

## H685 4G Router Datasheet



### Product Introduction



The E-Lins H685 model is a compact, ruggedized 4G LTE cellular networking router 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. Super mini size suitable for embedding applications.

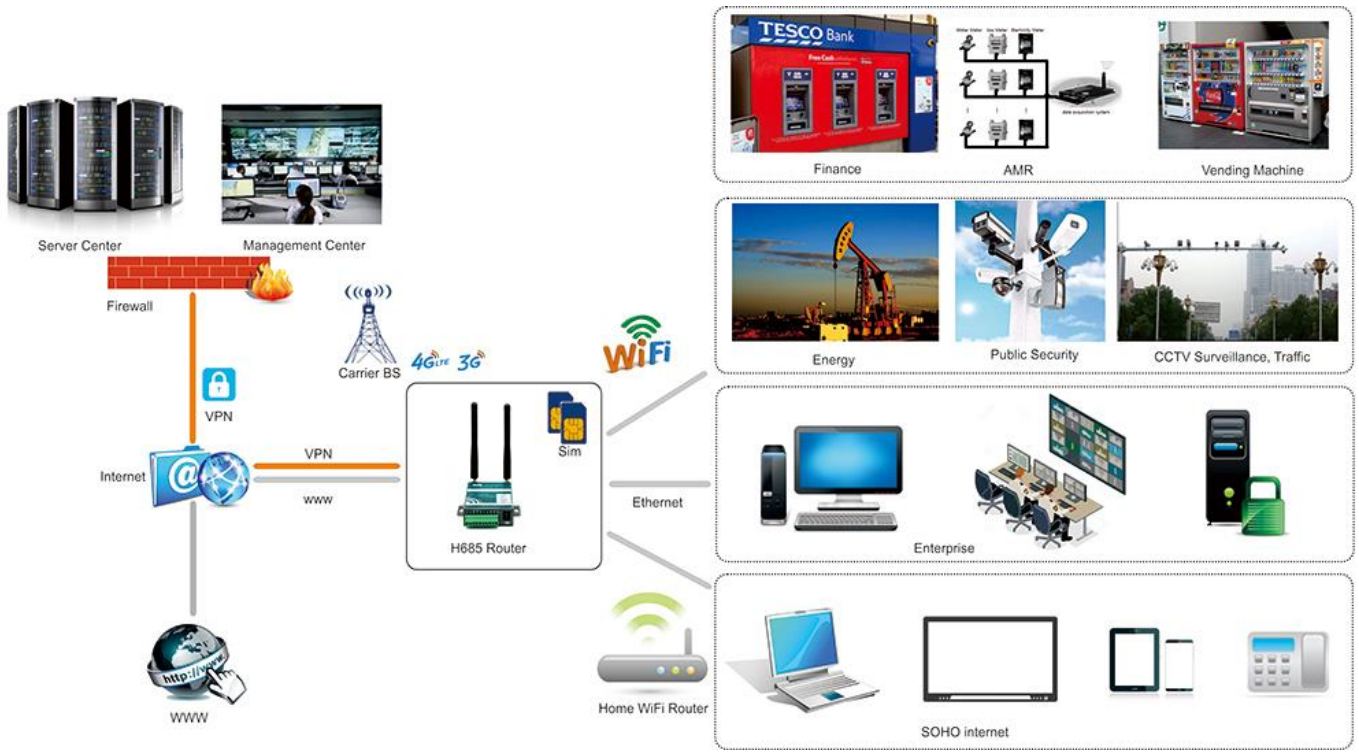
### Application Fields

In addition to the robustness, reliability, security, friendly-using, the H685 is competent to be 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, AMR, vehicle, retails, vending machines, power control, water schedule, traffic, oil field, weather forecast, environmental protection, street lamp control, post, bank and many other fields.

## Key Features

- ◆ Multi-carrier 2G/3G/4G LTE support with SIM card slot, SIM-based auto-carrier selection
- ◆ Cellular/WAN RJ45/Wi-Fi client failover and Load Balance
- ◆ 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
- ◆ Certified 3G/4G LTE enterprise/industrial grade internal modems
- ◆ Built-in transient and reverse polarity voltage protection, over-current and over-voltage protection;
- ◆ 5-40V DC voltage input range (5-60V DC option), Dual Power Inputs/Power Failover;
- ◆ Supports Ethernet (T1, DSL, Cable, MetroE), Wi-Fi as WAN, and Metro Wi-Fi
- ◆ Ruggedized to ensure always-on connectivity, watch dog
- ◆ 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
- ◆ Optional Features
  - Wi-Fi (802.11 a/b/g/n, 2.4Ghz)
  - GPS/GNSS
  - Serial Port RS232 or RS485
  - DI/DO (Digital Input & Output) port \* 4
  - E-SIM and EUICC
  - POE PD. 802.3af and 802.3at.

# Typical Topology



## Failover & Load Balance Tech. for M2M / IoT



## Features & Specifications

Main Feature	
<b>WAN</b>	Cellular 2G/3G/4G LTE (FDD/TDD) Wi-Fi as WAN Failover/Failback/Load balance 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>Cellular</b>	4G LTE (FDD/TDD) 3.75G/3.5G/3G/2G Single SIM Card Unlocked SIM, Network and Band Lock Feature (Option)
<b>Wi-Fi (option)</b>	802.11 a/b/g/n 2.4GHz MIMO supported AP, Client, Bridge Up to 64 connected devices Hotspot/Captive Portal SSID-based Priority
<b>Antenna</b>	Cell antennas (SMA) * 2 Wi-Fi antennas (SMA) * 2~4 GPS antenna (SMA) * 1 External connectors, high gain antenna replacement
<b>Power</b>	Dual or Tri Power Inputs / Power Failover; Option POE (Power over Ethernet) PD 802.3af, 802.3at; 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>Hardware Memory</b>	RAM: 512Mb DDR, option up to 2Gbit; Flash: 128Mb/256Mb, option for up to 4Gbit;
<b>Ports</b>	Power (DC Jack, 2 Pin Terminal Block for wire connection) 2 Ethernet LAN/WAN Serial connector – RS232/RS485 (Terminal Socket) 4 Digital I/O ports (Terminal Socket) Console Port (Terminal Socket)
<b>LEDs</b>	SYS*1, VPN (IPSec)*1, Cell Signal*1, Cell*1, WAN*1, LAN*1, Wi-Fi*1
<b>UIM/SIM Card Slot</b>	Support 1.8V/3V UIM/SIM cards
<b>E-SIM and EUICC (option)</b>	Yes
<b>Button</b>	Reset button
<b>Case</b>	Metal Gray-Black; Customization is available
<b>Size</b>	PCBA: 96mm x 56mm x 14mm With case: 100mm x 60mm x 21mm
<b>Weight</b>	220g (not including the antenna) 330g (including the antenna) 650g (including all accessories, without package)
<b>Temperature</b>	All models: –35 °C to 75 °C ambient air operating; All models: –40 °C to 85 °C storage;
<b>Humidity (non-condensing)</b>	5% to 95% operating 5% to 95% storage
<b>Package Contents</b>	H685 model wireless router Ethernet Cable Power Adapter Cellular Antenna, Wi-Fi Antenna Others depends on option features (GPS antenna, Serial Cable,

	etc)
<b>Warranty</b>	1 Year default. Option extends up to 5 years maximum; Other warranty services can be customized;
<b>Customization Services</b>	OEM / ODM other customization service
<b>Other Details</b>	
<b>VPN</b>	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); Wireguard (option); Certificate support (option); multiple networks supported in a single tunnel, site-to-site dynamic VPN with NHRP; VTI Tunnel support;
<b>ROUTING</b>	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/Telnet Data Usage Alerts (router and per client) Advanced Troubleshooting (support) Device Alerts SNMP SMS control TR-069  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, 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;

<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, Wi-Fi and OTA WAN) and NMS (Network Management System) option;
<b>Redundancy and Load Balancing</b>	Failover/failback with 4G, 3G, 2G; WAN failure detection, VRRP; Auto-dial feature, keep alive link; LCP, ICMP check; Built-in watch dog; Load Balancing: allows to use multiple WAN sources to increase throughput. Cellular (2G/3G/4G), RJ45 WAN (xDSL, DHCP, Fixed IP), Wi-Fi client three-line redundancy; Option Feature: Ethernet with rule selection, advanced load balancing options (round robin, spillover, data usage, rate)
<b>Intelligent Routing</b>	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;
<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;
<b>Others</b>	Cellular and Wi-Fi 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;

## Order Part Numbers

H685 Series Router Order Models																		
Part Number	5G	4G						3G	WiFi			POE		Serial		GPS	DI/DO	5-60VDC
		CAT1	CAT4	CAT6	CAT12	CAT19	CAT20		WiFi4 802.11b/g/n	WiFi5 802.11b/g/n/ac	WiFi6 802.11b/g/n/ac/ax	PD	PSE	RS232	RS485			
H685t	-	O	D	O	O	O	O	Y	O	O	O	Y	-	O	O	O	Y	O
H685f	Y			Y				Y	O	O	O	Y	-	O	O	O	Y	O
H685frc	5G Redcap			O				Y	O	O	O	Y	-	O	O	O	Y	O

D = default  
 Y = supported  
 O = option  
 - = not supported

POE = Power Over Ethernet  
 DI/DO = Digital Input & Output

**Part Number Markings Description:**  
 G = GPS / GNSS  
 W = WiFi  
 S2 = Serial RS232  
 S4 = Serial RS485  
 DC60V = DC 5-60V wide range voltage input

**Part Number Definition:**  
 H685x-CATn-XXX (e.g. H685t-CAT6-G-S2-DC60V means H685 with CAT6 LTE, GPS/GNSS, Serial RS232 and DC 5-60V wide range input.)

**Option Accessories:**  
 Replacable High Gain Antennas  
 35mm Din-Rail Adapter  
 DI/DO Control Board