

## H820Q Series Dual WiFi 3G/4G Router Datasheet



### >>| Product Introduction



The E-Lins H820Q Series is a compact, ruggedized 3G/4G/LTE and Dual Band Wi-Fi (2.4Ghz + 5Ghz) networking solution designed for mission-critical connectivity in the most challenging environments. It is qualified for M2M (Machine to Machine), IoT (Internet of Things) and In-Vehicle applications.

With an extensive list of safety and hardening certifications, the H820Q is engineered to protect against extreme temperatures, humidity, shocks, vibrations, dust, reverse polarity, and transient voltage, which is widely used in more than twenty industrial fields, such as CCTV security surveillance, vehicle, Telemetry, vending machines, power control, AMR, traffic, oil field, weather forecast, environmental protection, street lamp control, post, bank and many other areas.

### >>| Key Features

- ◆ Supports 2G/3G/4G LTE Advanced with SIM-based auto-carrier selection
- ◆ Cellular/WAN RJ45/WiFi client failover and Load Balance (Bandwidth link bonding)
- ◆ External antenna connectors for high gain antennas replacement
- ◆ MIMO supported
- ◆ Cloud-managed (with NMS network management system), TR-069, Web management, SMS, SSH/Telnet/Command, SNMP
- ◆ 2.4Ghz WiFi built-in or option with Dual-Band Dual-Concurrent or Tri-Band Tri-Concurrent WiFi (802.11 a/b/g/n/ac, 2.4Ghz + 5Ghz, Wave2, MU-MIMO option)
- ◆ Certified 3G/4G/LTE enterprise/industrial grade internal modems

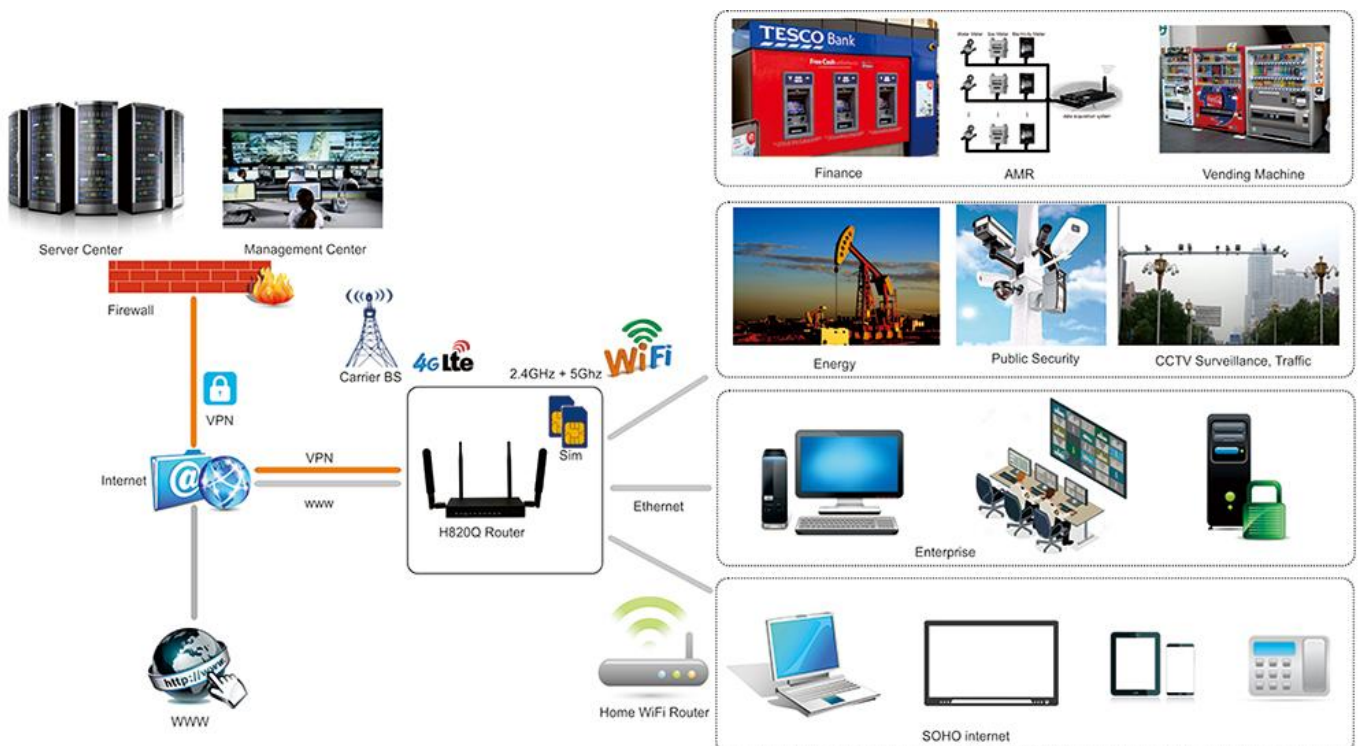
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- ◆ Built-in transient and reverse polarity voltage protection
- ◆ 5–40V DC voltage input range (5-60V DC option), Dual Power Inputs / Power Failover;
- ◆ GPS / GNSS support
- ◆ Multi-carrier 4G LTE support with SIM card slot
- ◆ Supports Ethernet (T1, DSL, Cable, MetroE), WiFi as WAN, and Metro WiFi
- ◆ Ruggedized to ensure always-on connectivity
- ◆ Create real-time alerts to monitor uptime
- ◆ Offer secure, guest WiFi to passengers
- ◆ Advanced security, VPN, and stateful firewall to protect sensitive data
- ◆ Robust Metal Case is ruggedized for vibration, shock, provide IP30 protection
- ◆ Desktop, Wall-mount and Din-rail mount of installation

## >>| Typical Topology



### Failover & Bandwidth Bonding (Load Balance) Tech. for M2M / IoT



## >>| Features

Main Feature	
<b>WAN</b>	Cellular 2G/3G/4G LTE (FDD/TDD) WiFi as WAN Failover/Failback and Load Balance (Bandwidth bonding) Advanced Modem Failure Check IP Passthrough WAN ports support Cell/Static IP/DHCP/PPPoE (on demand, keep alive, schedule, manual, standby)
<b>LAN</b>	DHCP Server, Client, Relay DNS and DNS Proxy DDNS UPnP DMZ Multicast/Multicast Proxy QoS (DSCP and Priority Queuing) MAC Address Filtering VLAN 802.1Q
<b>WiFi</b>	2.4Ghz 802.11a/b/g/n default;  WPA2 Enterprise (WiFi) Hotspot/Captive Portal SSID-based Priority  Option: Dual-Band Dual-Concurrent or Tri-Band Tri-Concurrent

	802.11 a/b/g/n/AC, Wave2, MU-MIMO; Up to 128-250 connected devices (64 per channel – 2.4 GHz and 5 GHz); High gain WiFi module option;
<b>VPN AND ROUTING</b>	IPsec Tunnel, PPTP, L2TP, GRE Tunnel, OpenVPN (option), DMVPN (option); OSPF/BGP/RIP, Virtual Server/Port Forwarding, IPv6 (option), VRRP;
<b>MANAGEMENT</b>	E-Lins Enterprise Cloud Network Management System (NMS) Web UI, API, CLI/SSH Data Usage Alerts (router and per client) Advanced Troubleshooting (support) Device Alerts SNMP SMS control TR-069
<b>SECURITY</b>	RADIUS and TACACS+ support 802.1x authentication for Ethernet Certificate support ALGs MAC Address Filtering Advanced Security Mode (local user management only) Per-Client Web Filtering IP Filtering Content Filtering (basic) Website Filtering Zone-Based Object Firewall with host address (IP or FQDN), port, and mac address Other Details: NAT, SPI, port blocking, service filtering (FTP, SMTP, HTTP, RPL, SNMP, DNS, ICMP, NNTP, POP3, SSH), protocol filtering, WAN ping (allow/ignore)
<b>OPTIMIZED IP COMMUNICATIONS</b>	Automated WAN Failover/Failback support WAN Affinity and QoS allow prioritization of VoIP services Advanced VPN connectivity options to HQ SIP ALG and NAT to allow VoIP and UC communications to traverse firewall MAC Address Filtering 802.1p/q for LAN QoS segmentation and treatment of VoIP on LAN Private Network support (wired and 4G WAN)
<b>Firmware update</b>	support firmware update locally, remotely (LAN, WiFi and OTA WAN) and RMS (Remote Management System) option;

<b>Others</b>	<p>Cellular and WiFi MIMO supported;  Syslog (local and remote);  DDNS;  DNS proxy;  Optimized EMC design;  Real-time clock (NTP, support update with defined hours);  WAN/LAN/Memory statistics;  Local/remote profiles backup and retrieve;  Modbus is supported;</p>
<b>Feature Details</b>	
<b>Redundancy and Load Balancing</b>	<p>Failover/failback with 4G, 3G, 2G; WAN failure detection, VRRP;  Auto-dial feature, keep alive link;  LCP, ICMP check;  Built-in watch dog;  Cellular (2G/3G/4G), RJ45 WAN (xDSL, DHCP, Fixed IP), WiFi client three line redundancy;  Option Feature: Ethernet with rule selection, advanced load balancing options (round robin, spillover, data usage, rate)</p>
<b>Intelligent Routing</b>	<p>UPnP, DMZ, virtual server/port forwarding, routing rules, NAT-less routing, wired or wireless WAN-to-LAN IP passthrough, route management, per-interface routing, content filtering, IP filtering, website filtering, per-client Web filtering, local DHCP server, DHCP client, DHCP relay, DNS, DNS proxy, Split DNS; ALGs: PPTP, SIP, TFTP, FTP, IRC; MAC address filtering, Dynamic DNS, LAN/WAN affinity, VLAN 802.1Q (coming Q4), STP, enterprise routing protocols: BGP/OSPF/RIP, multicast proxy support, IP setting overrides, IPv6 support option;</p>
<b>Management</b>	<p>web-based GUI (local management), optional RADIUS or TACACS+ username/password; remote WAN web-based management w/ access control (HTTP, HTTPS); SNMP v1, v2c, &amp; v3; CLI over SSH, SSH to serial, SSH to telnet; API; one-button firmware upgrade; modem configuration, update, and management; modem data usage w/ alerts, per-client data usage; custom AT scripting to modems; SMS; TR-069; Option: Enterprise Cloud Network Management System (NMS): cloud-enabled management and application platform (subscription-based);</p>
<b>VPN</b>	<p>IPsec – Tunnel, NAT-T, and transport modes; connect to E-Lins, Cradlepoint, Cisco/Linksys, CheckPoint, Watchguard, Juniper, SonicWall, Adtran and others; Hash (MD5, SHA128, SHA256, SHA384, SHA512), Cipher (AES, 3DES, DES), IPsec over L2TP</p>

	support; GRE tunneling; PPTP support; X.509 IPSec support; L2TP, L2TP over IPSec support; VPN pass-through; OpenVPN support (option); DMVPN (option); Certificate support (option); multiple networks supported in a single tunnel, site-to-site dynamic VPN with NHRP; VTI Tunnel support;
<b>SMS, SMS Control and Alarm</b>	Receive and Send the SMS; WAN Cell APN configuration via SMS; SMS/Voice Control and Alarm. SMS or Call to control router to be online, offline, reboot, signal and status monitor; SMS is default feature, Voice is option; SMS text sending and receiving;

## >>| Specifications

Main	
<b>Hardware</b>	CPU: Qualcomm chipset, 650Mhz; RAM: 1Gb DDR2, can be extended with requirement; Flash: 128Mb, can be extended with requirement;
<b>WAN</b>	Integrated Category 12/9/6/4/3 LTE Advanced LTE modem (with DC-HSPA+ EVDO/3G and 2G failover); One 10/100 Fast Ethernet ports – cable/DSL/T1/satellite/Metro Ethernet; WiFi as WAN, Metro WiFi; MIMO “N” 2.4 GHz or 5 GHz; 802.11 a/b/g/n/ac;
<b>LAN</b>	Dual-band, dual-concurrent WiFi; 802.11 a/b/g/n/ac; Five LAN/WAN switchable 10/100 Fast Ethernet ports;
<b>Ports</b>	Power (DC Jack, 2 Pin Terminal Block for wire connection) 5 Ethernet LAN/WAN 2 cellular antenna connectors (SMA) 1 active GPS antenna connector (SMA) 2-5 WiFi antenna connectors (SMA) Serial DB9 connector – RS232 / RS485

	Console Port (Terminal Socket)
<b>Power</b>	<p>Dual Power Inputs / Power Failover;          DC input steady state voltage range: 5-40 VDC / 5-60VDC option,          (requires inline fuse for vehicle installations);          For 9–24 VDC installations, use a 3 A fuse;          For &gt; 24 VDC installations, use a 2.5 A fuse;          Reverse polarity and transient voltage protection per ISO 7637-2          Ignition sensing (automatic ON and time-delay OFF);          Power consumption:          Idle: typical=100mA@12VDC; Maximum=500mA@12VDC;          Tx/Rx: typical=300mA@12VDC; Maximum=800mA@12VDC;          12VDC 2A adapter recommended</p>
<b>LEDs</b>	Power*1, SYS*1, Cell Online*1, Cell Signal*1, WAN*1, LAN*4, WiFi*1
<b>UIM/SIM Card Slot</b>	Support 1.8V/3V UIM/SIM cards, one sim card slot
<b>Others</b>	Reset button, console port,
<b>Size</b>	PCBA: 156mm x 104mm x 20mm With case: 168mm x 104mm x 25mm
<b>Weight</b>	About 450g (not including the antenna) About 545g (including the antenna) About 845g (including all accessories, without package)
<b>Temperature</b>	All models: -40 °C to 75 °C ambient air operating; All models: -45 °C to 85 °C storage;
<b>Humidity (non-condensing)</b>	5% to 95% operating 5% to 95% storage
<b>Case</b>	Metal alloy; Black color; Customization is available
<b>Cellular</b>	
<b>Compatible Mobile Networks</b>	4G LTE (FDD/TDD) UMTS WCDMA (HSUPA/HSDPA/HSPA/HSPA+/DC-HSPA+) GSM EDGE/GPRS CDMA1x CDMA2000 EVDO Rev 0, Rev A, Rev B TD-SCDMA/TD-LTE
<b>Cellular Frequency</b>	4G FDD LTE: Band 1 – 2100Mhz Band 2 – 1900Mhz

Band 3 –1800Mhz  
Band 4 – AWS(1700/2100Mhz)  
Band 5 – 850Mhz  
Band 7 – 2600MHz  
Band 8 – 900Mhz  
Band 9 – 1700Mhz  
Band 12 – 700Mhz  
Band 13 – 700Mhz  
Band 14 – 700Mhz  
Band 17 – 700Mhz  
Band 18 – 850Mhz  
Band 19 – 800Mhz  
Band 20 – 800Mhz  
Band 21 – 1500Mhz  
Band 25 – 1900Mhz G Block  
Band 26 – 850Mhz  
Band 28 – 700Mhz  
Band 29 – 700Mhz (SDL)  
Band 30 – 2300Mhz  
Band 31 – 450Mhz  
Band 32 – 1500Mhz (SDL)  
Band 66 – 1700Mhz  
Band 72 – 450Mhz  
And other more FDD band...

4G TDD LTE (TD-LTE):  
Band 48 – 3600Mhz (CBRS)  
Band 46 – 5200Mhz  
Band 43 – 3700Mhz  
Band 42 – 3500Mhz (CBRS)  
Band 41 – 2500/2600Mhz  
Band 40 – 2300Mhz  
Band 39 – 1900Mhz  
Band 38 – 2600Mhz  
And other more TDD band...

UMTS/HSPA/HSUPA/HSPA/HSPA+/DC-HSPA+ (WCDMA/FDD):  
2100MHz(B1)/1900MHz (B2)/1800MHz (B3)/ 1700MHz /AWS  
(B4)/850MHz (B5)/900MHz (B8)/800MHz (B6)/1800MHz (B9)/850MHz  
(B19)

Quad-band EGSM 850/900/1800/1900Mhz;



	<p>CDMA1x/EVDO: 800/1900Mhz, option for 450Mhz;</p> <p>3G TD-SCDMA: 2010~2025MHz/1880~1920MHz</p> <p>Notes: There are many different band and frequencies. Please confirm the detailed band and frequency with your carriers before order.</p>
<b>Bandwidth</b>	<p>4G LTE FDD LTE: downlink 100Mbps / 150Mbps / 300Mbps / 600Mbps / 1200Mbps; uplink 50Mbps / 150Mbps / 300Mbps / 600Mbps; TDD LTE: 150Mbps downlink, 50Mbps uplink;</p> <p>DC-HSPA+: Downlink 42Mbps, Uplink 5.76Mbps; HSPA+(H): Downlink 21Mbps, Uplink 5.76Mbps; HSPA+(L): Downlink 14.4Mbps, Uplink 5.76Mbps; HSUPA: Downlink 7.2Mbps, Uplink 5.76Mbps; HSDPA: Downlink 7.2 Mbps, Uplink 384k bps; WCDMA/UMTS: Downlink/Uplink 384 kbps;</p> <p>EDGE: Downlink 384 kbps, Uplink 118 kbps; GPRS: Downlink 108 kbps, Uplink 42.8 kbps;</p> <p>CDMA1x: Downlink/Uplink 153.6kbps; CDMA EVDO: Rev B: 14.7Mbps downlink, 5.4Mbps uplink Rev A: 3.1Mbps downlink, 2.4Mbps uplink Rev O: 2.4Mbps downlink, 153.6kbps uplink</p> <p>3G TD-SCDMA: 2.8Mbps</p> <p>Notes: the bandwidth is peak value. Real value depends on carrier network support.</p>
<b>Network and Band Lock Feature (Option)</b>	Default is unlocked, can use this feature to lock
<b>WiFi (WLAN)</b>	
<b>Wi-Fi</b>	<p>802.11a/b/g/n/AC; Can be used as AP and client;</p> <p>Frequency Range: 2.4Ghz: 2.412 ~ 2.472Ghz</p>

	<p>5Ghz Band 1: 5150~5250MHz 5Ghz Band 4: 5475~5850MHz</p> <p>Speed: 802.11n in 300Mbps; 802.11AC options in 600Mbps, 867Mbps, 1300Mbps, 1730Mbps, 2033Mbps, or even higher (Depends on WiFi module option);</p> <p>Notes: default is 802.11a/b/g/n 2.4Ghz WiFi. Option: Dual-Band Dual-Concurrent or Tri-Band Tri-Concurrent 802.11 a/b/g/n/AC, Wave2, MU-MIMO; Up to 128-250 connected devices (64 per channel – 2.4 GHz and 5 GHz); High gain WiFi module option;</p>
<b>Others</b>	
<b>Warranty</b>	1 Year default. Option extends up to 5 years maximum; Other warranty services can be customized;
<b>Package Contents</b>	H820Q Series wireless Router Ethernet Cable Power Adapter Cellular Antenna, WiFi Antenna Others depends on option features (GPS antenna, Serial Cable, etc.)
<b>OEM / ODM Services</b>	Yes

## >>| Order Part Number

**H820Q x --- XXX (option features)**

- W:** WiFi WLAN  
**G:** GPS / GNSS  
**RS232/RS485:** DTU feature (cellular to serial), RS232 or RS485 for choice  
**60V:** DC input 5-60V supported, default is 5-40V  
**DIO:** digital input and output feature, 2-4 ports
- t:** 4G LTE version. Support FDD LTE or TDD LTE or FDD+TDD LTE, back compatible to 3G and 2G  
**w:** 3G WCDMA HSPA version, support HSUPA/HSDPA/UMTS/EDGE/GPRS/GSM  
**p:** 3G WCDMA HSPA+ version, support HSPA+/HSUPA/HSDPA/UMTS/EDGE/GPRS/GSM  
**eva:** 3G CDMA2000 EVDO version, support EVDO RevA/EVDO Rev0/CDMA1x  
**evb:** 3G CDMA2000 EVDO version, support EVDO RevB/EVDO RevA/EVDO Rev0/CDMA1x  
**td:** 3G TD-SCDMA version, support TD-HSUPA/TD-HSDPA/TD-SCDMA/EDGE/GPRS/GSM  
**e:** 2G EDGE version, support EDGE/GPRS/GSM  
**g:** 2G GPRS version, support GPRS/GSM  
**c:** 2G CDMA version, support CDMA1x

**Notes:**

- 1) option feature can be select one or all
- 2) for LTE version, please confirm your LTE band and Network Carrier with order to avoid wrong selection
- 3) option features "W" for single WiFi. "WW" for dual WiFi

H820Q Series Router Order Models											
Part Number	4G LTE	3G	2G	WiFi	Dual WiFi	Serial	GPS	DI DO	5-60VDC	Market	Marks
H820Qt-F1	Y	Y	Y	O	O	O	O		O	Asia, Europe, South America, Africa	CAT3/4/6/9/12
H820Qt-F4	Y	Y	Y	O	O	O	O		O	North America	CAT3/4/6/9/12
H820Qt-F5	Y	Y	Y	O	O	O	O		O	Japan	CAT3/4/6/9/12
H820Qt-TF1	Y	Y	Y	O	O	O	O		O	customized for some operators	CAT4
H820Qt-TF2	Y	Y	Y	O	O	O	O		O	customized for some operators	CAT4
H820Qt450-F1	Y			O	O	O			O	customized for some operators	CAT3 or CAT4, 450Mhz
H820Qp		Y	Y	O	O	O	O		O	Global	

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H820Qev450-2		Y		O	O	O			O	customized for some operators	450Mhz
Y = supported O = option											