

Litenna™

In-Building RF Distribution System



- Compliant with all existing wireless voice and data services: TDMA, CDMA, GSM
- Supports GPRS, EDGE, CDPD and WAP technologies
- Easily upgradeable from single band to multi band and future services-3G
- Single infrastructure for multiple services / multiple operators
- Built-in alarms and monitoring for all links
- 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.



Absolute Maximum Rating

Specifications	Base Unit	Remote Hub Unit
Total Input RF Power - No Damage (dBm)	20 (Down Link)	10 (Up Link)
Power Supply (VDC)	60	60
Operating Temperature (°C) ¹	0 to +50	0 to +50
Storage Temperature (°C)	-20 to +85	-20 to +85

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

Fiber Optic Specifications

Optical Specifications	
Optical output power (mW)	≤3.0
Max. Optical budget (dB)	1.5
Optical loss per mated pair connectors (dB)	0.5 maximum
Optical Connector	SC/APC
Fiber type	9/125 single mode
Wavelength (nm)	1310±10

General Specifications

Specifications	Base Unit	Remote Hub Unit
Power	20-48VDC 10W max. Base Unit 8 ports 5W max. Base Unit 4 ports	20-48VDC - DC input or: 27-48VDC - fed through composite cable 18 W max. Singleband 24 W max. Dualband
Dimensions	19" x 1U Wallmount / Rackmount	11"W x 8"L x 2"H
RF Connector	N Type Female, Impedance 50 Ω	N Type Female, Impedance 50 Ω
Weight(Kg)	2.3	1.2
Other Specifications		
Distance between BU and RHU (m) DC power is supplied via composite cable @19AWG ⁽¹⁾ DC power is supplied via copper @ 12AWG ⁽¹⁾	500 @ 48VDC 2000 @ 48VDC	
MTBF (Hrs.) @ 25(°C)	366,855 for 1 Link (1 Bu + 1 RHU)	

⁽¹⁾ Distance increases with correlation to cable diameter.

For distance greater than 2000m contact Foxcom Wireless.

Standards and Approvals

Europe	CE 0681 / ETS 300 609-4 (GSM 11.26), ETS 300 342-3, EN 60950 / EN 60825-2
U.S.A	FCC 47 CFT Part 22, 24, 90
Canada	IC



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 optical link between Base Unit and Remote Hub Unit are not functioning

LED Specifications

Base Unit LEDs

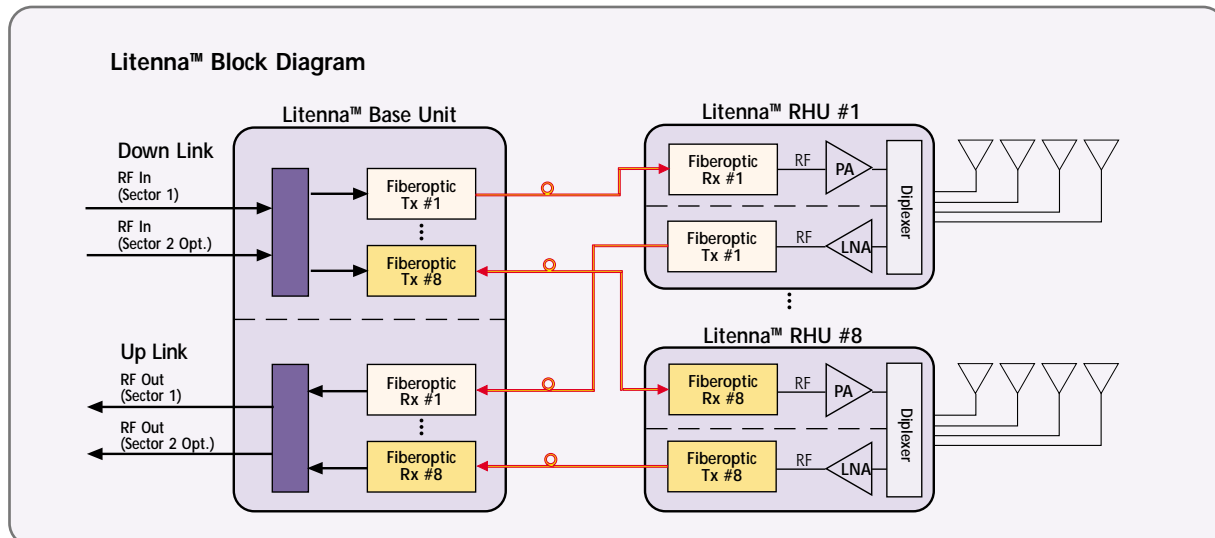
The Base Unit has three types of LEDs. One type indicates the power status. One type indicates that the lasers are functioning. One type indicates the status of link operations between the Base Unit and the RHU-one LED for every RHU. All LEDs should be on when the unit is in operation.

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

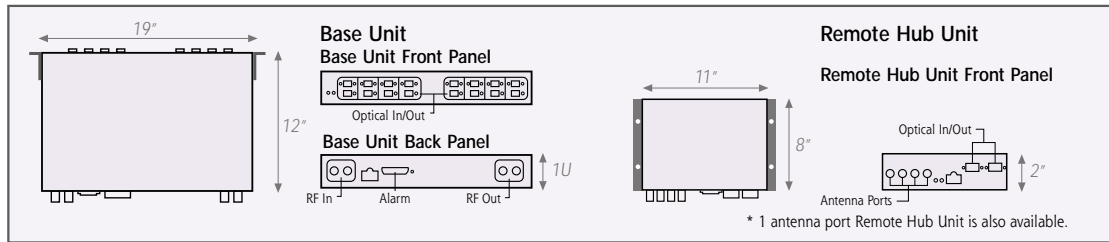
On the Front Panel of the RHU there are two LEDs. Both LEDs should be on when the unit is in operation.

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





Mechanical Dimensions



Supported Services

Standard	Frequency Range		BW
	Uplink	Downlink	
AMPS/TDMA 800	824-849	869-894	30 KHz
LMR/iDEN 800	806-824	851-869	25 KHz
CDMA 800	824-849	869-894	1.25MHz
SMR 900	896-902	935-941	25 KHz
GSM 900	890-915	935-960	200 KHz
Paging 900	899-902	928-941	
GSM 1800	1710-1785	1805-1880	200 KHz
CDMA 1800	1710-1785	1805-1880	1.25MHz
TDMA 1900	1850-1910	1930-1990	30 KHz
GSM 1900	1850-1910	1930-1990	200 KHz
CDMA 1900	1850-1910	1930-1990	1.25MHz
Dual Band GSM 900/GSM 1800	890-915/1710-1785	935-960/1805-1880	
Dual Band E-GSM 900/GSM 1800	880-915/1710-1785	925-960/1805-1880	
Dual Band iDEN/LMR 800/PCS 1900	806-824/1850-1910	851-869/1930-1990	
Dual Band SMR 900/PCS 1900	896-902/1850-1910	935-941/1930-1990	
Dual Band Cellular 800/PCS 1900	824-849/1850-1910	869-894/1930-1990	
Dual Band Paging 900/PCS 1900	899-902/1850-1910	928-941/1930-1990	



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Available Accessories

Service	Specifications	Order Code
SC/APC Jumper	1m 3m 15m	SCAPC-DJ-1 SPAPC-DJ-3 SCAPC-DJ-15
Local Power Supply	24W 110/220V	LPS-24-1A
Remote Power supply - Fully Redundant, Rackmount	150W 110/220V	RPS-150-R-48
Remote Power supply - Fully Redundant, Rackmount	500W 110/220V	RPS-500-R-48
Remote Power supply - Fully Redundant, Rackmount	1000W 110/220V	RPS-1000-R-48
Remote Power supply - Wallmount	200W 110/220V	RPS-200-N-48

For Indoor use only.

All specifications are subject to change without prior notice.

Ordering Information

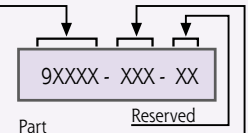
Product

Single Band Family

9A110 = AMPS/TDMA 800
 9A112 = LMR/iDEN 800
 9A130 = CDMA 800
 9A212 = SMR 900
 9A220 = GSM 900
 9A240 = Paging 900
 9A320 = GSM 1800
 9A330 = CDMA 1800
 9A410 = TDMA 1900
 9A420 = GSM 1900
 9A430 = CDMA 1900

Dual Band Family

9B320 = Dual Band GSM 900/GSM 1800
 9B322 = Dual Band E-GSM 900/GSM 1800
 9B412 = Dual Band iDEN/LMR 800/PCS 1900
 9B422 = Dual Band SMR 900/PCS 1900
 9B430 = Dual Band Cellular 800/PCS 1900
 9B440 = Dual Band Paging 900/PCS 1900



Part

R4U = RHU 4 Antenna Ports
 R1U = RHU 1 Antenna Port
 B4U = Base Unit Four Ports
 B8U = Base Unit Eight Ports



F i b e r O p t i c S o l u t i o n s

Single Band - RF Specifications

Downlink

Link Specifications	CDMA			GSM			LMR/iDEN	SMR	Paging	TDMA	
	800	1800	1900	900	1800	1900	800	900	900	800	1900
Four Antenna ports RHU Specifications											
Nominal Output Power at Antenna Port Per Carrier (dBm)											
Composite (1 Carrier)	14	14	14	11	11	17	20	20	20	20	17
2 carriers	10	10	10	8	8	14	17	17	17	17	14
4 carriers	8	8	8	5	5	11	14	14	14	14	11
10 carriers	-	-	-	1	1	7	10	10	10	10	7
Nominal Gain (dB)	14	10	10	7	7	10	14	14	14	14	10
One Antenna Port RHU Specifications											
Nominal Output Power at Antenna Port Per Carrier (dBm)											
Composite (1 Carrier)	18	18	18	14	14	21	24	24	24	24	21
2 carriers	14	14	14	11	11	18	21	21	21	21	18
4 carriers	12	12	12	8	8	15	18	18	18	18	15
10 carriers	-	-	-	-	-	11	14	14	14	14	11
Nominal Gain (dB)	18	14	14	10	10	14	18	18	18	18	14
Common Specifications											
Nominal Input Power at Antenna Port Per Carrier (dBm)											
Composite (1 Carrier)	0	4	4	4	4	7	6	6	6	6	7
2 carriers	-4	0	0	1	1	4	3	3	3	3	4
4 carriers	-6	-2	-2	-2	-2	1	0	0	0	0	1
10 carriers	-	-	-	-6	-6	-3	-4	-4	-4	-4	-3
Gain Flatness (dB)											
Over Band	±2.0	±2.5	±2.5	±2.0	±2.5	±2.5	±2.0	±2.0	±2.0	±2.0	±2.5
Over Block	±1.5	±1.8	±1.8	±1.5	±1.8	±1.8	±1.5	±1.5	±1.5	±1.5	±1.8
Max. Intermodulation Distortion (dBm)	-13	-13	-13	-36	-30	-13	-13	-13	-13	-13	-13
Output 1dB Compression Point (dBm)	25	25	25	25	25	25	25	25	25	25	25
Spectral Regrowth (CDMA only)	IS - 95 , J-STD - 008										

Uplink

Link Specifications	CDMA			GSM			LMR/iDEN	SMR	Paging	TDMA	
	800	1800	1900	900	1800	1900	800	900	900	800	1900
Four Antenna Ports RHU Specifications											
Max. NF (dB)	16	17	17	16	17	17	16	16	16	16	17
SFDR	62	62	62	67	67	67	74	74	-	73	73
One Antenna Ports RHU Specifications											
Max. NF (dB)	14	15	15	14	15	15	14	14	14	14	15
SFDR	63	63	63	69	69	69	75	75	-	74	74
Common Specifications											
Nominal Gain (dB)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Min. Input IP3 (dBm)	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
Output 1dB Compression Point (dBm)	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
Gain Flatness (dB)											
Over Band	±2.0	±2.5	±2.5	±2.0	±2.5	±2.5	±2.0	±2.0	±2.0	±2.0	±2.5
Over Block	±1.5	±1.8	±1.8	±1.5	±1.8	±1.8	±1.5	±1.5	±1.5	±1.5	±1.8



Dual Band - RF Specifications

Downlink

Link Specifications	800/1900		800/1900		900/1900		900/1900		900/1800	
	iDEN/LMR	PCS*	Cellular**	PCS*	SMR	PCS*	Paging	PCS*	GSM/E-GSM	GSM
Four Antenna ports RHU Specifications										
Nominal Output Power at Antenna Port Per Carrier Per Band (dBm)										
Composite (1 Carrier)	20	14 / 17	14 / 20	14 / 17	20	14 / 17	20	14 / 17	11	11
2 carriers	17	10 / 14	10 / 17	10 / 14	17	10 / 14	17	10 / 14	8	8
4 carriers	14	8 / 11	8 / 14	8 / 11	14	8 / 11	14	8 / 11	5	5
10 carriers	10	- / 7	- / 10	- / 7	10	- / 7	10	- / 7	-	-
Nominal Gain (dB)	14	10	14	10	14	10	14	10	7	7
One Antenna port RHU Specifications										
Nominal Output Power at Antenna Port Per Carrier Per Band (dBm)										
Composite (1 Carrier)	24	18 / 21	18 / 24	18 / 21	24	18 / 21	24	18 / 21	14	14
2 carriers	21	14 / 18	14 / 21	14 / 18	21	14 / 18	21	14 / 18	11	11
4 carriers	18	12 / 15	12 / 18	12 / 15	18	12 / 15	18	12 / 15	8	8
10 carriers	14	- / 12	- / 14	- / 12	14	- / 12	14	- / 12	-	-
Nominal Gain (dB)	18	14	18	14	18	14	18	14	10	10
Common Specifications										
Nominal Input Power at Antenna Port Per Carrier Per Band (dBm)										
Composite (1 Carrier)	6	4 / 7	0 / 6	4 / 7	6	4 / 7	6	4 / 7	4	4
2 carriers	3	0 / 4	-4 / 3	0 / 4	3	0 / 4	3	0 / 4	1	1
4 carriers	0	-2 / 1	-6 / 0	-2 / 1	0	-2 / 1	0	-2 / 1	-2	-2
10 carriers	-4	- / -3	- / -4	- / -3	-4	- / -3	-4	- / -3	-	-
Gain Flatness (dB)										
Over Band	±2.0	±2.5	±2.0	±2.5	±2.0	±2.5	±2.0	±2.5	±2.0	±2.5
Over Block	±1.5	±1.8	±1.5	±1.8	±1.5	±1.8	±1.5	±1.8	±1.5	±1.8
Max. Intermodulation Distortion (dBm)	-13		-13		-13		-13		-36	
Output 1dB Compression Point (dBm)	25		25		25		25		25	
Spectral Regrowth (CDMA only)	IS - 95 , J-STD - 008									

Uplink

Link Specifications	800/1900		800/1900		900/1900		900/1900		900/1800	
	iDEN/LMR	PCS*	Cellular**	PCS*	SMR	PCS*	Paging	PCS*	GSM/EGSM	GSM
Four Antenna Ports RHU Specifications										
Max. NF (dB)	20	20	20	20	20	20	20	20	20	20
SFDR	71	71	71	71	71	71	-	71	65	65
One Antenna Port RHU Specifications										
Max. NF (dB)	18	18	18	18	18	18	18	18	18	18
SFDR	72	72	72	72	72	72	-	72	67	67
Common Specifications										
Nominal Gain (dB)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Min. Input IP3 (dBm)	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
Output 1dB Compression Point (dBm)	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
Gain Flatness (dB)										
Over Band	±2.0	±2.5	±2.0	±2.5	±2.0	±2.5	±2.0	±2.5	±2.0	±2.5
Over Block	±1.5	±1.8	±1.5	±1.8	±1.5	±1.8	±1.5	±1.8	±1.5	±1.8

* Specifications for PCS: CDMA / TDMA & GSM 1900.

** Specifications for Cellular: CDMA / TDMA 800.