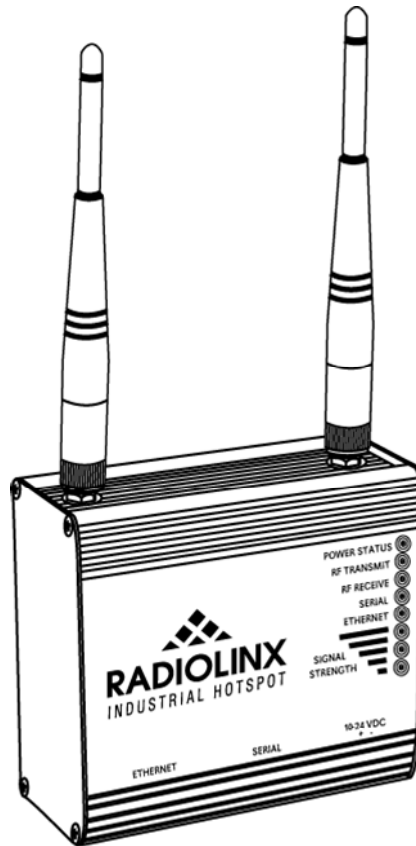




Wireless Specifications

- Radios
- Switches
- Antennas
- Cables
- Amplifiers
- Lightning Protection
- Accessories



1675 Chester Avenue, 2nd Floor

Bakersfield, CA 93301

(661) 716-5100

(661) 716-5101 (Fax)

June 2005

About ProSoft Technology

ProSoft Technology serves the automation industry's communications and specialized application needs with high quality products, application expertise, and technical support. With our home office in Bakersfield, CA, ProSoft Technology is committed to providing localized sales and support to customers worldwide.

Sales, application engineering, and support services are provided internationally by our channels served by our Regional Area Offices:

North America	Seven Regional Area Managers provide coverage for our distributors across the continent.
Latin America	Two full-service offices; one services Brazil exclusively, and the other provides coverage to South America.
Europe	One full-service office based in France serves Europe, Middle East, and Africa.
Asia Pacific	Offices in India, China, and Malaysia service Asia, India, Australia, and New Zealand.

Company History

Development of ProSoft Technology's first product began in 1988 under contract to Allen-Bradley. This initial firmware solution provided Modbus Slave communications for the PLC platform.

Formally incorporated in 1990, by 1993 ProSoft Technology had developed an extensive protocol library which helped them evolve from a single product company to a multiple product provider. Since then, ProSoft Technology has become a major supplier of communication products for the industrial automation industry. Facilitated by our extremely active product development program and customer recognition of our product quality, ProSoft Technology now has four product families including:



In-chassis interface modules for Allen-Bradley control platforms PLC-5, SLC 500, ControlLogix, Flex I/O, CompactLogix, and SCANport/Drives.



ProLinx stand-alone industrial gateways offer communication solutions between automation platforms, controllers, field instrumentation, Ethernet, and serial networks.



In-chassis interface modules for Schneider Electric's Quantum platform.



Wireless industrial communication networks

Corporate Office:

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Industrial Wireless Network Solutions

ProSoft Technology industrial wireless modems and switches are designed to maximize network flexibility, reliability, and performance in industrial control applications. ProSoft's RadioLinx products provide a unique combination of advanced features.

RadioLinx wireless products serve Ethernet or serial applications and offer global compatibility product conformities in frequency and power. By combining RadioLinx powerful wireless connectivity with ProSoft's longstanding expertise in protocol interoperability for device and network layers, customers benefit by obtaining end-to-end industrial communications solutions and support from one source.

RadioLinx radios come with ProSoft's three-year warranty and unlimited technical support. Sales are available worldwide. Contact your automation equipment distributor or ProSoft Technology.

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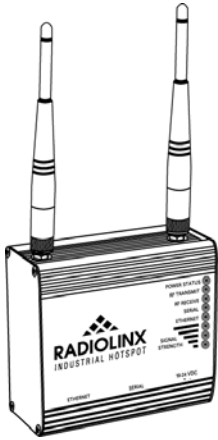
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Radios

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- RLX-FHS 7
- Port Layouts 8
- Ordering Information 9

RadioLinx Industrial Hotspot



RLX-IH

The RadioLinx Industrial Hotspot is four times more powerful than high-speed commercial grade radios, allowing better coverage of the factory floor with fewer radios. It provides outdoor links of up to 20+ miles.

Features and Benefits

- Single unit repeater functionality
- Powerful transmitter with amplifier option for long range outdoor applications
- Redundant master radios
- WPA encryption, 802.1x and MAC ID authentication
- Built-in web server for browser-based configuration and remote diagnostics
- Fast data throughput
- Compatible with any device that supports Ethernet/IP, Modbus TCP/IP, or any 802.3 compliant Ethernet protocol
- Three year standard warranty

Specifications

Radio	
Frequency	2400 to 2483.5 MHz (USA)*
Wireless Medium	Direct sequence spread spectrum
Network standard	802.11b
Output power	200 mW / 500 mW** (32 mW - Europe/Asia)
Channel data rates	11, 5.5, 2, 1 Mbps
Receiver sensitivity	-86 dBm @ 11 Mbps -88 dBm @ 5.5 Mbps -90 dBm @ 2 Mbps -92 dBm @ 1 Mbps
Channels (user selectable)	11 - North America 13 - Europe
Outdoor range	20 + miles at 11 Mbps
Security	802.1x authentication MAC white list WPA encryption WEP for legacy devices
Physical	
Enclosure	Extruded aluminum with DIN and panel mount
Size	3.98" x 3.475" x 2.183"
Ethernet port	10/100 Base-T connector, shielded RJ-45 IEEE 802.3, 802.3u, 802.3x
Antenna ports	(2) RP-SMA connectors, active receive diversity
Weight	1.15 lbs /522g

Environmental	
Operating temperature	-30°C to +60°C
Humidity	To 90% RH, non-condensing
External power	10 to 24 VDC
Average power	<6W

* Varies for other countries

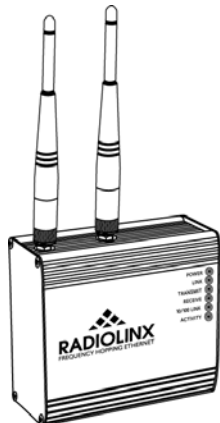
** With external amplifier

Regulatory Approvals

Type Approvals	
FCC	FCC Part 15.247
Industry Canada	RSS 210
Europe / CE	LVD EN 50850-2000 RF Safety EN 50364-2001 EMC EN 301 489-1, EN 301 489-17 Spectrum EN 300 328 v1.4.1
Mexico	Nom 121 SCT1 2 or 1
Australia	AS/NZS 4771
Brazil	365 / 2004 e 238 / 2000
Malaysia	SIRIM

Hazardous Locations	
UL	UL 1604 Class 1 Division 2, Groups A, B, C, D Temp Code T4A
CSA/cUL	C22.2 No. 213-1987
ATEX Zone 1	ATEX I
ATEZ Zone 2	ATEX II 3 G EEx nC IIC

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RLX-FHE

The RadioLinx Frequency Hopping Ethernet radio is designed to operate in high-interference environments by combining advanced frequency hopping and digital signal processing technology with outstanding receiver sensitivity and antenna diversity. This combination results in exceptional noise and interference rejection.

The RLX-FHE is compatible with all protocols that run over standard IEEE 802.3 Ethernet including TCP/IP, UDP, IPX,

NetBEUI, BootP, EtherNet/IP, and Modbus/TCP. The RLX-FHE simultaneously supports multiple 802.3 compliant protocols.

Features and Benefits

- Supports up to 1000 addressed devices with 2000 radios and 78 repeaters per network
- 64 user-selectable data channels for multiple network operation
- Active antenna diversity
- 2.4 GHz frequency hopping spread spectrum (FHSS) technology
- Secure wireless communications with data encryption, proprietary radio protocol, and 2.4 GHz FHSS physical layer
- Industrial temperature range
- 15+ mile range with high-gain antennas (longer with repeaters)
- Remote diagnostics without interrupting data communications
- Over air user programmability (after initial configuration) using Windows-based software.
- Three year standard warranty

Specifications

Radio	
Frequency	2400 to 24835.5 MHz (varies by country)
Compliance	IEEE 802.3, 802.3u, 802.3x
Protocols	All standard IEEE 802.3 protocols
Encryption	ARC4 (40 or 128 bit)
Network Topology	Peer-to-Peer, store and forward repeater
Hop Patterns	64 independent, non-interfacing networks
Error Detection	32-bit CRC and ARQ (Automatic Re-Send Query)
Radio Type	Frequency Hopping Spread Spectrum
Output power	1mW to 250mW, programmable (varies by country)
Channel data rates	250 Kbps
Receiver sensitivity	-96 dBm @ 10 ⁻⁶ BER
Channels - user selectable	64 North America (varies by country)
Typical indoor range	500 to 1500 ft (150 to 450 meters)

Outdoor range	15 + miles line of site with high-gain antennas
Security	ARC4 (40 or 128 bit)

Physical

Enclosure	Extruded aluminum with DIN and panel mount
Size	4.10" x 3.71" x 2.05" (104.1 mm x 94.23 mm x 52.07 mm)
Ethernet port	10/100 Base-T connector, shielded RJ-45 IEEE 802.3, 802.3u, 802.3x
Weight	1 lbs /454g

Environmental

Operating temperature	-40°C to +70°C (-40° F to 158° F)
Humidity	To 90% RH, non-condensing
External power	10 to 24 VDC
Average power	<4W

Regulatory Approvals

Type Approvals

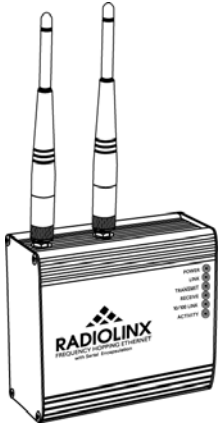
FCC	FCC Part 15.247
Industry Canada	RSS 210
Europe / CE	LVD EN 50850-2000 RF Safety EN 50364-2001 EMC EN 301 489-1, EN 301 489-17 Spectrum EN 300 328 v1.4.1
Mexico	Nom 121 SCT1 2 or 1
Australia	AS/NZS 4771
Brazil	365 / 2004 e 238 / 2000
Malaysia	SIRIM

Hazardous Locations

UL	UL 1604 Class 1 Division 2, Groups A, B, C, D Temp Code T4A
CSA/cUL	C22.2 No. 213-1987
ATEZ Zone 2	ATEX II 3 G EEx nC IIC

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RadioLinx Frequency Hopping Ethernet with Serial Device Server



RLX-FHES

The RadioLinx Frequency Hopping Ethernet with Serial Device Server contains an embedded serial device server that enables a transparent connection between an Ethernet host and a serial only device connected to the RLX-FHES RS-232 serial port. Several serial protocols are supported including DF1, ASCII, DNP3, and Modbus RTU.

Encapsulated serial or Modbus/TCP Ethernet packets are delivered to the RLX-FHES socket where the serial server extracts the serial data stream from the Ethernet packets and outputs it to the RS-232 port. Bi-directional serial communication is supported by encapsulating the RS-232 port input stream into Ethernet packets, then sending them to the host client via the established socket interface.

Features and Benefits

- Supports up to 1000 addressed devices with 2000 radios and 78 repeaters per network
- 64 user-selectable data channels for multiple network operation
- Full-Duplex asynchronous communication rates to 100 Kbps
- Active antenna diversity
- 2.4 GHz frequency hopping spread spectrum (FHSS) technology
- Secure wireless communications with data encryption, proprietary radio protocol, and 2.4 GHz FHSS physical layer
- Industrial temperature range
- 15+ mile range with high-gain antennas (longer with repeaters)
- Remote diagnostics without interrupting data communications
- Over air user programmability (after initial configuration) using Windows-based software
- Three year standard warranty

Specifications

Radio	
Frequency	2400 to 2483.5 MHz (varies by country)
Compliance	IEEE 802.3, 802.3u, 802.3x
Protocols	All standard IEEE 802.3 protocols
Encryption	ARC4 (40 or 128 bit)
Network Topology	Peer-to-Peer, store and forward repeater
Hop Patterns	64 independent, non-interfacing networks
Error Detection	32-bit CRC and ARQ (Automatic Re-Send Query)
Radio Type	Frequency Hopping Spread Spectrum
Output power	1mW to 250mW, programmable (varies by country)
Channel data rates	250 Kbps

Receiver sensitivity	-96 dBm @ 10 ⁻⁶ BER
Channels - user selectable	79 North America (varies by country)
Typical indoor range	500 to 1500 ft (150 to 450 meters)
Outdoor range	15 + miles line of site with high-gain antennas
Security	ARC4 (40 or 128 bit)
Physical	
Enclosure	Extruded aluminum with DIN and panel mount
Size	4.10" x 3.71" x 2.05" (104.1 mm x 94.23 mm x 52.07 mm)
Serial Data Port	RS-232, DB9 Asynchronous half-duplex/full-duplex 2400 bps to 115.2 Kbps full duplex
Ethernet port	10/100 Base-T connector, shielded RJ-45 IEEE 802.3, 802.3u, 802.3x
Antenna ports	(2) RP-SMA connectors, automatic antenna diversity
Weight	1 lbs /454g

Environmental

Operating temperature	-40°C to +70°C (-40° F to 158° F)
Humidity	To 90% RH, non-condensing
External power	10 to 24 VDC
Average power	<4W

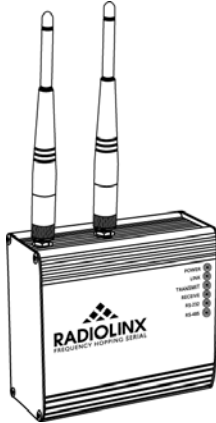
Regulatory Approvals

Type Approvals	
FCC	FCC Part 15.247
Industry Canada	RSS 210
Europe / CE	LVD EN 50850-2000 RF Safety EN 50364-2001 EMC EN 301 489-1, EN 301 489-17 Spectrum EN 300 328 v1.4.1
Mexico	Nom 121 SCT1 2 or 1
Australia	AS/NZS 4771
Brazil	365 / 2004 e 238 / 2000
Malaysia	SIRIM

Hazardous Locations

UL	UL 1604 Class 1 Division 2, Groups A, B, C, D Temp Code T4A
CSA/cUL	C22.2 No. 213-1987
ATEZ Zone 2	ATEX II 3 G EEx nC IIC

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RLX-FHS

The RadioLinx Frequency Hopping Serial radio allows you to design multiple device networks to share the same RF network (channel) allowing different protocols to share a common repeater. A remote RLX-FHS can be programmed to operate as store and forward repeaters to extend network range.

The RLX-FHS operates in point-to-point, point-multipoint, or peer-to-peer modes.

Addressable multi-drop RS-485 operation is built into the

module. The RF output levels are user-configurable and 64 data channels allow multiple networks to operate in the same area.

Features and Benefits

- Supports up to 1000 addressed devices with 2000 radios and 78 repeaters per network
- 64 user-selectable data channels for multiple network operation
- Active antenna diversity
- 2.4 GHz frequency hopping spread spectrum (FHSS) technology
- Intelligent routing of DF1, DNP 3.0, and Modbus messages
- Secure wireless communications with data encryption, proprietary radio protocol, and 2.4 GHz FHSS physical layer
- Industrial temperature range
- 15+ mile range with high-gain antennas (longer with repeaters)
- Remote diagnostics without interrupting data communications
- Three year standard warranty

Specifications

Radio	
Frequency	2400 to 2483.5 MHz (varies by country)
Protocols	All standard IEEE 802.3 protocols
Encryption	ARC4 (40 or 128 bit)
Network Topology	Peer-to-Peer, store and forward repeater, Point-to-Point, Point-to-Multipoint
Hop Patterns	64 independent, non-interfacing networks
Error Detection	32-bit CRC and ARQ (Automatic Re-Send Query)
Radio Type	Frequency Hopping Spread Spectrum
Output power	1mW to 250mW, programmable (varies by country)

Channel data rates	250 Kbps
Receiver sensitivity	-96 dBm @ 10 ⁻⁶ BER
Channels - user selectable	64 North America (varies by country)
Adjacent Channel Rejection	>40 dB
Spurious Rejection	>50 dB
Typical indoor range	500 to 1500 ft (150 to 450 meters)
Outdoor range	15 + miles line of site with high-gain antennas
Security	ARC4 (40 or 128 bit)

Physical	
Enclosure	Extruded aluminum with DIN and panel mount
Size	4.10" x 3.71" x 2.05" (104.1 mm x 94.23 mm x 52.07 mm)
Ports	RS-232, DB9 RS-422 and RS-485 Asynchronous half- duplex/full-duplex 2400 bps to 115.2 Kbps full duplex
Antenna ports	(2) RP-SMA connectors, automatic antenna diversity
Weight	1 lbs /454g

Environmental	
Operating temperature	-40°C to +75°C (-40° F to 167° F)
Humidity	To 90% RH, non-condensing
External power	10 to 24 VDC
Average power	<4W

Regulatory Approvals

Type Approvals	
FCC	FCC Part 15.247
Industry Canada	RSS 210
Europe / CE	LVD EN 50850-2000 RF Safety EN 50364-2001 EMC EN 301 489-1, EN 301 489-17 Spectrum EN 300 328 v1.4.1
Mexico	Nom 121 SCT1 2 or 1
Australia	AS/NZS 4771
Brazil	365 / 2004 e 238 / 2000
Malaysia	SIRIM

Hazardous Locations	
UL	UL 1604 Class 1 Division 2, Groups A, B, C, D Temp Code T4A
CSA/cUL	C22.2 No. 213-1987
ATEZ Zone 2	ATEX II 3 G EEx nC IIC

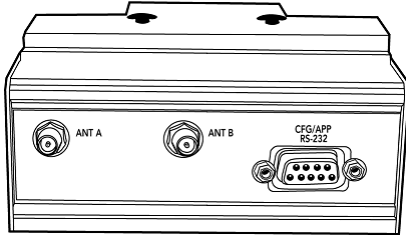
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Port Layouts

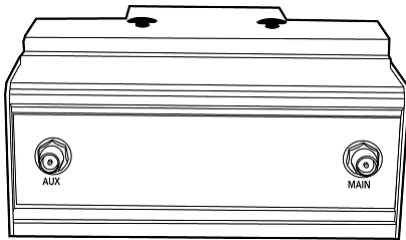
Top Ports

All three FH radios share the same top port configuration

FH Radios



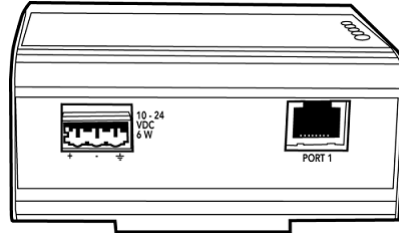
IH Radio



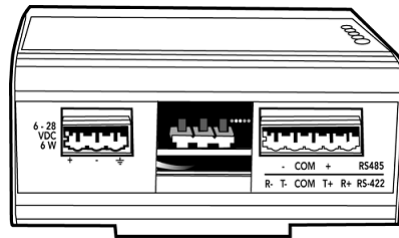
Bottom Ports

The FHE and FHES radios share the same bottom port configuration.

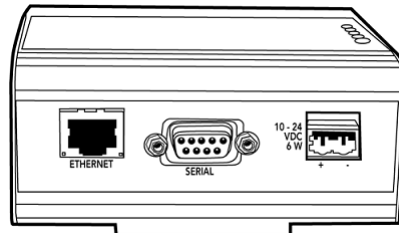
FHE and FHES



FHS



IH



Ordering Information

The following Ordering Information should be used to identify the radio product needed for your region. If you are unsure which radio to select, please contact your local distributor.

RadioLinX 2.4 GHz Wireless Ethernet Switches

Country	Catalog #	Frequency	RF Power	Power Supply
Australia	RLX-FHE-AU	2400-2483.5 MHz	4W	AU
China	RLX-FHE-CN	2400-2483.5 MHz	500 mW EIRP	EU
Europe	RLX-FHE-EU	2400-2483.5 MHz	100 mW EIRP	EU
France	RLX-FHE-FR	2400-2454 MHz	100 mW EIRP	EU
Mexico	RLX-FHE-MX	2450-2483.5 MHz	650 mW EIRP	US
Saudi Arabia	RLX-FHE-SA	2413-2439 MHz	100 mW EIRP	US
Singapore	RLX-FHE-SG	2400-2483.5 MHz	100 mW EIRP	UK
United Kingdom	RLX-FHE-UK	2400-2483.5 MHz	100 mW EIRP	UK
USA	RLX-FHE-US	2400-2483.5 MHz	4W	US

RadioLinX 2.4 GHz Frequency Hopping Ethernet Switch with Serial Server

Country	Catalog #	Frequency	RF Power	Power Supply
Australia	RLX-FHES-AU	2400-2483.5 MHz	4W	AU
China	RLX-FHES-CN	2400-2483.5 MHz	500 mW EIRP	EU
Europe	RLX-FHES-EU	2400-2483.5 MHz	100 mW EIRP	EU
France	RLX-FHES-FR	2400-2454 MHz	100 mW EIRP	EU
Mexico	RLX-FHES-MX	2450-2483.5 MHz	650 mW EIRP	US
Saudi Arabia	RLX-FHES-SA	2413-2439 MHz	100 mW EIRP	US
Singapore	RLX-FHES-SG	2400-2483.5 MHz	100 mW EIRP	UK
United Kingdom	RLX-FHES-UK	2400-2483.5 MHz	100 mW EIRP	UK
USA	RLX-FHES-US	2400-2483.5 MHz	4W	US

RadioLinX 2.4GHz Frequency Hopping Serial Modem

Country	Catalog #	Frequency	RF Power	Power Supply
Australia	RLX-FHS-AU	2400-2483.5 MHz	4W	AU
China	RLX-FHS-CN	2400-2483.5 MHz	500 mW EIRP	EU
Europe	RLX-FHS-EU	2400-2483.5 MHz	100 mW EIRP	EU
France	RLX-FHS-FR	2400-2454 MHz	100 mW EIRP	EU
Mexico	RLX-FHS-MX	2450-2483.5 MHz	650 mW EIRP	US
Saudi Arabia	RLX-FHS-SA	2413-2439 MHz	100 mW EIRP	US
Singapore	RLX-FHS-SG	2400-2483.5 MHz	100 mW EIRP	UK
United Kingdom	RLX-FHS-UK	2400-2483.5 MHz	100 mW EIRP	UK
USA	RLX-FHS-US	2400-2483.5 MHz	4W	US

RadioLinX 2.4 GHz Industrial Hotspot

Country	Catalog #	Frequency	RF Power	Power Supply
Australia	RLX-IH-AU	2400-2483.5 MHz	4W	AU
China	RLX-IH-CN	2400-2483.5 MHz	500 mW EIRP	EU
Europe	RLX-IH-EU	2400-2483.5 MHz	100 mW EIRP	EU
France	RLX-IH-FR	2400-2454 MHz	100 mW EIRP	EU
Mexico	RLX-IH-MX	2450-2483.5 MHz	650 mW EIRP	US
Saudi Arabia	RLX-IH-SA	2413-2439 MHz	100 mW EIRP	US
Singapore	RLX-IH-SG	2400-2483.5 MHz	100 mW EIRP	UK
United Kingdom	RLX-IH-UK	2400-2483.5 MHz	100 mW EIRP	UK
USA	RLX-IH-US	2400-2483.5 MHz	4W	US

PC Solutions

Wireless radio cards for use in a laptop computer.

Items in this Section

- RLX-PC-EB 12
- RLX-PC-IG 13

Industrial Wireless PC Card with External Antenna

RLX-PC-EB



The RadioLinX Industrial Wireless PC Card with External Antenna is an ultra-fast wireless solution for the most demanding industrial applications. While providing the benefits of industrial wireless Ethernet connectivity for fixed or mobile devices with 10/100 Base-T Ethernet connections, the RLX-PC-EB is a high-power client radio for the “industrial hotspot” RLX-IH and other wireless access devices.

Features and Benefits

- Up to 23 dBm transmit output power providing up to eight times more power than commercial grade PC cards.
- IEEE 802.11b compliant
- Automatic data rate scaling at 11, 5.5, 2, and 1 Mbps
- Improved 64/128-bit WEP Engine
- Wide coverage range up to 1200 meters in open space
- Advanced Power Management and extended battery life
- Plug and Play installation
- Improved indoor multi-path distortion provides higher link quality in indoor environments

Specifications

General	
Radio Data Rate	11, 5.5, 2, and 1 Mbps, Auto Fall-Back
Range (open environment) @23 dBm	11 Mbps - 300m/450m 5.5 Mbps - 400m/600m 2 Mbps - 500m/750m 1 Mbps - 800m/1200m
Operating Voltage	3.3V/5V
Compatibility	Fully interoperable with IEEE802.11b compliant products
LED Indicator	RF Link Activity
Network Architecture	Support ad-hoc, peer-to-peer networks, and infrastructure communications to wired Ethernet networks via Access Point
Drivers	Windows 98/ME/2000/NT 4.0/CE/XP
Access Protocol	CSMA/CA
Roaming	IEEE802.11b compliant
Security	64/128-bit WEP data encryption
Frequency Band	2.4 to 2.484 GHz
Radio Type	Direct Sequence Spread Spectrum (DSSS)

Modulation	CCK (11, 5.5 Mbps), DQPSK (2 Mbps), DBPSK (1 Mbps)
Operation Channels	11 for North America, 14 for Japan, 13 for Europe, 2 for Spain, and 4 for France
RF Output Power	23 dBm (200mW) - FCC 20dBm (100mW) - CE
Antenna	Two antenna connectors (MMCX)
Sensitivity @ FER=0.08	89dBm @ 11Mbps 91dBm @ 5.5Mbps 93dBm @ 2Mbps 95dBm @ 1Mbps

Physical

Form Factor	PCMCIA Type II PC Card
Size	118 (L) mm x 54 (W) mm x 7.5 (H) mm
Weight	40 g

Environmental

Temperature Range	-10° C to 60° C Operating -40° C to 70° C Storage
Humidity	5% to 95% typical

Regulatory Approvals

Type Approvals

FCC	FCC Part 15/UL
ETSI	ETSI 300/328/CE

Ordering Information

RLX-PC-EB	802.11b PC Radio Card with external antenna plug
------------------	--

RLX-PC-IG



The RadioLinx Industrial Wireless PC Card with Internal Antenna is an ultra-fast wireless solution for the most demanding industrial applications. While providing the benefits of industrial wireless Ethernet connectivity for fixed or mobile devices with 10/100 Base-T Ethernet connections, the RLX-PC-IG is a high-power client radio for the “industrial hotspot” RLX-IH and other wireless access devices.

Features and Benefits

- Up to 21 dBm transmit output power providing up to four times the transmit power of commercial grade wireless cards
- IEEE 802.11b and IEEE 802.11g compliant
- Automatic data rate scaling at up to 54 Mbps
- Wi-Fi Protected Access (WPA) with Pre-Shared Key (PSK) (requires driver update)
- 802.11d global regulatory roaming

Specifications

General	
Radio Data Rate	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Operating Voltage	3.3V/5V
Compatibility	Fully interoperable with IEEE802.11b & IEEE802.11g compliant products
LED Indicator	RF Link Activity
Network Architecture	Support ad-hoc, peer-to-peer networks, and infrastructure communications to wired Ethernet networks via Access Point
Drivers	Windows 98/ME/2000/NT 4.0/CE/XP
Access Protocol	CSMA/CA
Security	Wi-Fi Protected Access (WPA)
Frequency Band	2.12 to 2.484 GHz
Radio Type	Direct Sequence Spread Spectrum (DSSS)
Modulation	CCK (11, 5.5 Mbps), DQPSK (2 Mbps), DBPSK (1 Mbps), BPSK (6, 9 Mbps), QPSK (12, 18 Mbps), 16-QAM (24, 36 Mbps), 64-QAM (48, 54 Mbps)
Operation Channels	11 for North America, 13 for Europe, 2 for Spain, and 4 for France

RF Output Power	FCC
	< 23 dBm (200mW) @ 1, 2, 5.5, 11 Mbps <22 dBm (158 mW) @ 6, 9, 12, 18 Mbps < 19 dBm (79 mW) @ 24, 26 Mbps < 18 dBm (63 mW) @ 48, 54 Mbps
Antenna	CE
	20dBm (100mW) Power depends on country regulations
Antenna	Integrated with built-in diversity
Receive @ typical	-92 dBm @ 1 Mbps
	-89 dBm @ 2 Mbps
	-88 dBm @ 5.5 Mbps
	-91 dBm @ 6 Mbps
	-90 dBm @ 9 Mbps
	-85 dBm @ 11 Mbps
	-87 dBm @ 12 Mbps
	-85 dBm @ 18 Mbps
	-82 dBm @ 24 Mbps
	-78 dBm @ 36 Mbps
	-71 dBm @ 48 Mbps

Physical	
Form Factor	PCMCIA Type II PC Card
Size	118 (L) mm x 54 (W) mm x 7.5 (H) mm
Weight	40 g

Environmental	
Temperature Range	0° C to 55° C Operating -40° C to 70° C Storage
Humidity	5% to 95% typical

Regulatory Approvals	
Type Approvals	
FCC	FCC Part 15/UL
ETSI	ETSI 300/328/CE

Ordering Information	
RLX-PC-IG	802.11g PC Radio Card with internal antenna

2.4 GHz Omnidirectional Antennas

All antennas in this section have been tested for compatibility with Radiolinx products. Please see our Antenna Selection Guide to assist you in choosing the best antenna for your application.

Items in this Section

- 2 dBi Halfwave Antenna 16
- Tape Mount Antennas 17
- Straight Antenna 18
- Articulating Omni Antenna 19
- Magnetic Mount 20
- Whipless Antennas 21
- Base Station Antenna 22
- Heavy Duty Antenna 24

Halfwave Antenna



2 dBi Halfwave Antenna

The Halfwave Antenna is molded in polyurethane with a reverse polarity SMA connector.

Features and Benefits

- Halfwave design does not require a groundplane.
- Rugged injection molded design exceeds stringent OEM drop test requirements.

Ordering Information

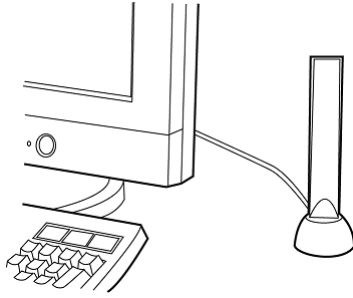
A2402S-OSLP	2 dBi Omnidirectional Antenna
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General Specifications

Radome Material	Flexible Urethane Exterior (molded)
Polarization	Vertical
Nominal Impedance	50 Ohms
Termination	Type RP-SMA plug
Height	2.5"

Electrical Specifications

Model #	Frequency Range	Gain	Bandwidth	VSWR
A2402S-OSLP	2400-2500 MHz	2 dBi	75 MHz	1.5:1



Tape Mount Antennas

The RadioLinx Tape Mount Antennas have a VSWR of less than 1.5:1. These rugged antennas accommodate a wide variety of applications including office LAN environments, factories, remote telemetry, and other harsh environments where a compact, stick-on mount antenna solution is required. The antennas utilize 3M® very high bond tape for quick, easy mounting.

Features and Benefits

- High bond tape mount provides mounting flexibility for various applications, including computer monitors, hand-held devices, cashier terminals, glass, and so on.
- Rugged, ultra thin housing design withstands heavy use and provides maximum visibility.
- The antennas can be used for fixed or mobile applications providing maximum flexibility and versatility.
- Desktop base mount included which is ideal for use in office and home environments.
- Antennas are provided in kits that include the antenna with a 72 inch pigtail that can be fitted with various connector types, and a base.

Ordering Information

A2402S-OTM	2 dBi Omnidirectional Tape Mount Antenna
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General Specifications

Radome Material	U.V. resistant pultruded fiberglass
Polarization	Vertical, linear
Nominal Impedance	50 Ohms
Mounting Method	3M® high bond tape Desktop base mount included in black
Termination	Type RP-SMA plug with LMR 100A 72" pigtail

Electrical Specifications

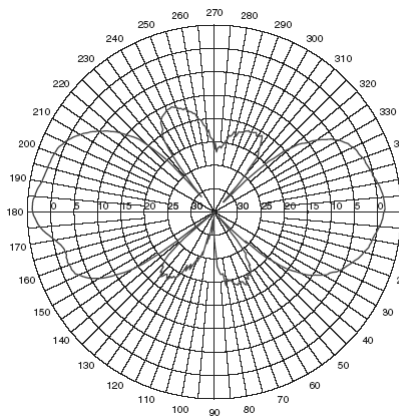
Model #	Frequency Range	Gain	VSWR	Max Power	Color
A2402S-OTM	2400-2500 MHz	2 dBi	<1.7:1 on glass, <2:1 in free space	5 W	Black

Mechanical Specifications

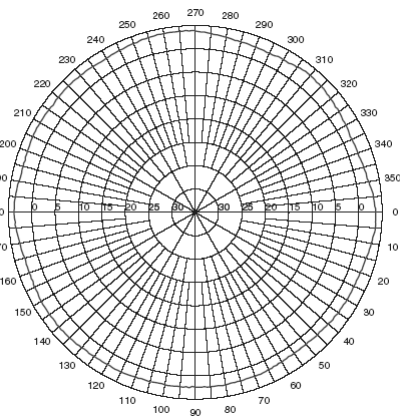
Model #	Temperature Range	Cable	Dimensions	Weight
A2402S-OTM	40° C to +85° C	72" (1,828.8 mm) LMR100A	5.7" L x 1" W x 0.1" D (144.8 x 25.4 x 2.54 mm)	0.14 lbs (0.064 kg)

Patterns

A2402S-OTM Elevation



A2402S-OTM Azimuth



2.4 GHz Omnidirectional Antennas

Straight Antenna



Straight Antenna

The Straight Antenna works well with belt-mounted remote radios and is available in two models.

Ordering Information

A2402S-OS	2 dBi Omnicollinear Antenna
A2405S-OS	5 dBi Omnicollinear Antenna

General Specifications

Radome Material	Flexible Urethane Exterior (molded)
Connector Material	Brass with black chrome plating
Polarization	Vertical
Nominal Impedance	50 Ohms
Termination	Type RP-SMA plug
Height	2.5"

Electrical Specifications

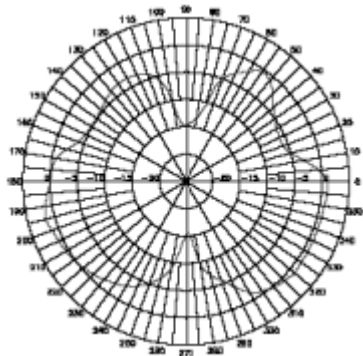
Model #	Frequency Range	Gain
A2402S-OS	2400-2500 MHz	2 dBi
A2405S-OS	2400-2483.5 MHz	5 dBi

Mechanical Specifications

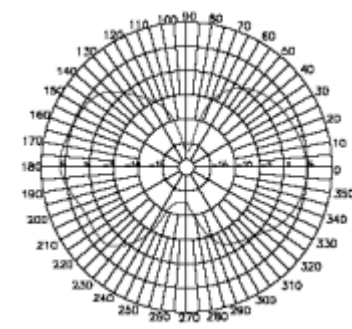
Model #	Height	Weight	Operation Temp	Storage Temp
A2402S-OS	4.1" (104 mm)	0.34 lbs (0.172 kg)	-20 to +65 celsius	-30 to +75 celsius
A2405S-OS	7.1" (180 mm)	0.38 lbs (0.172 kg)	-20 to +65 celsius	-30 to +75 celsius

Patterns

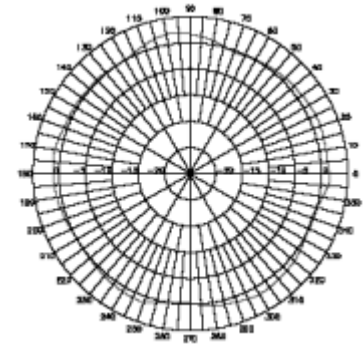
A2402S-OS Elevation



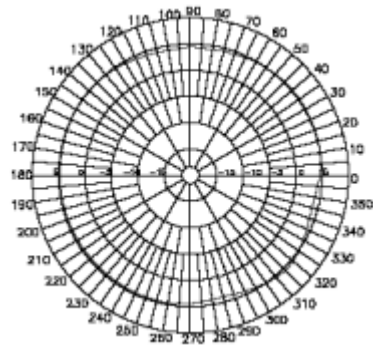
A2405S-OS Elevation



A2402S-OS Azimuth



A2405S-OS Azimuth





Articulating Omni Antenna

The Articulating Omni Antenna bends at the connection and is typically connected to a remote radio.

Ordering Information

A2405S-OA	5 dBi Omnidirectional Antenna
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General Specifications

Radome Material	Flexible Urethane Exterior (molded)
Connector Material	Brass with black chrome plating
Polarization	Vertical
Nominal Impedance	50 Ohms
Termination	Type RP-SMA plug
Height	2.5"

Electrical Specifications

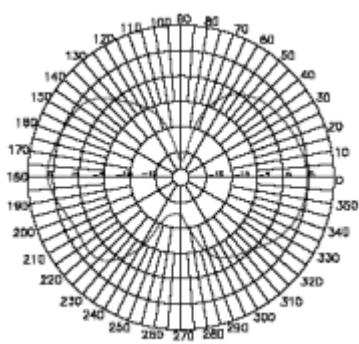
Model #	Frequency Range	Gain
A2405S-OA	2400-2500 MHz	5 dBi

Mechanical Specifications

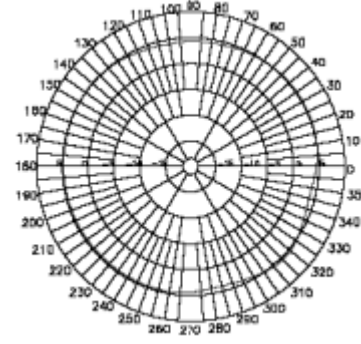
Model #	VSWR	Height	Operation Temp	Storage Temp
A2405S-OA	<2.0:1	6.5" (166 mm)	-20 to +65 celsius	-30 to +75 celsius

Patterns

A2405S-OA Elevation



A2405S-OA Azimuth



2.4 GHz Omnidirectional Antennas

Magnetic Mount Omnidirectional Antenna



Magnetic Mount

The engineered design of the Magnetic Mount Omnidirectional Antenna combines a magnetic base, an antenna whip and high efficiency cable that allows direct installation on metallic surfaces without the need to use a separate antenna mount.

Features and Benefits

- Black coated whip assembly and machine polymer base. Inconspicuous appearance, less susceptible to theft or vandalism.
- High efficiency cable provides maximum power to the antenna to help optimize system performance.

Ordering Information

A2405S-OM	5 dBi Omnidirectional Magnetic Mount Antenna
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General Specifications

Radome Material	Stainless steel with black chrome finish
Polarization	Vertical
Nominal Impedance	50 Ohms
Mounting Method	Magnetic Base
Termination	Type RP-SMA plug on 72" pigtail

Electrical Specifications

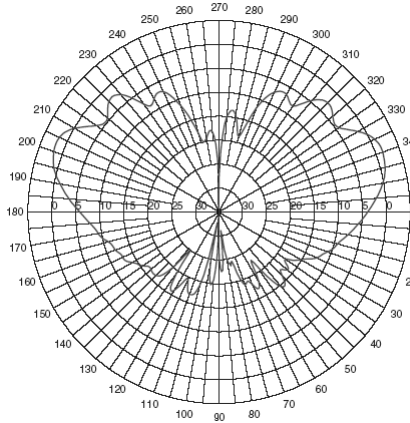
Model #	Frequency Range	Gain	VSWR	Max Power
A2405S-OM	2400-2484 MHz	5 dBi	<1.5:1	15 W

Mechanical Specifications

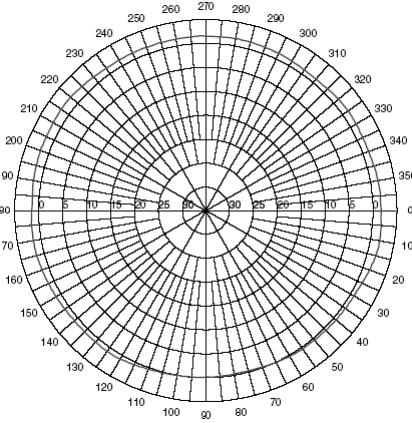
Model #	Height	Weight	Operation Temp	Rod/Coil Type
A2405S-OM	9" (228.6 mm)	2.5 oz	-40 to +70 celsius	Trilinear/open

Patterns

A2405S-OM Elevation



A2405S-OM Azimuth





Whipless Antennas

The RadioLinx A2403NBH-OC Whipless Antenna is a tough antenna for outdoor or indoor applications. The revolutionary design features field diversity with both vertical and horizontal polarization components. This provides the antenna

diversity, frequency agility, low visibility, wide bandwidth, wide bandwidth, and a low angle radiation pattern that is superior to traditional gain antennas in most applications.

Features and Benefits

- Excellent for voice to telemetry applications
- Permanent mounting. Permanent mount models are available for high-risk applications such as metering where antennas must resist vandalism and achieve economical mounting
- The patented whipless design allows car washes without removing the antenna. Whipless means they don't look like antennas, attract less attention, less vandalism, and have lower wind resistance. The A2403NBH-OC is also less susceptible to damage by trees, garages, or other obstructions
- Field diversity means that the antenna is simultaneously sensitive to both electric and magnetic fields of signal, like having two antennas. Field diversity makes the antenna resistant to the picket fence fading and multipath nulls that are found in urban operation and undulating mobile environments.

Ordering Information

A2403NBH-OC	3 dBi Omnidirectional N Jack Bulkhead Antenna
--------------------	---

General Specifications

Radome Material	White housing
Polarization	Vertical or horizontal
Nominal Impedance	50 Ohms
Mounting Base Diameter	Bulkhead mounting hardware included
Termination	Type N jack standard

Electrical Specifications

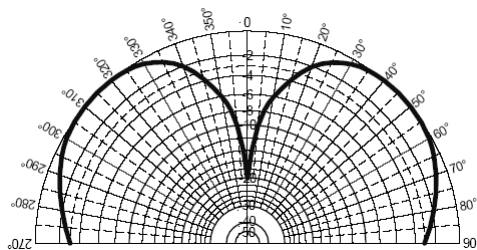
Model #	Frequency Range	Gain	Bandwidth @ 1.5:1 VVSR	VSWR	Max Power	Downtilt
A2403NBH-OC	2400-2500MHz	3 dBi	>100 MHz	1.5:1	100 W	N/A

Mechanical Specifications

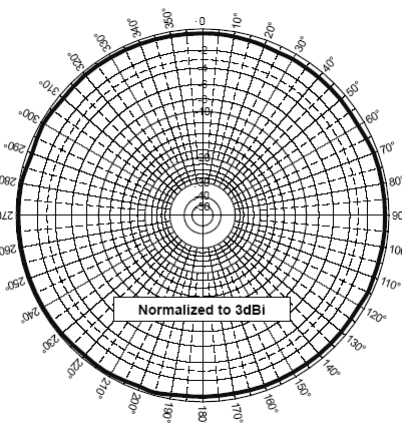
Model #	Height	Weight
A2403NBH-OC	3.5 inches (89.9 mm)	N/A

Patterns

A2403NBH-OC Elevation



A2403NBH-OC Azimuth



2.4 GHz Omnidirectional Antennas

Base Station Antenna



Base Station Antenna

The RadioLinX wireless broadband Omnidirectional Base Station Antennas are designed to provide maximum performance and reliability under the toughest weather conditions. These antennas feature a U.V. stable, vented radome that provides the ultimate protection against weather elements. The antennas can be mast, wall, or ceiling mounted.

These antennas are typically composed of several linear antennas stacked on top of each other. The number of stacked elements increases the gain of this antenna which is typically between 5 to 8 dBi depending on the number of elements. This array of antennas provides an omni-directional pattern. Polarity is linear, parallel to the length of the antenna.

Features and Benefits

- UV stable, pultruded fiberglass radome. Allows outdoor installation even in harsh climates.
- Vented system design provides reliable performance by protecting the electrical design against extreme moisture and/or temperatures.
- Thread relief on connector. Improved accessibility for taping reduces installation time and improves overall effectiveness.
- Internal O-ring seal in the base of the antenna with integrated connector at the base. Ensures a watertight seal to prevent water from migrating into the antenna connector.
- Electrical downtilt options on select models provide system planners flexibility in challenging operating environments.

Electrical Specifications

Model #	Frequency	Gain	Bandwidth @ 1.5:1 WVSR	Vertical Beamwidth @ ½ Power	VSWR	Max Power	Downtilt
A2404NJ-OC	2400-2483.5 MHz	4 dBi	100 MHz	30°	< 1.5:1	25 Watts	N/A
A2406NJ-OC	2400-2483.5 MHz	6 dBi	100 MHz	20°	< 1.5:1	25 Watts	N/A
A2408NJ-OC	2400-2483.5 MHz	8 dBi	100 MHz	13°	< 1.5:1	25 Watts	N/A

Mechanical Specifications

Model #	Wind Survival	Equivalent Flat Plate Area	Lateral Thrust @ Rated Wind	Bending Movement @ Rated Wind	Height	Weight
A2404NJ-OC	125 mph	.02 ft ²	2.1 lbs	0.7 ft-lbs	8.1" (294.6 mm)	0.34 lbs (0.172 kg)
A2406NJ-OC	125 mph	.04 ft ²	3.0 lbs	1.4 ft-lbs	11.6" (294.6 mm)	0.38 lbs (0.172 kg)
A2408NJ-OC	125 mph	.06 ft ²	5.2 lbs	4.4 ft-lbs	20.2" (513.1 mm)	0.50 lbs (0.226 kg)

Ordering Information

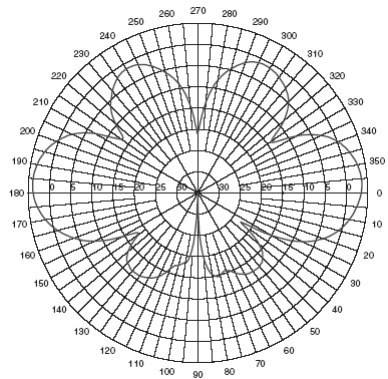
A2404NJ-OC	4 dBi Omnidirectional N Jack Collinear Antenna
A2406NJ-OC	6 dBi Omnidirectional N Jack Collinear Antenna
A2408NJ-OC	8 dBi Omnidirectional N Jack Collinear Antenna

General Specifications

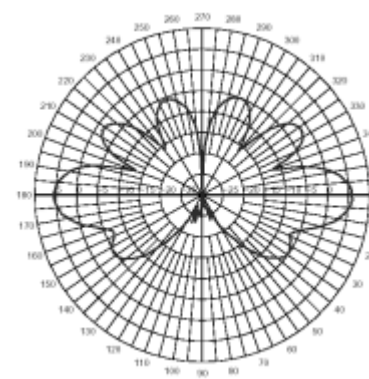
Radome Material	UV resistant pultruded fiberglass
Polarization	Vertical
Nominal Impedance	50 Ohms
Mounting Base Diameter	1.25 inches
Mounting Method	RLX-MMK-1924 <i>L-bracket mount for wall or pipe mount</i> RLX-MMK8 <i>Aluminum extruded bracket for mast mounting</i> RLX-MMK11 <i>Ceiling mount bracket</i>
Termination	Type N jack standard with all models

Patterns

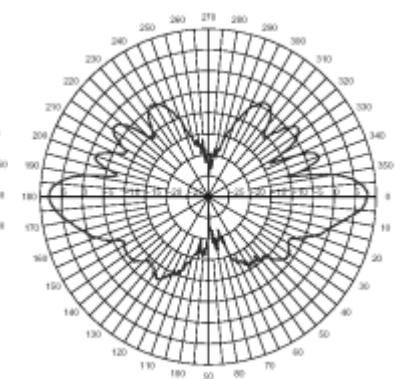
A2404NJ-OC Elevation



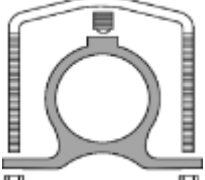


A2406NJ-OC Elevation



A2408NJ-OC Elevation



Mounting Hardware

Part Number	Description	Included with	Works with	Illustration
RLX-MMK8	Mounting bracket for mounting a 1 ¼ inch diameter antenna to a 2 inch diameter mast	A2404NJ-OC A2406NJ-OC A2408NJ-OC	A2404NJ-OC A2406NJ-OC A2408NJ-OC	
RLX-MMK11	Ceiling mount bracket for 2.4 GHz	N/A	A2406NJ-OC A2408NJ-OC	
RLX-MMK1924	L bracket for mounting omnidirectional antennas to a 2 inch maximum diameter mast. Bracket is 6 inches long with a 5/8 diameter hole	N/A	A2404NJ-OC A2406NJ-OC A2408NJ-OC	

2.4 GHz Omnidirectional Antennas

Heavy Duty Antenna



Heavy Duty Antenna

The Omnidirectional Heavy Duty Antenna Series antennas are optimized for use in a wide variety of wireless systems. Typical uses include WLAN access points or bridge (802.11b/g), and surveillance transmitters.

These antennas consist of a collinear array with elements stacked vertically. Unique phasing cancels out-of-phase current distribution, improving system performance. This design maintains an omni pattern in the horizontal plane. The OCD series are free space antennas; no ground plane is required.

Features and Benefits

- UV stable, pultruded fiberglass radome. Allows outdoor installation even in harsh climates.
- 3dBi, 6 dBi, and 9 dBi antennas provide uniform omni coverage
- Unique design allows economical build out
- Mounting kit includes all hardware needed.
- Reflector option provides directional beamshaping and increased performance.

Electrical Specifications

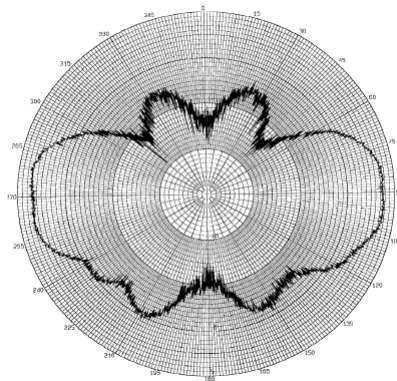
Model #	Frequency	Gain	Vertical Beamwidth (-3 dB point)	Maximum Power
A2403NJ-OCD	2400-2485 MHz	3 dBi	55°	25 Watts
A2406NJ-OCD	2400-2485 MHz	6 dBi	25°	25 Watts
A2409NJ-OCD	2400-2485 MHz	9 dBi	14°	25 Watts

Mechanical Specifications

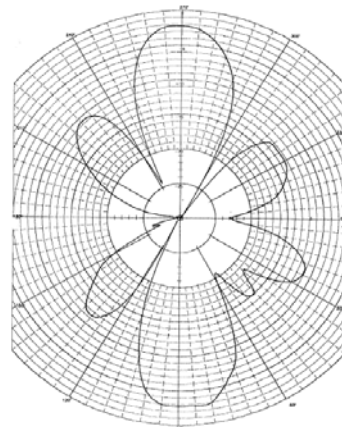
Model #	Wind Survival	Equivalent Flat Plate Area	Height	Weight
A2403NJ-OCD	100 mph	10-40 Sq. inch	16"	1.5 lbs
A2406NJ-OCD	100 mph	10-40 Sq. inch	19"	1.5 lbs
A2409NJ-OCD	100 mph	10-40 Sq. inch	27"	2.0 lbs

Patterns

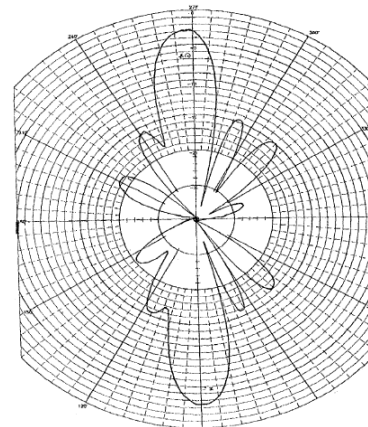
A2403NJ-OCD Elevation



A2406NJ-OCD Elevation



A2409NJ-OCD Elevation



Ordering Information

A2403NJ-OCD	3 dBi Omnidirectional Antenna
A2406NJ-OCD	6 dBi Omnidirectional Antenna
A2409NJ-OCD	9 dBi Omnidirectional Antenna

General Specifications

Radome Material	Black fiberglass
Polarization	Vertical
Nominal Impedance	50 Ohms
Mounting Base Diameter	Use mast up to 2"
Mounting Method	Mast mount kit included
Termination	Type N jack

2.4 GHz Directional Antennas

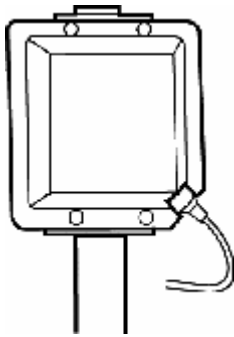
All antennas in this section have been tested for compatibility with Radiolinx products. Please see our Antenna Selection Guide to assist you in choosing the best antenna for your application.

Items in this Section

- Panel/Patch Antennas 26
- Yagi Antennas 28
- Parabolic Antennas 30

2.4 GHz Directional Antennas

Directional Panel/Patch Antennas



Panel/Patch Antennas

The RadioLinx Directional Panel/Patch Antennas are designed to cover 2.45 GHz ISM with a VSWR of less than 1.5:1, obtaining maximum gain with an attractive, low profile package. All models provide efficient and stable performance across the band and can be mounted indoors or outdoors.

Ordering Information

A2408NJ-DP	8 dBi Panel Antenna
A2413NJ-DP	13 dBi Panel Antenna
A2419NJ-DP	19 dBi Panel Antenna

General Specifications

Polarization	Linear
Lightning Protection	Direct Ground
Mounting Method	Mounting brackets included
Termination	8 dBi antenna uses type N jack on 8" pigtail All others use type N jack

Features and Benefits

- Flat design provides efficiency and low back lobes with minimal depth dimension
- Allowed in covenant controlled areas
- Easy installation saves time and money
- Protected from the environment (ice loading and wildlife)

Electrical Specifications

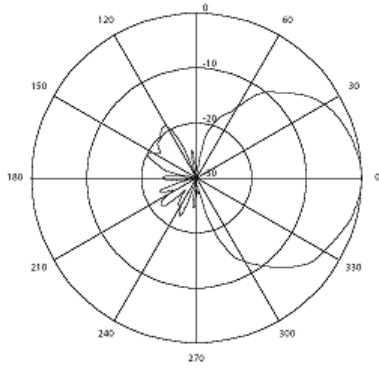
Model #	Frequency Range	Gain	Front-to-Back Ratio	Horizontal Beamwidth	Vertical Beamwidth	VSWR	Max Power
A2408NJ-DP	2.4-2.5 GHz	8.5 dBi	>30 dB	60°	60°	<1.5:1	100 W
A2413NJ-DP	2.4-2.5 GHz	13 dBi	>30 dB	38°	38°	<1.5:1	100 W
A2419NJ-DP	2.4-2.5 GHz	19 dBi	>30 dB	18°	18°	<1.5:1	100 W

Mechanical Specifications

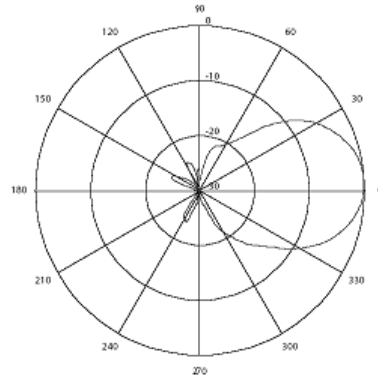
Model #	Wind/ice loading area	Lateral Thrust @ 100 mph	Torsional moment @ 100 mph with standard mounting	Dimensions
A2408NJ-DP	26.5 in ² (171 cm ²)	5 lbs (11 kg)	0.1 ft/lbs (0.22 m/kg)	5.15" W x 5.15" H x .82" D (13.1 x 13.1 x 2.1 cm)
A2413NJ-DP	72 in ² (466 cm ²)	10 lbs (22 kg)	0.2 ft/lbs (0.22 m/kg)	8.5" W x 8.5" H x 1.125" D (21.6 x 21.6 x 2.8 cm)
A2419NJ-DP	240 in ² (1552 cm ²)	15 lbs (33 kg)	0.4 ft/lbs (0.88 m/kg)	15.5" W x 15.5" H x 1.125" D (39.4 x 39.4 x 2.8 cm)

Patterns

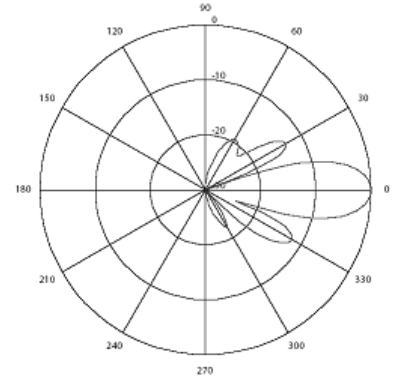
A2408NJ-DP Elevation



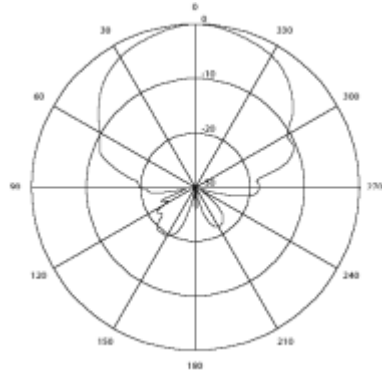
A2413NJ-DP Elevation



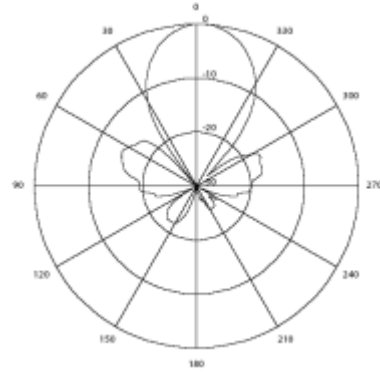
A2419NJ-DP Elevation



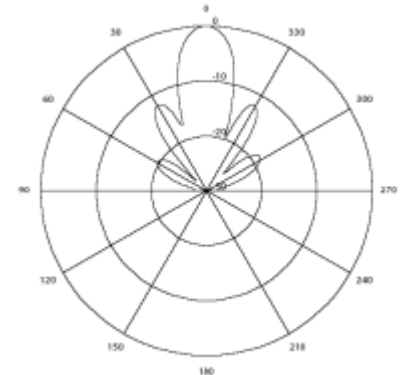
A2408NJ-DP Azimuth



A2413NJ-DP Azimuth



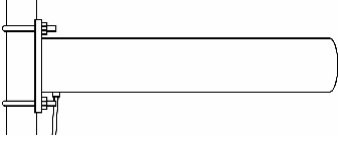
A2419NJ-DP Azimuth



2.4 GHz Directional Antennas

Directional Yagi Antenna

Yagi Antennas



The RadioLinx Directional Yagi Antenna can be used as bridge antennas between two networks or for point-to-point communications. The antennas are field adjustable for vertical or horizontal polarization with matched principal plane beamwidth for optimum performance in either orientation. This design also provides improved front-to-back ratio and sidelobe suppression that reduces interference. All models feature a robust mounting structure for consistent performance regardless of weather conditions.

Typically, Yagi antennas compose an array of linear elements, parallel to one another and attached perpendicular to and along the length of a metal boom. Elements on one side of the feed element are longer and act as reflectors. Elements on the other side of the feed element are shorter and act as directors. The antenna radiates in a beam out the end with the shorter elements. Beam width varies (longer length produces a narrower beam). This type of antenna produces gain in the 6-15 dBi range depending on the overall geometry of the antenna.

Features and Benefits

- Field adjustable to allow vertical or horizontal polarity. Eliminates co-channel interference from neighboring radiators. Polarity markings molded on the antenna ensure proper installation and correct orientation.
- Optional articulating mount allows precise adjustment of the antenna both vertically and horizontally.
- All antennas include a robust mast mount bracket designed to withstand 125 mph wind.
- Matched principal plane beamwidths with excellent sidelobe suppression and cross polarization

Electrical Specifications

Model #	Frequency Range	Gain	Front-to-Back Ratio	Horizontal Bandwidth	Vertical Beamwidth	VSWR
A2410NJ-DY	2.4-2.5 GHz	10 dBi	23 dB	55°	55°	<1.5:1
A2415NJ-DY	2.4-2.5 GHz	15 dBi	30 dB	30°	30°	<1.5:1

Mechanical Specifications

Model #	Wind Survival	Lateral Thrust at Rated Wind	Equivalent Flat Plate Area	Length	Weight	Cable
A2410NJ-DY	125 mph	5.8 lbs	0.060 ft ²	4.5" x 3" OD (114 mm x 76 mm OD)	1 lbs (0.5 kg)	18" (457 mm) coax
A2415NJ-DY	125 mph	18.3 lbs	0.020 ft ²	14" x 3" OD (356 mm x 76 mm OD)	1 lbs (0.5 kg)	18" (457 mm) coax

rejection of more than 20 dB. Provides superior signal quality with enhanced gain performance and minimal interference from neighboring radiators.

- 30 dB front-to-back ratio permits less physical separation on the tower, thus adding mounting flexibility at installation sites where space is limited.
- Attractive weather-proof radome constructed of UV resistant material provides robust and trouble free use in harsh outdoor climates.

Ordering Information

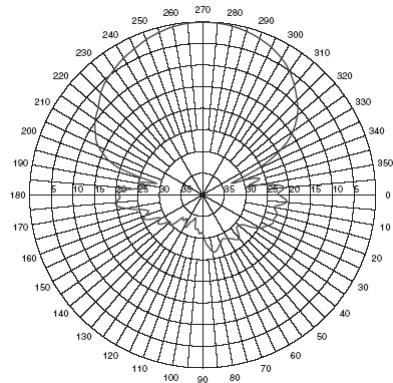
A2410NJ-DY	10 dBi Directional N Jack Yagi Antenna
A2415NJ-DY	15 dBi Directional N Jack Yagi Antenna

General Specifications

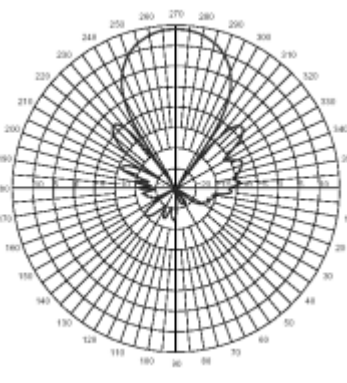
Radome Material	White plastic
Polarization	Vertical or horizontal, linear (user adjustable)
Lightning Protection	DC grounded
Nominal Impedance	50 Ohms
Mounting Method	Heavy duty Yagi mounting bracket (included) permits mast mounting on mast up to 2 inches O.D. RLX-MYK18 adjustable wall/pipe mount allows 180° (included angle) azimuth and elevation adjustment (sold separately)
Termination	Type N jack standard with all models

Patterns

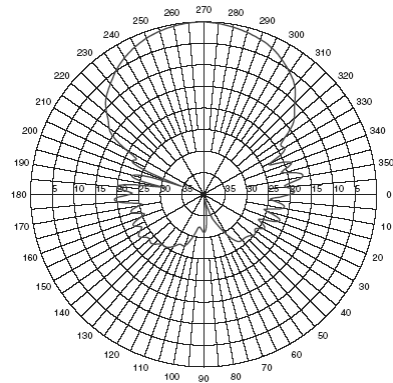
A2410NJ-DY Elevation



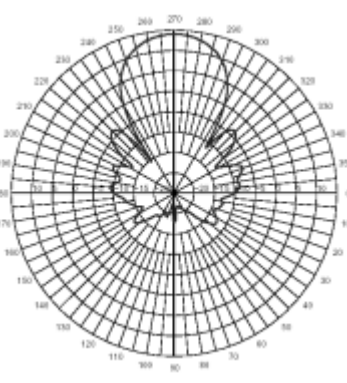
A2415NJ-DY Elevation




A2410NJ-DY Azimuth



A2415NJ-DY Azimuth

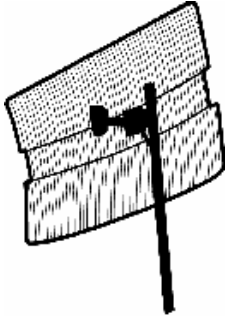


Mounting Hardware

Part Number	Description	Included with	Works with	Illustration
RLX-MYK18	Adjustable Yagi mounting kit. Clamps to a vertical mast up to 2 inches OD	N/A	A2410NJ-DY A2415NJ-DY	

2.4 GHz Directional Antennas

Parabolic Antenna



Parabolic Antennas

The Parabolic Antenna is constructed of welded steel wires which are galvanized and then powder coat painted with a light gray epoxy paint. The wire grid semi-parabolic design offers unsurpassed low wind loading while maintaining good RF performance. The compact low visual impact attractive styling blends well in almost any application.

Features and Benefits

- Rugged and Weatherproof
- Ultra Low Wind Loading and Low Visual Impact
- Vertical or Horizontal Polarization
- Various Connection Choices

Electrical Specifications

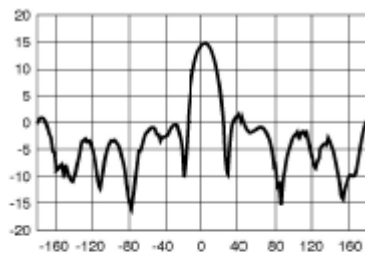
Model #	Frequency Range	Gain	Front-to-Back Ratio	3dB BW	VSWR
A2415NJ-DB	2.4-2.485 GHz	15 dBi	17 dB	17° V 21° H	<1.5:1
A2419NJ-DB	2.4-2.485 GHz	19 dBi	22 dB	11" V 17" H	<1.5:1
A2424NJ-DB	2.4-2.485 GHz	24 dBi	25 dB	8" V 10" H	<1.5:1

Mechanical Specifications

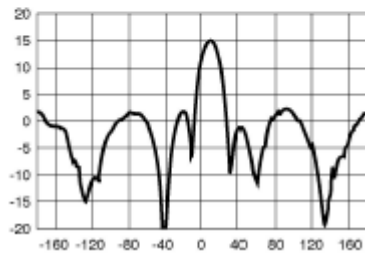
Model #	Dimensions	Weight	Vertical Tilt
A2415NJ-DB	12" x 16" (305 x 406 mm)	4 lbs (1.8 kg)	0 to 45°
A2419NJ-DB	16.5" x 24" (419 x 610 mm)	6 lbs (2.7 kg)	0 to 45°
A2424NJ-DB	28.5" x 36" (724 x 914 mm)	11 lbs (5 kg)	0 to 45°

Patterns

A2415NJ-DB

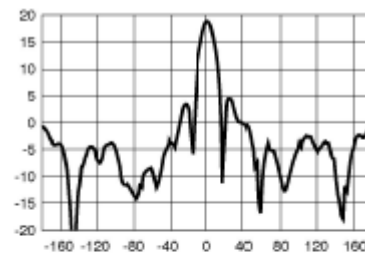


Horizontal

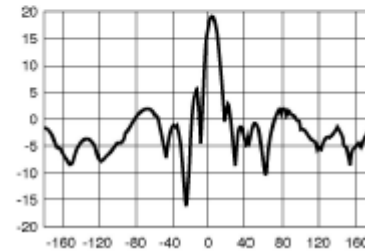


Vertical

A2419NJ-DB

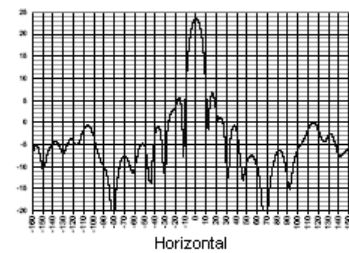


Horizontal

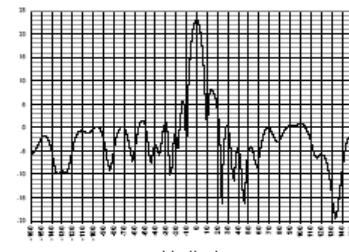


Vertical

A2424NJ-DB



Horizontal



Vertical

Ordering Information

A2415NJ-DB	15 dBi Directional N Jack Parabolic Antenna
A2419NJ-DB	19 dBi Directional N Jack Parabolic Antenna
A2424NJ-DB	24 dBi Directional N Jack Parabolic Antenna

General Specifications

Radome Material	White plastic
Polarization	Vertical or horizontal, linear (user adjustable)
Nominal Impedance	50 Ohms
Termination	Type N jack

Cables

RadioLinx cables are designed to provide the lowest attenuation and are pre-cut and assembled with connectors at the factory to ensure ultimate reliability and customer satisfaction.

Items in this Section

- LMR-195 Type Cables 32
- LMR-400 Type Cables 33
- LMR-600 Type Cables 34
- VXL5-50 Type Cables 35
- Cables 36
- Cable Numbering 37

LMR-195 Type Cables



LMR-195 Type Cables are ideal for jumper assemblies in wireless communication systems and short antenna feed runs.

Features and Benefits

- **Flexible:** With a ½-inch minimum bend radius, the LMR-195 cable is substantially more flexible than RG-142 and very comparable to RG-58. The LMR-195 cable affords lower loss, greater shielding, and lower cost.
- **Low Loss:** LMR-195 boasts lower loss than other RG58/RG142 type cables. This is achieved through the use of a high velocity gas-injected closed cell foam dielectric, and bonded aluminum tape outer conductor.
- **Weatherproof:** The UV-protected black polyethylene jacket makes the cables rugged and resistant to the full range of outdoor environments. Various jacket materials are available to address other indoor and outdoor requirements.
- **RF Shielding:** The bonded aluminum tape outer conductor is overlapped to provide 100% coverage, resulting in >90 dB RF shielding (>180 dB crosstalk) and excellent interference immunity (ingress and egress); a substantial improvement from RG58s 40 dB and RG142s 60 dB performance level
- **Phase Stability:** The intimately bonded structure and foam dielectric of LMR cables provide excellent phase stability over temperature and with bending. The high velocity dielectric results in superior phase stability as compared with RG58 and RG142 solid dielectric cables.

Ordering Information

Cable Type	Part Number	Part Description
LMR-195	C19M10-30-002	2' LMR 195 RA RP-SMA plug--> RP-SMA BH jack cable
LMR-195	C19M10-30-005	5' LMR 195 RA RP-SMA plug --> RP-SMA BH jack cable
LMR-195	C19M10-30-010	10' LMR 195 RA RP-SMA plug --> RP-SMA BH jack cable
LMR-195	C19M10-30-015	15' LMR 195 RA RP-SMA plug --> RP-SMA BH jack cable
LMR-195	C19M10-30-020	20' LMR 195 RA RP-SMA plug --> RP-SMA BH jack cable
LMR-195	C19M10-40-002	2' LMR 195 RA RP-SMA plug --> N plug cable
LMR-195	C19M10-40-005	5' LMR 195 RA RP-SMA plug --> N plug cable
LMR-195	C19M10-40-010	10' LMR 195 RA RP-SMA plug --> N plug cable
LMR-195	C19M10-40-020	20' LMR 195 RA RP-SMA plug --> N plug cable
LMR-195	C19M10-60-002	2' LMR 195 RA RP-SMA plug --> RA-N plug
LMR-195	C19M10-80-002	2' LMR 195 RA RP-SMA plug --> N BH jack cable
LMR-195	C19M10-80-005	5' LMR 195 RA RP-SMA plug--> N BH jack cable
LMR-195	C19M10-80-010	10' LMR 195 RA RP-SMA plug --> N BH jack cable
LMR-195	C19M40-60-003	3' LMR 195 N plug --> RA-N plug cable
LMR-195	C19M40-80-003	3' LMR 195 N plug --> N Jack BH
LMR-195	C19M60-90-003	3' LMR 195 RA N plug --> NBH jack cable

Mechanical Specifications

Minimum Bend Radius	0.5 in (12.7 mm)
Bending Movement	0.2 ft lbs (0.27 N-m)
Weight	0.021 lb/ft (0.03 kg/m)
Tensile Strength	40 lbs (18.2 kg)
Flat Plate Crush	15 lb/in (0.27 kg/mm)

Environmental Specifications

Installation Temp Range	-40° / +185° F
Storage Temp Range	-94° / +185° F
Operating Temp Range	-70° / + 85° C
	-40° / +185° F
	-40° / +85° C

Electrical Specifications

Voltage Withstand	1000 VDC
Peak Power	2.5 kW
Jacket Spark	3000 VRMS

Attenuation Average @ 2500 MHz

dB/100 ft	dB/100 m	Power kW
18.1	59.5	0.09

LMR-400 Type Cables



LMR-400 Type Cables are ideal for jumper assemblies in wireless communication systems and antenna feed runs less than one-hundred feet.

Features and Benefits

- **Flexible:** With a 1-inch minimum bend radius, LMR-400 cable can be easily routed into and through tight spaces without kinking.
- **Low Loss:** LMR400 has the lowest loss of any RG8/RG13 type cable. This is achieved through the use of a high velocity gas-injected closed cell foam dielectric, and bonded aluminum tape outer conductor.
- **Weatherproof:** The UV protected black polyethylene jacket makes the cable rugged and resistant to the full range of outdoor environments. The DB version of the cable includes a water blocking material within the braid to protect the cable from moisture ingress and eliminates any potential for corrosion in harsh environments or should the jacket become damaged.
- **RF Shielding:** The bonded aluminum tape outer conductor is overlapped to provide 100% coverage, resulting in >90 dB RF shielding (>180 dB crosstalk) and excellent interference immunity (ingress and egress).
- **Phase Stability:** The intimately bonded structure and foam dielectric of LMR cables provide excellent phase stability over temperature and with bending. The high velocity dielectric results in superior phase stability as compared with solid and air-spaced dielectric cables.

Ordering Information

Cable Type	Part Number	Part Description
LMR-400	C40M40-40-002	2' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-005	5' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-010	10' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-015	15' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-020	20' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-025	25' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-040	40' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-050	50' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-060	60' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-080	80' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-100	100' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-150	150' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-200	200' LMR 400 N Plug --> N plug cable
LMR-400	C40M40-40-250	250' LMR 400 N Plug --> N plug cable

Mechanical Specifications

Minimum Bend Radius	1 in (25.4 mm)
Bending Movement	0.5 ft lbs (0.68 N-m)
Weight	0.068 lb/ft (0.10 kg/m)
Tensile Strength	160 lbs (72.6 kg)
Flat Plate Crush	40 lb/in (0.71 kg/mm)

Environmental Specifications

Installation Temp Range	-40° / +185° F
Storage Temp Range	-94° / +185° F -70° / + 85° C
Operating Temp Range	-40° / +185° F -40° / +85° C

Electrical Specifications

Voltage Withstand	2500 VDC
Peak Power	16 kW
Jacket Spark	8000 VRMS

Attenuation Average @ 2500 MHz

dB/100 ft	dB/100 m	Power kW
6.8	22.2	0.33

LMR-600 Type Cables



LMR-600 Type Cables are ideal for jumper assemblies in wireless communication systems and antenna feed runs greater than one-hundred feet.

Features and Benefits

- **Flexible:** With a 1 ½ -inch minimum bend radius, LMR-600 cable can be easily routed into and through tight spaces without kinking.
- **Low Loss:** LMR-600 has the lowest loss of any ½-inch superflex cable. This is achieved through the use of a high velocity gas-injected closed cell foam dielectric, and bonded aluminum tape outer conductor.
- **Weatherproof:** The UV protected black polyethylene jacket makes the cable rugged and resistant to the full range of outdoor environments. The DB version of the cable includes a water blocking material within the braid to protect the cable from moisture ingress and eliminates any potential for corrosion in harsh environments or should the jacket become damaged.
- **RF Shielding:** The bonded aluminum tape outer conductor is overlapped to provide 100% coverage, resulting in >90 dB RF shielding (>180 dB crosstalk) and excellent interference immunity (ingress and egress).
- **Phase Stability:** The intimately bonded structure and foam dielectric of LMR cables provide excellent phase stability over temperature and with bending. The high velocity dielectric results in superior phase stability as compared with solid and air-spaced dielectric cables.

Ordering Information

Cable Type	Part Number	Part Description
LMR-600	C60M40-40-050	50' LMR 600 N Plug --> N plug cable
LMR-600	C60M40-40-060	60' LMR 600 N Plug --> N plug cable
LMR-600	C60M40-40-080	80' LMR 600 N Plug --> N plug cable
LMR-600	C60M40-40-100	100' LMR 600 N Plug --> N plug cable
LMR-600	C60M40-40-125	125' LMR 600 N Plug --> N plug cable
LMR-600	C60M40-40-150	150' LMR 600 N Plug --> N plug cable
LMR-600	C60M40-40-200	200' LMR 600 N Plug --> N plug cable

Mechanical Specifications

Minimum Bend Radius	1.5 in (38.1 mm)
Bending Movement	2.75 ft lbs (3.73 N-m)
Weight	0.031 lb/ft (0.20 kg/m)
Tensile Strength	350 lbs (158.9 kg)
Flat Plate Crush	60 lb/in (1.07 kg/mm)

Environmental Specifications

Installation Temp Range	-40° / +185° F
Storage Temp Range	-94° / +185° F
Operating Temp Range	-70° / + 85° C
	-40° / +185° F
	-40° / +85° C

Electrical Specifications

Voltage Withstand	4000 VDC
Peak Power	40 kW
Jacket Spark	8000 VRMS

Attenuation Average @ 2500 MHz

dB/100 ft	dB/100 m	Power kW
4.4	14.5	0.52

VXL5-50 Type Cables



Andrews VXL Series 7/8-inch Standard Cable, Standard Jacket VXL5-50 flexible feeder cable uses advanced processing technology to provide a lower cost/higher performance solution for wireless applications. Versatile and flexible, VXL series cable is ideal for installation in difficult areas such as lift shafts, monopoles, and collocated sites.

Faster Site Completion

VXL series cable makes the job go faster. VXL cable is easier to handle, easier to bend, and easier to install. Using "jumperless" VXL5-50 reduces the number of connectors and weatherproofing. The result is a faster tower build out.

The lowest loss solution in the industry

When used as a one-piece feeder line, VXL5-50 requires no antenna jumpers. It lowers VSWR, reduces insertion loss, and minimizes installation time. System designers and engineers can eliminate the need for jumper cables when VXL5-50, a 7/8-inch feeder cable is specified. It is suitable for continuous cable runs from the base station cabinet to the antenna.

Ordering Information

Cable Type	Part Number	Part Description
VXL5-50	CVX540-40-100	100' VXL5 N Plug --> N plug cable
VXL5-50	CVX540-40-120	120' VXL5 N Plug --> N plug cable
VXL5-50	CVX540-40-140	140' VXL5 N Plug --> N plug cable
VXL5-50	CVX540-40-160	160' VXL5 N Plug --> N plug cable
VXL5-50	CVX540-40-180	180' VXL5 N Plug --> N plug cable
VXL5-50	CVX540-40-200	200' VXL5 N Plug --> N plug cable
VXL5-50	CVX540-40-400	400' VXL5 N Plug --> N plug cable

Mechanical Specifications

Nominal Size	7/8-in
Jacket O.D.	1.08 in (27.5 mm)
Minimum Bend Radius	5 in (125 mm)
One Time Minimum Bend Radius	3.5 in (89 mm)
Bending Movement	12 ft lbs (16.3 N-m)
Number of Bends	15 min (40 typical)
Weight	0.29 lb/ft (0.431 kg/m)
Tensile Strength	225 lbs (102 kg)
Flat Plate Crush	80 lb/in (1.4 kg/mm)

Environmental Specifications

Installation Temp Range	-40° / +185° F
Storage Temp Range	-40° / +140° F
Operating Temp Range	-70° / +60° C
	-67° / +185° F
	-55° / +85° C

Electrical Specifications

Voltage Withstand	1000 VDC
Peak Power	90 kW
Jacket Spark	8000 VRMS

Attenuation Average @ 2500 MHz

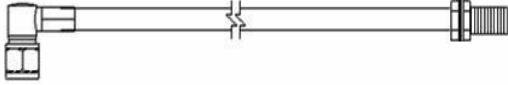
dB/100 ft	dB/100 m	Power kW
2.18	7.15	1.21

Cables

The following Extension and Conversion Cables can be purchased for use with RadioLinx products.

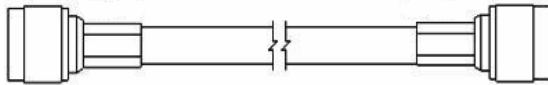
Extension Cables

C19M10-30-0XX (RP-SMA Plug to RP-SMA Jack)



LMR-195 Extension Cable with reverse polarity, right angle RP SMA female type connector on radio side and reverse polarity, SMA bulkhead connector on antenna side. Use to remotely mount antennas with RP female connectors.

C40M40-40-XXX, C60M40-40-XXX, and CVX540-40-XXX (N Plug to N Plug)



LMR-400, 600, VLX5 type extension cables with standard N plug connector on both ends. Use to connect antenna to lightning protector on bulkhead.

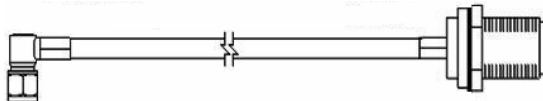
Conversion Cables

C19M10-40-0XX (RP-SMA Plug to N Plug)



LMR-195 type Conversion Cable with reverse-polarity, right angle RP SMA female type connector on radio side and standard N male plug connector on antenna side. Converts SMA connector type to N plug type and normally attaches to enclosure side bulkhead lightning protector.

C19M10-80-0XX (RP-SMA Plug to N Jack)



LMR-195 type conversion cable with reverse polarity, right angle SMA female type connector on radio side and standard N bulkhead connector on antenna side. Converts SMA connector type to N bulkhead and normally attaches to extension cable on outside of enclosure for indoor applications (i.e., no lightning protector)

C10M15-30-0XX (MMCX to RP-SMA Jack)



Cable for use with PC card radios.

C10M15-40-0XX (MMCX to N Plug)



Cable for use with PC card radios.

Cable Numbering

The following Cable Numbering chart shows a cable number example, and how the numbering is broken down.

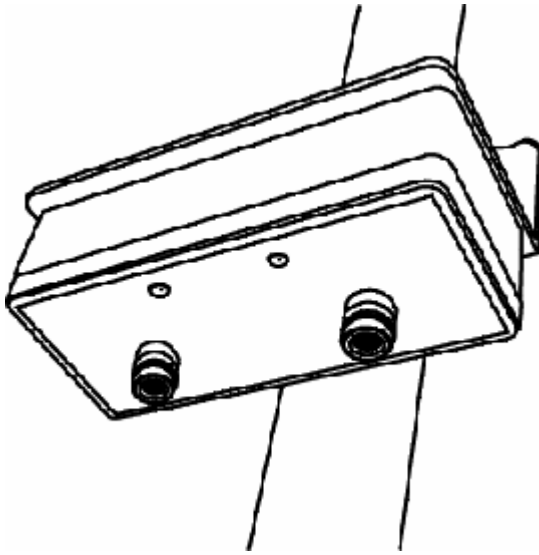
C40M40-40-020				
C	40M	40	40	020
Designator for Cable	Cable Type	First Connector	End Connector	Length
	LMR400	N Plug	N Plug	Measured in Feet
Cable Types		19M = LMR195 40M = LMR400 60M = LMR600 VX5 = VXL5		
Connector Types		RP = Reverse Polarity RA = Right Angle Jack = threads on the outside BH = Bulkhead Plug = threads on the inside SMA = SMA Type Connector N = N Type Connector		
Connector Numbers		10 = RA RP SMA Plug 20 = RP SMA Plug 30 = RP SMA BH Jack 40 = N Plug 50 = N Jack 60 = RA N Plug 80 = N Jack BH		

Amplifiers

Items in this Section

- RLX-500 Amplifier 40
- RLX-500 Amplifier Kit 41

RLX-500 Amplifier



The RadioLinx RLX-500 Amplifier series are Automatic Gain Control (AGC) compensated for constant power output bi-directional amplification. This provides constant maximum output power at the antenna over a wide RF input range. An antenna amplifier significantly improves the link reliability and operating range by low noise amplification in receive mode, and spectrally clean power amplification in transmit mode. This amplifier has unique internal 3-pole filtering and AGC in both the Tx and Rx paths. This combination provides exceptional cosite performance in high traffic areas.

The bi-directional amplifier may be needed if an application requires long lengths of coaxial cable to reach the antenna. The amplifier is designed to put maximum power right at the antenna and boost the received signal primarily to overcome cable loss and improve overall receiver signal quality. Only the RLX-500 amplifier has been specifically FCC approved for use with the RadioLinx RLX-IH Hotspot radio.

Features and Benefits

- High dynamic range
- 3 poles of high Q filtering in both Tx and Rx paths
- Extremely low transmit harmonics
- Transmit AGC
- Low receive noise figure
- Internal lightning protection
- Rx high level AGC (preserves noise figure while providing maximum input dynamic range even with high inband RF levels)
- Tx/Rx LED indicator
- Automatically switches between Tx/Rx
- Rugged weatherproof housing

Specifications

Frequency Coverage	2.44 GHz +/-50 MHz
Supply Voltage	+12 to 15 VDC
Receive Gain	20 dB +/- 2dB
Receive High Level AGC Gain	Maintains receive chain linearity when receive. Pin > -12 dBm by automatically reducing gain. High level receive gain - 4 dB +/- 2dB
Noise Figure	4.5 dB
Tx to Rx Switching	2 µSec
IP3 (Input)	+13 dBm
Transmit AGC Gain	Automatically adjusts to specified power output loop 3 dB bandwidth = 150 KHz
RF Input Power for Turn On	> +2 dBm to +20 dBm
Harmonic Rejection	> 70 dBc @ Power Out
Supply Current	< 900 mA
Rx to Tx Switching	2 µSec
Maximum Ratings	Pin (Radio port) + 30 dBm Pin (Antenna port) + 27 dBm
System Filtering	An internal 3-pole filter in both Rx and Tx paths provides superior cosite performance achieving maximum dynamic range and low harmonic distortion
RF Connector Size	2.53" x 5.90" x1.45" (N type jack connectors)
Weight	< 15 oz.
Chassis	Watertight diecast aluminum with black powder paint. Internal PCB is sealed via conformal coating to enhance weather protection.
Indicator LED	Green LED - Rx mode, Red LED - Tx mode.
Lightning Suppression	¼ wavelength short
Ordering Information	
RLX-500	500 mW Power Amplifier with DC Injector

RLX-500 Amplifier Kit

Kit Contents

The RLX-500 Amplifier Kit includes:

Item	Description	Quantity
1	RLX-500 Amplifier (outdoor rated)	1
2	RLX-500 DC Injector (indoor rated)	1
3	12 VDC wall mount	1
4	Aluminum "L" Pole mounting bracket	1
5	¼-inch stainless steel pan head screws	2
6	2.5 -inch stainless steel U bolt kit with hardware	1
7	Strips of coaxial seal tape	2
8	2 foot LMR-195 RA RP SMA plug to RA N plug Cable	1
9	3 foot LMR-195 RA N plug to N plug cable	2
10	N jack to N jack bulkhead lightning protector	1
11	N jack to N jack in-line lightning protector	1
12	Superflex 400 N plug to N plug extension cable (length varies with part number)	1

Important Note:

The kit items shown in the table are only included when you order the entire RLX-500 kit. The kit will have a part number of RLX-500-XXX. If you only order part number RLX-500, you only receive items 1 through 7.

Installation Guidelines

Each RLX-500 amplifier is equipped with internal ¼ wave technology lightning protection. However, for additional protection, the RLX-500 kit provides additional lightning arrestors between the antenna and the RLX-500 amplifier and between the radio and the RLX-500 DC injector. This arrestor should be grounded properly with a heavy gauge ground 12AWG wire.

- 1 The RLX-500 amplification device is a RadioLinx subassembly and its use has been FCC approved for use in an RF system. The RLX-500 kit has been pre-designed to meet FCC approval and use under the following guidelines:
- 2 The bi-directional amplifier has been designed to operate with a cable loss between the radio and amplifier of 6.5 dB to 20 dB. Within this range, the output of the amplifier will always be ½ W regardless of the input level.
- 3 The amplifier may not be used with less than 6.5 dB cable loss.
- 4 Use of the amplifier outside of these guidelines will result in violation of 47 CFR Part 15 FCC Rules, under which the equipment has been authorized.
- 5 With more than 20 dB of coaxial cable loss, the amplifier will not turn on.
- 6 Maximum antenna transmit gain allowed for use with the RLX-500 amplifier is 15 dBi for point-to-point paths and 9 dBi for point-to-multipoint paths.

Ordering Information

RLX-500-050	500 mW Power Amplifier Kit with 50 ft extension cable
RLX-500-075	500 mW Power Amplifier Kit with 75 ft extension cable
RLX-500-100	500 mW Power Amplifier Kit with 100 ft extension cable
RLX-500-150	500 mW Power Amplifier Kit with 150 ft extension cable
RLX-500-200	500 mW Power Amplifier Kit with 200 ft extension cable

Lightning Protection

Items in this Section

- Lightning Protection 44

Lightning Protection

RadioLinx Lightning Protection is designed to provide protection for broadband wireless, Wi-Fi, and WLAN systems with low RF power and excellent protection for less exposed subscriber units.

Features

- Multi-strike capability
- Fully weatherized housing
- Low throughput energy
- DC blocked

Technical Specifications

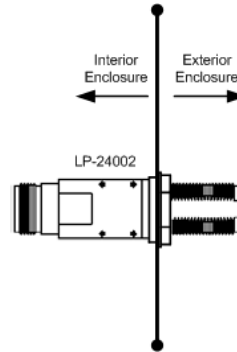
Surge Capabilities	IEC 1000-4-5, 8/20µs @ 10kA
Frequency Range	2.0 to 6.0 GHz
Return Loss	> 20 dB
Insertion Loss	≤ 0.2 dB
RF Power	10W
Temperature Operating/Storage	-40° to + 85° C
Relative Humidity	0 to 100% condensing
Surge Throughput Energy	≤ 0.5µJ (6kV/3kA 8/20µs)
Peak Let-Through Voltage	± 3V (6kV/3kA 8/20µs)

Ordering Information

LP-24002	Lightning Protector
LP-24003	Lightning Protector with barrel adapter

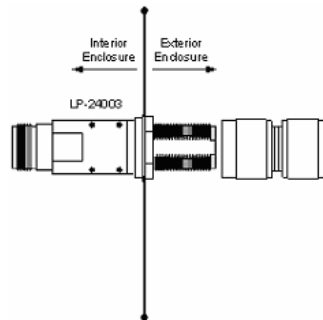
LP-24002

The LP-24002 lightning protection is designed for use internal to an enclosure with the bulkhead fitting protruding the enclosure from the inside. The connectors are standard N jack connector to standard N jack BH connector. The bulkhead fitting can be connected to any standard N type connector extension cable.



LP-24003

The LP-24003 lightning protection is designed for use internal to an enclosure with the bulkhead fitting protruding the enclosure from the inside connecting to a N plug barrel adapter. The barrel adapter fitting can be connected to any antenna standard N type connector.



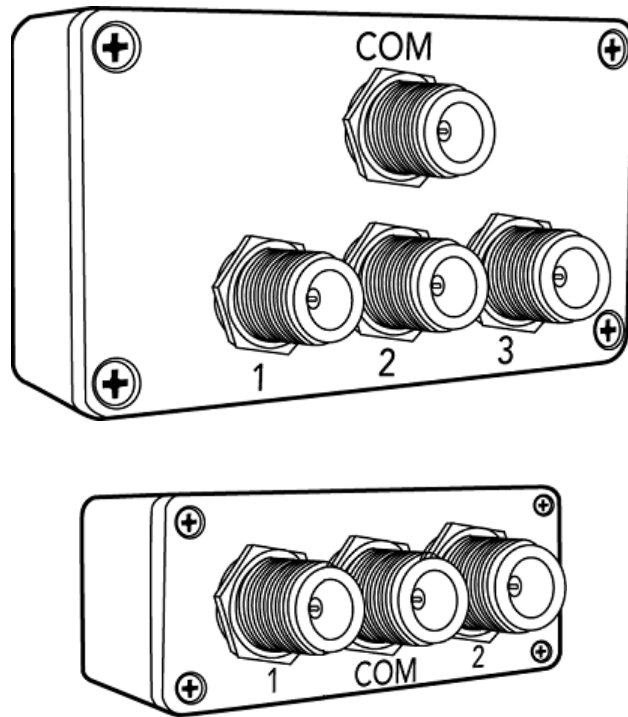
Power Divider

Items in this Section

- Power Dividers

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Power Divider Kit



RadioLinx Power Dividers come in both 2 way and 3 way divider models.

Ordering Information

Part Number	Description	Insertion Loss
RLX-PD2	2 way divider kit	3.0 dB
RLX-PD3	3 way divider kit	5.0 dB