The 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. This allowed us to achieve outstanding receiver 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.

The various models allow you to choose between 2.4 GHz or 900 MHz bands (where allowed) with different RF occupied bandwidths that trade-off throughput for higher sensitivity and more non-overlapping channels.

- 900 MHz or 2.4 GHz ISM bands (license free)
- Distances in excess of 50 miles (80 km)
- Rugged waterproof outdoor enclosure (IP66) 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
- Optional AES or triple DES encryption on all wireless data
<table>
<thead>
<tr>
<th>RF Specifications</th>
<th>AR-9010E</th>
<th>AR-9027E</th>
<th>AR-24010E</th>
<th>AR-24027E</th>
<th>AR-24110E</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Frequency Band (MHz)</td>
<td>902 to 928</td>
<td>902 to 928</td>
<td>2400 to 2483</td>
<td>2400 to 2483</td>
<td>2400 to 2483</td>
</tr>
<tr>
<td>Signal Bandwidth (-20 dBc)</td>
<td>1.6 MHz</td>
<td>4.6 MHz</td>
<td>1.6 MHz</td>
<td>4.6 MHz</td>
<td>17 MHz</td>
</tr>
<tr>
<td>RF Channels (non-overlap)</td>
<td>13</td>
<td>4</td>
<td>35</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Transmitter Output Power:</td>
<td>0 to 27 dBm</td>
<td>0 to 27 dBm</td>
<td>0 to 27 dBm</td>
<td>0 to 27 dBm</td>
<td>0 to 27 dBm</td>
</tr>
<tr>
<td>Receiver Sensitivity</td>
<td>(dBm) (kbps)</td>
<td>(dBm) (kbps)</td>
<td>(dBm) (kbps)</td>
<td>(dBm) (kbps)</td>
<td>(dBm) (kbps)</td>
</tr>
<tr>
<td>and Data Rates</td>
<td>-103 @ 100</td>
<td>-100 @ 250</td>
<td>-100 @ 100</td>
<td>-98 @ 250</td>
<td>-94 @ 1000</td>
</tr>
<tr>
<td></td>
<td>-100 @ 200</td>
<td>-97 @ 500</td>
<td>-97 @ 200</td>
<td>-95 @ 500</td>
<td>-91 @ 2000</td>
</tr>
<tr>
<td></td>
<td>-95 @ 550</td>
<td>-95 @ 1375</td>
<td>-95 @ 550</td>
<td>-93 @ 1375</td>
<td>-89 @ 5500</td>
</tr>
<tr>
<td></td>
<td>-95 @ 1100</td>
<td>-92 @ 2750</td>
<td>-92 @ 1100</td>
<td>-90 @ 2750</td>
<td>-86 @ 11000</td>
</tr>
<tr>
<td>Maximum Receive Signal</td>
<td>-30 dBm (to stay in receiver linear region)</td>
<td>+20 dBm (to avoid damage)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modulation Type</td>
<td>direct sequence spread spectrum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Ethernet Port**

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

**Networked Operation**

- Network topologies: Point-to-point, point-to-multipoint, Mesh/Tree, Linear Network, Loop, Roaming
- Management: Telnet, SNMP (MIB2), or Econsole reach any node over wireless

**Console / Diagnostic Port**

- Interface: RS-232/V.24, asynchronous 9600 to 115 kbaud
- Connector: 3 pin circular (Lumberg 0321-03) - cable adapter to DB9 available

**Power**

- Input Voltage: DC: Power over Ethernet (IEEE 802.3af) or +10 to +58 VDC AC: 100 to 240 VAC (with external power inserter)
- Power Consumption: Idle (link up with little or no data): 1.5 W Rx: 2.8 W Tx: 5.0 to 7.5 W (depending on tx power)
- 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
- Water and dust protection: IP66 (Ingress Protection Rating per IEC 60529)

**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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