CEL-FI™

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 ft²**
- **Scalable Coverage for 200,000 ft² (20,000 m²), 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 100m (Cat5e) or 150m (23AWG CAT6/7) CU cable length
	Cel-Fi QUATRA Range Extender (QRE) (optional) may be used to increase NU-to-CU distance to 300m (984 ft)
	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^2 (5000 m^2) per system, and beyond
- Highest gain (100dB) provides best coverage footprint on location
- Advanced Echo-Cancelation 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

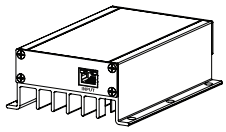
- Flexibly deploy in LTE, VoLTE, LTE-Advanced, CDMA and WCDMA networks, with multiple cellular bands, simultaneously
- Automatically adjusts channel bandwidths from 3.84 MHz to 20 MHz
- Sufficient relay bandwidth (75 MHz) to support SISO in multiple bands
- Off-load the macro network, or use to improve 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

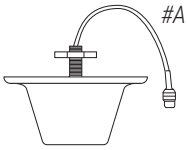


The Cel-Fi QUATRA Range Extender is a Power over Ethernet (PoE) device that allows Cel-Fi QUATRA 2000 Network Unit (NU) to Coverage Unit (CU) interconnect cable lengths up to 650 ft (200 m). Plug and Play installation.

- 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

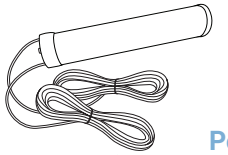


The Wideband Indoor Dome Server Antenna receives and transmits signal in a 360° pattern

- 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 BW, HSPA or LTE SISO
5	869-894 MHz	824-849 MHz	Up to 15 MHz contiguous boost BW, HSPA or LTE SISO
12	729-746 MHz	699-716 MHz	Up to 10 MHz contiguous boost BW, LTE SISO
13	746-756 MHz	777-787 MHz	Up to 10 MHz contiguous boost BW, LTE SISO
25	1930-1995 MHz	1850-1915 MHz	Up to 20 MHz contiguous boost BW, HSPA or LTE SISO

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

Specific power settings may be influenced and/or modified for regulatory compliance. Check specific model for power values.

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 Cat5e, or 150 m with 23AWG CAT6/7

Up to 300m max CU cable length with Cel-Fi QUATRA Renge Extender and 23AWG CAT6/7

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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