H685 Gigabit 5G Router Datasheet

Product Introduction

The E-Lins H685f series is a compact, Gigabit Ethernet, ruggedized 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.
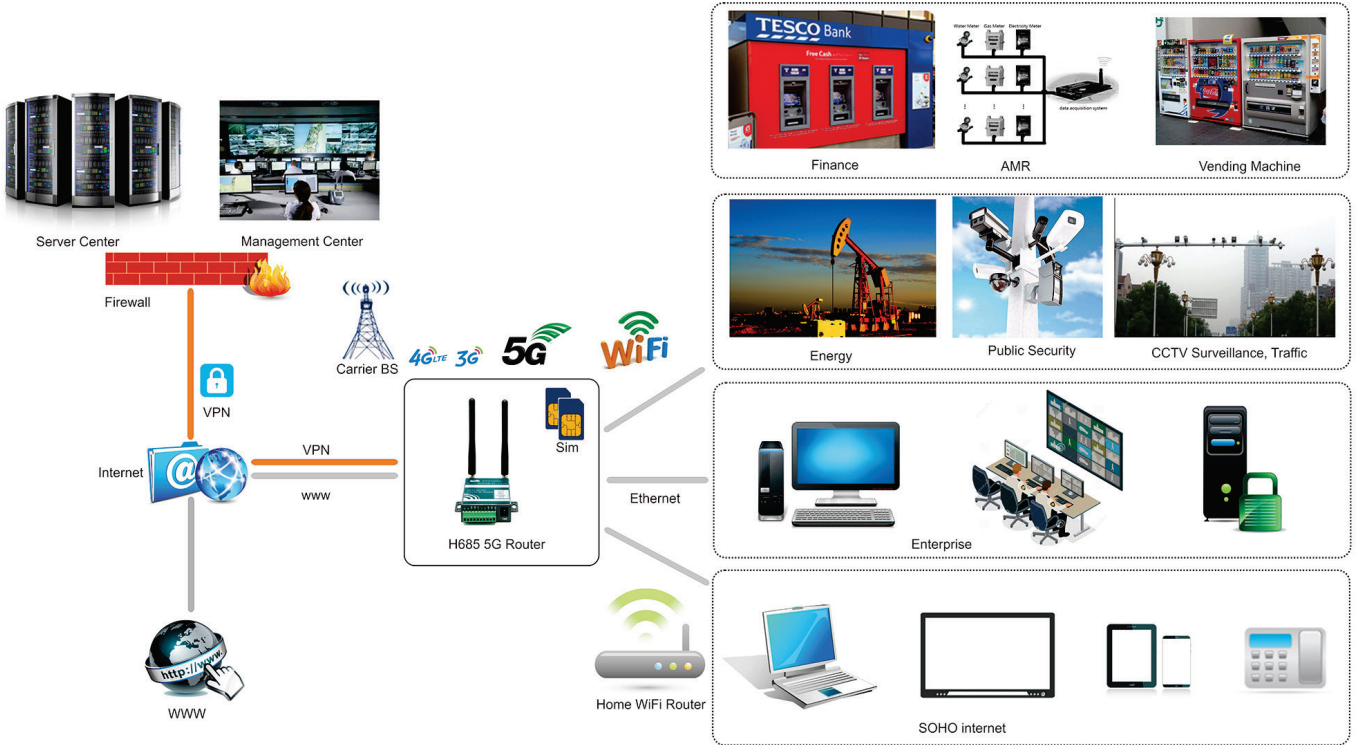
Application Fields

In addition to the robustness, reliability, security, friendly-using, the H685-5G 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
- LAN/WAN Gigabit Ethernets * 2
- Cellular/WAN RJ45/WiFi client failover and Load Balance
- Cloud-managed (with NMS network management system), TR-069, Web management, SMS, SSH/Telnet/Command, SNMP
- Wi-Fi (802.11 a/b/g/n, 2.4Ghz, 802.11ac/ax is optional)
- External antenna connectors for high gain antennas replacement
- MIMO supported
- 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
- DI/DO port * 4
- Supports Ethernet (T1, DSL, Cable, MetroE), Wi-Fi as WAN, and Metro Wi-Fi
- Ruggedized to ensure always-on connectivity
- Create real-time alerts to monitor uptime
- Offer secure, guest Wi-Fi 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
- Optional Features
  Wi-Fi (802.11 a/b/g/n/ac/ax)
  GPS/GNSS
  Serial Port RS232 or RS485
  DI/DO (Digital Input & Output) port * 4
  E-SIM and EUICC
  POE PD 802.3af, 802.3at (POE+) and 802.3bt (POE++).

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Connect the M2M IoT In-Vehicle

Typical Topology

Server Center

Management Center

Firewall

VPN

Internet

Carrier BS

4G LTE 3G 5G

WiFi

VPN

www

Sim

H685 5G Router

Ethernet

WWW

Home WiFi Router

Finance

AMR

Vending Machine

Energy

Public Security

CCTV Surveillance, Traffic

Enterprise

SOHO internet

Failover & Load Balance Tech. for M2M / IoT

Operator 1

Operator 2

Operator 3

Carrier BS

4G Lte

3G 5G

xDSL / WiFi Client

Internet

VPN

Features & Specifications

Main Feature

WAN	Cellular 2G/3G/4G LTE (FDD/TDD)/5G (SA/NSA) Wi-Fi as WAN Failover/Failback 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
Cellular	5G (SA and NSA) 4G LTE (FDD/TDD) 3.75G/3.5G/3G/2G Single SIM Card Failover/Failback Unlocked SIM, Network and Band Lock Feature (Option)
Wi-Fi	802.11a/b/g/n or 802.11a//b/g/n/ac/ax Dual band 2.4GHz/5GHz, dual concurrent MIMO supported AP, Client, Bridge Up to 128 connected devices Hotspot/Captive Portal SSID-based Priority
Antenna	Cell antennas (SMA) * 4 Wi-Fi antennas (SMA) * 2 GPS antenna (SMA) * 1 External connectors, high gain antenna replacement
Power	Dual or Tri Power Inputs / Power Failover;

	Option POE (Power over Ethernet) PD, 802.3af, 802.3at (POE+), 802.3bt (POE++); 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
Hardware	CPU: 880Mhz RAM: 1024Mb, can be extended with customization; Flash: 128Mb, can be extended with customization;
Ports	Power (DC Jack, 2 Pin Terminal Block for wire connection) Gigabit Ethernet LAN/WAN 10/100/1000Mbps * 2 Cellular antenna connectors (SMA) * 4 GPS antenna connector (SMA) * 1 Wi-Fi antenna connectors (SMA) * 2 Serial connector – RS232/RS485 (Terminal Socket) Digital I/O ports (Terminal Socket) * 4 Console Port (Terminal Socket)
LEDs	SYS*1, VPN (IPSec)*1, Cell Signal*1, Cell*1, WAN*1, LAN*1, Wi-Fi*1
UIM/SIM Card Slot	Support 1.8V/3V UIM/SIM cards
Button	Reset button
Case	Metal Gray-Black; Customization is available
Size	PCBA: 96mm x 56mm x 14mm With case: 100mm x 60mm x 21mm
Weight	220g (not including the antenna) 330g (including the antenna) 650g (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

Package Contents	H685f Series Wireless Router Ethernet Cable Power Adapter Cellular Antenna, Wi-Fi Antenna Others depends on option features (GPS antenna, Serial Cable, etc)
Warranty	1 Year default. Option extends up to 5 years maximum; Other warranty services can be customized;
OEM / ODM Services	Yes

Other Details

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; 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;
ROUTING	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 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;

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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, Wi-Fi and OTA WAN) and NMS (Network Management System) option;
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; Cellular (2G/3G/4G/5G), 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)
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;

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;
Others	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			

(Note: the following rows align to the columns: Part Number, 5G, CAT1, CAT4, CAT6, CAT12, CAT19, CAT20, 3G, WiFi4, WiFi5, WiFi6, PD, PSE, RS232, RS485, GPS, DI/DO, 5-60VDC)

Part Number	5G	CAT1	CAT4	CAT6	CAT12	CAT19	CAT20	3G	WiFi4	WiFi5	WiFi6	PD	PSE	RS232	RS485	GPS	DI/DO	5-60VDC
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