DATA SHEET

CEL-FI™

QUATRA 1000 FN | 3G / 4G / 5G

In-building Cellular Solution

Cel-Fi QUATRA 1000 is a scalable in-building cellular solution that is both cost-efficient and easy-to-deploy, delivering high-quality signal in venues up to 500,000 square feet (50,000 square meters). 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.

Benefits:

- **Lowest costs per ft²**
- **Scalable Coverage and Capacity**
- **Signal source can be off-air or small cell**
- **Remote Monitoring and Management via Cel-Fi WAVE Portal**
- **No retransmission agreement required**

FIRSTNET™ Built with AT&T

Model Number & Supported Bands

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

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

System Features

Enterprise-class, carrier-grade, hybrid active DAS
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 Cat 5e 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's Cel-Fi WAVE cloud platform
Easiest installation in its class
Glanceable LED User Interface (UI)
Mounting hardware included

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's 3rd-generation "ARES" chipset

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

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-Cancelation 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)

Small Cell Interface Kit (SCIF)

#Q34-SCI

The Cel-Fi QUATRA SCIF is designed to simplify connecting a Small Cell to up to two Cel-Fi QUATRA Network Units.

- The SCIF may be ordered separately (a second NU requires purchase of two additional connection cables)
- Connects a small cell to up to four Cel-Fi QUATRAs (additional cables or splitters may apply)
- Provides port isolation and attenuation
- Supports small cells with up to one or two band dependent RF feeds per MIMO channel
- SMA connectors (50 ohm)
- Includes Input and Output cables
- 699–2690 MHz
- 1 watt max input power on all ports

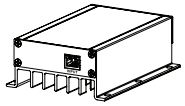
#Q34-SCI

QUATRA Range Extender (QRE)

#Q34-E1000

The Cel-Fi QUATRA Range Extender is a Power over Ethernet (PoE) device that allows Cel-Fi QUATRA 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 200 meters
- Supports Cel-Fi QUATRA proprietary protocols
- Note: Will not support other (non Cel-Fi QUATRA) PoE device



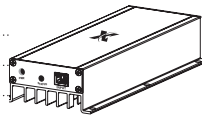
#Q34-E1000

QUATRA Fiber Range Extender (fQRE)

#K370-001

The Cel-Fi QUATRA Fiber Range Extender is a device that allows Cel-Fi QUATRA Network Unit (NU) to Coverage Unit (CU) interconnect fiber lenghts up to 2000 m

- Plug and Play installation.
- Power over Ethernet (PoE)
- Extends NU to CU cable to 200 meters
- Supports Cel-Fi QUATRA proprietary protocols
- Note: Will not support other (non Cel-Fi QUATRA) PoE device



#K370-001

Wideband MIMO Panel Antenna

#A52-X12-100

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-X12-100

Power

- 54 VDC @ 2.22 Amp via external supply (51.3 to 56.7 VDC tolerance)*(Network Unit only)*
- 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
- 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, HSPA or LTE SISO
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 (2×2 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 Cat 5e

200 m 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 MIMO External RF Input (QMA-Female 50 ohm)

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

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.

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