

CEL-FI[™] QUATRA RED

LMR/FirstNet

ERCES Solution

DATASHEET

MODEL NUMBER

NU: F42-67ENU

CU: F41-8XCU

MU: F40-0E

The Cel-Fi QUATRA RED ERCES public safety solution solves for the toughest emergency communication challenges and delivers consistent coverage in any building. Available in Class A or Class B variations, QUATRA RED is built upon Power-over-Ethernet (PoE) architecture and includes a Network Unit (NU), Coverage Unit (CU), and Management Unit (MU). The system is scalable to fit buildings of all sizes and compatible with additional equipment such as the Cel-Fi QUATRA RED Battery Backup Unit and Fiber Range Extenders, the Cel-Fi RED Remote Annunciator, Emergency Power-Off Switch, and Active Server Antennas, as well as third-party public safety options.



CEL-FI QUATRA Network Unit (NU)



CEL-FI QUATRA Coverage Unit (CU)



CEL-FI QUATRA Management Unit (MU)

Cel-Fi QUATRA RED is the only ERCES solution to concurrently provide 700/800 MHz Land Mobile Radio (LMR) coverage and true carrier-grade support for all FirstNet bands. In addition to delivering industry-leading talk-in and talk-out performance with a no noise guarantee, QUATRA RED is listed to UL 2524 and complies with IFC 510 and NFPA 1221. The system also works alongside Cel-Fi WAVE PRO and the Cel-Fi WAVE Portal for seamless installation and robust remote monitoring and management capabilities.

- **ERCES Public Safety Solution:** for 700/800 MHz LMR & FirstNet
- **Class A Device:** 56 Channels at 12.5 kHz Bandwidth
- **Class B Device:** 28 Channels at 100 kHz or 150 kHz Bandwidth
- **Scalable Architecture:** Coverage up to 320K ft² per Coverage Unit (CU)
- **No Noise Guarantee:** Automatic Calculation and Setting of Isolation as well as Uplink and Downlink Gain
- **Talk-Out & Grid Testing:** Industry-First Uplink and Downlink Tests via Cel-Fi WAVE PRO and COMPASS
- **IntelliBoost Chipset:** Delivers Unparalleled Real-Time Talk-in & Talk-Out Performance
- **End-to-End System Monitoring:** Built-in Remote Monitoring and Management via Cel-Fi WAVE Portal
- **Management Unit:** Controls and Monitors all System Components, including NU and CU as well as Cel-Fi RED Remote Annunciator Panel (RA), Emergency Power-off Switch (EPO), and Active Server Antennas
- **Network Unit:** Head-End of the System; Supports up to 6 CUs via PoE
- **Coverage Unit:** Remote Unit of the System that Rebroadcasts LMR and FirstNet Donor Signals



Key Features

System Features

Real-time automatic gain control (AGC) per time-slot
 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

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)
 NFPA 1221, IFC 210, NEMA 4 certified, listed to UL 2524
 Automatic UL and DL gain setting for Public Safety Channels
 Uplink Muting Mode (Squelch) 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 ERCES system
 Centralized Power Over Ethernet (PoE) architecture reduces equipment cost
 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

BAND CONFIGURATION	CONSUMPTION (WATTS) @ 48 VDC					
	1X CU	2X CU	3X CU	4X CU	5X CU	6X CU
FirstNet + 700/800 MHz LMR	102	161	220	279	338	397
Input voltage	110 VAC					
Output voltage	54 VDC					

Environmental

54 VDC	-4 to 122°F (NU-CU) / 32-122°F (MU)
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	
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) (Class A)	35					
System Group Delay @ 100 kHz / 150 kHz (usec) (Class B)	15 / 13.6					

Physical Specifications

	WIDTH	HEIGHT	DEPTH	WEIGHT
NU	314 mm	371 mm	109 mm	7.0 kg
CU	284 mm	343 mm	89 mm	5.5 kg
MU	270 mm	310 mm	122 mm	4.5 kg

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

Connections (MU)

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

Supported Alarms

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

Certifications

FCC Part	Listed to UL 2524	UL 50E (CU)	
15, 22, 24, 27, 20, 90	IFC 510	NEMA 4	
	NFPA 1221	ISED (Canada)	

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 (Class A)
F41-8XCU	Cel-Fi QUATRA RED CU, FirstNet + 700/800 MHz LMR (Class A)
F42-67ENUB	Cel-Fi QUATRA RED NU, FirstNet + 700/800 MHz LMR (Class B)
F41-8XCUB	Cel-Fi QUATRA RED CU, FirstNet + 700/800 MHz LMR (Class B)

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