GDI Communications LLC
Transportation Communications Specialists

SS2400DS-10
Wireless Router

FEATURES

* **No License required**

* **Data rates up to 11 MB/sec**

* **Single hop ranges in excess of 20 km**

* **Seamless access to "hidden nodes" through multiple hops**

* **Routing support for all standard IP protocols**

* **Configurable Quality of Service parameters for each node**
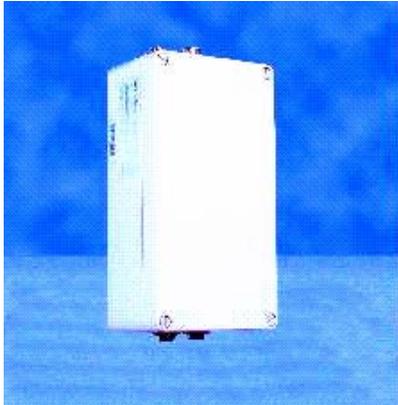
Description

The GDI SS2400DS-10 Wireless Router provides an off-the-shelf, ready-to-install solution for most wireless network applications. Spread spectrum technology allows the immediate deployment of a network without the need for a license.

The SS2400DS-10 was specifically designed to operate over long distances and yet provide reliable links in the 2.4 GHz license exempt band. All the electronics are enclosed in an environmentally sealed Outdoor unit which can be mounted in close proximity to the antennas. For long range links, where the antennas need to be mounted on towers and rooftops, this configuration reduces costly RF cables and improves RF system performance. A standard CAT5 cable carries both Ethernet signals and DC power to the outdoor unit. This cable can be up to 300 ft (100m) in length.

The SS2400DS-10 uses direct sequence spread spectrum technology with selectable data rates of 1, 2, 5.5, or 11 MB/sec. The patent Pending protocol adaptively sets the data rate, transmit power, and other parameters or each individual link, on a packet by packet basis. In case of interference or weak signals the software can automatically switch to a lower data rate to assure an error free connection.

For ease of installation and maintenance, and to combat interference, the SS2400DS-10 also includes the following features:

- Accurate measurement of Receive Signal Strength (RSS).
- Antenna Alignment Aid output, at the outdoor unit, with an audio pitch proportional to the RSS
- Spectrum Analysis with graphical display of in-band RF energy

Finally, the SS2400DS-10 has the capability of synthesizing any frequency in the band, allowing it to dynamically adapt to the environment by shifting its operating channel to that portion of the band currently free from interference.

Wireless networks can be deployed one node at a time without an expensive underlying infrastructure. Each unit contains complete functionality to operate as a hub, repeater or end node. The network is configured in a free form tree topology, allowing units originally deployed as end nodes, to become repeaters. As more nodes are added, the network coverage is automatically extended allowing easy reach of "hidden" locations.

Repeater nodes are equipped with dual antennas, switched under software control. One antenna is typically a high gain antenna for a point-to-point link to an upstream node, while the other is usually a wide beam antenna to communicate with multiple nodes in a local area.

The software coodinates RF transmissions using time, frequency, and directional diversity. This technology avoids collisions while allowing simultaneous transmissions in the same geographic area. Data bandwidth is allocated to each node on demand, on a packet-by-packet basis. Programmable "Quality of Service" parameters allow the network manager to guarantee minimum bandwidths or to cap maximum bandwidth, to individual nodes.

The SS2400DS-10 is self configuring: after power up, it autonomously determines its place in the network, finds the addresses of the hosts connected to the various LANs, and then begins routing packets appropriately.

The SS2400DS-10 can be configured to operate as an Ethernet bridge or as an IP router. The bridge configuration is independent of the network layer protocol being used. The router configuration allows greater control over network traffic patterns. In this configuration the wireless network forms an IP subnet, and traffic between the Ethernet segments is managed by IP routing using RIPv2 dynamic routing. Since each SS2400DS-10 supports telenet and SNMP protocols, any unit can then be managed, over RF, from anywhere in the network.

SS2400DS-10 Wireless Router

SPECIFICATIONS

RF

Frequency Range	2.400—2.4835 GHz (USA)
	2.400—2.5000 GHz (Overseas)
Modulation	Direct Sequence Spread Spectrum
Transmit Power	0 to +23 dBm
Transmit Bandwidth (@ -20 dBc)	18 MHz
Number of Channels	31 (4 non-overlapping)
Data Rates	1, 2, 5.5, 11 MB/sec
Sensitivity (1E10^{-6} BER)	-90 dBm @ 1 MB/sec
	-87 dBm @ 2 MB/sec
	-85 dBm @ 5.5 MB/sec
	-82 dBm @ 11 MB/sec

INPUT POWER

Voltage	115 or 230 VAC
Power Consumption	5 W

COMMAND/CONTROL INTERFACE

Serial console	RS232 asynchronous

COMMUNICATIONS INTERFACE

LAN interface	10/100 BASE-T Ethernet
Protocols supported, Bridge mode	Ethernet (protocol transparent)
Protocols supported, Router mode	IP, ARP, ICMP, RIPv1, RIPv2, SNMP, TCP, Telnet (for remote console), UDP, TFTP (over-the-air firm ware updates)

MECHANICAL

Dimensions in inches (cm)	4.72 (12) x 2 (5.1) x 8.66 (22)
Weight	2.4 lbs (1.1 Kg)

ENVIRONMENTAL

Temperature	-40°C to +70°C
Maximum humidity	90% non-condensing

CERTIFICATIONS   FCC Part 15, IC, ETSI, Mexico

Specifications subject to change without notice

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