

# CEL-FI<sup>™</sup> QUATRA 2000

## 3G / 4G / LTE

In-building Cellular Solution

DATA SHEET

MODEL NUMBERS:  
Q34-4/5/12/13/25NU\_EXA  
Q34-4/5/12/13/25CU\_EXA

Cel-Fi QUATRA 2000 is a scalable in-building cellular solution that is both a cost-efficient and easy-to-deploy solution, delivering high-quality signal in venues up to 200,000 square feet (20,000 square meters). It is a hybrid solution that combines the best of active DAS and Smart Booster technologies. The Cel-Fi QUATRA 2000 operates by capturing the signal from the outside macro networks, boosting them, and relaying their signals indoor from the coverage units.



## Benefits:

- **Lowest Solution Costs per ft<sup>2</sup>**
- **Scalable Coverage for 200,000 ft<sup>2</sup> (20,000 m<sup>2</sup>), and Beyond**
- **Easiest-to-Deploy**
- **Remote Monitoring and Management via Cel-Fi WAVE Platform**

## System Features

### Enterprise-class, carrier-grade, small footprint active DAS

RF inputs for external off-air donor antenna (A11-V14-100)  
Network Unit (NU) (Head End) attaches to Coverage Unit (CU) (Remote Unit) via Cat 5e cable  
A single NU and up to four (4) CUs may be attached (hub and spoke architecture) in a Cel-Fi QUATRA 2000 system  
Multiple Cel-Fi QUATRA 2000 systems may be deployed to increase coverage footprint  
Up to 325 ft (100 m) range from NU to CU  
Cel-Fi QUATRA Range Extender (QRE) (optional) may be used to increase NU-to-CU distance to 650 ft (200 m)  
Remote Management through Nextivity's Cel-Fi WAVE cloud platform  
Easiest installation in its class  
Glanceable LED User Interface (UI)  
Mounting hardware included

## Wireless Features

### Supports up to two bands simultaneously from two operators

3G/4G/LTE support (CDMA / WCDMA / HSPA+ / LTE)  
Supports FDD  
Up to 100dB 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 (>30dB) 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's 3rd-generation "ARES" chipset

## Mobile Network and Network Protection Features

Dual-carrier combinations available: AT&T and Verizon; Sprint (FDD) and T-Mobile  
Integration, handover, and handoff with the macro network  
Supports multiple channels with bandwidths of 3.84/5/10/15/20 MHz per channel  
Works with any user equipment (UE) for the configured networks (no whitelist/blacklist)  
Up to 75 MHz system relay bandwidth  
Support for 3GPP Release 10 features  
Provider-specific operation: Cel-Fi QUATRA 2000 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

## Benefits

Easiest to deploy Active DAS Hybrid  
Distribute and boost cellular coverage indoors  
3G and 4G support, Voice and Data, network safe  
Coverage footprint provided via Power over Ethernet (PoE); no requirement for additional power source at CU (RU)

## Donor Signal

Simplest Installation: NU (Head End) and CU (RU) connect with Cat 5e-rated (or better) cable  
Scalable architecture allows multiple Cel-Fi QUATRA systems to be deployed in the same environment for larger footprint  
LED cues provides visual feedback for ease of setup and status  
Works with any subscriber device from the configured carrier  
System management locally or from the cloud through the Cel-Fi WAVE platform  
Wall and ceiling mounting options

## Wireless Benefits

Clear and reliable cellular connections within coverage area up to 50,000 ft<sup>2</sup> (5000 m<sup>2</sup>) per system, and beyond  
Highest gain (100dB) provides best coverage footprint on location  
Advanced Echo-Cancellation allows Cel-Fi QUATRA 2000 to transmit more power without feedback interference  
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

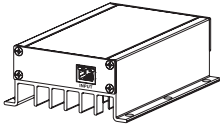
Flexibly deploy in LTE, VoLTE, LTE-Advanced, CDMA and WCDMA networks, with multiple cellular bands, simultaneously  
Automatically adjusts channel bandwidths from 3.84 MHz to 20 MHz  
Sufficient relay bandwidth (75 MHz) to support SISO in multiple bands  
Off-load the macro network, or use to improve macro capacity and building propagation/penetration  
Cel-Fi QUATRA 2000 system improves users' cellular experience while remaining invisible to networks and UEs: no gateways or third-party software needed  
UE control is transparent and remains centralized in the network core (no gateways or third-party software)

## Variants

Model Number	Bands Supported	Carrier Configurations Available
Q34-4/5/12/13/25	4, 5, 12, 13, 25	AT&T & Verizon T-Mobile & Sprint

## QUATRA Range Extender (QRE)

#Q34-E1000

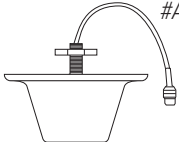


The Cel-Fi QUATRA Range Extender is a Power over Ethernet (PoE) device that allows Cel-Fi QUATRA 2000 Network Unit (NU) to Coverage Unit (CU) interconnect cable lengths up to 650 ft (200 m). Plug and Play installation.

Power over Ethernet (PoE)  
Extends NU to CU cable to 650 ft (200 m)  
Supports Cel-Fi QUATRA 2000 proprietary protocols  
Intuitive LED interface  
Note: Will not support other (non Cel-Fi QUATRA 2000) PoE devices

## Indoor Omni Antenna

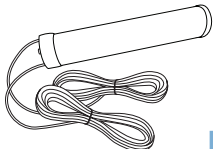
#A11-V43-100



The Wideband Indoor Dome Server Antenna receives and transmits signal in a 360° pattern  
Compatible with the 698 – 2700 MHz frequency ranges that include 3G and 4G signals  
Omni-Directional  
SMA Male connector

## Wideband Omni Donor

#A11-V14-100



The Wideband Omni-Directional MIMO Antenna is perfect for use as an outdoor cellular donor signal source  
698 – 2700 MHz  
N-type Female (x2)

**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 Cat 5e (PoE)

## Environmental

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

Mounting hardware included  
NU may be wall mounted  
CUs may be wall or ceiling mounted  
1 NU supports 1 to 4 CUs  
iBwave VEX files available

**Radio Performance**  
(check product version  
for specific band support)

Band	Downlink	Uplink	Boost
4	2110-2155 MHz	1710-1755 MHz	Up to 20 MHz contiguous boost
5	869-894 MHz	824-849 MHz	Up to 15 MHz contiguous boost
12	729-746 MHz	699-716 MHz	Up to 10 MHz contiguous boost
13	746-756 MHz	777-787 MHz	Up to 10 MHz contiguous boost
25	1930-1995 MHz	1850-1915 MHz	Up to 20 MHz contiguous boost

Total boost all-channel bandwidth 75 MHz  
 DL Maximum NU in-band donor level -40dBm  
 DL Maximum NU survival donor level 30dBm  
 UL Maximum CU donor level -20dBm  
 Maximum UL power 24dBm EIRP bands 4, 25  
 Maximum UL power 20dBm EIRP bands 5, 12, 13,  
 Maximum DL power 10dBm per 5 MHz EIRP all bands  
 LTE 5/10/15/20 MHz and WCDMA 3.84/5MHz bandwidths

**Physical Specifications**

Network Unit	Coverage Unit
250x188x55mm	188x188x50mm
1.2 kg (40.8 oz.)	0.83 kg (29.2 oz.)

**Connections**

4x CU RJ45 Proprietary Gigabit link  
 100m max CU cable length Cat 5e  
 200m max CU cable length with Cel-Fi QUATRA Range Extender (Cat 5e or Cat 6)  
 PoE IEEE 802.3at  
 RJ45 LAN management port (10/100 Fast Ethernet)  
 RJ45 LAN management output port (10/100 Fast Ethernet)  
 2x External RF Input (QMA Female 50 ohm)

**Compliance**  
(check individual product version  
for specific regional compliance)

3GPP TS 25.143 Rel.10  
 3GPP TS 36.143 Rel.10  
 FCC Part 15, 20, 22, 24, 27  
 ISED Canada  
 UL 62368-1/CSA C27.2  
 Bluetooth BQB  
 Note: Certifications are regional; not all products need or have the same certifications. Please check the specific model number to determine exactly which certifications it has.

**Patents & Design**

Cel-Fi QUATRA 2000 products are covered by Nextivity, Inc., patents and patents pending. Designed by Nextivity, Inc. in San Diego, California, USA. Please refer to cel-fi.com for details.  
 Specifications subject to change without notice.

**System Management**  
(Software)

Cel-Fi WAVE cloud portal  
 Cel-Fi WAVE Remote Management:

- Status (List and Map)
- Commissioning
- Diagnostics
- Software Updates
- Settings
- Reporting
- Alarms & Notifications

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