

CEL-FI QUATRA 1000 FN

In-Building FirstNet Coverage Solution

MODEL NUMBERS: Q34-2/12/14/66NU, Q34-2/12/14/66CU

CEL-FI QUATRA 1000 FN is a scalable in-building cellular solution that is both cost-efficient and easy-to-deploy, delivering high-quality FirstNet cellular coverage for enterprise environments. It is a hybrid solution that combines the power of active DAS and Smart Booster technologies. It operates in off-air mode or can be integrated with the carrier's small cell equipment and operated as a distributed small cell, creating a Supercell. Features and benefits include:

- Lowest cost per ft²
- Scalable coverage and capacity
- Signal source can be off-air or small cell
- Remote monitoring and management via Nextivity WAVE Portal
- No retransmission agreement required



Model Number & Supported Bands

Model Number (base)	Bands Supported	MIMO Support
Q34-2/12/14/66	2/12/14/66	12, 14, 66

System Features

Enterprise-class, carrier-grade active DAS hybrid

MIMO RF inputs for (a) small cell donor or (b) external off-air donor antenna

Network Unit (NU) (Head End) attaches to Coverage Unit (CU) (Remote Unit) via category cable

A single NU and up to four (4) CUs may be attached (hub and spoke architecture) in a CEL-FI QUATRA system

Multiple CEL-FI QUATRA systems may be deployed to scale with building size

Up to 325 ft (100 m) range from NU to CU

CEL-FI QUATRA Range Extender (QRE) and QUATRA Fiber Range Extender (fQRE) may be used to increase NU-to-CU distance up to 2000 m

Remote Management through Nextivity WAVE cloud platform

Easiest installation in its class

Glanceable LED User Interface (UI)

Mounting hardware included

Mobile Network and Network Protection Features

Systems pre-configured for a single carrier (network operator)

Seamless integration, handover, and handoff with the macro network

Supports multiple channel bandwidths of 10 MHz to 20 MHz per channel

Works with any user equipment (UE) for the configured network (no whitelist/blacklist)

Support for 3GPP Release 10 features

Provider-specific system: CEL-FI QUATRA distributes and boosts service only for the Operator PLMNIDs for which the device is authorized and configured

Secure and ciphered provisioning

System intelligence accurately establishes proper safe uplink power in real time

Uplink Muting Mode automatically shuts down uplink cellular transmissions when no active user equipment is detected

System shuts down upon Operator's network command or failure detection

Wireless Features

Up to 100 dB system gain per band (in Off-Air mode)

Peaceful coexistence with adjacent Wi-Fi (2.4 GHz & 5 GHz), femtocells, and cellular devices

Advanced digital echo-cancellation (>30 dB) and channel select filtering algorithms

Active management of the cellular link between the Base Station and user devices

Automatic Gain Control (AGC) based on fast real-time echo-cancellation

Linear RF front end

Adaptive signal equalization

Uses Nextivity propriety 3rd-generation "ARES" chip

Benefits

Easiest to deploy Active DAS Hybrid
Distribute and boost cellular coverage indoors, eliminates dead zones
3G, 4G and 5G support, Voice and Data, network safe
Coverage footprint provided via Power over Ethernet (PoE); no requirement for additional power source at CU (RU)
System can accept various Donor signal inputs: Small Cell; OTA (off-air) via external antenna

Wireless Benefits

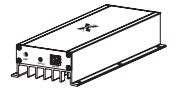
Clear and reliable cellular connections within coverage area
Highest gain (100 dB) provides best coverage footprint
Advanced Echo-Cancellation allows CEL-FI QUATRA to transmit more power without interference or feedback
Subscriber devices require less transmit power for improved battery life
Linearity eliminates IMD desense issues
Dynamic gain control ensures maximum gain—best coverage—at all times in ever changing RF environments, without user intervention
Nextivity purpose-built, high-performance, six core ASIC processor, provides best performance at lowest cost

Mobile Network Benefits

Flexibly deploy in LTE, VoLTE, LTE-Advanced, and WCDMA networks, with multiple cellular bands, simultaneously
Automatically adjusts channel bandwidths from 10 MHz to 20 MHz
Off-load the macro network in Supercell mode, or use to improve macro capacity and building propagation/penetration
UE control is transparent and remains centralized in the network core (no gateways or third-party software)

QUATRA Fiber Range Extender (fQRE)

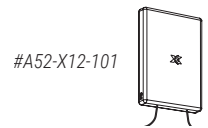
Extends distance between CEL-FI QUATRA NU and CU up to 2 kilometers
Plug-and-play installation
Power over Ethernet (PoE)
Supports CEL-FI QUATRA proprietary protocols
Note: Will not support other (non CEL-FI QUATRA) PoE device



Q40-0XNU / Q40-0XCU

Wideband MIMO Panel Antenna

The Wideband MIMO Panel Antenna may be used as an Off-Air (OTA) donor source
MIMO Directional Panel Antenna
Integrated antenna cables (200 cm)
Mounting hardware included



#A52-X12-101

Power (Network Unit only)

54 VDC @ 2.22 Amp via external supply (51.3 to 56.7 VDC tolerance)
External supply: 100 to 240 VAC, 47–63 Hz
Power consumption less than 120W max
Network Unit provides power to Coverage Units over category cable (PoE)

Environmental (Network Unit only)

Operating temperature: 0° to 40°C
Storage temperature: -25° to 60°C
Convection Cooling
Relative humidity: 0% to 95%, noncondensing
RoHS II 2011/65/EU
IP20

Installation (Network Unit only)

Mounting hardware included
NU may be wall mounted
CUs may be wall or ceiling mounted
One (1) NU supports up to four (4) CUs
iBwave VEX files and template available

Radio Performance (check product version for specific band support)

Band	Downlink	Uplink	Boost
2	1930–1990 MHz	1850–1910 MHz	Up to 20 MHz contiguous boost BW, LTE MIMO
12	729–746 MHz	699–716 MHz	Up to 10 MHz contiguous boost BW, LTE SISO
14	758–768 MHz	788–798 MHz	Up to 10 MHz contiguous boost BW, LTE MIMO
66	2110–2200 MHz	1710–1780 MHz	Up to 20 MHz contiguous boost BW, LTE MIMO

Total boost all-channel bandwidth 75 MHz (2x2 MIMO uses double bandwidth per channel)

DL Maximum NU in-band donor level -40 dBm

DL Maximum NU survival donor level 30 dBmUL

Maximum CU donor level -20 dBm

Physical Specifications

Network Unit	Coverage Unit
250 × 188 × 55 mm	188 × 188 × 50 mm
1.2 kg (40.8 oz.)	0.83 kg (29.2 oz.)

Connections

4 x CU RJ45 Proprietary Gigabit link

100 m max CU cable length Cat5e

200 m max CU cable length with CEL-FI QUATRA Range Extender (Cat5e or Cat6)

PoE IEEE 802.3at

RJ45 LAN management port (10/100 Fast Ethernet)

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

2x MIMO External RF Input (QMA-Female 50 ohm)

System Management (Software)

Nextivity WAVE cloud portal

Nextivity WAVE Remote Management: Status (list and map), Commissioning, Diagnostics, Software Updates, Settings, Reporting, Alarms & Notifications

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. Specifications subject to change without notice.
