

**WIRELESS LAN ROUTER
EZCom-IP™**

FEATURES

- 2.4 GHz Spread Spectrum-Direct Sequence
- Internet Protocol Routing
- Store and Forward Routing Capability
- Auto Cable Detect—No Hub Needed
- High Immunity to Interference and Jamming
- High Speed 1 MB or 2 MB Data Rate Version
- Attached or Remote Antenna
- Industrial Temperature Range
- Mounting Options: Panel or DIN Rail Mount
- Two Year Warranty



APPLICATIONS

Stand Alone Control
Local Control & I/O
Central Processing: Remote I/O
Distributed Processing: Remote I/O
SCADA
RTU

DESCRIPTION

The Grayhill EZCom-IP™ radio is a complete 2.4 GHz direct sequence, spread spectrum (DSSS) Industrial LAN Router that can be used for multiple-access networking, point to point or point to multi-point data communications.

EZCom's network controller will packetize the data prior to transmission which provides communication handshaking, error detection, packet sequencing and supports up to 128 route entries to extend the communication range. For error detection, EZCom-IP™ uses a Cyclic Redundancy Check (CRC) with automatic packet retransmit.

The EZCom-IP™ radio is based on spread spectrum technology with direct sequence spreading for enhanced interference immunity, reliability and extended range. Additional reliability is provided through the use of built-in out-of-band filtering.

Multiple Access Networking is achieved through the use of Carrier Sense Multiple Access/

Collision Avoidance (CSMA/CA) shared media etiquette. The transceiver can be programmed to use different RF channels and different PN codes allowing co-located networks to operate independently.

EZCom's data port is a standard 10-Base-T ethernet interface. The network processor runs an embedded TCP/IP stack to route IP packets between the ethernet and RF interfaces.

The rugged die-cast housing and extended temperature range makes the EZCom-IP™ radio ideal for industrial applications. A weatherproof version of the housing is also available. The housing offers visual indication of the signal strength, power, local/remote faults, transmit and receive events.

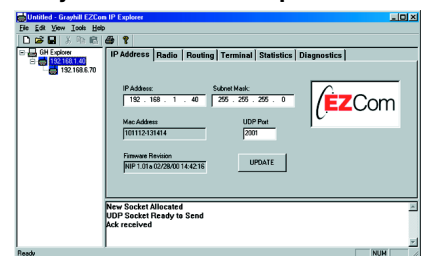
A development kit is also available that contains everything to develop and test an application including: 2 EZCom-IP™ radios, 2 power supplies, 2 antennas, 2 data cables and a resource CD all packaged in a rugged carry case.

CONFIGURATION OPTIONS

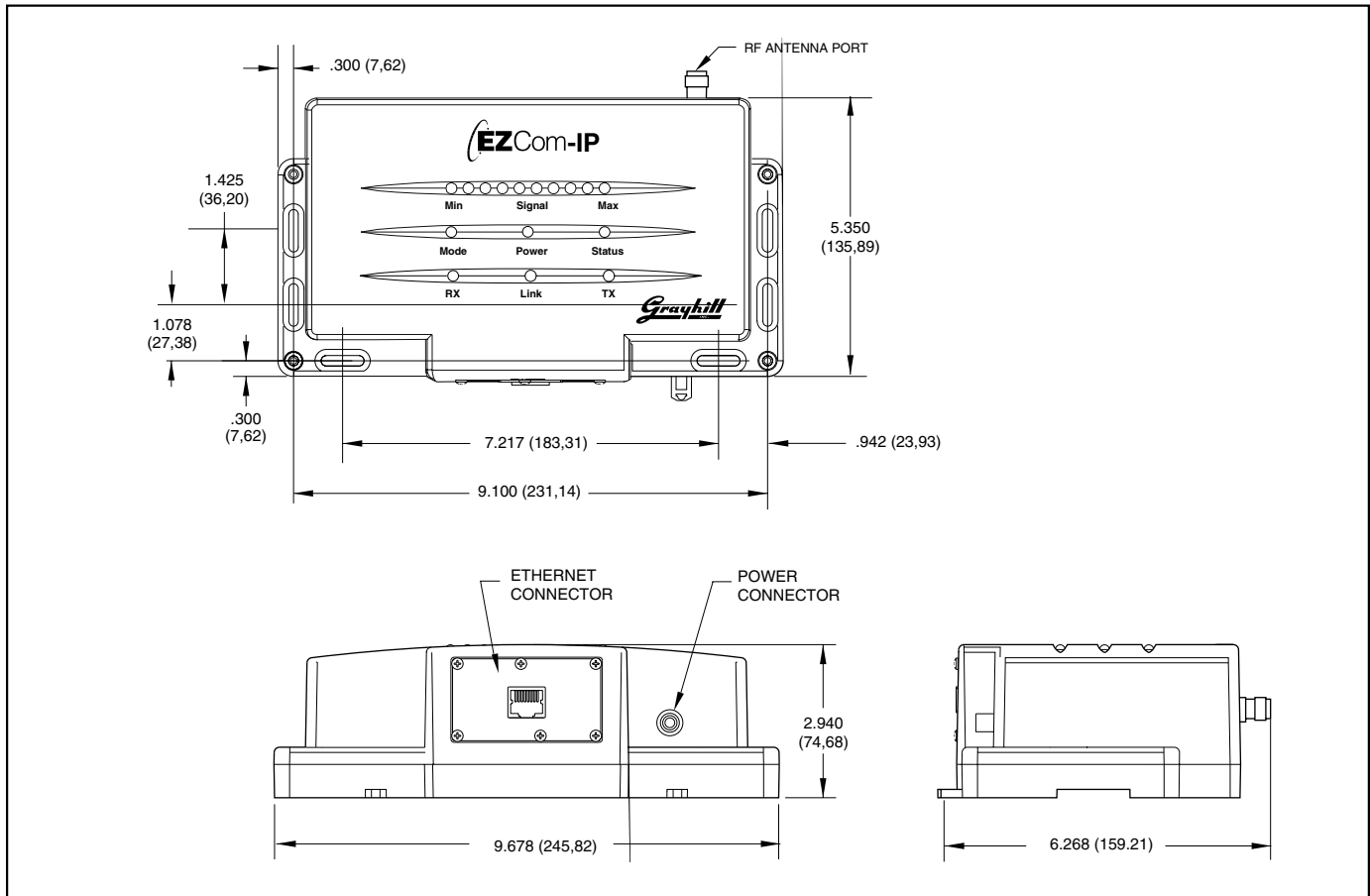
The Grayhill EZCom-IP™ network is easy to setup and configure using our Windows-based setup software called Grayhill EZCom-IP™ Explorer. The EZCom-IP™ Explorer software allows system-wide configuration and monitoring of every radio on the network. This allows operators to gather field diagnostics and monitor daily radio traffic all from a central location.

Explorer allows the operator to graphically set parameters such as IP Address, IP Routes, Center Frequency, and Modulation. Data traffic statistics are kept in each radio and are available from EZCom-IP™ Explorer as well.

Grayhill EZCom-IP™ Explorer



DIMENSIONS In inches (and millimeters)



SPECIFICATIONS

Transceiver

Waveform: Direct sequence spread spectrum
RF Frequency Band: 2.4 GHz ISM Band
Frequency Channel Spacing: 1 MHz
Communication Mode: Half duplex
Chip Rate: 11 Mcps
Channel Burst Data Rate: 1 or 2 MBps
Processing Gain: 10.4 dBm minimum
Receiver Sensitivity at 10⁻⁶ BER: -83 dBm
Transmitter Output Power: 25 dBm minimum
Spurious Output: Compliant to FCC Part 15
LED Indicators: Power, signal strength, RF transmit, RF receive, and ethernet activity link.

Connectors

Antenna Port: Reverse polarity TNC jack.
Data Interface Connector: Ethernet RJ-45
Power Connector: Lemo receptacle, 3-pin,

connects directly to Grayhill power supply
 p/n WL-PWR-AC1 or WL-CPWR-6 DC cable

Data Interface

Interface Type: RJ-45 ethernet 10-Base-T
Communication Mode: Half duplex

Power Requirements

Supply Voltage: +10 to +28 Vdc
Maximum Power Consumption: 14.4W
Tx Supply Current: 1200 mA at +12 Vdc
Rx Supply Current: 600 mA at +12 Vdc

Environmental Rating

Operating Temperature Range: -40°C to +70°C
Storage Temperature Range: -40°C to +85°C
Humidity: 0 to 90%, non-condensing

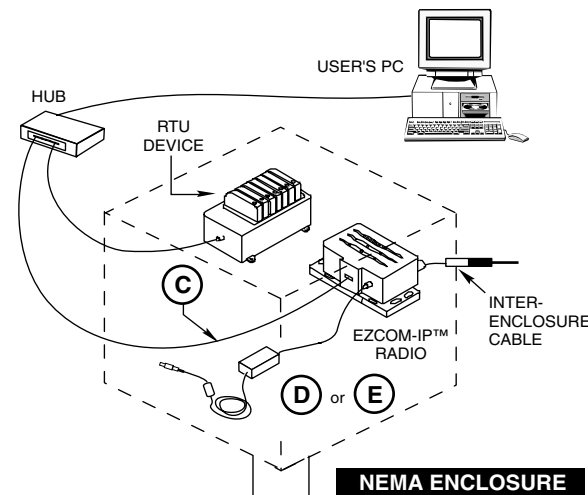
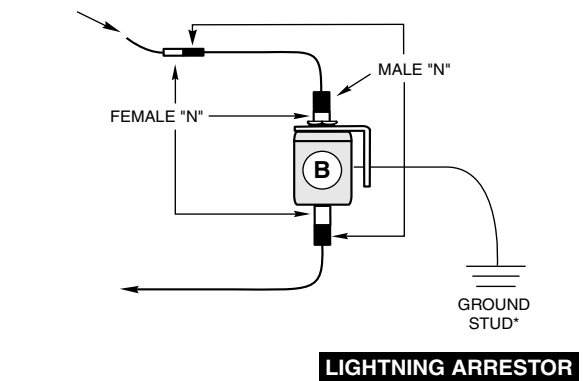
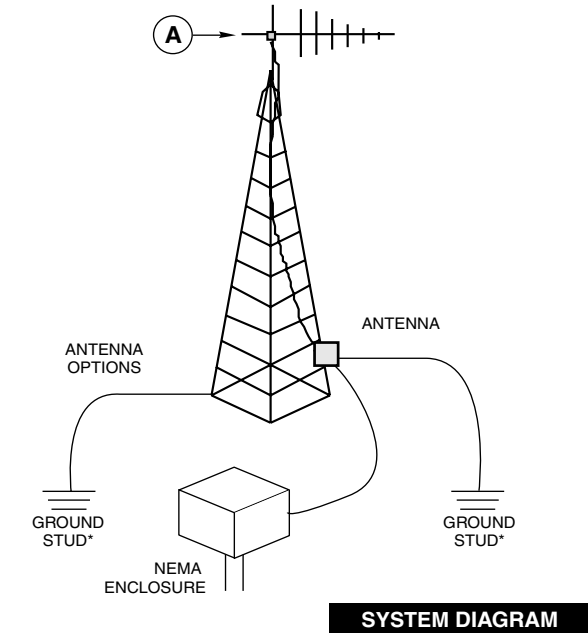
Mechanical Rating

Dimensions: 9.7" x 5.4" x 2.9" (24.7 cm x 13.9 cm x 7.4 cm)
Weight: 4.4 lbs. (2.0 kg)
Case Material: Diecast aluminum

Approvals

FCC: FCC Part 15 approved
Industry Canada: RSS-210 pending
Warranty: 2 years

2.4 GHZ ETHERNET EZCOM-IP™ OUTDOOR EXAMPLE SITE



*CONSULT LOCAL ELECTRICAL CODES.

EZCOM-IP™ ACCESSORIES

<p>A</p>	<p>Whip Antenna The whip antenna connects directly to the EZCom® RF connector and provides unity gain. It has a mechanical hinge to allow it to adjust from 0 to 90°</p> <p>Omni Antenna The 8 dBd omni antenna is ideal for base stations. It includes mounting brackets for remote mounting from the radio and requires the low loss RF extender cable to connect to the EZCom-IP™ radio.</p> <p>Mobile Antennas This 2.4 GHz mobile antenna can be used outdoors for remote telemetry or indoors within LAN applications. It is great for use on vehicles.</p> <p>Yagi Antenna The 13 dBd yagi antenna is ideal for point-to-point transmit and receive applications that require high gain. It includes mounting brackets for remote mounting from the radio and requires the low loss RF extender cable to connect to the EZCom-IP™ radio.</p> <p>Panel Antenna The 15 dBi directional panel antenna is designed to cover ISM frequencies between 2400 MHz and 2483 MHz. It obtains a maximum horizontal beamwidth small-profile package and can be mounted in a wide variety of locations.</p>
<p>B</p>	<p>Lightning Arrestor A bulk head mount broadband coaxial protector for general radio use. It uses frequencies up to 2.4-2.5GHz with multi-strike capability.</p>
<p>C</p>	<p>Ethernet Cable This cable enables ethernet connection to the radio. The cable comes in a 6 foot length.</p>
<p>D</p>	<p>Mini Power Supply with Power Cord This power supply offers a reliable, compact unit for powering the EZCom-IP™ radio with 120 or 240 Vac. The power connector plugs directly into the EZCom™ transceiver.</p>
<p>E</p>	<p>DC Cable Power Supply The DC cable provides flying leads to be terminated on a terminal block when using existing power supplies.</p>

ORDERING INFORMATION: Radio and Radio Kits

Part Number	Description
WL24-IP	EZCom-IP™ Radio only
WL24-IP-DEV	EZCom-IP™ Development Kit (2 radios, 2 power supplies, 2 antennas, 2 data cables, resource CD)
WL24-IP-EVK	EZCom-IP™ Evaluation Kit (2 radios, 2 power supplies, 2 antennas, 2 data cables, resource CD, carrying case)
WL-WRD	Wireless Resource CD (includes user's manual, software, demo tools)

ORDERING INFORMATION: Accessories

Part Number	Description
WL-ANT-24UA	Whip Antenna
WL-ANT-24Y13	Yagi Antenna
WL-ANT-24MN8	Omni Antenna
WL-ANT-24P15	Panel Antenna
WL-PWR-AC1	Mini Power Supply with Power Cord
WL-CETH-6	Ethernet Cable (6 foot)
WL-CPWR-6	DC Cable Power Supply
WL-ARST-2	Lightning Arrestor

ORDERING INFORMATION: Low Loss RF Extender Cable Examples

Part Number	Connector 1	Connector 2	Length
WL-CAEX-BS-001	Bulkhead N	Straight female TNC	1 foot
WL-CAEX-FS-001	Female N	Straight female TNC	1 foot
FR-R06	Female N	Right angle female TNC	6 inches
WL-CAEX-MR-025	Male N	Right angle female TNC	25 feet
WL-CAEX-MR-100	Male N	Right angle female TNC	100 feet

Low Loss RF Extender Cables

The RF Extender cables provide a low loss way to connect an externally mounted antenna to the EZCom-IP™ radio. The RF extender cables are made with LMR-400, a low loss and very flexible communications cable. Grayhill can provide custom lengths and configurations. For indoor usage only.

ORDERING INFORMATION: Custom Cables

Series
Cable Extenders

WL-CAEX-MR-100

Cable Length: in feet (from 1 to 100 feet)

Connector 2: B = Bulkhead N; S = Straight TNC; M = Male N; F = Female N; R = Right Angle TNC

Connector 1: B = Bulkhead N; S = Straight TNC; M = Male N; F = Female N; R = Right Angle TNC

Available from your local Grayhill Distributor. For prices and discounts, contact a local Sales Office, an authorized Distributor or Grayhill.