5G CPE
UF51



UF51 5G CPE is dedicated to cost effective solutions for 5G wireless networking applications. Adopting a high-performance and low power consumption industrial platform of quad-core CPU and 5G cellular module, UF51 supports the global WCDMA, 4G LTE, 5G Sub-6 GHz SA and NSA network and Wi-Fi 6, to provide ultra-fast network to ensure the extremely safe and reliable connection to the wireless network. With IP67 waterproof enclosure, various kinds of installation methods, and authentic design, UF51 is competent to both indoor and outdoor applications.

Meanwhile, UF51 also supports 2-port Gigabit Ethernet switch, RS232/RS485 serial ports and Digital input/Digital output, which enable you to scale up M2M applications combining data collection and high-speed transmission in a limited time and budget.

UF51 is particularly suitable for smart offices, video surveillance, digital media implementations, industrial automation, traffic applications, robots and so on.

◆ Fast & Reliable Network

- Industrial-grade quad-core CPU with ARM Cortex-A55 processor, providing high performance for data transmission
- Global 5G NSA&SA/4G LTE network for backup among multiple carrier networks
- Dual carrier aggregation (2CC CA) is supported in the 5G Sub-6GHz frequency band,with wider signal coverage superb speed and downlink speed up to 4.67 Gbps
- Plug & play, supply lightning transmission via Gigabit Ethernet ports or USB Type-C interface
- Support Wi-Fi 6, allows 2.4 GHz & 5 GHz dual band concurrent connections up to 3.6 Gbps download speed
- Embedded eight 5G antennas and four Wi-Fi antennas for best signal reception

◆ Ease of Maintenance

- DeviceHub provides easy setup, mass configuration, and centralized management of remote devices
- The user-friendly web interface design and more than one option of upgrade help administrators to manage the device as easy as pie
- Support multilevel user authorities for security management
- Fast and user-friendly programming by Node-RED development tool

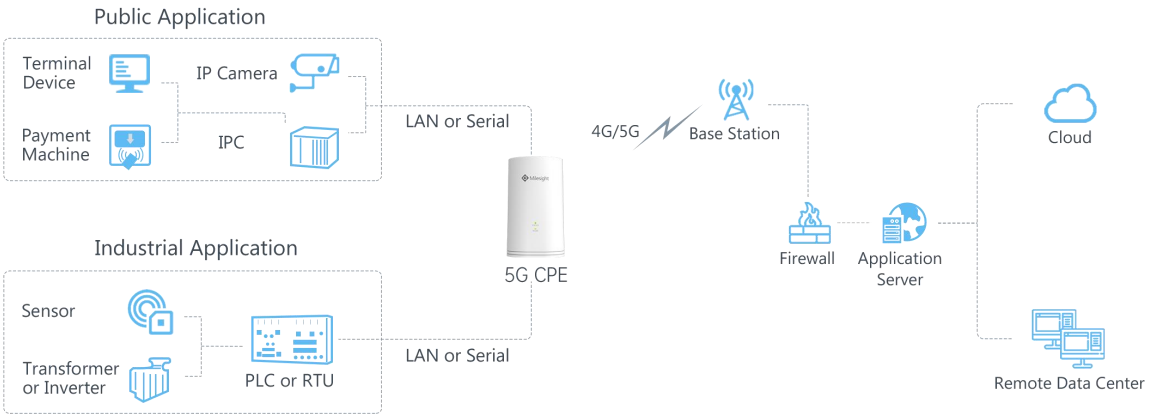
◆ Robust Hardware Design

- Equipped with I/O, serial port, and GPS for industrial transmission applications
- Wide operating temperature range from -30°C to 60°C and industrial design for harsh environment
- IP67 waterproof and UV-protective enclosure for outdoor applications
- PoE, DC or USB power supply optional
- Equipped with a vent plug to prevent condensation in the enclosure
- Pole mounting, wall mounting, desktop, bottom screw mounting for various applications
- 3-year warranty included

◆ Security & Reliability

- Automated failover/failback among Ethernet, Cellular and Wi-Fi
- Secure transmission with VPN tunnels such as IPsec/OpenVPN/L2TP/PPTP
- Embeds hardware watchdog to automatically recover from various failures, ensure the highest level of availability
- Equipped with multiple security protection measures such as ACL, DMZ, SYN-Flood protection, and data filtering to ensure that the network is secured.
- Support policy routing and NAT for more secure intranet access

◆ Application Example



◆ Hardware Specifications

Hardware System	
CPU	Quad-core ARM Cortex-A55， 2 GHz
Memory	1 GB LDDR4x RAM and 1 GB NAND Flash
Cellular Interface	
Network	5G NR SA & NSA/4G LTE/WCDMA
Frequency	5G Sub-6: N1/N3/N5/N7/N8/N20/N28/N38/N40/N41/N77/N78 LTE FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE TDD: B38/B40/B41/B42/B43 WCDMA: B1/B5/B8
Antenna	8 × Internal Antennas
SIM Slot	1 (Micro SIM-3FF), 1.8V/3V
Ethernet Interface	
Numbers	1 × 10/100/1000/ Mbps (LAN2) 1 × 10/100/1000/2500 Mbps (LAN1/WAN)
Property	1 × WAN + 1 × LAN or 2 × LAN
Mode	Full or Half Duplex (Auto-Sensing)
Ethernet Isolation	1.5 kV RMS
PoE	1 × 802.3at PoE PD on LAN1/WAN Port
Wi-Fi Interface (Optional)	
Antenna	4 × Internal Antennas
Standards	IEEE 802.11b/g/n/ax 4 x 4 MIMO, 2.4 GHz IEEE 802.11a/n/ac/ax 4 x 4 MIMO, 5 GHz
Max Bit Rate	2.4 GHz: 1200 Mbps, 5 GHz: 2400 Mbps

GNSS	
Antenna	1 × Internal Antenna
Technology	GPS/GLONASS/Beidou/Galileo/QZSS
Positioning Accuracy	2m CEP (Open Air)
Serial Interface	
Numbers	1 × RS485 (RS232 Hardware Optional)
Connector	3.5 mm Terminal Block
Baud Rate	300bps to 230400bps
DI/DO	
Numbers	1 × DI + 1 × DO, Galvanic Isolation
Connector	3.5 mm Terminal Block
Digital Input	Dry Contact
Digital Output	Wet Contact, maximum 0.3A@30VDC
Others	
USB	1 × USB 3.0 (Type-C) for network supply and debugging
Reset Button	1 × RESET (Internal)
LED Indicators	1 × STATUS，1 × Cellular Network
Power Connector	1 × 2-pin 3.5 mm Terminal Block, with Surge-Protection and Reverse Polarity Protection
Built-in	Watchdog, Timer
Power Supply and Consumption	
Power Input[1]	1. 9-48 VDC by Power Connector 2. 802.3at PoE PD
Power Consumption	Without Wi-Fi: Typical 4.8 W, Max 6.5 W With Wi-Fi: Typical 9.9 W, Max 14.4 W
Physical Characteristics	
Ingress Protection	IP67
Housing & Color	Polycarbonate + Cast Aluminium, White
Weight	957.3g
Dimension	No Waterproof Connector: ϕ105 x 110 x 187 mm (ϕ4.13 x 4.33 x 7.36 in) With Waterproof Connector: ϕ105 x 110 x 218 mm (ϕ4.13 x 4.33 x 8.58 in)
Installation	Desktop, Pole Mounting, Wall Mounting, Bottom Screw Mounting
Environmental	

[1] DC and PoE supply can not be used at the same time.

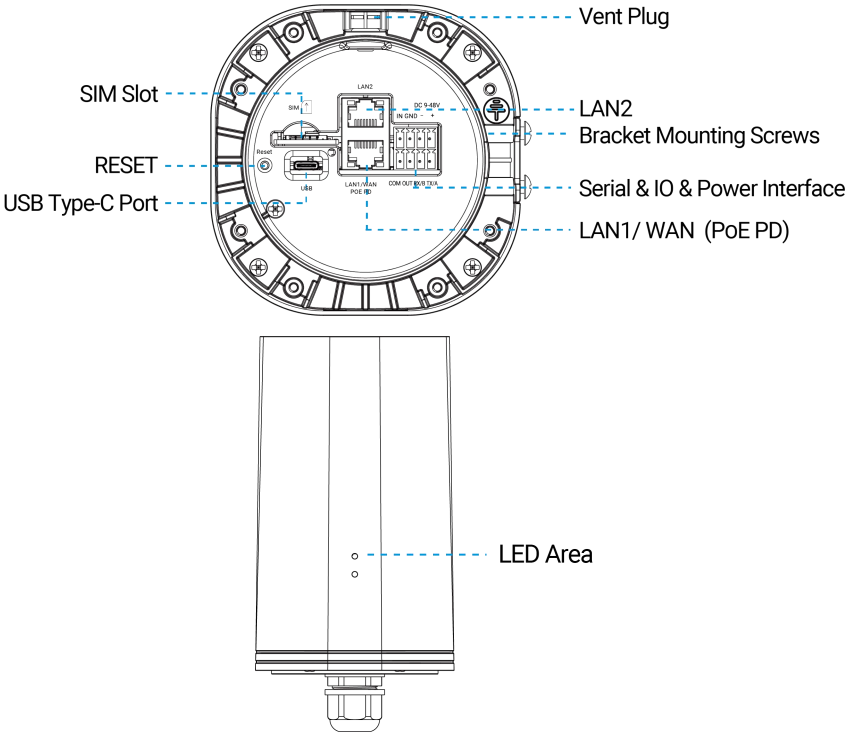
Operating Temperature	-30°C to +60°C (-22°F to +140°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Relative Humidity	0% to 95% (Non-condensing) at 25°C/77°F
Approvals	
Regulatory	CE
Environmental	RoHS

◆ Software Specifications

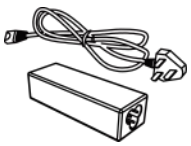
Network	
Network Protocols	IPv4/IPv6, PPPoE, TCP, UDP, DHCP, HTTP, HTTPS, ARP, NTP, DNS, SSH, DDNS, SNMP, MQTT, MQTTS, etc
Routing	Static Routing
DDNS	Supported >14 service providers, others can be configured manually
IP Passthrough	Support to assign WAN IP address to the device on LAN
Reliability	WAN Failover
Diagnostics Tools	Ping, Traceroute, Nslookup, TCPDUMP, Logs, Cellular AT Command Debugger, Firewall iptables Debugger
Wi-Fi Interface	
Modes	AP or Client mode
Security	WEP/WPA/WPA2/WPA3 authentication, WEP/TKIP/AES encryption
MAC Filter	Blacklist, Whitelist
GNSS	
Protocol	NMEA0183
Mode	Support reading by Serial Port, MQTT, TCP Client/Server, UDP Server
Security	
Firewalls	Access Control, DMZ, Port Mapping (DNAT), SYN-Flood Protection, Filtering(IP&Domain), Custom iptables Rules
Multilevel Authority	Multiple Levels of User Authority
VPN	
OpenVPN	Multiple Clients and a Server Support
IPsec	Multiple Clients and a Server Support
L2TP	L2TP Client Support
PPTP	PPTP Client Support
Others	

Serial Mode	Transparent(TCP Client/Server, UDP Server, MQTT Client), Modbus TCP/RTU Client, Modbus Gateway (Modbus RTU to Modbus TCP)
Digital Input	Support reading by SMS, MQTT
Digital Output	Support triggering by DI, SMS, MQTT
App	Node-RED
Management	
Configuration	Web, SNMP v1/v2c/v3, DeviceHub
Update	Web, DeviceHub
Device Management	DeviceHub, MilesightVPN
SNMP	SNMP v1/v2/v3, Support SNMP Trap
SMS	Send/Receive SMS, SMS Control
Event Alarm	System Startup/Reboot, Network Up/Down, Link Switch, VPN Up/Down, Cellular Traffic Monitoring, etc.

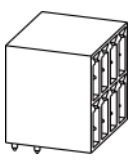
◆ Hardware Overview



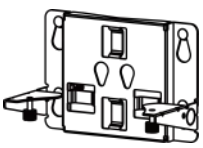
◆ Accessories



1 × PoE Injector



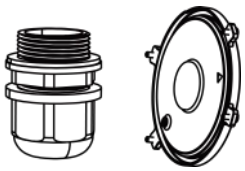
1 × 8-Pin Pluggable Terminal



1 × Mounting Bracket



4 × Rubber Feet



1 × Bottom Cover with Cable Gland



1 × Waterproof Rubber Ring



4 × Wall Mounting Kits



2 × Hose Clamps

***Note:** Contact us if you need any other special accessories or customized accessories.

◆ Dimensions (mm)

