SEM2410 and SEM2420
High Speed Spread Spectrum Ethernet Radio Modem Product Family

The SEM2410 and SEM2420 are the latest in high speed/long range wireless networking products from CIRRONET™, the established leader in spread spectrum wireless products since 1987. The SEM products are designed to provide high speed wireless connectivity between ethernet devices. Typical uses include ethernet bridging, SCADA networks, PLC networking and other industrial automation or data collection applications.

For example, the SEM2410/2420 can function as a high speed bridge between two ethernet networks (see figure 1). SEM products can also provide wireless connectivity between an ethernet base station and multiple ethernet remote modems (see figure 2). Highly complex networks can be achieved using repeaters to extend range and coverage (see figure 3 on back).

SEM products utilize CIRRONET's third generation proprietary frequency hopping technology. Major industrial powerhouses such as Group Schneider, Siemens, and GE have learned they can depend on CIRRONET products for their customers.

SEM products offer extraordinary data throughput combined with outstanding range, coverage, and link reliability.

The SEM2410 offers 230 Kbps of real data throughput, either point-to-point, or multi-point. The SEM2420 doubles that to a total of 460 Kbps total throughput, four times the rate of typical RS-232 modems.Both products ensure errorless data via CRC error checking and ARQ (automatic retransmission of errored packets).

The SEM products can operate easily in extended range applications - the FCC allows up to 400W EIRP for 2.4 GHz point-point radio links (see 2.4 GHz versus 900 MHz).

Let us be your experts. Put our 10+ years experience with wireless technology to work for you. To find out how to put CIRRONET™ to work for you, visit our website www.cirronet.com or call: +1.678.684.2000

FIGURE 1

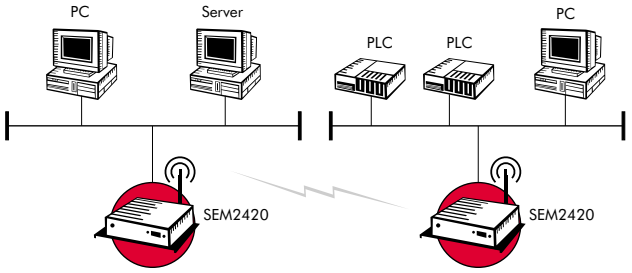
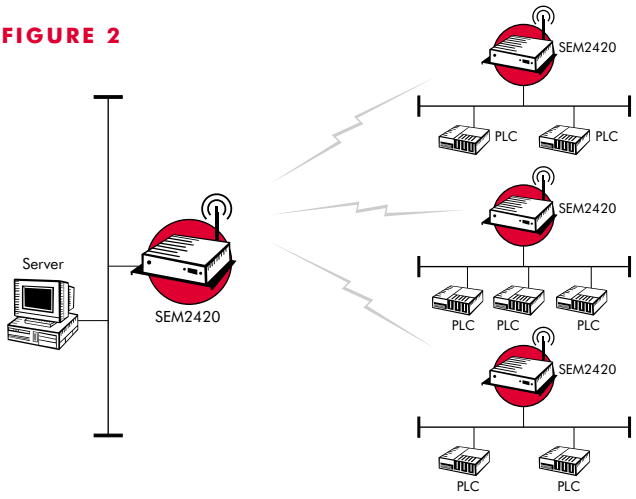


FIGURE 2



For Industrial and Commercial Networking

- High Speed: Up to 460kbps throughput (nearly 1Mbps over the air)
- Network ethernet devices (sensors, PLCs, computers) wirelessly
- Long Range: 1.5 miles using a 4" unity-gain dipole antenna (included). Easily extended using gain antennas (available).
- Proven frequency hopping technology, developed and manufactured by CIRRONET™
- Excellent immunity to jamming and multi-path fading.
- No user site license required anywhere in the world.
- Standard ethernet 10Base-T interface
- Full Bandwidth (230/460Kbps throughput) repeaters available
- Packaged for rugged industrial use
- 0°C to + 70°C operation

CIRRONET™

CIRRONET™ 5375 OAKBROOK PARKWAY NORCROSS, GEORGIA 30093
WWW.CIRRONET.COM P: +1 678 684 2000 F: +1 678 684 2001

SEM2410 and SEM 2420 Specifications

Model	SEM2410	SEM2420
Data Throughput	230 Kbps	460 Kbps
Total Available Over-the-air Bandwidth	460 Kbps	920 Kbps
Interface	10Base-T	
Network Topologies	Point-to-Point or Multipoint	
Repeater	Use CIRRONET's HN-2010	
RF Output Power	100 mW (using a short whip antenna, included) Up to 400W (using gain antennas)	
RF Modulation	Frequency hopping, up to 64 user selectable hopping algorithms	
Frequency Range	2400 MHz to 2483.5 MHz	
Power	9VDC to 24VDC (external AC power supply included)	
Enclosure Material	Aluminum	
Enclosure Size	201 x 144 x 53 mm 7.9" x 5.7" x 2.1"	
Operating Temperature	0° C to +70°C 0 to 95 % humidity, non-condensing	
Licensing	Type Certified for World-wide License-free operation under FCC Part 15.247 and ETS 300.328 CE Mark	

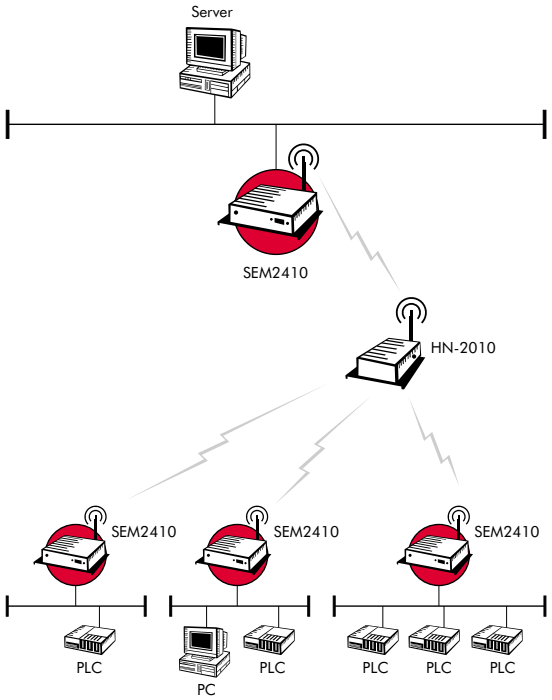
Connectors

Power	2-Pin DIN
Ethernet	RJ-45
Configuration Port	DB-9
Antenna	TNC

Indicators

Power
Ethernet Transmit
Ethernet Receive
Link Status
Collision
RF Link

FIGURE 3



TECHNICAL TUTORIAL: 2.4 GHz versus 900 MHz

CIRRONET™ manufactures successful products in both the 900 MHz band and the 2.4 GHz band. However, more recently, we have chosen to focus the 2.4 GHz band for industrial and commercial applications for several important reasons:

1. The 900 MHz band is too crowded.
The 900 MHz band is heavily congested with consumer products, especially cordless phones. The problem will only continue to get worse.

2. There are too many high-powered transmitters near the 900 MHz band.
We have seen 900 MHz systems fail to operate when located too close to paging or cell-phone towers operating either just below, or just above the 900 MHz ISM band.

3. 2.4 GHz can offer as much or more range than 900 MHz.
The 900 MHz range advantage is grossly overstated, especially in light of new FCC rules allowing higher antenna gain at 2.4 GHz for point-to-point networks. Such systems can now operate with a transmit EIRP of up to 400 Watts.

4. Everybody needs more bandwidth.
The 2.4 GHz band has three times more bandwidth than the 900 MHz band. Serious, high speed commercial products have all moved to 2.4 GHz for this reason alone.

5. International Compliance.
Customers want solutions they can sell anywhere in the world. The 2.4 GHz band is the only option for international unlicensed operation.

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