloud based Network Management with autoprovision functionallity. Additional functions allow the analysis of the service quality and availability along the route.

CARACTERíSTICA TéCNICA DEL HARDWARE

Up to 4 simultaneous WWAN interfaces (LTE/HSPA+/HSPA/EDGE)

Up to 4 built-in hardware modules with HSPA+ or LTE/HSPA+ technologies
Four SIM slot allow Dual SIM applications
2 external antennas with a SMA connector per module

Up to 2 Wi-Fi interfaces (802.11a/b/g/n/ac)

802.11a/b/g/n/ac selectable band (2.4/5 GHz) with AP and client mode
2x2 MIMO external antennas (SMA-RP connector) per module
WPA, WPA2 security. WMM QoS. Multi SSID.

Dimensions and weight

Length x Width x Height: 237 x 180 x 59 mm
Approximate weight: 2.5 Kg
Flexible installation: wall, ceiling and horizontal

Ethernet Interfaces

4 port switch plus optional WAN port (RJ-45F connector)
802.3i (10BaseT), 802.3u (100BaseT), 802.3ab (1000BaseT)
Supports duplex, IEEE 802.3u link-speed auto-negotiation, VLAN and 802.1x

GPS Interface

Active GPS antenna with FME connector and NMEA protocol
Acquisition time (Hot start 1sec, Warm start 29sec. Cold start: 32sec)
Precision (Horizontal 4m (50%); Rate

Environmental specifications

Temperature: -25 ºC to 70 ºC
Relative humidity: 5% to 95%
Shock and vibration isolation (EN 60068-2)

CARACTERíSTICA TéCNICA DEL SOFTWARE

Specific Wi-Fi functions

Hotspot gateway function to support hotspot services
WLAN controller function for Teldat's onboard APs
Location-based dynamic function (AP or client)

IPv6 support

DHCPv6, IPv6 Adressing, Static routing, Access list,
IPv6 Tunnel over IPv4, IPv4 Tunnel over IPv6

Security

Certificates: CSR, SCEP, X.509v3, PKIX, LDAP revocation
Static and dynamic access lists and session-based firewall
DoS/DDoS attack detection

Quality of Service

Classification, marking, bandwidth management and limiting/prioritizing
Up to 32 classes and 16 queues per interface
Strict policies (PQ), low latency (LLQ), by weight/class (WFQ, CBWFQ)

Management

CLI configuration and storing in plain text file
Assignment of user/group licenses
RADIUS and TACACS+ compatible AAA support

IP Protocol (IPv4)

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

VPN-Security

IPSec support in transparent and tunnel mode (including DMVPNs)
Pre-shared authentication, RSA, Certificates, MD5, SHA-1, SHA-2
DES (56 bits), 3DES (168 bits), AES (128, 192 & 256 bits), IKEv1, IKEv2

IP Services

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

Specific WWAN functions

Automatic hand-over (passive and active probe-based detection)
Advanced link monitoring (packet error, latency, jitter)
Up to two SIM cards can associated to the hand-over mechanism

Management (2)

Support for Netflow, RMON V5 & V9, SNMPv1, v2c & v3, Syslog
Manageable through SMS
Wireshark-compatible remote traffic capture

CARACTERíSTICA TéCNICAS ADICIONALES

Console interface and asynchronous serial port connector

DB-9 with proprietor pin (including adapter)
RS232, N81
Default speed 9600 bps. Maximum speed 115200 bps

VoIP

Protocols: SIP (UDP, TCP, TLS) with SIP and GSM Gateway terminal support
GSM media gateway for backup calls over GSM network
Survival services: calls, hold, transfer

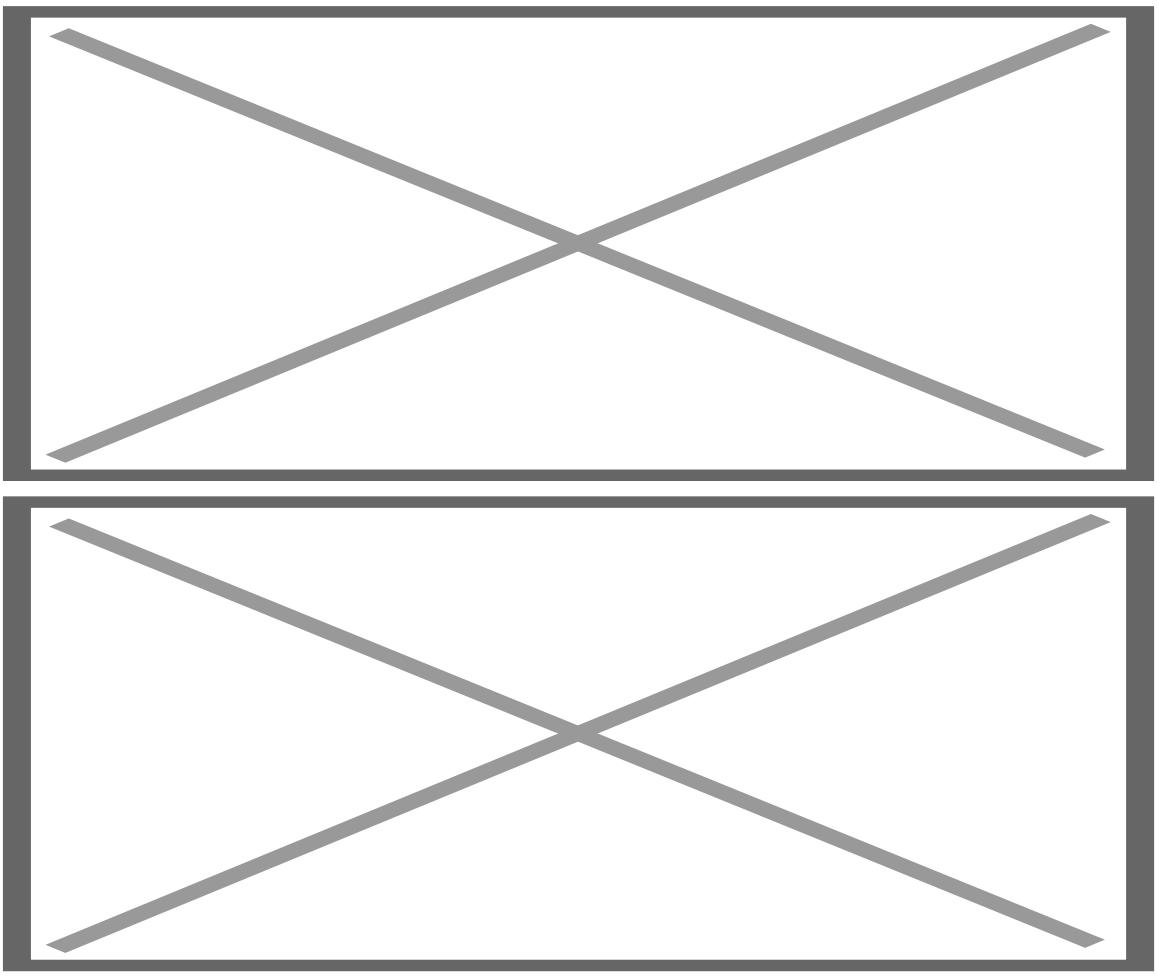
Traffic balance and aggregation of up to 4 x the bandwidth

Per-session multipath (TCP/IP)
Intelligent IPSec-based load balancing aggregation mechanism
Use of DMVPNs and dynamic routing for application continuity

Onboard enviroment ruggedness and power supply protection

Certificates: ISO7637-2 power protection for direct battery power supply
EN60068-2, EN60950-1, EN55022, EN55024, ISO7637-2, E-Mark (selected models)
Delayed power off (ignition-sensing activation)

Scenarios



Founded in 1985, Teldat is a Spanish company whose mission is to provide companies with valuable solutions for cloud access, remote office communications, cyberse-curity and voice/data connectivity both in the office and in specific environments whether they are industrial, railway, vehicles or public services.

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