



FTAS 2.0 Active Remote User Manual
This is a 90.219 Class B Device



FCC ID: 2ARIM-FTA-DL20-3A

Downlink Fiber to Antenna (FTA) User's Manual rev 1.2
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Revision History			
Revision #	Author	Date	Major Changes
1.0	M. Kho		Initial Release
1.1	L. Hernandez	5/19/25	Necessary FCC information
1.2	M. Kho	5/22/25	GUI Instructions

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THIS IS A 90.219 CLASS B DEVICECautions, and Warnings

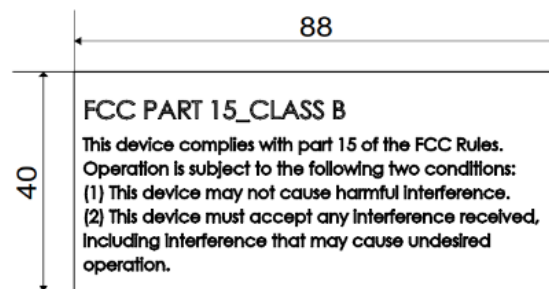
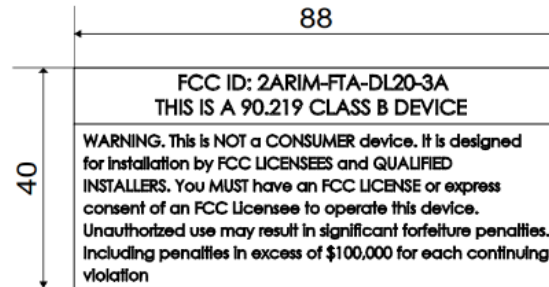
Invisible laser light is used on this equipment. DO NOT look directly into the fiber optic connectors when the unit is in operation.

Connect RF Output to Antenna only.

DO NOT operate equipment with unauthorized antennas, cables, and/or coupling devices.

DO NOT operate equipment unless all RF connectors are secure.

DO NOT operate equipment unless it has been installed and inspected by a qualified radio technician.

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Acronyms

ALC - automatic level control
DAS - distributed antenna system
DL - Downlink
DSP - digital signal processor
FO - fiber optic
HE - Head End
LNA - low-noise amplifier
NMS - Network Management System
PA - power amplifier
RF - radio frequency
UL - Uplink

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1. Introduction

1.1 FTAS 2.0 Active Remote



Figure 1: FTAS 2.0 Active Remote Unit with a primary and redundant configuration

FTAS Active Remote (FTAS-AR) extends the wireless coverage to remote locations utilized in Fiber-to-the-Edge (FTTE) Distributed Antenna Systems (DAS). It contains an antenna, FTAS Remote Module, and a Fiber Optics Splice Box with dual connections via armored composite fiber (single-mode) to two separate headends for redundancy. The FTAS-AR converts between the radio frequency (RF) and optical signals. It is designed to amplify and maintain clear, constant-level signals from noises and interferences.

FTAS Active Remote can carry up to quadruple (4) bands simultaneously across all Public Safety and Land Mobile Communications frequency bands, such as VHF, UHF, 700 MHz, and 800/900 MHz. Supported directional options include: uplink (UL/Rx), downlink (DL/Tx), and duplex (TxRx).

FTAS-AR is equipped with embedded element management software accessible via Ethernet with atomic update and built-in rollback features. Element control can be performed remotely with a direct web interface, via SNMP to integrate with an existing NOC, or optimally with CellGain's FTAS Network Management System (FTAS-NMS), which also monitors and manages the entire DAS network.

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1.2 FTAS 2.0 Active Remote Deployment

The FTAS-AR is designed to be incorporated with Cellgain's line of FTAS equipment. The FTAS-AR must be utilized in conjunction with an FTAS Fiber Optical Converter Card and chassis. Each card contains a fiber connection, Electromagnetic RF connection ports (band-specific), and a status LED.

Each card provides fiber optical RF signal and Ethernet/GUI connection to a single FTAS-AR remote.

For Downlink/Tx FTAS-AR configuration, the Fiber Optical card converts the EM RF band inputs into fiber optical light and combines the bands into a single fiber feed. Optical Ethernet (from the external optical Ethernet port) is combined with the optical RF band signal and output to the remote through the Remote fiber port on the card.

For the Uplink/Rx FTAS-AR, the configuration is identical to that of the Downlink/Tx, except in reverse order.

For more information, please see the FTAS Fiber Optical Card Manual for specific set-up.

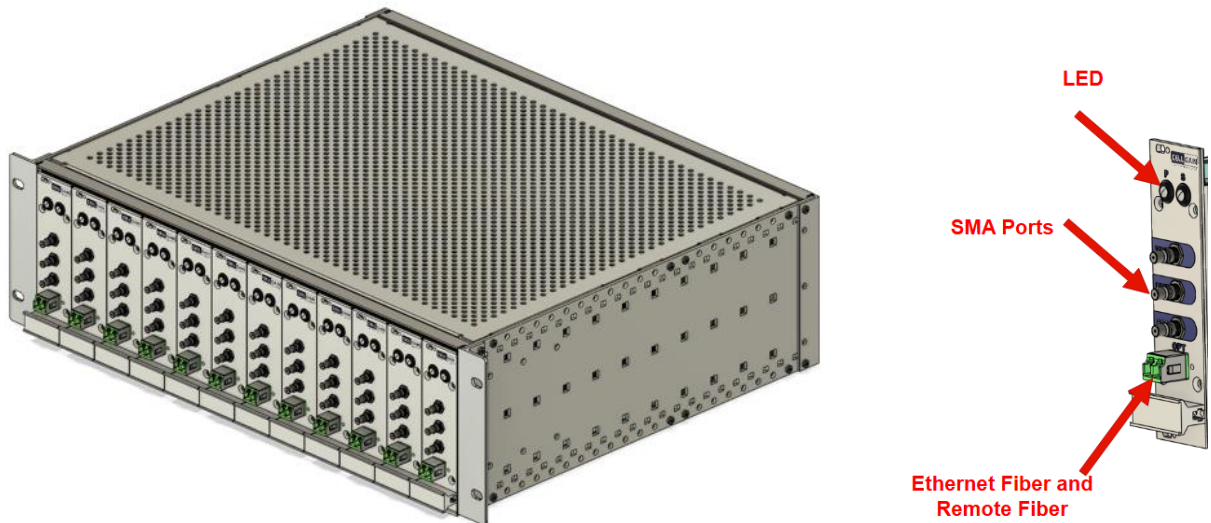


Figure 2: FTAS Fiber Optical Converter Chassis (left) and Fiber Optical Converter Card (right)

Note: To establish Ethernet/GUI connection to the FTAS-AR, the Ethernet Fiber port on the card must be connected to a fiber optical SFP switch that will convert the Optical Ethernet data into conventional EM Ethernet and vice versa.

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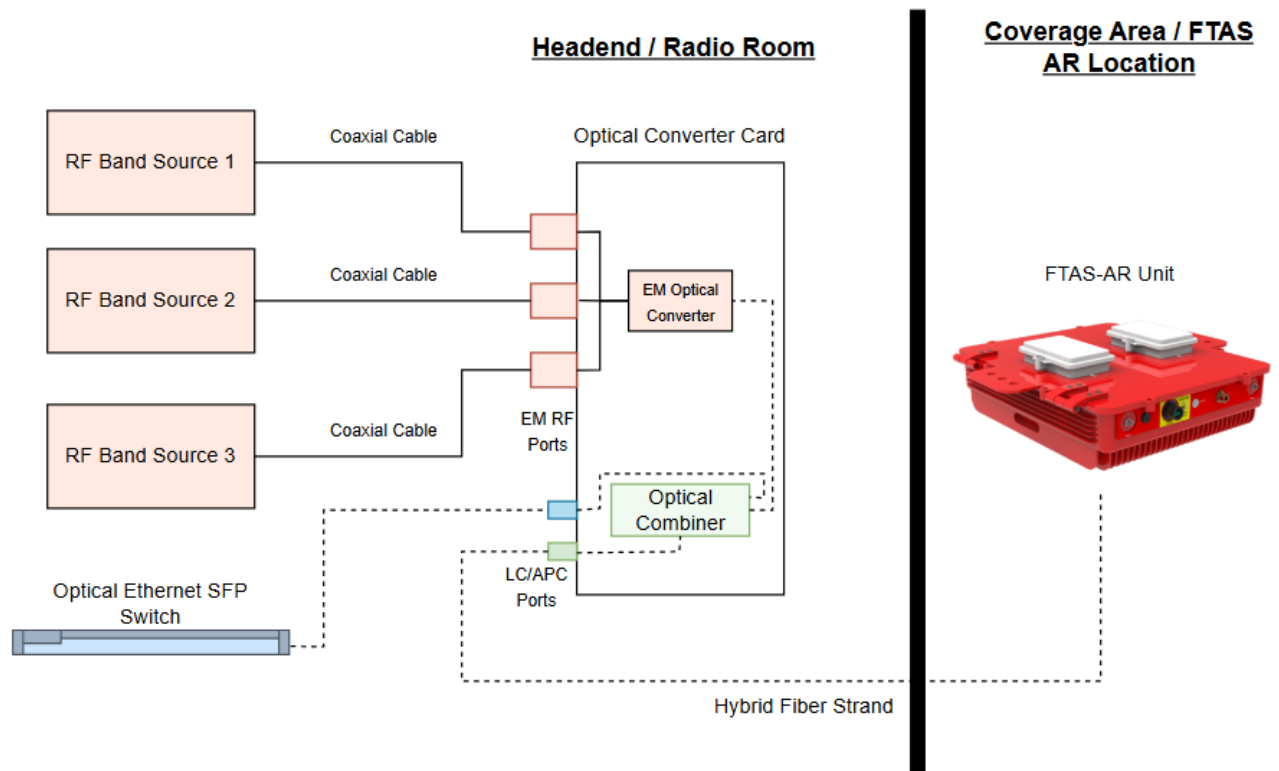


Figure 3: Block Diagram of an FTAS-AR connection with an FTAS Optical Converter Card

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2.Equipment Overview and Technical Specifications

2.1 Specifications

SYSTEM RF PARAMETERS		ELECTRICAL & MECHANICAL	
Frequency Range	50 kHz – 3GHz	Connector	RF: SMA Female
Operating Mode	Full Duplex & Simplex		Optical: SC/APC
Optical Link Budget	< 5 dBo	Duty Cycle	Continuous
Transmitter Output Power	-2 to +2 dBm (4-port & 1-port)	Power Input	115 VAC selected
Receiver Sensitivity	> -12 dBm		50 – 60Hz @ 10 amps
VSWR I/O	2:1 maximum		
Output Noise Floor	-129 dBm (with 1-meter fiber at 800MHZ)		
Spur-free Dynamic Range	> 102 dB		
Input 3rd Order Intercept	> 24 dBm		
RF Input to Transmitter	-10 dBm maximum		

FIBER OPTICS		PHYSICAL & ENVIRONMENTAL	
Optical Fiber Mode	Single Mode Fiber	Dimension (W x D x H)	1.39" x 9.07" x 5.06"
Wavelength	1310 / 1550 nm	Operating Temperature	-20°C min – 85°C max
Fiber Distance	> 5km	Storage Temperature	-20°C min – 85°C max
Laser Control	Yes	Humidity	90% Non-Condensing

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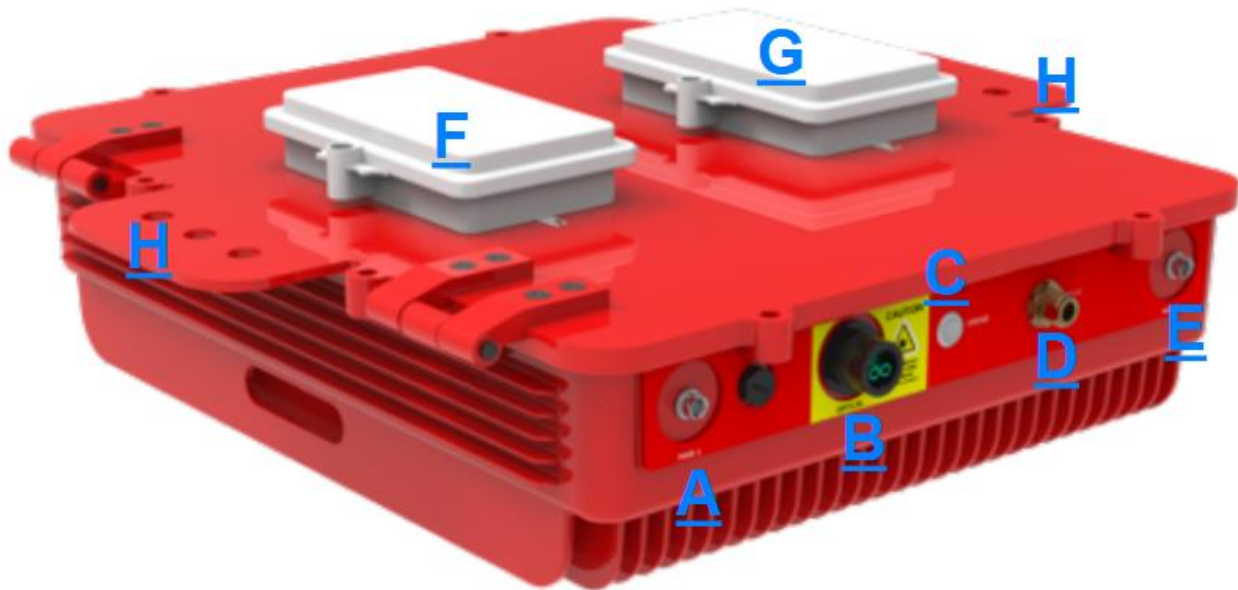


Figure 4: Diagram of FTAS-AR Unit External Features

Label	Name	Description
A	Primary Power Port	Primary Power port for the remote. Connects to the terminal block in primary patch panel (F)
B	Fiber Optical Port	Dual LC/APC for the Primary and redundant fiber feeds. Mixed RF and GUI data shared on each fiber. Connects to primary (F) and redundant (G) patch panels.
C	LED Status Light	External LED to show overall status of remote (power on/off, alarm, failure, etc.)
D	Coaxial RF Connection	Standard N-type female connector for external connection to an antenna.
E	Redundant Power Port	Primary Power port for the remote. Connects to the terminal block in primary patch panel (F)
F	Primary Fiber Optical Patch Panel	Patch Panel for the primary fiber and power feed. Contains hybrid cable mount, fiber splice box, and terminal block used for power.
G	Secondary Fiber Optical Patch Panel	Patch Panel for the Redundant fiber and power feed. Contains hybrid cable mount, fiber splice box, and terminal block used for power.
H	Enclosure Mounting Points	Mounting points for threaded rods or brackets to secure remote to a support structure.

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3. FTAS 2.0 Remote Unit Installation and Start Guide

3.1 Installation

The Cellgain FTAS 2.0 Remote Unit is designed for indoor-use or areas with sheltered conditions. It is not recommended to install the FTAS 2.0 Remote Unit in adverse environmental conditions, with exposure possibly voiding the remote warranty. Avoid installation in areas with:

- Water or rain exposure.
- Extremely high or low temperature.
- High humidity.
- Storm or High wind.

Mounting

The FTAS 2.0 Remote can be mounted from the ceiling by four threaded rods or on a wall/cabinet using Kindorf struts.

Note: The remote unit must be installed in areas that allow full access to the remote unit when opening the door.

1. Mounting From the Ceiling Using Threaded Rods

The Remote Unit can be mounted from the ceiling using threaded rods. Measure the dimensions and locations of the mounting holes in the remote unit and install four threaded rods (ideally $\frac{1}{2}$ " diameter) from the ceiling. Insert and secure the remote unit with fasteners through the four threaded rods as shown below in Figure [6]. The fin-side of the enclosure should be facing down towards the ground when mounting.

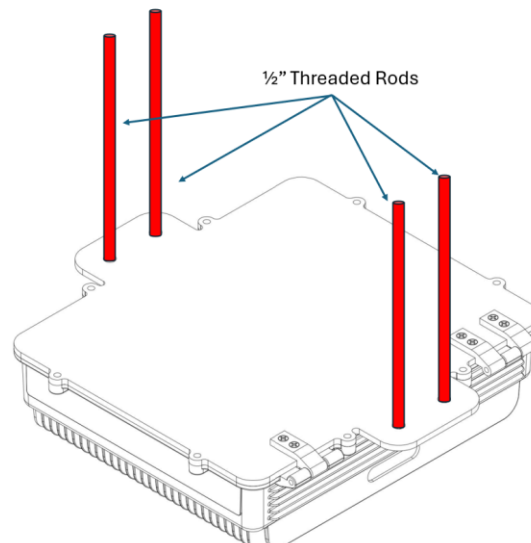


Figure 5: Diagram of FTAS-AR Mounting with threaded rods from the ceiling

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THIS IS A 90.219 CLASS B DEVICE**2. Mounting from a Wall or Cabinet using Kindorf Struts**

Measure the dimensions of the mounting holes on the remote unit. Install Kindorf Struts based on the location of the mounting holes and secure each hole to the strut with the appropriate fastener. Note that for FTAS Remotes version that have case-mounted Fiber Optic Patch Panels must have clearance and have enough offset to access and open the Remote Unit's access panel.

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3.2 Fiber Connection

The FTAS 2.0 Remote Unit possesses (2) LC/APC fiber connection ports – a primary fiber port and a redundant fiber port, located within a weatherproof twist cover on the bottom of the remote. Each fiber port accepts a combined optical RF and optical Ethernet signal, compatible with Cellgain's Fiber Optical Transmit or Receive Card. The FTAS 2.0 Remote is designed to utilize hybrid composite cable containing both power wires and fiber optical strands/

Ensuring The Correct Equipment Compatibility

Prior to fiber installation, verify if the remote model is Downlink (DL aka Receive) or Uplink (UL aka Transmit). This can be determined on the remote's label name.

The DL remote units MUST be connected to a Cellgain Fiber Optical Transmit Card (or transmit port on a TxRx card) and the UL remote units MUST be connected to a Cellgain Fiber Optical Receive card (or receive port on a TxRx card).

Connecting Fiber Optical Strands to the Remote Unit

Certain models of the FTAS 2.0 Remote contain one or two fiber optical patch panels mounted on the housing of the remote. Prior to installation, verify that no active optical signal or power is flowing through the fiber optical strands and power wires.

1. Open the Patch Panel and strip and secure the hybrid composite cable to the mounting port via the mount's screws.



Figure 6: Location of the Hybrid Cable bracket in the fiber optical patch panel

2. Splice the fiber optical strand to an SC/APC connector and secure the splice to the fiber optical tray. Connect the SC/APC connector the pigtail mount. Connect an SC/APC to LC/APC jumper to this mount.

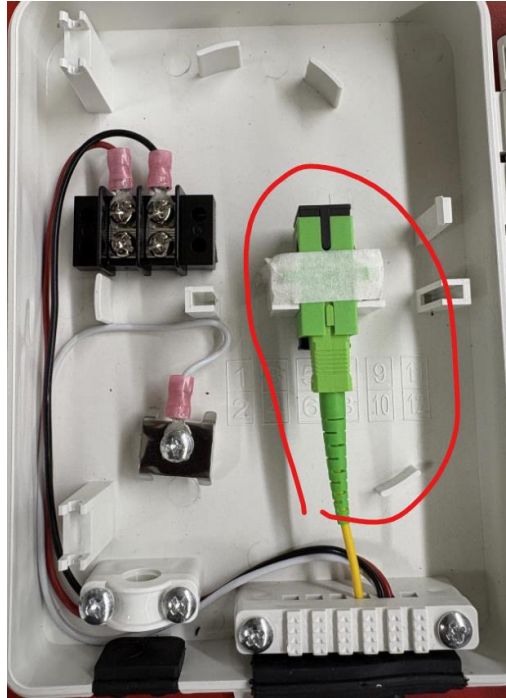
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Figure 7: SC/APC Fiber Optical adapter for the FTAS-AR's fiber jumper pigtail.

3. Remote the LC/APC port cover located on the bottom of the remote unit. Connect the LC/APC end of the jumper to the LC/APC port. Depending on if design configuration utilizes primary and redundant fiber feeds, connect the primary fiber jumper to the left LC/APC port. If supporting a secondary feed, connect the secondary fiber jumper to the right LC/APC port.

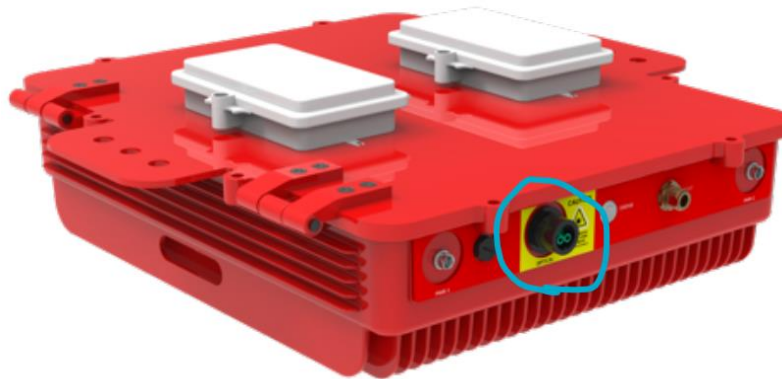


Figure 8: Location of the primary and redundant SC/APC fiber ports.

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Connecting Power Wires to the Remote Unit

The FTAS 2.0 Remote Unit requires a [xxx]Volt DC power source, with up to (2) feeds supplying power to the remote (primary and redundant. This setup assumes that power supply utilizes hybrid composite cable.

1. Identify the power wires within the hybrid cable and connect each wire to a terminal fork within the fiber optic patch panel.
2. Connect each terminal fork of the wire to the terminal block within the fiber optic patch panel. Connect the positive wire of the hybrid cable to the terminal screw with the pre-installed positive jumper wire colored red. Repeat the same for the negative wire of the hybrid cable with the negative jumper wire colored black.

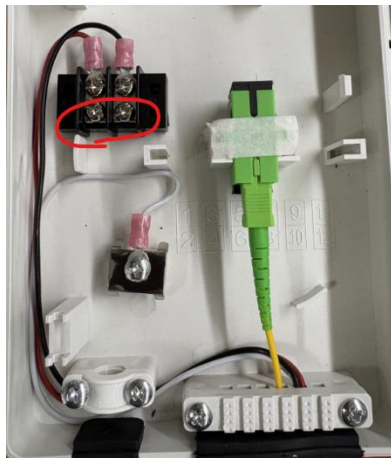


Figure 9: Terminal block in the patch panel

3. Connect the fiber optic patch panel's power jumper cable to the remote's power port on the bottom of the remote. For remotes with redundancy support, connect the primary power jumper to the left power port and the secondary power port to the right power port.

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Figure 10: Location of the primary power port on bottom of the FTAS-AR.

4. Once power is turned on to the hybrid cable, successful start of the remote can be visually verified by an active light on the remote's LED.

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4. Accessing the GUI

Each FTAS 2.0 Remote is controlled by an ethernet GUI, called Network Management System (NMS), that monitors alarms and statistics, and controls remote settings such as power attenuation, laser settings, and alarms. The FTAS' NMS is accessed via an internet browser from a computer connected to the same network as the FTAS remote.

NOTE: The remote's fiber optical connection must be connected to a network switch with a 1310/1550nm SFP. The network switch MUST be connected to a router.

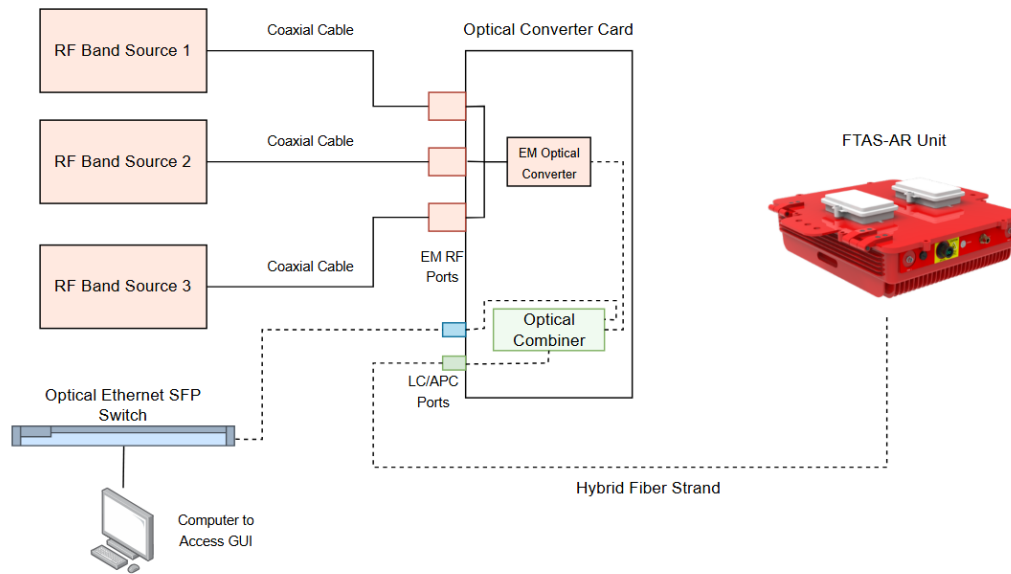


Figure 11: Diagram of FTAS-AR connection with the optical converter card. Note that the computer to access the GUI is connected to the Ethernet Switch on the bottom left.

1. Verify active data transfer of the Ethernet fiber on the network switch. This typically takes the form of an LED status light on the switch.
2. Connect a computer with an Internet browser (Chrome, Edge, Firefox, etc.) to the same network as the remote.
3. Open an Internet browser on the connected computer. Verify the IP address of the remote using an IP scanner with either the associated remote MAC address or name, if set by the factory.

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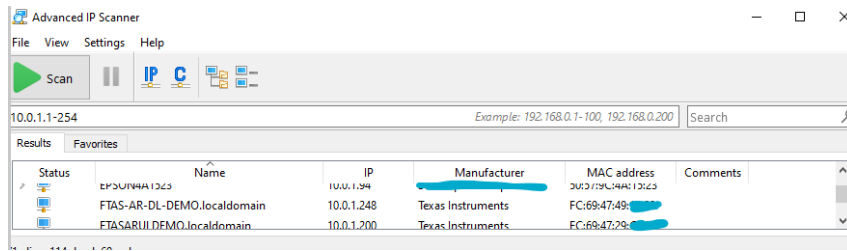


Figure 12: IP Scanner showing sample IP and MAC addresses of FTAS-AR.

- Copy the associated IP address and paste the address on the Internet browser search bar. Add ":8080" at the end of the address (e.g. xxx.xx.x.x:**8080**) and search that IP address, which will bring up the GUI login page.

CELL GAIN

Username

Password

Sign in

Figure 13: Login Page for the FTAS-AR GUI.

- Log into the GUI utilizing the standard credentials below. Username and password may be different depending on organization/administration policies.

Username
admin

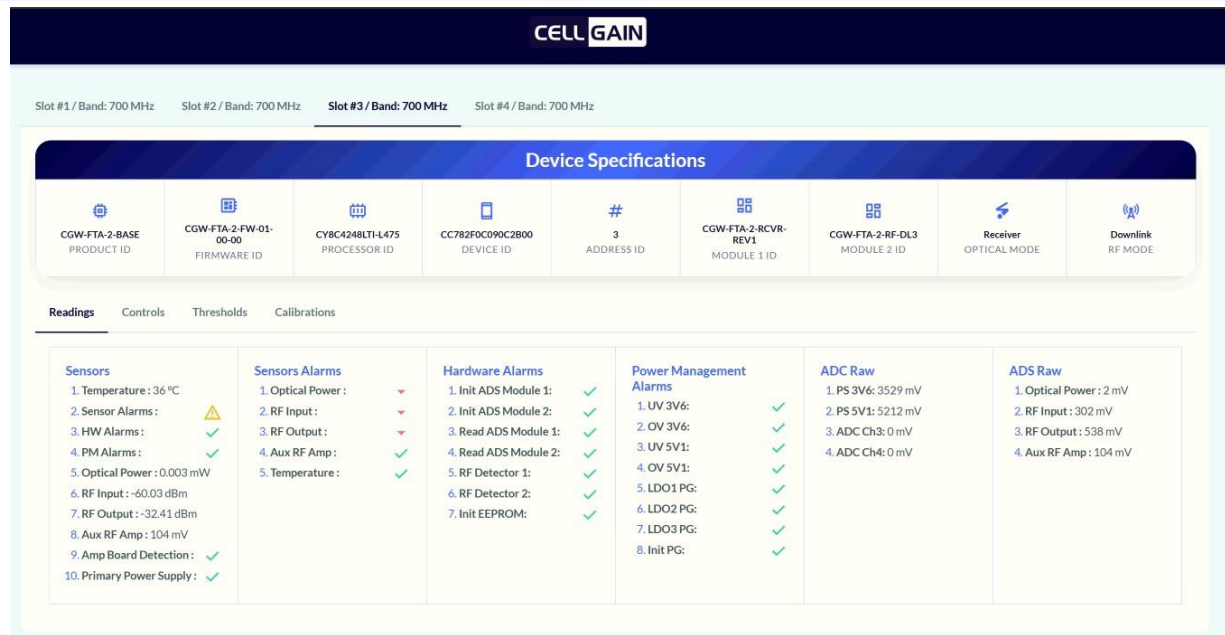
Password
admin

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5 FTAS Remote GUI Settings

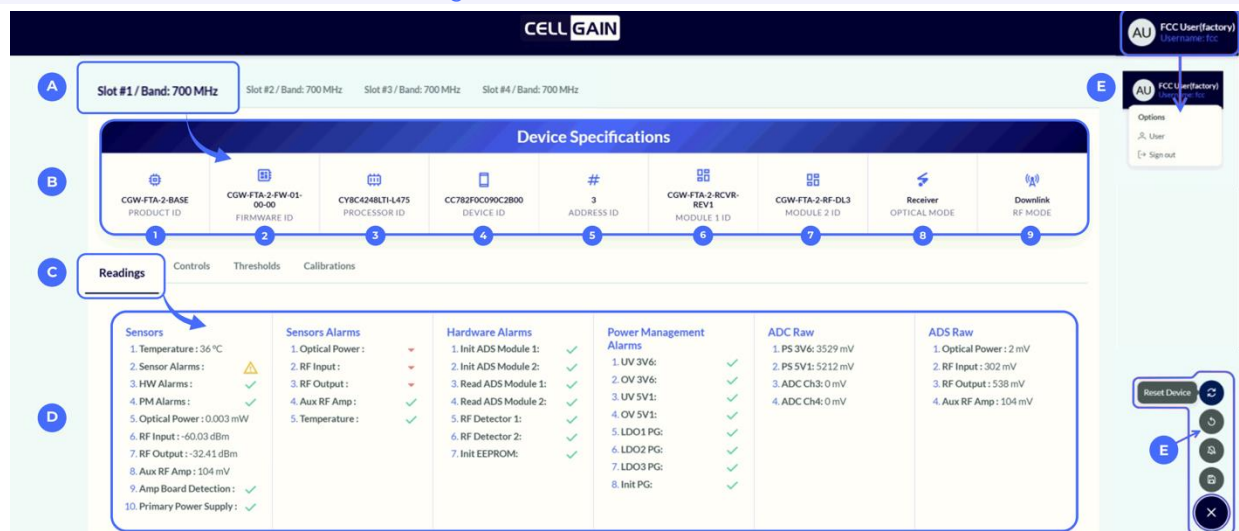
Once logged in, you will find the web interface where the first thing you will see is a general diagram of the entire system as seen in figure no.14, then an explanation of the sections and subsections is detailed in list no.2.

Fig. no. 14: General View



In figure no.15 below, the sections and subsections are identified and indicated by letters, the explanation of these is below.

Fig. no. 15: Detailed General View



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A. Board Section:

In this section you will find the information of the connected sockets, the order in which they are connected Slot #1 = Address #1 and follow up by the information of the frequency band in which this slot works. When you click on the desired band, all the information about that band will be displayed below, as shown in the example in figure number 8 for Baseboard number 1 information.

In this server example we work on a FTA system mounted with four boards working on the same 700MHz band, but a system can also be set up for different bands. The available bands are VHF, UHF, 700 and 850 MHz, and CUSTOM BAND which can be set to a desired value.

Fig. no. 16: A section, list of Connected BASES

Slot #1 / Band: 700 MHz	Slot #2 / Band: 700 MHz	Slot #3 / Band: 700 MHz	Slot #4 / Band: 700 MHz
-------------------------	-------------------------	-------------------------	-------------------------

B. Device Specifications Section:

In this section you will find all specifications about the device previously selected in section A. The numbered sections in figure 17 are listed below in table 2. All the information shown in this capture comes from BASE number 1, address ID number 1.

Fig. no. 17: B section, Device Specifications

Device Specifications								
 CGW-FTA-2-BASE PRODUCT ID	 CGW-FTA-2-FW-01-00-00 FIRMWARE ID	 CY9C4248LT1-4475 PROCESSOR ID	 CC782FDC100E2800 DEVICE ID	 # 1 ADDRESS ID	 CGW-FTA-2-RCVR-REV1 MODULE 1 ID	 CGW-FTA-2-RF-DL3 MODULE 2 ID	 Receive OPTICAL MODE	 Downlink RF MODE
1	2	3	4	5	6	7	8	9

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able. no. 2: B SECTION - Device specification

No.	Label	Description	Available options from System
1	PRODUCT ID	Baseboard Product Descriptor	CGW-FTA-2-BASE-REV2
2	FIRMWARE ID	Label of the firmware version loaded on the processor	CGW-FTA-2-FW-01-00-00 Firmware versions are upgraded as needed for troubleshooting or performance improvements.
3	PROCESSOR ID	Processor version used in the BASE	Model of the psoc microcontroller.
4	DEVICE ID	Unique processor identification number	Unique code used as an identifying serial number for each base
5	ADDRESS ID	Base address for communication with the CPU, this base number connected to the cpu is set by default according to the position that the base is connected to the cpu.	In this case the address ID is 1 because is connected as shown in the image no.5
6	MODULE 1 ID	Description of the module connected to the BASE slot number 1	PCB part label of Optical Module, the system admits RECEIVER (RCVR) and TRANSMITTER (TX) RF modes.
7	MODULE 2 ID	Description of the module connected to the BASE slot number 2	PCB part label of RF Amplifier, the system admits DL1, DL2, DL3, DL4 for the Downlink modules, and UL1, UL2, UL3 for Uplink modules.
8	OPTICAL MODE	Optical receiver operating mode	We are working in Optical RECEIVER mode, the system also supports TRANSMITTER and TRANSCEIVER modes.
9	RF MODE	Working mode with RF signal	Equipment operating mode, Downlink or Uplink, depending on the connected boards.

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Menu Section:

This section is the action controller of the device, here you can select between the panel of readings and alarms, the control panel of the modules connected to the device, the panel to set thresholds values and the panel of calibrations, to see and edit factory params of calibrations.

Fig. no. 18: Section C, selector of user Actions



Inside this selector are detailed the actions to be performed, in this case the **readings** panel is selected, as you can see in the figure number 19 shows all the readings of the system, in the next section, section D you will find an explanation of the subsections inside of Menu Section C.

Fig. no. 19: Capture of Section D, coming from Section C = Readings

Readings		Controls	Thresholds	Calibrations		
Sensors 1. Temperature : 35 °C 2. Sensor Alarms :  3. HW Alarms :  4. PM Alarms :  5. Optical Power : 0.336 mW 6. RF Input : -21.13 dBm 7. RF Output : -32.41 dBm 8. Aux RF Amp : 104 mV 9. Amp Board Detection :  10. Primary Power Supply : 		Sensors Alarms 1. Optical Power :  2. RF Input :  3. RF Output :  4. Aux RF Amp :  5. Temperature : 	Hardware Alarms 1. Init ADS Module 1:  2. Init ADS Module 2:  3. Read ADS Module 1:  4. Read ADS Module 2:  5. RF Detector 1:  6. RF Detector 2:  7. Init EEPROM: 	Power Management Alarms 1. UV 3V6:  2. OV 3V6:  3. UV 5V1:  4. OV 5V1:  5. LDO1 PG:  6. LDO2 PG:  7. LDO3 PG:  8. Init PG: 	ADC Raw 1. PS 3V6: 3529 mV 2. PS 5V1: 5212 mV 3. ADC Ch3: 0 mV 4. ADC Ch4: 0 mV	ADS Raw 1. Optical Power : 208 mV 2. RF Input : 1064 mV 3. RF Output : 538 mV 4. Aux RF Amp : 104 mV

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Subsection of Menu Panel:

Readings

In table no.3 below, you will find the view of the readings menu panel, where all the points of each subsection are detailed.

Table. no. 3: Readings panel subsection details			
No.	Label	Description	Status
Sensors			
1	Temperature	Temperature measured of BASE processor	Typically around °C, an alarm is raised if over or under temperature of the system is detected.
2	Sensor Alarms	Status of Sensor Alarms	 An alarms is detected  System ok, no alarms detected
3	HW Alarms	Hardware Alarms	 An alarms is detected  System ok, no alarms detected
4	PM Alarms	Alarms of Power Management	 An alarms is detected  System ok, no alarms detected
5	Optical Power	Optical Power measure	RF signal power input to the receiver, measurement on [mW]
6	RF Input	RF Input Power measure	Power of the incoming RF signal to the Optical Receiver module in [dBm]

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7	RF Output	RF Output Power measure	Output power from the Optical Receiver in [dBm]
8	Aux RF Amp	Power measurement of the extra RF Amplifier used in the receiver	Value measured in [mV]
9	Amp Board Detection	Detection of amplifier module connection	⚠️ Amplifier board failed or not connected ✅ The amplifier board is connected and working
10	Primary Power Supply	Main power supply indicator	⚠️ When this signal is on, it indicates that the board is drawing its power from the secondary power supply. ✅ If this signal is OK, the board is drawing power from its main hardware addressed power supply. <i>The hardware connection is given so that boards 1 and 2 take their main power from source A and boards 3 and 4 take their main power from source B.</i>

Sensors Alarms

1	Optical Power	Optical Power sensor alarm	▲ Signal activated when Optical power measurement exceeds the maximum limit threshold ▼ Signal activated when the optical power measurement falls below the lower limiting threshold ✅ Signal measured on range
2	RF Input	RF Signal input alarm	▲ Signal activated when the power of RF Input Signal exceeds the maximum limit threshold ▼ Signal activated when the power of RF Input Signal falls below the lower limiting threshold ✅ Signal measured on range
3	RF Output	RF Signal Output alarm	▲ Signal activated when the power of RF Output Signal exceeds the maximum limit threshold ▼ Signal activated when the power of RF Output Signal falls below the lower limiting threshold

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			✓	Signal measured on range
4	Aux RF Amp:	Auxiliar RF amplifier connected alarm	⚠	Amplifier board failed or not connected
			✓	The amplifier board is connected and working
5	Temperature	BASE Temperature alarm	▲	Signal activated when the power of RF Input Signal exceeds the maximum limit threshold
			▼	Signal activated when the power of RF Input Signal falls below the lower limiting threshold
			✓	Signal measured on range
Hardware Alarms				
1	Init ADS Module 1	I2C Analog/Digital converter 1 Initialize alarm	⚠	Init of the device failed
			✓	Initialization of device successfully, and working
2	Init ADS Module 2	I2C Analog/Digital converter 2 Initialize alarm	⚠	Init of the device failed
			✓	Initialization of device successfully, and working
3	Read ADS Module 1	I2C Analog/Digital converter 1 Read alarm	⚠	Value of RF Detector 1 or Optical Power reads failed
			✓	ADS converter 1 reading OK
4	Read ADS Module 2	I2C Analog/Digital converter 2 Read alarm	⚠	Value of RF Detector 2 or RF amplifier reads failed
			✓	ADS converter 1 reading OK
5	RF Detector 1	RF Detector of Receiver Alarm	▲	Signal activated when the RF signal Detected on receiver module exceeds the maximum limit threshold
			▼	Signal activated when the RF signal Detected on receiver module falls below the lower limiting threshold
			✓	RF Signal detected it's on range

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6	RF Detector 2	RF Detector of Amplifier Alarm		Signal activated when the RF signal Detected on Amplifier module exceeds the maximum limit threshold
				Signal activated when the RF signal Detected on Amplifier module falls below the lower limiting threshold
				RF Signal detected it's on range
7	Init EEPROM			Default values init fails
				Default values initialized form EEPROM
Power Management Alarms				
1	UV 3V6	3.6V Undervoltage Alarm		3.6V Supply voltage has dropped below the lower threshold.
				3.6V Power Supply working OK
2	OV 3V6	3.6V Overvoltage Alarm		3.6V Supply voltage exceeded the maximum threshold limit.
				3.6V Power Supply working OK
3	UV 5V1	5.1V Undervoltage Alarm		5.1V Supply voltage has dropped below the lower threshold.
				5.1V Power Supply working OK
4	OV 5V1	5.1V Overvoltage Alarm		5.1V Supply voltage exceeded the maximum threshold limit
				5.1V Power Supply working OK
5	LDO1 PG	Power Good signal of LDO no.1		Power Good pin not detected, error occurs with device
				Power Good detected, device working properly
6	LDO2 PG	Power Good signal of LDO no.2		Power Good pin not detected, error occurs with device
				Power Good detected, device working properly
7	LDO3 PG	Power Good signal of LDO no.3		Power Good pin not detected, error occurs with device

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			✓	Power Good detected, device working properly
8	Init PG	Hardware initialization general Alarm	⚠	Default values init fails
			✓	Default values initialized form EEPROM

ADC RAW

1	PS 3V6	Voltage measure of 3.6[V] Power Supply	Measurement obtained directly in [mV]
2	PS 5V1	Voltage measure of 5.1[V] Power Supply	Measurement obtained directly in [mV]
3	ADC Ch3	Channel not used	Channel not used
4	ADC Ch4	Channel not used	Channel not used

ADS RAW

1	Optical Power	Optical Power raw measure	Direct measurement of optical power in [mV]
2	RF Input	Raw value of Power RF Input signal	Direct measurement of input signal in [mV]
3	RF Output	Raw value of Power RF Output signal	Direct measurement of output signal in [mV]
4	Aux RF Amp	Power Auxiliary measurement of the Amplifier board	Direct measurement of RF amplifier in [mV]

Controls

This section controls the interaction of the attenuators of the Optical Receiver board and the Amplifier board, as well as their respective enabling and disable switches, figure no.20.

Fig. no. 20: Capture of Controls Panel subsection

Readings
Controls
Thresholds
Calibrations

Optical Receiver

RF Switch
Attenuator

☐

-
31.75dB
+

RF Amplifier

Enable
Attenuator

☒

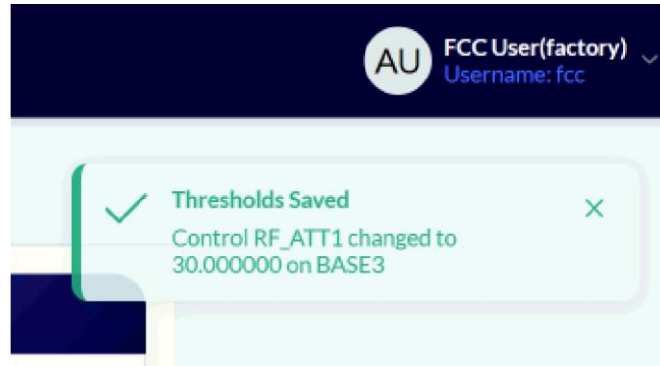
-
31.75 dB
+

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To use this section and modify the RF signal power at the output with attenuation or amplification you must first enable the switch corresponding to each board. Then set the attenuation value that you want to attenuate the signal, being **0 [dB] the minimum allowed** and **31.75 [dB] the maximum attenuation allowed** by the device, using only positive numbers. Once the switch is enabled and the value is entered, the attenuator is written by pressing enter. A confirmation message like the one shown in image no.21 will be displayed in the upper right corner of the screen in the web interface.

Fig. no. 21: Confirmation message



You can also modify the attenuation of one or the other attenuator by pressing the + and - buttons on both sides of the box showing the attenuation level being applied, there, you will see attenuation values in steps of 0.25 [dB] up to its maximum allowed at 31.75 [dB].

Warning: If you try to use an attenuation value higher than the maximum it will be set to the maximum limit already mentioned (31.75dB). Same applies for attempts to try to write negative values.

Thresholds

In this section you can modify the comparison variables for the system alarms, i.e. the threshold limits. Enter the desired value and click on "save" as shown in image no.22 below.

Fig. no. 22: Capture of Thresholds Panel subsection

Readings	Controls	Thresholds	Calibrations
Temperature Thresholds			
High	55 °C		
Low	-20 °C		
Optical Power Thresholds			
High	2.50 mW		
Low	0.60 mW		
RF Input Thresholds			
High	7.00 dBm		
Low	-53.00 dBm		
RF Output Thresholds			
High	30.00 dBm		
Low	-20.00 dBm		
Aux RF Amp Thresholds			
High	0.00 dBm		
Low	0.00 dBm		

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Warning: Please be careful with this section, this section is for factory use only and values should not be modified without proper knowledge. Improper use may result in damage to the device or connected devices.

Calibrations

In this section, image no.23, you will find sections to modify and save specific device calibration values, as well as the operating frequency band and Optical wavelength.

Fig. no. 23: Capture of Calibrations Panel subsection

The screenshot shows the 'Calibrations' panel with four main sections:

- Band:** Frequency (700 MHz), Min Freq (768.00 MHz), Max Freq (775.00 MHz). A green 'Save' button is at the bottom.
- RF Detector 1:** Slope (19.64 mV/dB), Intercept (-75.40 dBm). A green 'Save' button is at the bottom.
- RF Detector 2:** Slope (28.32 mV/dB), Intercept (-51.40 dBm). A green 'Save' button is at the bottom.
- Optical Power Calibration:** Wavelength (1550 nm), Wavelength Min (1290 nm), Wavelength Max (1680 nm), Slope (1600 uW/V), Intercept (0 dBm). A green 'Save' button is at the bottom.

Warning: Please be careful with this section, this section is for factory use only and values should not be modified without proper knowledge. Improper use may result in damage to the device or connected devices.

User option Section:

In this section located in the upper right corner of the interface you will find the tab options to logout your user, as shown in image 24.

Fig. no. 24: Capture of User options panel



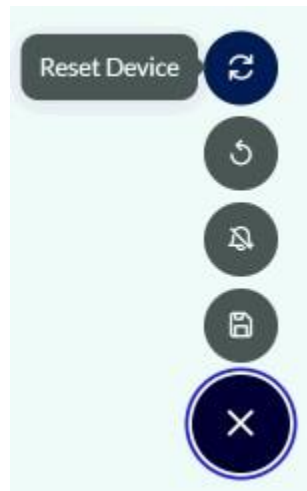
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In the lower right corner, you will find this menu where you can perform the following actions on the system:

- Device Reset
- Restore Configuration
- Clear Alarms
- Save Configurations

Clicking on the blue button opens the options menu as shown in image no.25 with the different actions available to perform on slot selected before, such as reset the base-device, reset factory settings, clear the base alarms in case you need to reset them for some reason, and save the current configuration in the non-volatile system memory on microcontroller of base.

Fig. no. 25: Capture of BASE extra options panel.



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FCC Compliance and Warnings

FCC Classification:

This device is classified as a Class B signal booster and is intended for consumer use with proper provider consent.

WARNING:

This is a consumer device. Before use, you must register this device with your wireless provider and have your provider's consent.

Most wireless providers consent to the use of signal boosters. Some providers may not consent to the use of this device on their If you are unsure, contact your provider.

You must operate this device with approved antennas and cables as specified by the manufacturer.

Unauthorized antennas, cables, and/or coupling devices are prohibited and may result in violation of FCC rules.

Caution:

- Do not use unauthorized antennas, cables, or coupling devices.
- Ensure all components conform with FCC ERP/EIRP limits.
- This equipment is intended for indoor use only.
- Use of unauthorized components or incorrect configuration may result in violation of FCC rules.
- RF Cabling and Antenna Selection Guidelines:
- Use directional or omnidirectional antennas suitable for the frequency bands used (VHF/UHF/700/800 MHz).
- Ensure coaxial cables are 50 Ohm, low-loss, with SMA or N-type connectors as specified.
- Verify input/output levels do not exceed system specs (max RF input: -10 dBm).
- Adjust gain via the GUI as per deployment requirements. Always validate field signal strength and compliance.

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Contact Information:

CellGain Wireless, LLC.

68 White Street, STE 265

Red Bank, New Jersey, 07701

Email: support@cellgain.com

For additional information, contact the FCC at (<https://signalboosters.fcc.gov/signal-boosters/>)
For Class B devices.