CEL-FI™
QUATRA RED
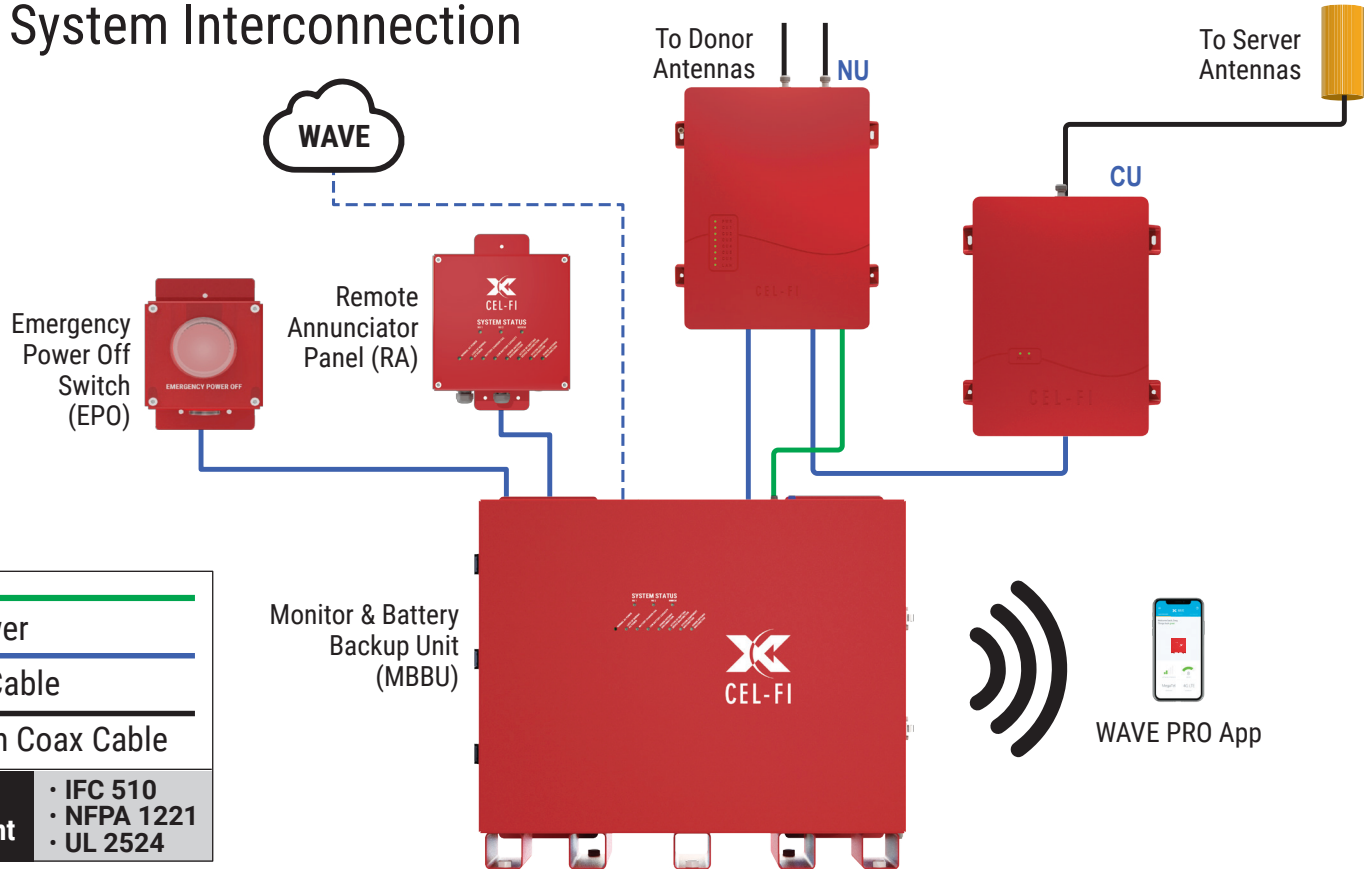
FirstNet / LMR
ERRCS Solution

SAFER BUILDINGS COALITION Member

Cel-Fi QUATRA RED is Cel-Fi's advanced in-building technology built into an ERRCS Public Safety Solution. It is designed to provide consistent coverage in the most challenging building structures and to guarantee full compliance with the most current fire codes. Reliable communication is essential in critical circumstances, it can be a matter of life or death.

System Interconnection

To Donor Antennas — **NU**

To Server Antennas

CU

WAVE

Remote Annunciator Panel (RA)

Emergency Power Off Switch (EPO)

Monitor & Battery Backup Unit (MBBU)

WAVE PRO App

DC Power	
Cat5e Cable	
1/2 inch Coax Cable	

Code Compliant
- IFC 510
- NFPA 1221
- UL 2524

Network Unit (NU):
Supports 700/800 LMR + First-Net bands 14, 12, 4 and 2. Up to six CUs can be attached to a single NU. Dedicated donor ports for LMR and LTE. Class A and Class B versions available.

CLASS A: F42-67ENU
CLASS B: F42-67ENUB

Coverage Unit (CU):
1 watt output power for each LMR band. Class A device with 56 channels and Class B unit with 28 bandwitdh variable filters for both 700 & 800 bands. PoE ready. N type port to distribute RF signals.

CLASS A: F41-8XCU
CLASS B: F41-8XCUB

Emergency Power Off (EPO):
Shuts-off the radio system in case risk of explosion or interference with the network.

F42-10E-100

Monitoring & Battery Backup Unit (MBBU):
Supports 12hrs or 24hrs battery back up configurations. Front panel alarm, with LTE modem built-in. Two sizes for small and large configurations.

F42-10R-100

F42-10S-100
F42-10L-100
F42-10X-100

Remote Annunciator (RA):
Supports 12hrs or 24hrs battery backup configurations. Front panel alarm, with LTE modem built-in. Three sizes for small, large and extra large configurations.

CEL-FI™
QUATRA RED
Coverage Unit
& Network Unit

ERRCS Solution

Nextivity's Cel-Fi QUATRA RED is designed to provide consistent coverage in the most challenging building structures and to guarantee full compliance with the most current fire codes. Cel-Fi QUATRA RED inherits the technology and expertise from our awarded cellular products and brings them to the public safety arena to solve some of the most significant issues in public safety deployments. PoE based architecture and Cel-Fi patented algorithms for automatic setting of uplink and downlink gain, reduces time and cost of installation significantly, making Cel-Fi QUATRA RED the most compelling public safety solution in the market.

Coverage Unit (CU)

Network Unit (NU)

Key Features

- **Class A device with 56 channel pairs**
- **Automatic setting of UL and DL gain during the commissioning phase**
- **A complete end-to-end public safety ERRCS solution, for 700 & 800 MHz LMR, and FirstNet**
- **Full Compliance with IFC 510, NFPA 1221, and UL 2524**
- **NEMA 4 Rated**
- **Built-In Remote Monitoring**

Use **Cel-Fi WAVE PRO** mobile app for seamless integration and configuration of the Cel-Fi QUATRA RED product line.

Download on the App Store · ANDROID APP ON Google play

System Features	Antenna pointing algorithm to optimize FirstNet donor signal
	Near real-time uplink/downlink automatic gain control (AGC)
	PoE architecture allows 325 ft (100 m) distance range between the NU and the CUs
	Up to six (6) CUs can be attached to a single NU
	Remote monitoring through Cel-Fi WAVE PRO app and Wave Portal
	Real-time, slot-to-slot gain control
Public Safety Network & Network Protection Features	Support for all FirstNet LTE bands (2, 4, 12, 14)
	Support for 700 MHz and 800 MHz (P25, Analog)
	Up to 56 channel pairs can be distributed across 700/800 MHz bands
	NFPA 1221, IFC 210, NEMA 4, UL 2524 Certified
	Automatic UL and DL gain setting for Public Safety Channels
	Uplink Muting Mode automatically shuts down uplink transmissions when no active user equipment is detected
	Independent donor antenna ports for FirstNet and LMR
Benefits	One solution provides a complete code-compliant ERRCS system
	Power Over Ethernet (PoE) architecture makes overall installation simple
	Modular architecture allows scaling the system from 1W to 6W
	Certifications reduce time-to-market and downstream costs
	Remote monitoring assures that the system is performing per design
	Minimal noise in network through optimal gain and power settings ensure best overall radio performance
	Assured best audio quality

Power

	CONSUMPTION (WATTS) @ 48 VDC					
BAND CONFIGURATION	1X CU	2X CU	3X CU	4X CU	5X CU	6X CU
FirstNet + 700/800 MHz LMR	102	161	220	279	338	397

Environmental

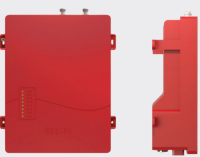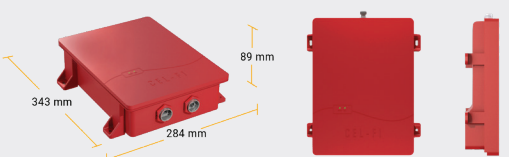|	
Operating Temperature	-20 to 50°C / -4 to 122°F
Product Ingress Protection (IP) Rating	NEMA 4
Relative Humidity	0% to 95%, noncondensing
Maximum Surface Temperature (any point)	44°C @ 30°C ambient / 111°F @ 86°F

Installation

Mounting hardware included
NU & CU can be wall mounted
1 NU supports 1 to 6 CUs
iBwave VEX files available

Radio Performance

BAND	LTE				LMR	
	2	4	12	14	700	800
Frequency Range, Downlink (MHz)	1930−1990	2110−2155	728−746	758−768	768−775	851−861
Frequency Range, Uplink (MHz)	1850−1910	1710−1755	699−716	788−798	798−805	806−816
Technology	LTE−20 MHz	LTE−20 MHz	LTE−10 MHz	LTE−10 MHz	P25/Analog	P25/Analog
DL (Downlink) output Power (dBm)	24				30	
UL (Uplink) output Power (dBm)	23		21	23	26	
Minimum Input level (DL/UL) dBm	-100 / -90					
Maximum Input level (DL/UL) dBm	-20 / 0			-20 / -35	-20 / -27	
System maximum gain (dB)	100					
Noise Figure at max gain (dB)	5					
Return loss (dB)	-8					
System Group Delay @ 12.5 kHz (usec)	35					

Network & Coverage Unit Physical Specifications

WIDTH	HEIGHT	DEPTH	WEIGHT
314 mm	371 mm	109 mm	7 kg
284 mm	343 mm	89 mm	5.5 kg

Network Unit (NU)
(front & bottom)   (front view)   (side view)

Coverage Unit (CU)
(front & bottom)   (front view)   (side view)

Connections (NU)

2x Donor antenna ports — Type-N female connectors

6x CU RJ45 Proprietary Gigabit link, 100 m / 325 ft range from NU to CU

1x RJ45 LAN management output port (10/100 Fast Ethernet)

1x SFP+ Optical port, 5 Gbps, up to 2000 m / 6500 ft range from NU1 to NU2

Connections (CU)

1x Server antenna port — Type-N female connectors

2x RJ45 Proprietary Gigabit link, 100 m / 300 ft range from NU to CU

Compliance

FCC Part 15, 22, 24, 27, 20, 90	UL 2524	IFC 510	NFPA 1221	NEMA 4

System Management

Cel-Fi WAVE PRO mobile app

Antenna aiming (Cellular only)

Cel-FI WAVE Portal:
- Status (List and Map)   • Diagnostics   • Settings   • Alarms & Notifications
- Commissioning   • Software Updates   • Reporting

Patents & Design

Cel-Fi QUATRA products are covered by multiple Nextivity, Inc., patents and pending patents.

Designed by Nextivity, Inc. in San Diego, California, USA.

Ordering Information

MODEL NUMBERS	PRODUCT DESCRIPTION
F42-67ENU	Cel-Fi QUATRA RED NU, FirstNet + 700/800 MHz LMR
F41-8XCU	Cel-Fi QUATRA RED CU, FirstNet + 700/800 MHz LMR

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CEL-FI™
QUATRA RED

Monitor & Battery Backup Unit

ERRCS Solution

The Monitor and Battery Backup Unit is the central point of the Cel-Fi QUATRA RED system. It provides constant direct current, alarming, monitoring and battery charging capabilities. Integrates a wireless LTE modem and a wired Ethernet port for remote access to all the components via the Cel-Fi WAVE portal or the WAVE PRO app. Is NEMA 4 rated and UL2524 compliant. Two versions available to optimize power requirements and installation cost.

Monitor & Battery Backup Unit (MBBU)

Key Features

- **Provides direct constant current to all the active components in the system including the Remote Annunciator Panel (RA) and the Emergency Power-off Switch (EPO) via PoE**
- **Supports automatic supervisor signals for malfunction of the ERRCS**
- **LTE modem built-in and integrated LAN Port for remote monitoring of the entire system**
- **UL 2524 and FCC part 15 compliant**
- **NEMA-4 enclosure**

Use **Cel-Fi WAVE PRO** mobile app for seamless integration and configuration of the Cel-Fi QUATRA RED product line.

Download on the App Store · Google play

Physical Specifications

MONITOR & BACKUP UNITS	SMALL	LARGE	EXTRA LARGE
Part Number	F42-10S-100	F42-10L-100	F42-10X-100
Enclosure Size (mm)	230 × 710 × 355	178 × 690 × 200	270 x 522 x 245
Weight without batteries	25 kg	30 kg	40 kg

Power

Input voltage	110 VAC
Output voltage	54 VDC

Environmental

Operating Temperature	0°C – 50°C
Operating Humidity	95%

Connections

LAN Port	RJ45
Port Capability	10 Mbps
PoE Port Power	10W
Antenna Port	SMA

(front view)   *(side view)*   *(top view)*

Supported Alarms

- Normal AC power
- Battery Charger Fail
- Donor Antenna Disconnection
- System Component Malfunction
- Loss of Normal AC power
- Low Battery Capacity @ 30% of Capacity
- Active RF Emitting Device Malfunction
- Donor Antenna Malfunction

Battery Backup Capacity

#CU	LMR Single Band	LMR Dual Band	LMR + LTE	LMR Single Band	LMR Dual Band	LMR + LTE
1	40Ah	40Ah	40Ah	50Ah	45Ah	65Ah
2	40Ah	45Ah	45Ah	65Ah	80Ah	100Ah
3	45Ah	50Ah	65Ah	90Ah	100Ah	110Ah
4	65Ah	65Ah	80Ah	110Ah	120Ah	150Ah
5	65Ah	80Ah	100Ah	150Ah	150Ah	200Ah
6	80Ah	90Ah	100Ah	200Ah	200Ah	250Ah
	12 hrs Backup			24 hrs Backup		

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CEL-FI™
QUATRA RED

Remote Annunciator Panel

ERRCS Solution

MODEL NUMBER:
F42-10R-100

The Cel-Fi QUATRA RED Remote Annunciator Panel provides automatic supervisory signals for malfunctions of the ERRCS solution. Rated NEMA 4, it complies with Chapter 10 of NFPA 72 and section 9.6.13 of NFPA 1221. The PoE architecture allows for a quick installation and alarm configuration. The unit includes a FORM-C cable compatible with any fire alarm control panel (open or short circuits)

Remote Annunciator Panel (RA)

Key Features

- **Supports automatic supervisory signals for malfunctions of the ERRCS**
- **Complies with NFPA 72 and NFPA 1221**
- **Provides real-time system status**
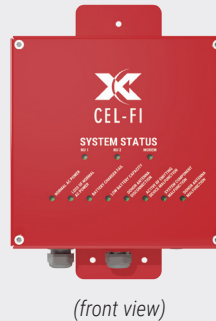- **NEMA-4 enclosure**
- **Small form factor**

Use Cel-Fi WAVE PRO mobile app for seamless integration and configuration of the Cel-Fi QUATRA RED product line.

Download on the **App Store**
ANDROID APP ON **Google play**

Benefits

Intuitive interconnection with the fire alarm control panel

Doesn't requires additional batteries to operate

Simple alarm set up using the WAVE PRO app

Network Unit Physical Specifications

	WIDTH		LENGTH		HEIGHT	
Dimensions	115 mm	4.5 in	230 mm	9 in	230 mm	9 in
Power	PoE					
Connectivity	RJ45					

(front view)

(bottom view)

Certifications

UL2524	FCC part 15

Supported Alarms

- Normal AC power
- Battery Charger Fail
- Donor antenna disconnection
- System component malfunction

- Loss of normal AC power
- Low Battery Capacity @ 30% of capacity
- Active RF emitting device malfunction
- Donor antenna malfunction

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CEL-FI
QUATRA RED

Emergency Power-Off Switch

ERRCS Solution

Cel-Fi's QUATRA RED Emergency Power Off Switch (EPO) can instantaneously shut down the ERRCS solution from a single point to eliminate the risk of combustion caused by electricity or static. Designed to prevent inadvertent operation and can be installed in any location designated by the authority having jurisdiction.

Emergency Power-Off Switch (EPO)

Key Features

- **Aesthetically pleasing design**
- **Easy to install using CAT5e cable**
- **Intuitive Operation**

Use Cel-Fi WAVE PRO mobile app for seamless integration and configuration of the Cel-Fi QUATRA RED product line.

Download on the **App Store**   ANDROID APP ON **Google play**

Network Unit Physical Specifications

HEIGHT	WIDTH	DEPTH	WEIGHT
100 mm	94 mm	140 mm	.25 kg

150 mm · 140 mm · 94 mm · 100 mm

(front view)   MASTER   *(bottom view)*   *(side view)*

Connections

Switch Type	NC
Output Connector Type	RJ45