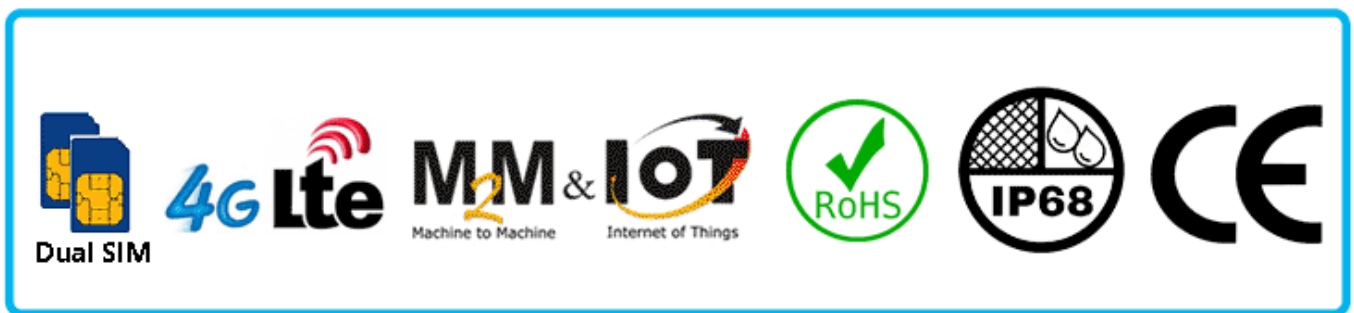# H820QO Outdoor 4G LTE CPE Router Datasheet

>>| Product Introduction

The E-Lins H820QO Series is a compact, ruggedized 3G/4G LTE CPE router with IP67/IP68 level water proof and dust proof. It is qualified for M2M (Machine to Machine) and IoT (Internet of Things) applications.

With an extensive list of safety and hardening certifications, the H820QO is engineered to protect against extreme temperatures, humidity, shocks, vibrations, dust, reverse polarity, and transient voltage, which is widely used in SOHO internet and 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

◆ Multi-carrier 2G/3G/4G LTE support with SIM card slot; supports LTE Advanced with SIM-based auto-carrier selection, dual SIM option
◆ Cellular/WAN RJ45/WiFi client failover and Load Balance
◆ IP67/IP68 level water proof and dust proof; strong case is ruggedized for vibration, shock
◆ Built-in 802.3af/at standard compliant POE (Power over Ethernet) PD
◆ Built-in high gain internal Cellular and WiFi antenna, with reserved connectors for external high gain antennas
◆ 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

◆ 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 (option)

◆ 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

◆ Pole mount, Desktop, Wall mount and Din-rail mount of installation

Dual SIM Working Mode

Mode No.	Description
1	Only SIM1 or SIM2
2	Switch triggered by 'time'
3	Switch triggered by 'signal strength'
4	Switch triggered by 'dial fail'
5	Switch triggered by 'data limit'
6	Switch triggered by 'ICMP check'
7	Load Balance

>>| Typical Topology
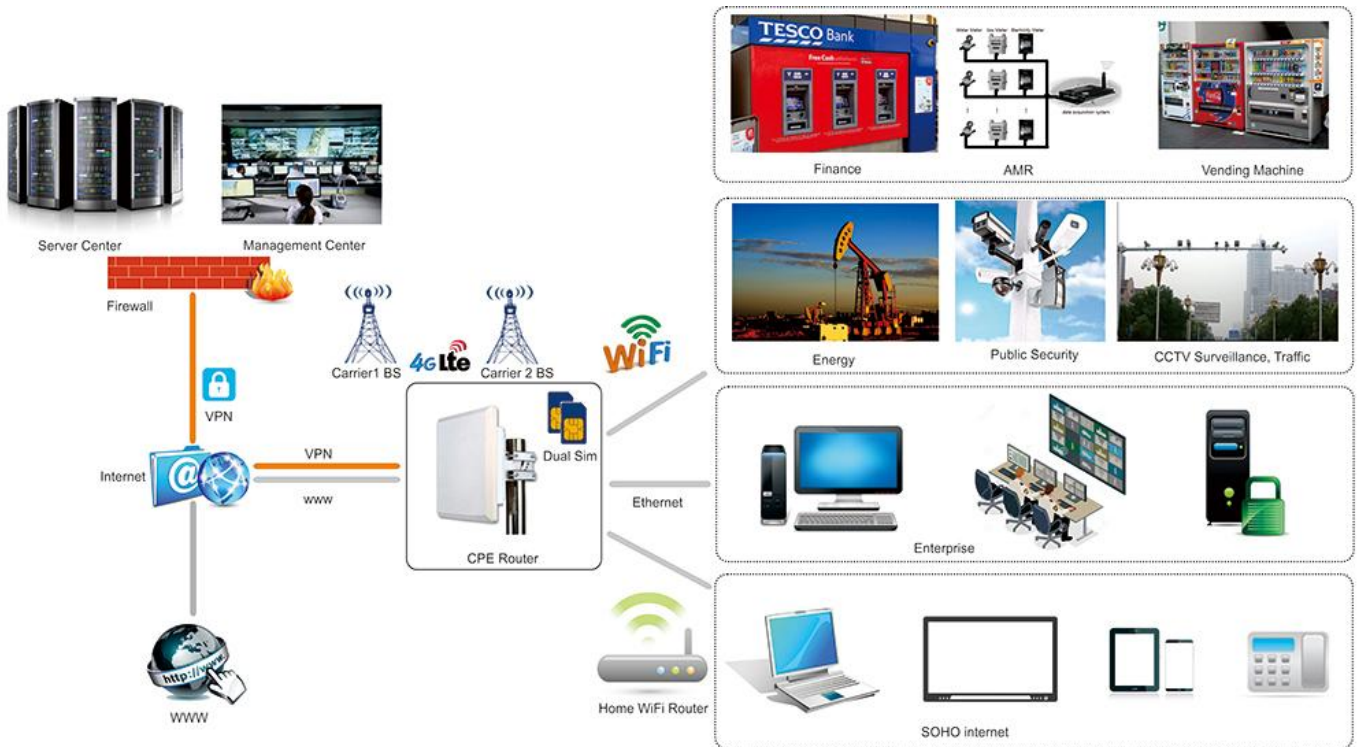
Failover & Load Balance Tech. for M2M / IoT

>>| Features

Main Feature	
WAN	Cellular 2G/3G/4G LTE (FDD/TDD)

	WiFi as WAN Failover/Failback and Load Balance Advanced Modem Failure Check IP Passthrough WAN ports support Cell/Static IP/DHCP/PPPoE (on demand, keep alive, schedule, manual, standby)
LAN	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
WiFi	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;
VPN AND ROUTING	IPsec Tunnel, PPTP, L2TP, GRE Tunnel, OpenVPN (option), DMVPN (option); OSPF/BGP/RIP, Virtual Server/Port Forwarding, IPv6 (option), VRRP;
MANAGEMENT	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 option
SECURITY	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)
OPTIMIZED IP COMMUNICATIONS	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)
Firmware update	support firmware update locally, remotely (LAN, WiFi and OTA WAN) and RMS (Remote Management System) option;
Others	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;

Feature Details

Redundancy and Load Balancing	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)

Intelligent Routing	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;
Management	web-based GUI (local management), optional RADIUS or TACACS+ username/password; remote WAN web-based management w/ access control (HTTP, HTTPS); SNMP v1, v2c, & 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);
VPN	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 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;
SMS, SMS Control and Alarm	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	
Hardware	CPU: Qualcomm chipset, 650Mhz; RAM: 1Gb DDR2, can be extended with requirement; Flash: 128Mb, can be extended with requirement;
WAN	Integrated Category 12/9/6/4/3 LTE Advanced LTE modem (with DC-HSPA+/ EVDO/3G and 2G failover); One or two 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;
LAN	WiFi: 802.11 a/b/g/n/AC; 1~2 LAN/WAN switchable 10/100 Fast Ethernet ports;
Ports & Button	Power (2 Pin Terminal Block for wire connection) 1~2 Ethernet LAN/WAN Console Port (on board) Reset button
Power	Dual Power Inputs / Power Failover; POE (Power over Ethernet, support 5-40VDC default, it the POE voltage is 48V, please order 5-60VDC version); 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 > 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
LEDs	SYS*1, Cell Online*2, Cell Signal*2, WAN*1, LAN*1, WiFi*1
UIM/SIM Card Slot	Support 1.8V/3V UIM/SIM cards, one sim card slot (option for 2 sim card slots)
Antennas	Built-in internal 14dbi 2G/3G/4G antenna and WiFi antenna

	Option for N-type high gain antennas
Size	PCBA: 125mm x 105mm x 20mm With case: 185mm x 172mm x 82mm
Weight	About 560g (Without accessories) About 750g (With accessories)
Temperature	All models: −40 °C to 75 °C ambient air operating; All models: −45 °C to 85 °C storage;
Humidity (non-condensing)	5% to 95% operating 5% to 95% storage
Case	IP67/IP68 grade anti-dust and anti-water enclosure for outdoor installation; PC+anti-UV+antioxidation OSP; Light-gray color; Wall-mount, Pole Mount; Customization is available;
Cellular	
Compatible Mobile Networks	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
Cellular Frequency	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; CDMA1x/EVDO: 800/1900Mhz, option for 450Mhz; 3G TD-SCDMA: 2010~2025MHz/1880~1920MHz Notes: There are many different band and frequencies. Please confirm the detailed band and frequency with your carriers before order.
Bandwidth	4G LTE FDD LTE: downlink 100Mbps / 150Mbps / 300Mbps / 600Mbps / 1200Mbps; uplink 50Mbps / 150Mbps / 300Mbps / 600Mbps; TDD LTE: 150Mbps downlink, 50Mbps uplink; 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; EDGE: Downlink 384 kbps, Uplink 118 kbps; GPRS: Downlink 108 kbps, Uplink 42.8 kbps; 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 3G TD-SCDMA: 2.8Mbps Notes: the bandwidth is peak value. Real value depends on carrier network support.
Network and Band Lock Feature (Option)	Default is unlocked, can use this feature to lock
WiFi (WLAN)	
Wi-Fi	802.11a/b/g/n/AC; Can be used as AP and client; Frequency Range: 2.4Ghz: 2.412 ~ 2.472Ghz 5Ghz Band 1: 5150~5250MHz 5Ghz Band 4: 5475~5850MHz Speed: 802.11n in 300Mbps; 802.11AC options in 600Mbps, 867Mbps, 1300Mbps, 1730Mbps, 2033Mbps, or even higher (Depends on WiFi module option); 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;
Others	
Warranty	2 Year default. Option extends up to 5 years maximum; Other warranty services can be customized;
Package Contents	H820QO Series 4G CPE Router Others depends on option features and requirement
OEM / ODM Services	Yes

>>| Order Part Number

H820QO x --- XXX (option features)

    W: WiFi WLAN

    G: GPS / GNSS

    60V: DC input 5-60V supported, default is 5-40V

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

H820QO Series Router Order Models											
Part Number	**4G LTE**	**3G**	**2G**	**WiFi**	**Dual WiFi**	**GPS**	**N-Type**	**Dual SIM**	**5-60 VDC**	**Market**	**Marks**

										Asia, Europe, South America, Africa	CAT3/4/6/9/12
H820QOt-F1	Y	Y	Y	Y	O	O	O	O	O	Asia, Europe, South America, Africa	CAT3/4/6/9/12
H820QOt-F4	Y	Y	Y	Y	O	O	O	O	O	North America	CAT3/4/6/9/12
H820QOt-F5	Y	Y	Y	Y	O	O	O	O	O	Japan	CAT3/4/6/9/12
H820QOt-TF1	Y	Y	Y	Y	O	O	O	O	O	customized for some operators	CAT4
H820QOt-TF2	Y	Y	Y	Y	O	O	O	O	O	customized for some operators	CAT4
H820QOt450-F1	Y			Y	O		O	O	O	customized for some operators	CAT3 or CAT4, 450Mhz
H820QOp		Y	Y	Y	O	O	O	O	O	Global	
H820QOev450-2		Y		Y	O		O	O	O	customized for some operators	450Mhz
Y = supported												
O = option												
N-Type = N-type antenna												