

# PulsAR - Spread Spectrum Wireless Ethernet Networks

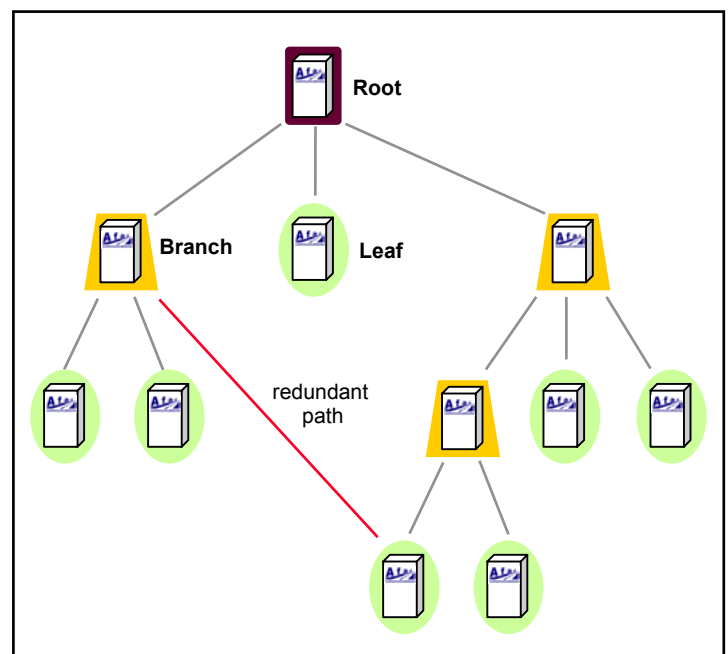


- **License Free operation in the 2.4 GHz ISM band**
- **Distances in excess of 50 miles (80 km)**
- **Rugged outdoor enclosure powered over Ethernet reduces RF coax cable losses and cost.**
- **Industrial operating temperature range**
- **Flexible network topologies from simple point-to-point to complex mesh/tree networks.**
- **Optional roaming supports mobile nodes.**
- **Remote management through Telnet, SNMP or “Afar Ethernet Console”**
- **Outstanding performance even in crowded spectrum conditions**

Afar radios are designed from the ground-up to operate in industrial environments and provide reliable and dependable links in the most challenging conditions.

The design emphasizes link robustness and reliability over speed. Our radios occupy a much narrower RF bandwidth than other unlicensed devices in the 2.4 GHz band. This results in outstanding receive sensitivity, larger number of non-overlapping channels, and improved resilience to interference.

The network is scalable with the same device supporting simple point-to-point links, point-to-multipoint, and our versatile Mesh/Tree topology (see figure) where any radio can serve as the access point to radios downstream. You can also install radios in mobile platforms that will automatically roam and stay connected to the fixed network. Very simple to install and deploy, the radios find their place in the network and route packets through the minimum number of hops to reach their destination.



## PulsAR 24027 Radio Specifications

### RF Specifications

|  |  |
|--|--|
| RF Frequency Band:   | 2.400 to 2.483 GHz<br>2.400 to 2.500 GHz option  |
| Signal Bandwidth (-20 dBc)"                                | 4.6 MHz  |
| RF Channels:   | 34 in steps of 2 MHz<br>12 non-overlapping channels<br>Independent transmit and receive channels |
| Transmitter Output Power:                                  | 0 to 23 dBm (programmable in 1 dB steps)   |
| Data rates and Receiver Sensitivity (10 <sup>-6</sup> BER) | -98 dBm @ 250 kbps<br>-95 dBm @ 500 kbps<br>-93 dBm @ 1.375 Mbps<br>-90 dBm @ 2.750 Mbps         |
| Maximum Receive Signal                                     | -30 dBm (to stay in receiver linear region)<br>+20 dBm (to avoid damage)                         |
| Modulation Type  | direct sequence spread spectrum  |

### Ethernet Port

|           |  |
|-----------|--|
| Speed     | 10/100 BaseT, full/half duplex, auto-negotiate                   |
| Connector | 8 pin circular (Lumberg 0321-08)<br>(RJ45 at the power inserter) |

### Networked Operation

|                    |   |
|--------------------|---|
| Network topologies | Point-to-point, point-to-multipoint, Mesh/Tree, Linear Network, Roaming |
| Management         | Telnet, SNMP (MIB2), or Econsole reach any node over wireless           |
| Security           | Proprietary protocol/modulation, 32 bit network ID / password           |

### Console / Diagnostic Port

|           |  |
|-----------|--|
| Interface | RS-232/V.24, asynchronous 9600 to 115 Kbaud                          |
| Connector | 3 pin circular (Lumberg 0321-03)<br>(cable adapter to DB9 available) |

### Power

|                             |  |
|-----------------------------|--|
| Input Voltage               | +8 to +28 V DC<br>110 to 220 VAC (external supply)   |
| Power Consumption           | less than 5 Watt                                     |
| Transient Max. Peak Power   | 1500W (with 10/1000 us waveform)                     |
| Transient Max. Peak Current | 35 A (with 10/1000 us waveform as defined by R.E.A.) |

### Environmental

|               |                                      |
|---------------|--------------------------------------|
| Temperature   | -40 to +70 deg C (-40 to +158 deg F) |
| Max. Humidity | Up to 95% non-condensing             |

### Mechanical

|            |   |
|------------|---|
| Dimensions | 4.72" wide x 8.66" high x 2.20" deep (120mm W x 220 H x 56 D) |
| Weight     | 3.4 lbs. (1.5 kg).  |

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