H685

4G Router Datasheet

4G

Product Introduction

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

With an extensive list of safety and hardening certifications, the H685 is engineered to withstand extreme temperatures, humidity, shocks, vibrations, dust, reverse polarity and transient voltage.

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.

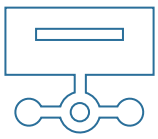
Smart Grid

Security Surveillance

Self-Service Terminal

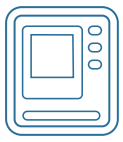
Kiosk

Hydrological Monitoring



IoT Networking

Vehicle



Vending Machine

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Key Features

- Multi-carrier 2G/3G/4G LTE support with SIM card slot; SIM-based automatic carrier selection
- Cellular/WAN RJ45/Wi-Fi client failover and load balance
- External antenna connectors for high-gain antenna replacement
- MIMO supported
- Cloud-managed (with NMS network management system), TR-069, Web management, SMS, SSH/Telnet command, SNMP
- Certified industrial/enterprise-grade internal 3G/4G LTE modems
- Built-in transient and reverse polarity voltage protection, overcurrent and overvoltage protection;
- 5 - 40 V DC input range (5 - 60 V DC optional), triple power inputs/power failover
- Supports Ethernet (T1, DSL, Cable, MetroE), Wi-Fi as WAN and Metro Wi-Fi
- Ruggedized to ensure always-on connectivity, watchdog
- Generates real-time alerts to monitor uptime
- Provides secure guest Wi-Fi for passengers
- Advanced security, VPN and stateful firewall to protect sensitive data
- Robust metal case ruggedized against vibration and shock, with IP30 protection
- Desktop, wall-mount and DIN-rail mounting options
- Optional Features
  - Wi-Fi (802.11 a/b/g/n, 2.4 GHz)
  - GPS/GNSS
  - Serial port RS232 or RS485
  - 4 x DI/DO (Digital Input & Output) ports
  - eSIM and EUICC
  - Passive PoE input

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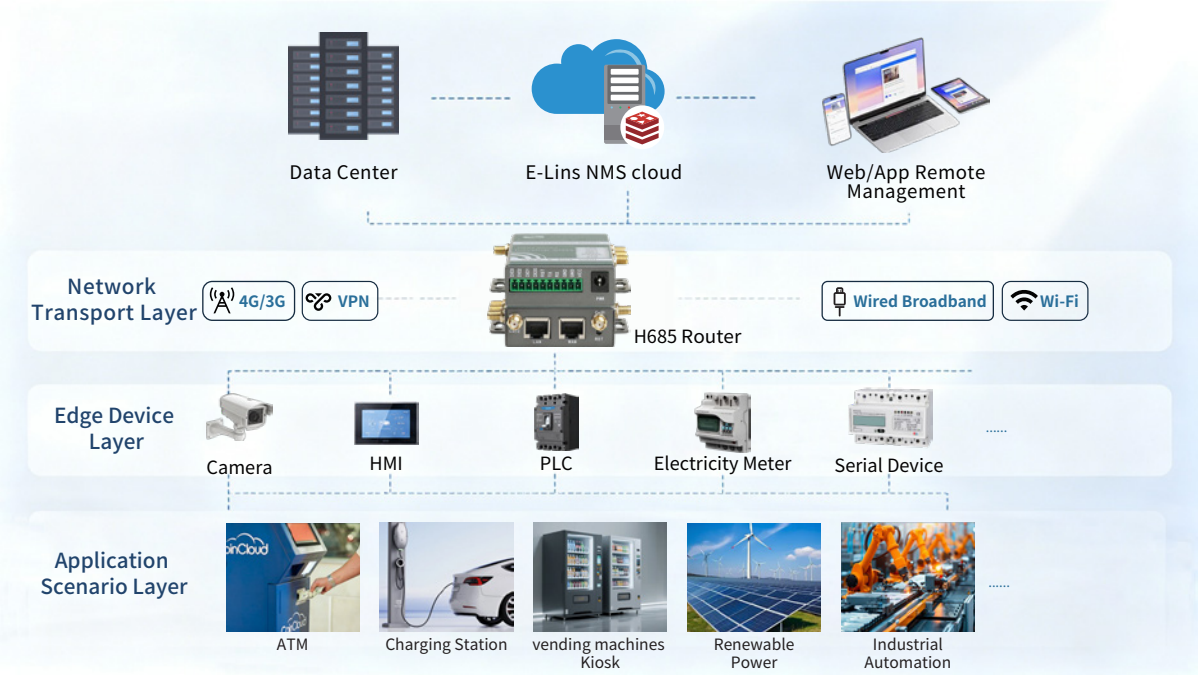
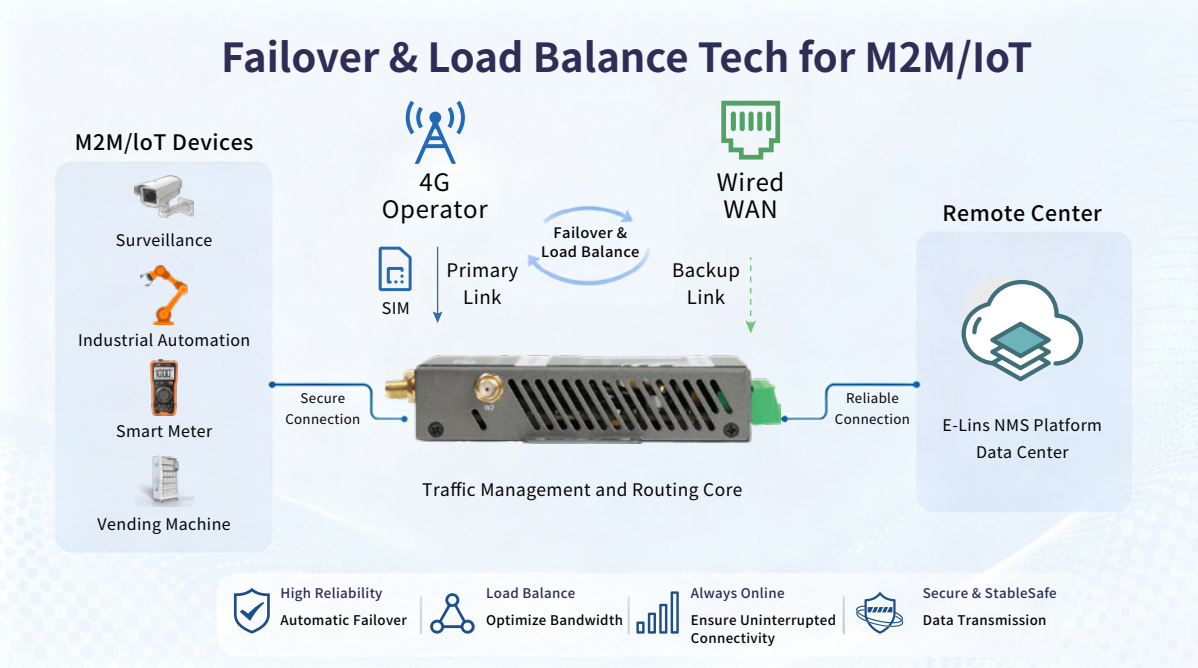
Typical Topology

Product Networking Solution

Stable Connection · Efficient Transmission · Intelligent Management





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Features & Specifications

Main Feature

WAN	Cellular 2G/3G/4G LTE (FDD/TDD) Wi-Fi as WAN Failover/Failback/Load balancing Advanced Modem Failure Check IP Passthrough WAN ports support Cellular/Static IP/DHCP/PPPoE (on demand, keep-alive, schedule, manual, standby)
LAN	DHCP Server, Client, Relay DNS & DNS Proxy DDNS UPnP DMZ Multicast & Multicast Proxy QoS (DSCP & Priority Queuing) MAC Address Filtering VLAN 802.1Q
Cellular	4G LTE (FDD/TDD) Cat 4 3.75G/3.5G/3G/2G Single SIM card Unlocked SIM; Network & Band Lock Feature (Optional)
Wi-Fi (option)	802.11 a/b/g/n, 2.4 GHz MIMO supported WPA2 Enterprise AP, Client, Bridge Up to 64 connected devices Hotspot / Captive Portal SSID-based Priority
Antenna	2 x Cellular antennas (SMA) 2 x Wi-Fi antennas (SMA) 1 x GPS antenna (SMA) Wi-Fi/GPS antennas supplied only with matching function External SMA connectors for high-gain antenna replacement
Power	Triple Power Inputs / Power Failover Passive PoE (Power over Ethernet) DC steady-state input voltage range: 5 - 40 V DC / 5 - 60 V DC optional (requires inline fuse for vehicle installations) For 9 - 24 V DC installations, use a 3 A fuse; For > 24 V DC installations, use a 2.5 A fuse; Built-in TVS surge protection on power port: 600 W peak pulse power (10/1000 µs), clamping voltage 93.6 V, compliant with ISO 7637-2 and IEC 61000-4-5. Ignition sensing (automatic ON and time-delay OFF);

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Power	Power consumption: Idle: typical = 100 mA @ 12 V DC; Maximum = 500 mA @ 12 V DC; Tx/Rx: typical = 300 mA @ 12 V DC; Maximum = 800 mA @ 12 V DC; 12 V DC 2 A adapter recommended
Hardware Memory	RAM: 512 Mb DDR, optional up to 2 Gbit; Flash: 128 Mb, optional up to 4 Gbit;
Ports	Power (DC Jack, 2 Pin Terminal Block for wire connection) 2 x Megabit 10/100 Mbps Ethernet LAN/WAN 1 x Serial connector - RS232 / RS485 (Terminal Socket) 4 x Digital I/O ports (Terminal Socket); Console port (Terminal Socket)
LEDs	1 x SYS, 1 x VPN (IPSec), 1 x Cell Signal, 1 x Cell, 1 x WAN, 1 x LAN, 1 x Wi-Fi
UIM/SIM Card Slot	Supports 1.8 V / 3 V UIM/SIM cards
eSIM and EUICC	Optional
Buttons	Reset button
Case	Gray-black metal enclosure; Customization available
Size	PCBA: 98 x 57 x 17 mm With case: 100 x 60 x 21 mm
Weight	220 g (router only) 380 g (including antenna) 580 g (all accessories included, no package)
Temperature	All models: -35 °C to 75 °C ambient operating; All models: -40 °C to 85 °C storage;
Humidity (non-condensing)	5% to 95% operating 5% to 95% storage
Package Contents	H685 industrial wireless router Ethernet cable Power adapter Cellular antenna, Wi-Fi antenna Other accessories depend on optional features (GPS antenna, serial cable, etc)
Warranty	1 year standard. Optional extended warranty up to 5 years maximum; Customizable additional warranty services available;
Customization Services	OEM / ODM & other customization services

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Other Details

VPN	IPsec Tunnel, NAT-T and transport modes; compatible with E-Lins, Cradlepoint, Cisco / Linksys, CheckPoint, WatchGuard, Juniper, SonicWall, Adtran and other vendors; Hash algorithms (MD5, SHA128, SHA256, SHA384, SHA512), Cipher algorithms (AES, 3DES, DES), IPSec over L2TP support; GRE tunneling, PPTP, L2TP, L2TP over IPSec; VPN pass-through; Multiple networks supported within a single tunnel, site-to-site dynamic VPN with NHRP; VTI Tunnel support; Optional: OpenVPN, DMVPN, WireGuard, certificate support, ZeroTier, EoIP;
Routing	OSPF / BGP / RIP, Virtual Server / Port Forwarding, IPv6 (Optional), VRRP;
Management	E-Lins Enterprise Cloud Network Management System (NMS) Web GUI, API, CLI / SSH / Telnet Data Usage Alerts (router-wide and per client) Advanced Troubleshooting support Device Alerts SNMP SMS control SMS gateway and SMS alarm TR-069 (customizable) Optional RADIUS or TACACS+ username / password; remote web-based WAN management with access control (HTTP, HTTPS); SNMP v1, v2c & v3; CLI over SSH, SSH to serial, API; one-touch firmware upgrade; modem configuration, update and management; modem data usage with alerts, per-client data usage; custom AT scripting for modems; SMS;
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 Basic Content Filtering Website Filtering Zone-Based Object Firewall supporting host address (IP or FQDN), port and MAC address Other features: NAT, SPI, port blocking, service filtering (FTP, SMTP, HTTP, RPL, SNMP, DNS, ICMP, NNTP, POP3, SSH), protocol filtering, WAN ping (allow / ignore)
DI/DO (Digital Input and Output)	4 ports, 0 - 3.3 V. Support status monitor via SMS and Email; Option: customers can order E-Lins switch control board (5 - 40 V DC supported)

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Optimized IP Communications	Automated WAN Failover / Fallback support WAN Affinity and QoS allow prioritization of VoIP services Advanced VPN connectivity options to HQ SIP ALG and NAT enable VoIP and UC communications to traverse firewalls MAC Address Filtering 802.1p/q for LAN QoS segmentation and VoIP handling on LAN; Private network support (wired and 4G WAN)
Firmware update	Supports local and remote firmware updates (LAN, Wi-Fi and OTA WAN); NMS (Network Management System) optional;
Redundancy and Load Balancing	Failover / fallback with 4G, 3G, 2G; WAN failure detection, VRRP; Auto-dial feature, keep-alive link; LCP, ICMP check; Built-in watchdog; Load Balancing: enables multiple WAN sources to boost throughput; supports three-line redundancy via Cellular (2G / 3G / 4G), RJ45 WAN (xDSL, DHCP, Fixed IP) and Wi-Fi client; Optional feature: Ethernet with rule selection, advanced load balancing modes (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, DNS, DHCP client, DHCP relay, DNS proxy, Split DNS; ALGs: PPTP, SIP, TFTP, FTP, IRC; MAC Address Filtering, Dynamic DNS, LAN / WAN affinity, VLAN 802.1Q, STP, enterprise routing protocols: BGP / OSPF / RIP, multicast proxy support, IP setting overrides; IPv6 support optional;
SMS, SMS Control and Alarm	Send and receive SMS; WAN cellular APN configuration via SMS; SMS / Voice control and alarms; SMS or call commands to switch router online / offline, reboot, monitor signal and status; SMS included as standard, Voice optional; SMS text send and receive;
Others	Cellular and Wi-Fi MIMO supported; Syslog (local and remote); DDNS; DNS proxy; Optimized EMC design; Real-time clock (NTP, supports scheduled updates); WAN / LAN / Memory statistics; Local / remote profile backup and restore; Modbus and DTU (serial to cellular);

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Order Part Numbers

H685 Series Router Order Models

Part Number	5G	4G						3G	Wi-Fi			PoE			Serial		GPS	DI/DO	5-60 VDC
		CAT 1	CAT 4	CAT 6	CAT 12	CAT 19	CAT 20		Wi-Fi 4 802.11b/g/n	Wi-Fi 5 802.11b/g/n/ac	Wi-Fi 6 802.11b/g/n/ac/ax	Passive	PD	PSE	RS232	RS485			
H685t	-	O	D	O	O	O	O	Y	O	-	-	Y	-	-	O	O	O	Y	O
H685f	Y	Y						Y	O	O	O	-	O	-	O	O	O	Y	O
H685frc	5G RedCap	Y						Y	O	O	O	Y	O	-	O	O	O	Y	O

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

PoE = Power over Ethernet; Passive = Passive PoE input; PD / PSE = Active PoE input / output
DI/DO = Digital Input & Output

Part Number Markings Description:

G = GPS / GNSS
W = Wi-Fi
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 Cat 6 LTE, GPS/GNSS, Serial RS232 and DC 5 - 60 V wide range input)

Option Accessories:

Replaceable High Gain Antennas
35mm DIN-Rail Adapter
DI / DO Control Board

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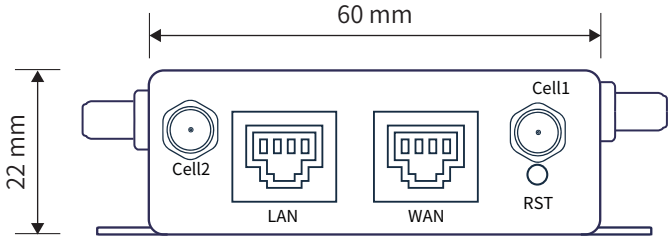
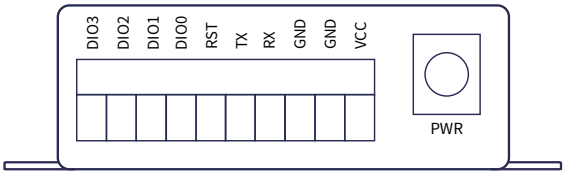
Interface Layout & Dimensions



Front



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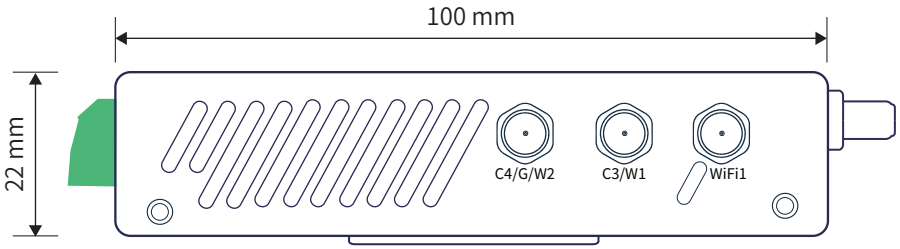
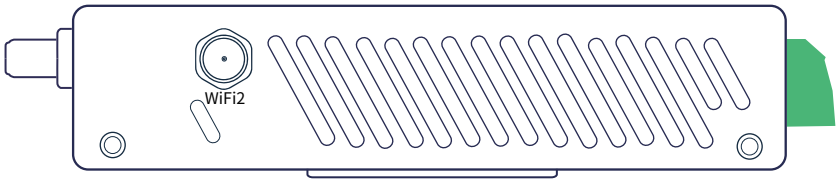


Right side



Left side

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