FOXCOM Wireless

fiber Optic Solutions

Litenna™

In-Building RF Distribution System

- Compliant with all existing wireless voice and data services
- Supports GPRS, EDGE, CDPD and WAP technologies
- Easily upgradable from single band to multi band and future services, 3G ready
- Single infrastructure for multiple services/ multiple operators
- Built-in alarms / monitors for all channels
- Singlemode fiberoptic cables connect between the system units
- Easy to design, install and maintain

The Litenna™, fiberoptic based distribution system, enables wireless service operators and integrators to provide seamless coverage and enhanced cellular capacity for In-building applications. Comprised of a Base Unit that connects up to eight Remote Hub Units (driving up to four antennas each), the fiberoptic technology based system is modular and expandable to a wide variety of structure sizes and configurations. The Litenna supports wireless voice and data applications, offering a cost-effective and flexible solution for coverage enhancement.

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RF Specifications

Downlink

Link Specifications	CDMA			GSM				LMR	TDMA	
	800	1800	1900	900	1800	1900	Dual Band 900/1800	800	800	1900
Nominal Output Power At Antenna Port Per Carrier per band(dBm)										
Composite	14	14	14	11	11	17	10	20	20	17
2 carriers	10	10	10	8	8	14	7	17	17	14
3 carriers	9	9	9	6	6	12	–	15	15	12
10 carrie	–	–	–	1	1	7	–	10	10	7
Nominal Gain at Antenna Port (dB)	14	10	10	7	7	10	7	14	14	10
Nominal Input Power Per Carrier per band (dBm)										
Composite	0	4	4	4	4	7	3	6	6	7
2 carriers	-3	1	1	1	1	4	0	3	3	4
3 carriers	-5	-1	-1	-1	-1	2	–	1	1	2
10 carriers	–	–	–	-6	-6	-3	–	-4	-4	-3
Gain Flatness (dB)										
Over Band	±1.5	±1.8	±2.0	±1.8	±1.8	±2.0	±1.8	±1.5	±1.5	±2.0
Over Block	±1.2	–	±1.4	–	–	±1.4	–	±1.2	±1.2	±1.4
Max. Second Order Intermodulation Distortion (IMD) (dBm)	–			–	–	–	-36/-30	–	–	
Max. Intermodulation Distortion (IMD) (dBm)	-13			-36	-30	-13	-36/-30	-13	-13	
Waveform Quality (ρ) at Max. Power	>0.96			–			–	–	–	
Spurious Emission (BW=30kHz) (dBc)	>45@± 885 KHz			–			–	–	–	
System Group Delay (μ s)	<0.1			–				–	–	

Uplink

Link Specifications	CDMA			GSM				LMR	TDMA	
	800	1800	1900	900	1800	1900	Dual Band 900/1800	800	800	1900
Nominal Gain At Antenna Port (dB)	7	7	7	7	7	7	7	7	7	7
Min. Input IP3 (dBm)	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
Max. NF (dB)	20	20	16	20	20	16	20	20	20	16
Gain Flatness (dB)										
Over Band	±1.5	±1.8	±2.0	±1.8	±1.8	±2.0	±1.8	±1.5	±1.5	±2.0
Over Block	±1.2	–	±1.4	–	–	±1.4	–	±1.2	±1.2	±1.4
SFDR (dB)	72		74	65			65	72	72	74
Waveform Quality (ρ) at Max. Power	>0.96			–			–	–	–	
Spurious Emission (BW=30kHz) (dBc)	>45@± 885 KHz			–			–	–	–	
System Group Delay (μ s)	<0.1			–			–	–	–	

Absolute Maximum Rating

Specifications	Base Unit	Remote Hub Unit
Total Input RF Power (dBm)	20	10
Power Supply (V)	60	60
Operating Temperature (°C)[1]	0 to +50	0 to +50
Storage Temperature (°C)	-40 to +85	-40 to +85

1. For extended temperature range (-20 to 60°C) contact Foxcom Wireless.

General Technical Specifications

Optical Specifications	
Wavelength (nm)	1310±10
Max. Optical budget (dB)	3dB
Fiber type	9/125 single mode
Optical loss per mated pair connectors	0.5 dB maximum
Optical output power (mW)	≥1.0
Other Specifications	
Distance between BU and RHU (m) @18AWG(1)	
DC power is supplied via composite cable	500 @ 48VDC / 250 @ 27VDC
DC power is supplied directly to RHU	2000

1. Distance increases with correlation to cable diameter.

Physical Specifications

Specifications	Base Unit	Remote Hub Unit
Power	18-48VDC 8W max. when driving 8 RHUs 4W max. when driving 4 RHUs	18-48VDC - DC input or: 27-48VDC - fed through composite cable 10 W max. Singleband 15 W max. Dualband
Dimensions	19" x 1U	11"W x 8"L x 2"H
RF Connector	N Type Female	N Type Female
Optical Connector	SC/APC	SC/APC

Composite Cable Specifications

Specifications	
Cable Type	Single Mode Fiber 2.8 mm Tight Buffer Jacket
Copper Diameter	18AWG
Standard Compliance	UL Listed Cable / IEC -332-33

Alarm Specifications
Base Unit Alarms

The Litenna™ Base Unit alarms are Dry Contacts and Open Collector types. The Dry Contacts opens when the alarm is active. The Open Collector will sink up to 30mA under alarm condition. All alarms are connected to the Base Unit rear panel 25 pin D type connectors.

Alarm	Function
Optical Link	Indicates that the two direction optical link between Base Unit and Remote Hub Unit are not functioning

LED Specifications
Base Unit LEDs

The Base Unit has three types of LEDs. One type indicates the power status. One type indicates that the lasers are functioning. One type indicates the status of link operations between the Base Unit and the RHU-one LED for every RHU. All LEDs should be on when the unit is in operation.

LED Name	LED Function
Channel 1..8	Indicates that both directions of the optical link, between Base Unit and Remote Hub Unit, is functioning - one LED for every RHU link.
Lasers 1..4	Indicates that laser circuitry for RHU 1-4 is functioning correctly.
Lasers 5..8	Indicates that laser circuitry for RHU 5-8 is functioning correctly.
DC	Indicates that the power is on.

Remote Hub Unit LEDs

On the Front Panel of the RHU there are two LEDs. Both LEDs should be on when the unit is in operation.

LED Name	LED Function
Opt.	Indicates that the Received Optical Power is functioning within specifications.
DC	Indicates that the power is on.

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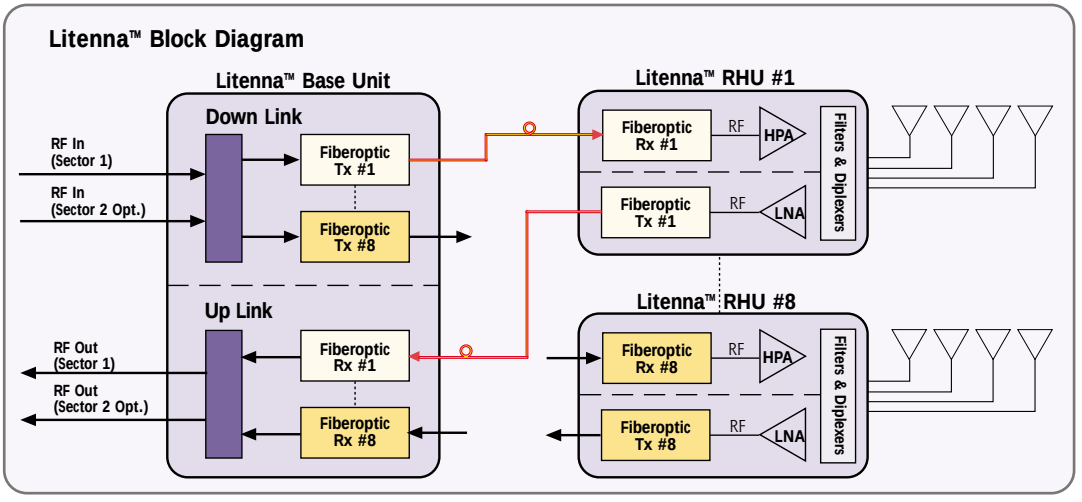
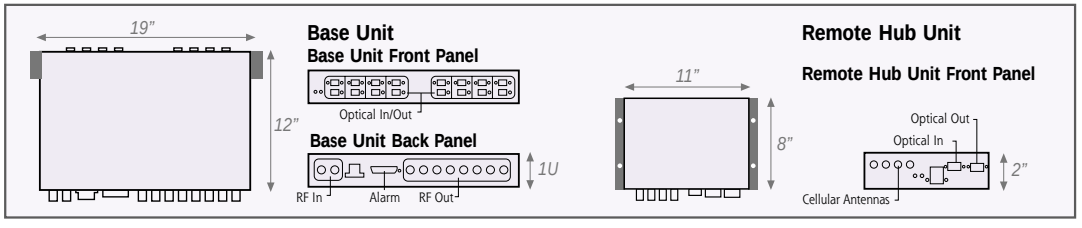
Litenna™ Block Diagram



Mechanical Dimensions



Supported Standards

STANDARDS	UL/DL (MHz)
CDMA 800 TDMA/AMPS 800	824-849 / 869-894
LMR 800	806-824 / 851-869
GSM 900	890-915 / 935-960
CDMA 1800	1715-1780 / 1805-1870
GSM 1800	1710-1785 / 1805-1880
CDMA 1900 TDMA 1900 GSM 1900	1850-1910 / 1930-1990

Ordering Information

Product

Single Band Family
9A110 = AMPS/TDMA 800
9A112 = LMR 800
9A130 = CDMA 800
9A220 = GSM 900
9A320 = GSM 1800
9A330 = CDMA 1800
9A410 = TDMA 1900
9A420 = GSM 1900
9A430 = CDMA 1900
Dual Band Family
9B320 = Dual band GSM 900/1800

9XXXX - XXX - XX

Reserved

Part
RHU = Remote Hub Unit
B4U = Base Unit Four Ports
B8U = Base Unit Eight Ports

Available Accessories		Order Code
SC/APC Jumper	5m	SC/APC-J-5
Local Power Supply	25W 110/220V	LPS-25-48
Fully Redundant Power Supply	100W 110/220V	LPS2-100-48
Fully Redundant Power Supply	300W 110/220V	LPS2-300-48

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For Indoor use only.

All specifications are subject to change without prior notice.

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