

SIM Card 5G Modem



>>| Product Introduction



The E-Lins H685 series is a compact, Gigabit Ethernet, ruggedized 3G/4G/LTE/5G cellular 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. Super mini size suitable for embedding applications.

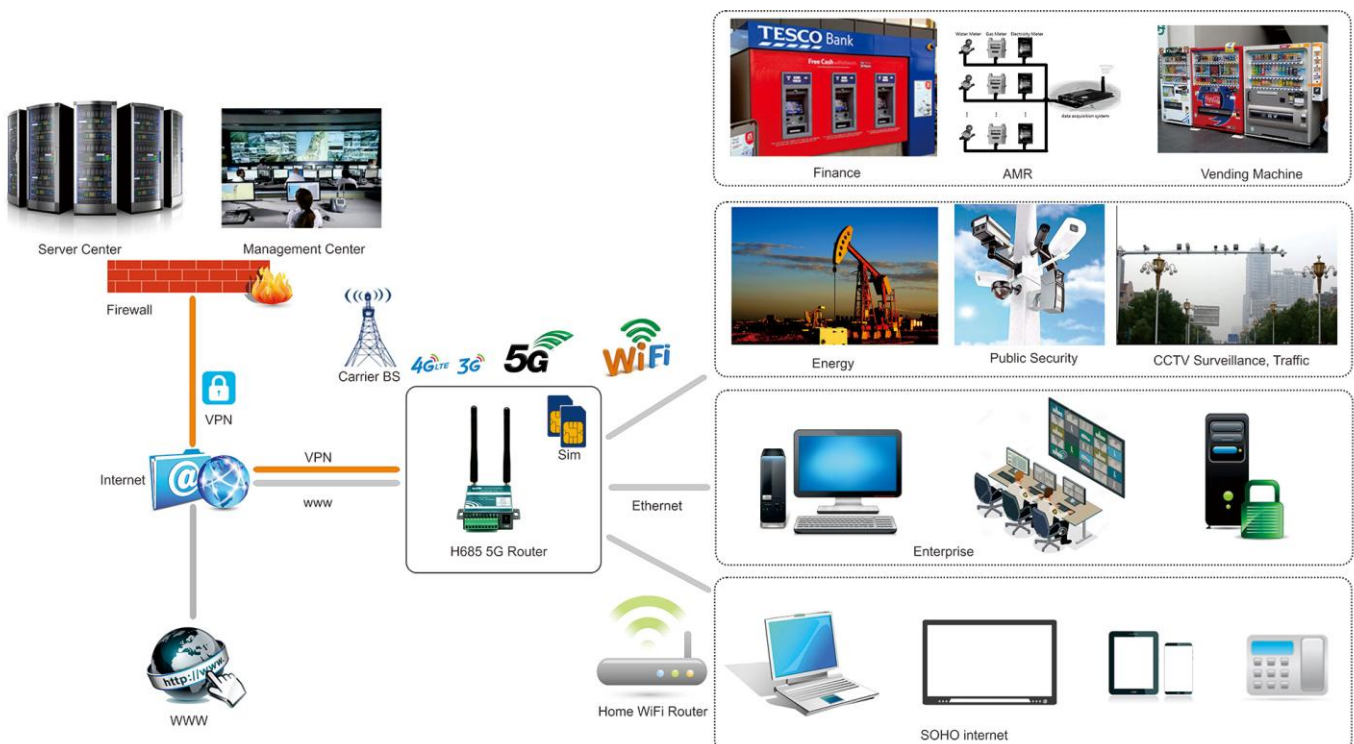
In addition to the robustness, reliability, security, friendly-using, the H685 is competent to be engineered to protect against extreme temperatures, humidity, shocks, vibrations, dust, reverse polarity, and transient voltage, which is widely used in more than twenty industrial fields, such as CCTV security 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/5G support with SIM card slot;
- ◆ E-SIM is supported;
- ◆ LAN/WAN Gigabit Ethernets * 2
- ◆ Cellular/WAN RJ45/WiFi client failover and Load Balance (Bandwidth link bonding)
- ◆ Supports LTE Advanced with SIM-based auto-carrier selection
- ◆ Cloud-managed (with NMS network management system), TR-069, Web management, SMS,

- SSH/Telnet/Command, SNMP
- ◆ WiFi (802.11 a/b/g/n, 2.4Ghz)
- ◆ 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;
- ◆ GPS / GNSS support
- ◆ Serial Port
- ◆ DI/DO port * 4
- ◆ 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
- ◆ Desktop, Wall-mount and Din-rail mount of installation
- ◆ External antenna connectors for high gain antennas replacement
- ◆ MIMO supported

>>| Typical Topology



>>| Features

Main Feature	
WAN	Cellular 2G/3G/4G LTE/5G (FDD/TDD)(SA/NSA) 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)
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	802.11 a/b/g/n/AC Up to 64 connected devices WPA2 Enterprise (WiFi) Hotspot/Captive Portal SSID-based Priority
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/Telnet Data Usage Alerts (router and per client) Advanced Troubleshooting (support) Device Alerts SNMP SMS control TR-069
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 NMS (Network Management System) option;
DI/DO (Digital Input and Output)	4 ports, 0-3.3V. Support status monitor via SMS and Email; Option: customers can order E-Lins switch control board (5-40VDC supported)
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; Modbus is supported;
Feature Details	
Redundancy and Load Balancing	Failover/failback with 5G, 4G, 3G, 2G; WAN failure detection, VRRP; Auto-dial feature, keep alive link; LCP, ICMP check; Built-in watch dog;

	<p>Cellular (2G/3G/4G/5G), RJ45 WAN (xDSL, DHCP, Fixed IP), WiFi client three line redundancy;</p> <p>Option Feature: Ethernet with rule selection, advanced load balancing options (round robin, spillover, data usage, rate)</p>
Intelligent Routing	<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>
Management	<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, & 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>
VPN	<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>
SMS, SMS Control and Alarm	<p>Receive and Send the SMS;</p> <p>WAN Cell APN configuration via SMS;</p> <p>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;</p> <p>SMS text sending and receiving;</p>

>>| Specifications

Main	
Hardware	CPU: 880Mhz dual core; RAM: 1Gb DDR3, option for up to 4Gb DDR3; Flash: 128Mb, option for up to 8Gbit;
WAN	Integrated Category 5G modem (with 4G LTE /3G failover); One 10/100/1000Mbps Gigabit Ethernet ports – cable/DSL/T1/satellite/Metro Ethernet; WiFi as WAN, Metro WiFi; MIMO “N” 2.4 GHz; 802.11 a/b/g/n/AC;
LAN	Dual-band WiFi; 802.11 a/b/g/n or 802.11 a/b/g/n/AC; 2 LAN/WAN switchable 10/100/1000Mbps Gigabit Ethernet ports;
Ports	Power (DC Jack, 2 Pin Terminal Block for wire connection) 2 Ethernet LAN/WAN 2-4 cellular antenna connectors (SMA) 1 GPS/Beidou antenna connector (SMA) 2 WiFi antenna connectors (SMA) Serial connector – RS232 / RS485 (Terminal Socket) 4 Digital I/O ports (Terminal Socket) Console Port (Terminal Socket)
Power	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 > 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, VPN (IPSec)*1, Cell Signal*1, Cell*1, WAN*1, LAN*1, WiFi*1
UIM/SIM Card Slot	Support 1.8V/3V UIM/SIM cards; E-SIM is supported
Others	Reset button, console port,
Size	PCBA: 96mm x 56mm x 14mm

	With case: 100mm x 60mm x 21mm
Weight	230g (not including the antenna) 380g (including the antenna) 860g (including all accessories, without package)
Temperature	All models: -35 °C to 75 °C ambient air operating; All models: -40 °C to 85 °C storage;
Humidity (non-condensing)	5% to 95% operating 5% to 95% storage
Case	Metal Gray-Black; Customization is available

Cellular

Compatible Mobile Networks	5G (SA and NSA) 4G LTE (FDD/TDD) 3G UMTS WCDMA (HSUPA/HSDPA/HSPA/HSPA+/DC-HSPA+)
Cellular Frequency	5G Sub-6G: n1/n2/n3/n5/n7/n8/n20/n28/n41/n66/n71/n77/n78/n79/n257/n261 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

	<p>Band 31 – 450Mhz Band 32 – 1500Mhz (SDL) Band 66 – 1700Mhz Band 72 – 450Mhz And other more FDD band...</p> <p>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...</p> <p>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)</p> <p>Notes: There are many different band and frequencies. Please confirm the detailed band and frequency with your carriers before order.</p>
Bandwidth	<p>Downlink data: 5G/NR sub-6: 2Gbps-10Gbps, LTE 2.4Gbps Uplink data: 5G/NR sub-6:2.5Gbps, LTE 450Mbps</p> <p>Notes: the bandwidth is peak value. Real value depends on carrier network support.</p>
Network and Band Lock Feature (Option)	<p>Default is unlocked, can use this feature to lock</p>
WiFi (WLAN)	
Wi-Fi	<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>

	Speed: 802.11n in 300Mbps; 802.11AC options in 867Mbps; High gain WiFi module option;
Others	
Minimum System Requirements	Windows, Linux, Mac OS, IOS, Symbian, Android, other OS support web browser;
Warranty	1 Year default. Option extends up to 5 years maximum; Other warranty services can be customized;
Package Contents	H685 Series 5G Router Ethernet Cable Power Adapter Cellular Antenna, WiFi Antenna Others depends on option features (GPS/Beidou antenna, Serial Cable, etc.)
OEM / ODM Services	Yes

>>| Order Part Number

H685 Series Router Order Models											
Part Number	4G LTE	3G	2G	USB	WiFi	Serial	GPS Beidou	DI DO	DC5-60V	Market	Marks
H685f	Y	Y	Y		O	O	O	O	O	Global	Supports 5G/4G/3G/2G
H685t-F1	Y	Y	Y		O	O	O	O	O	Asia, Europe, South America, Africa	CAT3/4/6/9/12
H685t-F4	Y	Y	Y		O	O	O	O	O	North America	CAT3/4/6/9/12
H685t-F5	Y	Y	Y		O	O	O	O	O	Japan	CAT3/4/6/9/12
H685t-TF1	Y	Y	Y		O	O	O	O	O	customized for some operators	CAT4
H685t-TF2	Y	Y	Y		O	O	O	O	O	customized for some	CAT4

										operators	
H685t450-F1	Y				O	O		O	O	customized for some operators	CAT3 or CAT4, 450Mhz
H685p		Y	Y		O	O	O	O	O	Global	
H685ev450-2		Y								customized for some operators	450Mhz
Y = supported O = option											