

5G RedCap Mobile Adaptor

- 5G Sub-6 GHz RedCap and 4G wireless communication
- DUAL SIM design(Nano SIM or embedded SIM chip supported)
- Ethernet Support(10/100M/1G) with PSE(802.3at 30W)
- Provide network connectivity via Ethernet, Serial and USB
- GNSS for tracking equipment (Optional)
- IP42 compliant
- Robust metal enclosure
- DIN Rail support

Introduction

The AirBridge AB01 series are compact and feature-rich communication 5G Sub-6 GHz mobile adaptor that provides real-time wireless connection for fixed and mobile applications. The AB01 adopts latest 3GPP R17 RedCap technology to provide a theoretical peak data rate of 220 Mbps in the downlink and 100 Mbps in the uplink. In addition to 5G SA mode, AB01 is also backward compatible with 4G LTE Network.

They are intended for use in industrial settings such as:

- Remotely monitoring and controlling infrastructure and surveillance equipment on pipelines
- Tracking the location of heavy equipment and assets in the field
- Providing reliable Internet access to a mobile workforce

In addition to its independent Ethernet ports, serial ports RS232/422/485 and USB port could be used for data transportation as well for fitting to more application and equipment. The design of IP42 compliant metal enclosure makes the AB01 suitable for more environment and conditions.

Specifications

System	
CPU	Qualcomm SDX35
Watchdog	HW Watchdog
Dying Gasp	Last Gasp super Capacitor
PSE	802.3at(30W)
Interfaces	
Ethernet	1× Ethernet, RJ45, 10/100/1G Mbps
Serial (2x5 terminal)	1× RS232(Tx,Rx,RTS,CTS,GND)) 1× RS485(A-, B+, GND) 1× RS422(Tx+, Tx-, Rx+, Rx- GND)
USB	1× USB 2.0 Micro USB Type -B
Reset Button	Reboot / Factory reset
LED Indicators	3 LED indicators 3-level signal strength, Status/Activity and Power,

Environmental	
Power Supply	9 – 36 V DC (2-pin terminal block)
Power Consumption	To be updated
Operating Temperature	-20 to +60 °C
Storage Temperature	-40 to +85 °C
Humidity	5 to 95 %
IP Cover	IP42
Physical Characteristics	
Dimension	147x 95.5 x 42.5 mm
Enclosure	Metal enclosure with painting
Mounting	Desktop , DIN Rail
Weight	547g

Cellular Interface	
SIM Slots	2 × Push-Push SIM slot (Nano SIM – 2FF) with cover, The foot print of MFF2 reserved for Chip SIM or eSIM
Antennas	3× SMA connectors. 2 for 5G, 1 for GNSS
5G Parameters	5G NR: 3GPP R17 RedCap SA Operation. Sub-6 GHz, Supporting Bandwidth: 10/15/20MHz SA Bands: n1/2/3/5/7/8/12/13/14/18/20/25/26/28/30/38/40/41/48/66/70/71/77/78
LTE Parameter	LTE Cat.4 Category LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/30/66/70/71 TDD-TDD: B34/38/39/40/41/42/43/48

Operating frequency bands are configured to comply with regional regulatory requirements, with LTE Band 48 and NR Band n48 (3550-3700 MHz) being the only operational bands in the United States.

Standards & Regulations	
Radio	By customer demands.
EMC	EN 301 489-1, EN 301 489-19, EN 301 489-52, EN 61000-6-2, EN 61000-6-4, FCC 15.107Class B, FCC 15.109 Class B, IC
Safety	EN 60 950-1:
Carrier Approval	By Demand
National	FCC, IC, CE
Environmental	REACH, RoHS3 and WEEE compliant

Software	
Operating System	Linux based
SW Customization	Bridge App
Application Development	Open Linux,
Networking Protocols	DHCP, NAT/PAT, SSH, VRRP, PPPoE, SNMP, SMTP,IPv6
Firmware Management	Automatic firmware updates – server, locally via LAN or remotely via WAN Over-the-Air cellular module firmware updates
Diagnostic/Log	Status – Signal Strength, Data Usage, Detailed Long Term Statistics Reboot Log, Kernel Log

Accessories

Description	Included in the package	Optional
Description		
5G/LTE external Antenna x2	✓	
GNSS External Antenna		✓
Power Supply 12V/4A, US/EU plug		✓
DIN clip		✓

LED Behavior

Adaptor Status	Power	Status LED		Signal LED		
	Green	Green	Red	Blue	Green	Orange
Power On	On	NA	NA	N/A	N/A	N/A
Power Off	Off	NA	NA	N/A	N/A	N/A
Reboot	N/A	Off	Blink 3 time in 1 second	Off	Off	Off
UDM Agent initial	N/A	Blink 1 time every 3 seconds	Off	N/A	N/A	N/A
UDM Agent is connecting to MQTT server	N/A	Blink 1 time every 1 second	Off	N/A	N/A	N/A
UDM Agent is waiting to be paired	N/A	Off	Blink 1 time every 3 seconds	N/A	N/A	N/A
UDM Agent connects to MQTT server	N/A	On	Off	N/A	N/A	N/A
UDM Agent start failed	N/A	Off	on	N/A	N/A	N/A
FOTA downloading	N/A	(Green+Red) blink 1 time every 3 seconds		N/A	N/A	N/A
FOTA upgrade	N/A	(Green+Red) blink 1 time every 0.2 seconds		N/A	N/A	N/A
RSRP (< -106) dBm	N/A	N/A	N/A	Off	Off	On
RSRP (-106 ~ -87) dBm	N/A	N/A	N/A	Off	On	Off
RSRP (> -87) dBm	N/A	N/A	N/A	On	Off	Off

Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.