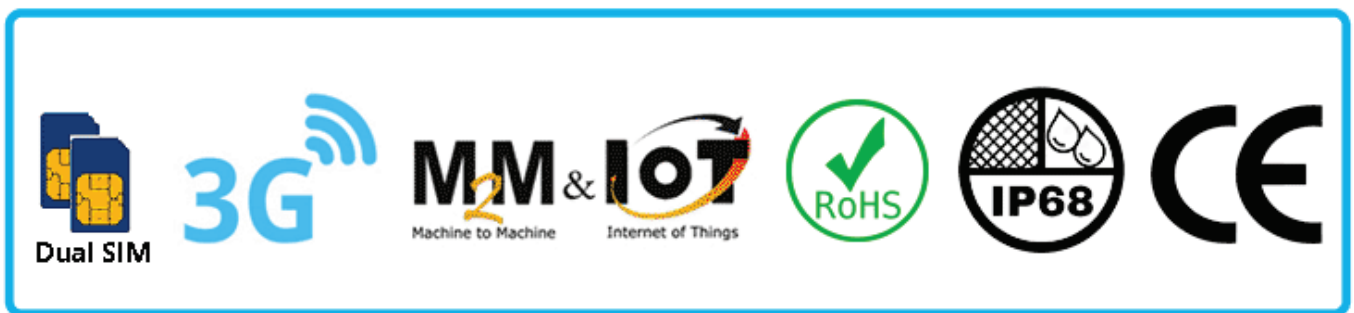


## H820QO Outdoor 3G CPE Router Datasheet



### >>| Product Introduction



The E-Lins H820QO Series is a compact, ruggedized 3G 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

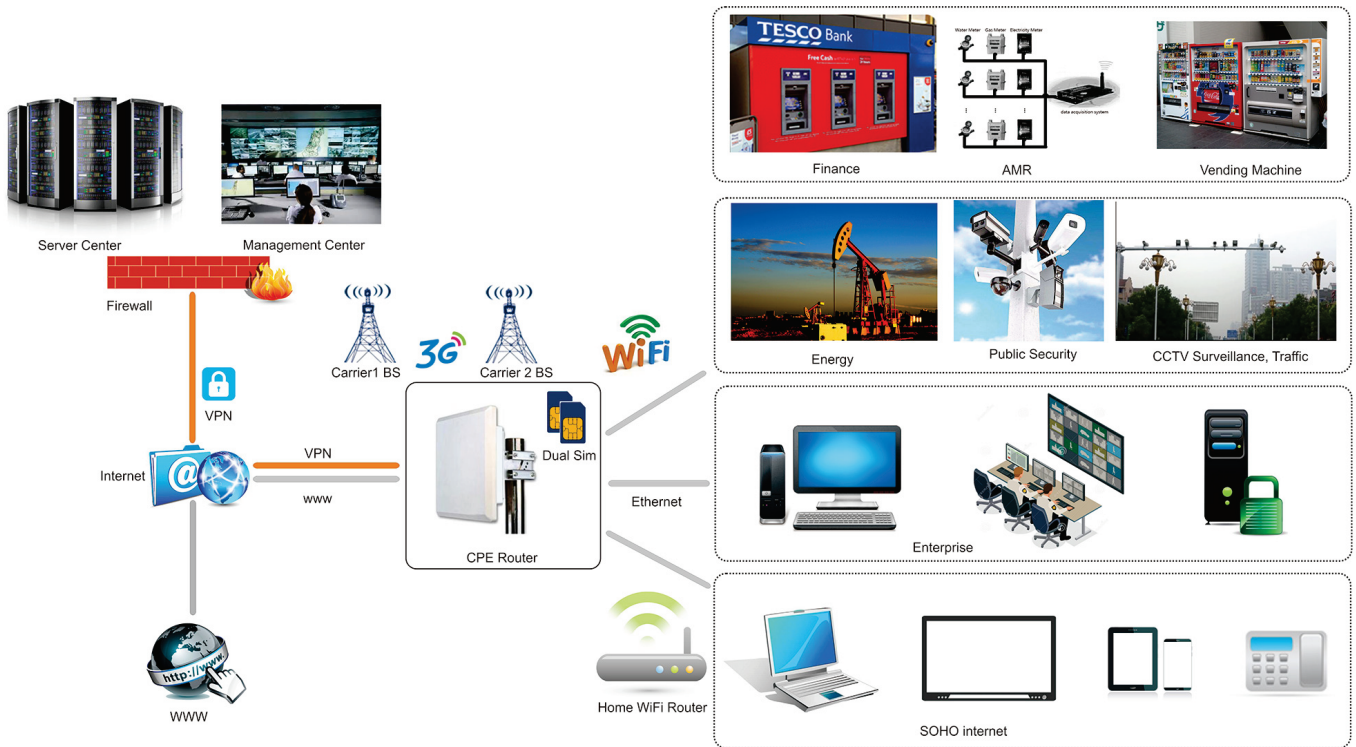
- ◆ Multi-carrier 2G/3G support with SIM card slot; dual SIM option
- ◆ Cellular/WAN RJ45/WiFi client failover and Load Balance (Bandwidth link bonding)
- ◆ IP68 level water proof and dust proof; strong case is ruggedized for vibration, shock
- ◆ Built-in 802.3af/at standard compliant POE (Power over 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 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
8	Bonding

## >>| Typical Topology



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



## >>| Features

Main Feature	
<b>WAN</b>	Cellular 2G/3G 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 option
<b>SECURITY</b>	RADIUS and TACACS+ support 802.1x authentication for Ethernet Certificate support ALGs

	<p>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)</p>
<b>OPTIMIZED IP COMMUNICATIONS</b>	<p>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)</p>
<b>Firmware update</b>	<p>support firmware update locally, remotely (LAN, WiFi and OTA WAN) and RMS (Remote Management System) option;</p>
<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;</p>
<b>Feature Details</b>	
<b>Redundancy and Load Balancing</b>	<p>Failover/failback with 3G, 2G; WAN failure detection, VRRP;  Auto-dial feature, keep alive link;  LCP, ICMP check;  Built-in watch dog;  Cellular (2G/3G), 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</p>

	<p>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 support;  GRE tunneling;  PPTP 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;</p>
<b>SMS, SMS Control and Alarm</b>	<p>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;</p>



## >>| 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 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;
<b>LAN</b>	WiFi: 802.11 a/b/g/n/AC; 1~2 LAN/WAN switchable 10/100 Fast Ethernet ports;
<b>Ports &amp; Button</b>	Power (2 Pin Terminal Block for wire connection) 1~2 Ethernet LAN/WAN Console Port (on board) Reset button
<b>Power</b>	Dual Power Inputs / Power Failover;  POE (Power over Ethernet, support 5-40VDC default, if 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
<b>LEDs</b>	SYS*1, Cell Online*2, Cell Signal*2, WAN*1, LAN*1, WiFi*1
<b>UIM/SIM Card Slot</b>	Support 1.8V/3V UIM/SIM cards, one sim card slot (option for 2 sim card slots)
<b>Antennas</b>	Built-in internal 14dbi 2G/3G/4G antenna and WiFi antenna

	Option for N-type high gain antennas
<b>Size</b>	PCBA: 125mm x 105mm x 20mm With case: 185mm x 172mm x 82mm
<b>Weight</b>	About 560g (Without accessories) About 750g (With accessories)
<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>	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;
<b>Cellular</b>	
<b>Compatible Mobile Networks</b>	UMTS WCDMA (HSUPA/HSDPA/HSPA/HSPA+/DC-HSPA+) GSM EDGE/GPRS CDMA1x CDMA2000 EVDO Rev 0, Rev A, Rev B TD-SCDMA
<b>Cellular Frequency</b>	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.
<b>Bandwidth</b>	DC-HSPA+: Downlink 42Mbps, Uplink 5.76Mbps; HSPA+(H): Downlink 21Mbps, Uplink 5.76Mbps; HSPA+(L): Downlink 14.4Mbps, Uplink 5.76Mbps;



	<p>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  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>



										America, Africa	
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											