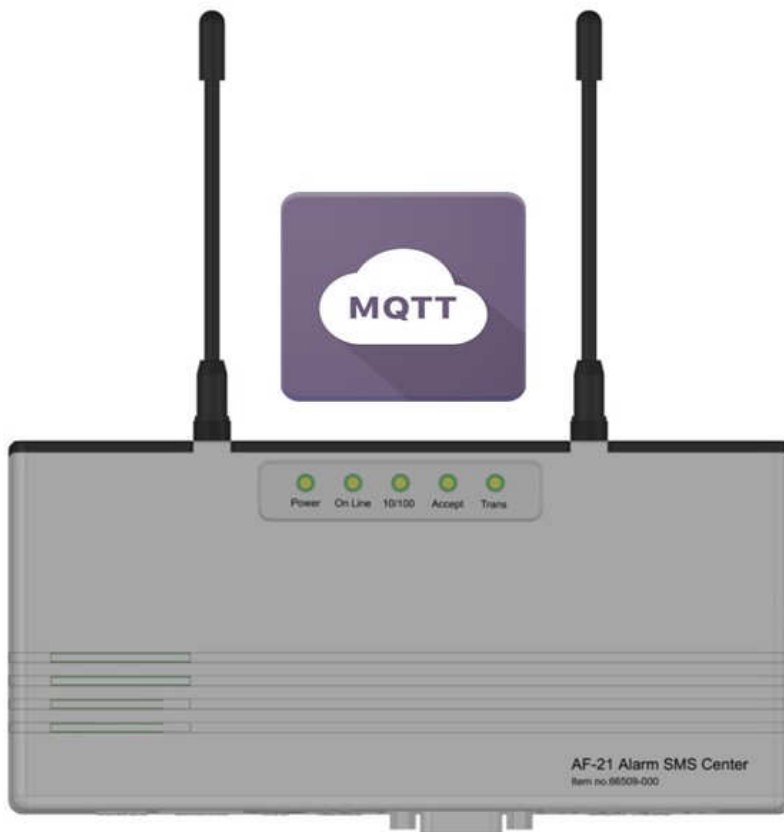# Wireless Devices Inc.

Alarm Follow Message Transceiver Center

AF-21

Operation Manual

CCW210541-007

1. INTRODUCTION

A new generation of IoT Cloud Access-automation-security alarm message transmission center.
You can send short messages to the smart phones, pagers, Tab computer, and PC without paying telecommunication charges

AF-21 uses the new MQTT/HTTP protocol to connect the network to the wired alarm input and to the wireless device

AF-21 contains WLAN, Wi-Fi and POCSAG transceiver modules
When the connected equipment is abnormal or an alarm occurs, AF-21 will immediately send pre-programmed information to the pager and smart phone. Of course, including tablet laptops and PCs as long as you want to connect some devices..
Rich back-end connection serial ports Contains RJ-45, USB, RS-232, RS-485/RS-422. Meet the needs of security and nurse call system and industry automation..

About the transmission, the AF-21 is a POCSAG synthesized message transmitter that operates in the 136MHz to 931MHz, frequency bands.

The AF-21 inside encoder contents, which are the cap code, speed and message
Etc, can be sent by the alphanumeric (7-bit) using the POCSAG paging protocol out from either the serial port or from the Ethernet port.

The AF-21 option selection also has 8 ON/OFF dry contacts for the alarm applications. Each input is an independent port control for the contact input status either from the open to short or from the short to open. Once the alarm is activated, the pre-programmed input cap-code and message will be sent out immediately.
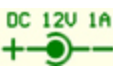
The key Features of the AF-21
- 8 preprogrammed messages dry conduct transmitter(short trigger/open trigger)
- IoT receiver that receive POCSAG message and send it up to Smart Phone
- Wi-Fi and Ethernet for internet connection
- RS-485 for receive data

2. Appearance

2-1 Rear I/O Connector

DC IN Ethernet USB RS-485/422 RS-232 AL1--AL8 Alarm Inputs
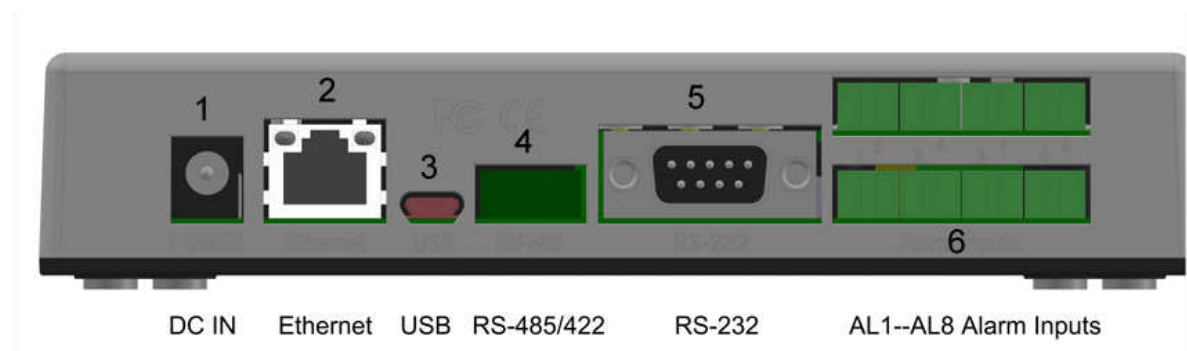
1. **DC Power IN:** DC 12V 1A 10V-13.8V In Minimum 1A.

2. **Ethernet cable:** Connect to the Internet HUB by Cat.6 and up cable.

3. **Micro USB Jack:** For System Programming.

4. **RS-485/RS-422:** To/From other equipment to be connected in the building.

485_A 485_B GND +5V
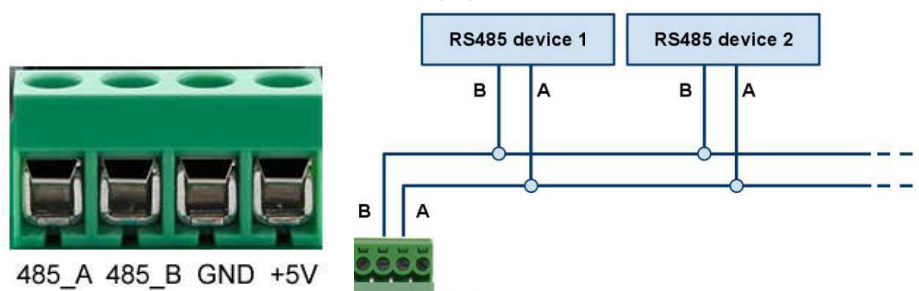
5. **RS-232 Serial port:**

Pin 2 **TX** (data output To PC DB-9 Pin 2 RD)

Pin 3 **RX** (data received From PC DB-9 Pin 3 TD)

Pin 5 **GND** (required to PC DB-9 pin 5)
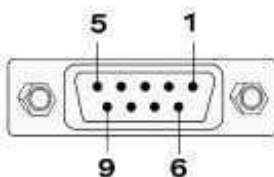
6. **Alarm Input:** AL1…AL8.Speed up connectors. For 8 Alarm dry contact input

Each alarm from NO to NC or from NC to NO can be active trigger.

← Female (inside AF-21)   ←Male (attached)

2-2 LED indicator on the top of the housing

Power = System power ON

On Line = WAN connected

10/100 = Flash for Net 10/100M link
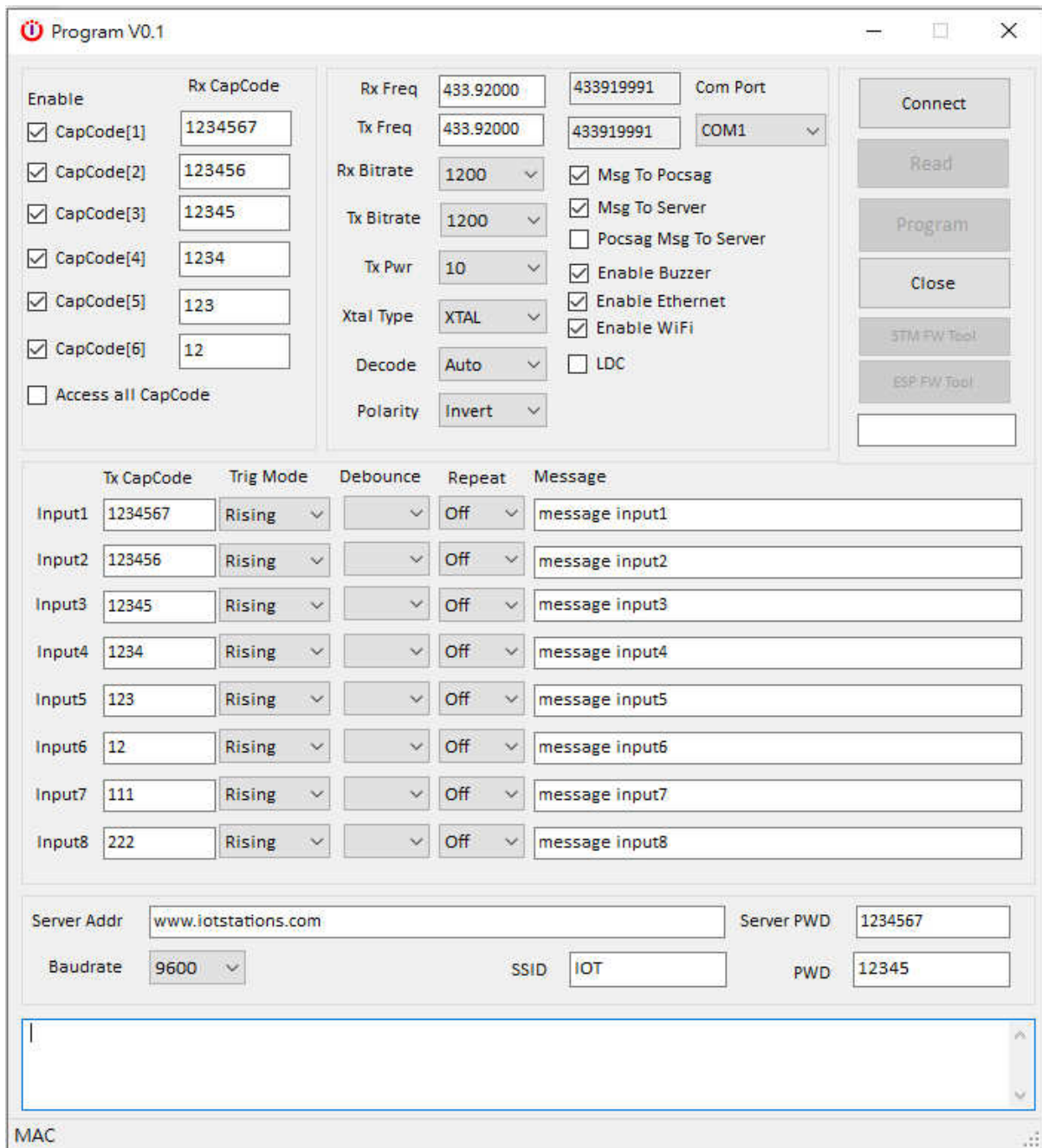
Accept = POCSAG Received

Trans = POCSAG Transmitter

3. System Program

 AF21Prog_20201221   open zip

AF21Programmer.exe
AF21Programmer.pdb
ClassLibrary1.dll
DialogBox.dll
radio_config.h
USBClassLibrary.dll
USBClassLibrary.pdb   CLICK AF21Programmer.exe

Screen of AF-21 programming OS

The Programming Tool for PC.
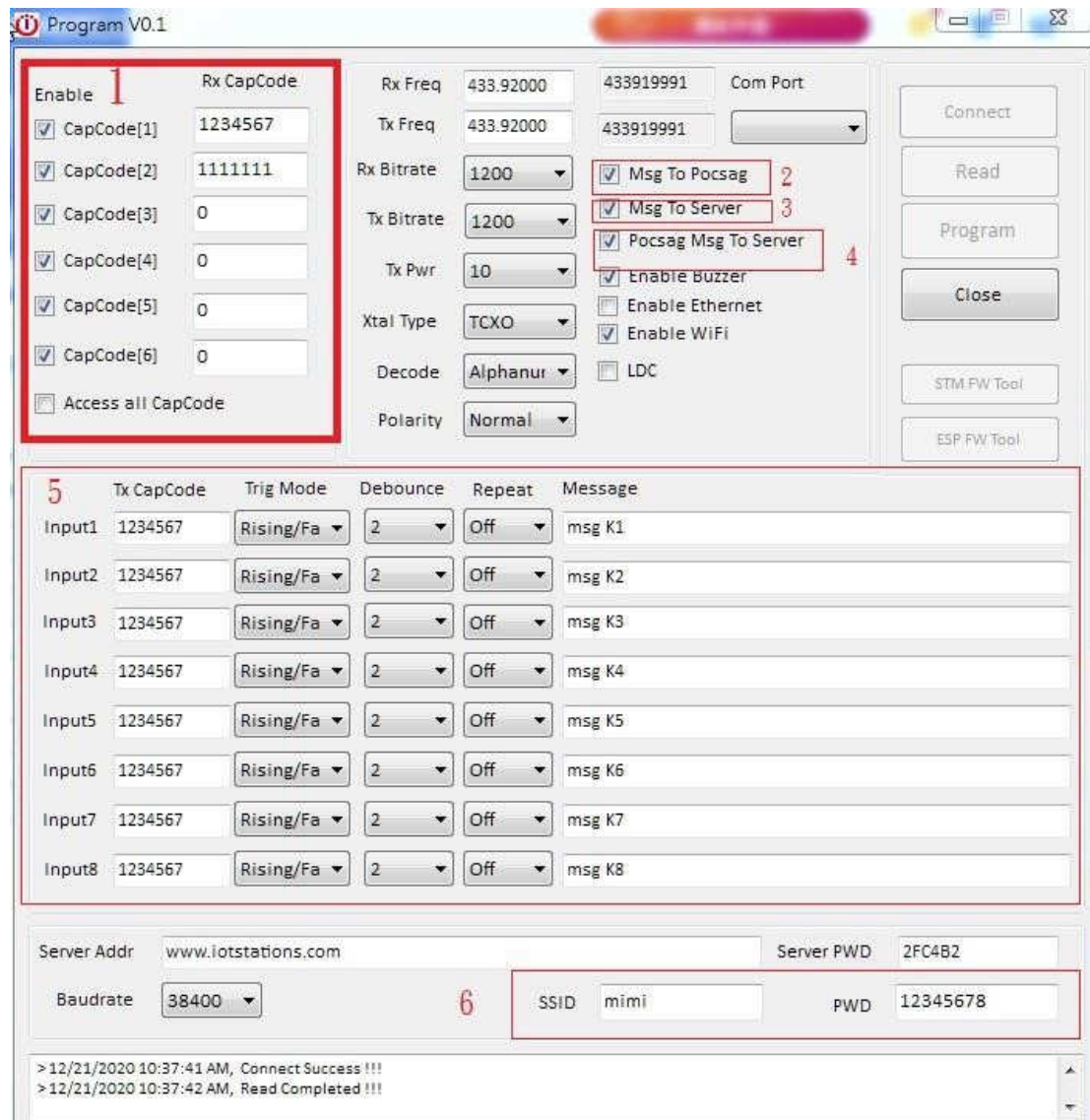
1: Capcode for receiver.

2: enable to transmitter(input trigger).

3: enable to send message when input being trigger.

4: enable IoT receiver when receive message and send it to smart phone

5: Preprogrammed messages for 8 dry conduct trigger.

6: Manual Wi-Fi preprogram, leave it blank for set up by smart phone or computer.

While programming, the AF-21 DC plug must be off and disconnected.

(Just use the DC power source from the PC USB.)

4. Easy to set up the Wi-Fi

1. To use smart phone or computer to set up.

2. Open the Wi-Fi and choose the name start with IOT_XXXXXX.
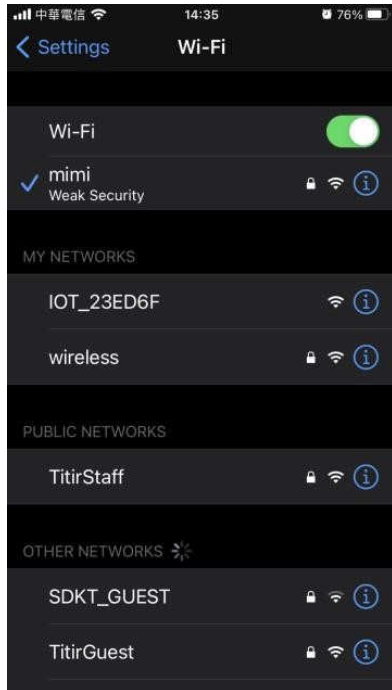
3. Choose the Configure Wi-Fi.
4. Choose the Wi-Fi and enter the password then click on save.

5. APP Download

Open the app, choose add existing station.

Scan the QR code or enter the device serial, and the password.

iOS Version:

Android Version:

Programming Tool PC version:

https://drive.google.com/file/d/1FTMpaaTeaJSJx3fzE6DEwCI0FlA8ICyo/view?usp=sharing

AF-21 Specifications

Port of Ethernet section.	
Net port	Rj45, 10/100mMbps
Serial port	600~460.8K(bps)
Network protocol	IP, IPV4, TCP/UDP, ARP, ICMP
Access way to IP	Static IP, DHCP
Single transparent transmission	TCP Server/TCP client/UDP Server/UDP Client
TCP server connection	Default 4 and maximum 16
Net buffer	Send:6Kbyte; receive:4Kbyte
Serial port buffer	Receive: 2048byte
Average transport delay	<10ms
Wi-Fi section.	
Certification	Wi-Fi Alliance
Protocols	802.11 b/g/n (HT20)
Frequency Range	2.4 GHz ~ 2.5 GHz (2400 MHz ~ 2483.5 MHz)
TX Power	802.11 b: +20dBm 802.11 g: +17dBm 802.11 n: +14dBm
Rx Sensitivity	802.11 b: −91dBm (11 Mbps) 802.11 g: −75dBm (54 Mbps) 802.11 n: −72dBm (MCS7)
Antenna	PCB Trace
Peripheral Interface	UART/SDIO/SPI/I2C/I2S/IR Remote Control GPIO/ADC/PWM/LED Light & Button
Security	WPA/WPA2
Encryption	UART Download / OTA (via network)
Network Protocols	IPv4, TCP/UDP/HTTP
User Configuration	AT Instruction Set, Cloud Server, Android/iOS App

POCSAG Transceiver section.		
Frequency:	410-490 MHz Synthesized	868-915 MHz Synthesized
Paging format:	POCSAG.	
Pager Baud rate:	512bps / 1200bps / 2400bps.	
Message type :	ASCII	
Channel Spacing:	6.25K / 12.5K / 25K. Frequency Synthesized by USB programming	
Frequency stability:	+/- 1ppm by TCXO	
Selectivity	55dB	
Inter modulation rejection	60dB	
Modulation:	NRZ NFSK, for POCSAG	
Deviation:	3.5-4.5Khz	
Sensitivity	-110dBm (512bps), -107dBm (1200bps), -104dBm (2400bps)	
RF output power:	500mW	200mW
RF connector:	Input/output by SMA RF female connectors.	
General		
P/C Interface:	USB 2.0 RS-232 (9600/19200/38400/57600) N,8,1.	
RS-485 RS422 I/O	ANSI/TIA/EIA-485-A-1998, TIA/EIA-422 −6V to +6V	
Operation temperature:	-25°C ~ 70°C	
Power Supply:	DC 12V 1A(Minimum)	
Size:	165 mm X 80 mm X 35 mm.	
Model Weight:	1.2KGs. include AC 100~240 to DC 12V 2A switching power adapter.	

Notes: Specifications are subject to change without notice

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