Common features and benefits

RUGGEDCOM WIN7000, WIN7200

RUGGEDCOM WIN5100, WIN5200

RUGGEDCOM RP100, RP110

Use cases
Siemens RUGGEDCOM WIN series of products is the first broadband wireless product portfolio designed for private networks, delivering the benefits of carrier-grade 4G technology to critical infrastructure applications in harsh environments.

Standards based
- Based on the IEEE 802.16e family of standards and third party validated to support interoperability with other vendors.

Standalone mode
- Unique capability that allows RUGGEDCOM WIN products to operate without an ASN gateway, reducing initial capital outlay significantly, while maintaining features such as GOOSE over the air and mobility.

Range/throughput
- The RUGGEDCOM WIN product family has built-in mechanisms to ensure the system is delivering maximum bandwidth for a given distance/coverage requirement at all times.

Scale
- RUGGEDCOM WIN has been designed to cover vast territories with embedded GPS synchronization to reduce self-interference and maximize frequency reuse.

Quality of service
- RUGGEDCOM WIN has built-in quality of service to enable operators to guarantee latency and throughput enabling a mix of IT and OT applications.

Security
- The RUGGEDCOM WIN product family has the security feature set to enable organizations that provide critical infrastructure to be compliant with legal mandates and security guidelines.

Mobility
- The RUGGEDCOM WIN product line is capable of maintaining session persistence with real time applications in a mobility environment at vehicular speeds.
The RUGGEDCOM WIN7000 and RUGGEDCOM WIN7200 systems are powered by OFDMA radio technology, which is robust in adverse environmental conditions and enables Non-Line-Of-Sight (NLOS) operation. Leveraging link adaptation algorithms, modulation and coding are continuously adapted to prevailing link conditions, ensuring an optimal balance between robustness and efficiency.

RUGGEDCOM WIN7000 high power base station

The RUGGEDCOM WIN7000 is a high power, broadband wireless base station, compliant to the IEEE 802.16e standard, designed for long range deployments in licensed frequency bands in harsh environments.

Available in a number of different frequency bands, the RUGGEDCOM WIN7000 has been designed around delivering maximum coverage where regulations permit high power operation. The single sector design can accommodate as many sectors as required at a given site, driven by coverage, bandwidth and subscriber considerations.

Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>RUGGEDCOM WIN7000</th>
<th>RUGGEDCOM WIN7200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support of worldwide WiMAX deployments</td>
<td>1.X, 2.X and 3.X GHz bands</td>
<td>2.5, 3.5, 3.65, 4.9 and 5.8 GHz bands</td>
</tr>
<tr>
<td>Flexible configurations</td>
<td>Single cable power and Ethernet or fiber optic interface</td>
<td>Single cable power and Ethernet interface</td>
</tr>
<tr>
<td>Power output</td>
<td>2 x 36 dBm output power</td>
<td>2 x 27 dBm output power for 2.X GHz and 3.X GHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 x 24 dBm output power for 4.9 GHz</td>
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<tr>
<td></td>
<td></td>
<td>2 x 21 dBm output power for 5.8 GHz</td>
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<tr>
<td>Width</td>
<td>290 mm (11.42 in)</td>
<td>257 mm (10.12 in)</td>
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<tr>
<td>Height</td>
<td>756 mm (29.76 in)</td>
<td>228 mm (8.98 in)</td>
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<tr>
<td>Depth</td>
<td>195 mm (7.68 in)</td>
<td>112 mm (4.41 in)</td>
</tr>
<tr>
<td>Net weight</td>
<td>15 kg</td>
<td>4 kg</td>
</tr>
</tbody>
</table>

Mobile WiMAX compliance

- Based on IEEE 802.16e standard and WiMAX Forum Wave2 (MIMO) certification

Rated for harsh environments

- IEEE 1613, IEC 61850-3; Class 1 Div 2 / ATEX Zone 2, MIL-STD 810F, MIL-STD 509.4 – salt fog

Long range

- Transmit and receive diversity combined with high power for improved reach and NLOS performance

High bandwidth

- RUGGEDCOM WIN has two built-in radios operating on the same frequency simultaneously (MIMO) to increase bandwidth (up to 40 Mbps) and spectral efficiency

RUGGEDCOM WIN7200 standard power base station

The RUGGEDCOM WIN7200 is a lightweight broadband wireless base station, compliant with the IEEE 802.16e standard, also supporting unlicensed frequency bands in harsh environments.

The RUGGEDCOM WIN7200 is a single sector lightweight base station that can be easily installed on poles, street lamps or walls, and provides connectivity to fixed or mobile end points. Connected via a single Power over Ethernet (PoE) connection and easily provisioned, the RUGGEDCOM WIN7200 reduces operational cost and complexity.
RUGGEDCOM subscriber units

**Mobile WiMAX compliance**
- Based on IEEE 802.16e standard and WiMAX Forum Wave 2 profiles

**Excellent performance in NLOS conditions**
- Overcoming multipath and deep fading, providing extended range and easy installation

**Automatic Transmit Power Control (ATPC)**
- Optimal network deployment, tight frequency reuse, and interference avoidance

**Numerous applications and services**
- Guaranteed data, VoIP, video and other services based on advanced QoS

**Robust hardware**
- -40°C to +75°C temperature range

**Global availability**
- Wide frequency band support for deployments around the world

**RUGGEDCOM WIN5100 vehicular subscriber unit**

The RUGGEDCOM WIN5100 is a broadband wireless subscriber unit, compliant with the IEEE 802.16e standard, with external RF connectors for use in fixed or mobile applications in harsh environments.

The self-learning subscriber device automatically detects the base station on the best signal available, allowing for plug-and-play installation and maintenance-free operation. RUGGEDCOM WIN5100 comes with external antenna connectors and can be ordered with an optional 10 – 30 VDC input.

**RUGGEDCOM WIN5200 outdoor subscriber unit**

The RUGGEDCOM WIN5200 is a broadband wireless subscriber unit, compliant with the IEEE 802.16e standard, with a built-in directional antenna for use in harsh environments.

RUGGEDCOM WIN5200 greatly simplifies installation with LEDs for signal strength alignment, automatic connection to strongest serving base station and automated service provisioning, based on authentication credentials. Specifically designed for point-to-multipoint broadband wireless access applications, the RUGGEDCOM WIN5200 provides efficient use of the wireless spectrum, supporting a range of applications.

<table>
<thead>
<tr>
<th>Specifications</th>
<th>RUGGEDCOM WIN5100</th>
<th>RUGGEDCOM WIN5200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenna</td>
<td>2 N-type antenna connectors for connection to external omni or directional antenna</td>
<td>High gain integrated antenna</td>
</tr>
<tr>
<td>Flexible configurations</td>
<td>Designed for vehicular, cabinet or pole top installations</td>
<td>Designed for pole top installations</td>
</tr>
<tr>
<td>Power supply</td>
<td>Direct DC input (optional)</td>
<td>Single cable Power over Ethernet (PoE)</td>
</tr>
<tr>
<td>Width</td>
<td>226 mm (8.9 in)</td>
<td>226 mm (8.9 in)</td>
</tr>
<tr>
<td>Height</td>
<td>80 mm (3.15 in)</td>
<td>80 mm (3.15 in)</td>
</tr>
<tr>
<td>Depth</td>
<td>92 mm (3.62 in)</td>
<td>92 mm (3.62 in)</td>
</tr>
<tr>
<td>Net weight</td>
<td>1.5 kg</td>
<td>2.5 kg</td>
</tr>
</tbody>
</table>
RUGGEDCOM power injectors

RUGGEDCOM RP100 and RUGGEDCOM RP110 provide stability and performance under high levels of temperature variation, EMI stress, and voltage fluctuation that occur in electrical and industrial applications.

Safety and performance
RUGGEDCOM RP100 and RUGGEDCOM RP110 have the same certifications as protection and control devices providing the confidence and assurance of continued operation even in the worst conditions.

- Rugged Rated, -40° C to +85° C temperature range
- IEEE 1613 and IEC 61850-3 compliance means continued operation in harsh environments
- Supports a wide range of AC and DC input voltages
- Space-saving compact DIN rail design
- Reduces cabling, connection, and power supply requirements for PoE devices
- Rated for 12, 24 – 48 VDC, 100 – 240 VAC, 125 – 250 VDC

RUGGEDCOM RP100 or RUGGEDCOM RP110 designed to power RUGGEDCOM WIN5xxx or WIN72xx and to fit in any recloser cabinet.
RUGGEDCOM RP100
single port 802.3at Power over Ethernet injector

The RUGGEDCOM RP100 is a single port 802.3at Power over Ethernet injector that provides the flexibility to power remote PoE devices using standard Cat 5 cable.

Compatible with the latest 802.3at high-power PoE standard and backward compatible with low-power 802.3af PoE devices, the RUGGEDCOM RP100 provides versatility and investment protection to handle future demands for increased power.

**Performance**
- Configuration-free, plug and play operation
- 802.3at/af-compliant or RM version for connection to RUGGEDCOM WIN products

**Network design flexibility**
The RUGGEDCOM RP100 is a configuration free plug-and-play device suitable for any Power over Ethernet connection, supporting both IEEE 802.3af and 802.3at Power over Ethernet standards in one box.

<table>
<thead>
<tr>
<th>Specifications</th>
<th>RUGGEDCOM RP100</th>
<th>RUGGEDCOM RP110</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>226 mm (8.9 in)</td>
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</tr>
<tr>
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<td></td>
</tr>
</tbody>
</table>

RUGGEDCOM RP110
serial device server with 802.3at/af Power over Ethernet injector

The RUGGEDCOM RP110 is a serial 802.3at Power over Ethernet injector with a built-in serial server, designed to bridge legacy serial devices onto an IP network and to power remote PoE devices, using standard Cat 5 cable.

Converging data and power into a single cable saves costs, space and labor for new and existing installations. In addition to a power injector, the RUGGEDCOM RP110 has a built-in serial server, designed to bridge legacy serial devices into an IP network. It offers a single interface capable of supporting RS422, 485, and 232 protocols, and is protocol aware for certain common serial protocols such as DNP and Modbus.

**Rugged Operating System (ROS®)**
The RUGGEDCOM RP110 includes a subset of the features of the industry leading ROS® operating system, including:
- Remote management and logging
- Serial IP encapsulation
- SNMP based network management
- Precision timing support

**Serial ports**
- 1 RS485/RS422 port and 1 independent RS232 port
- 1 IRIG-B Output
Use case: electric utility multi-service WiMax

RUGGEDCOM WIN multi-service solution
Use case: rail onboard communications

Fully integrated reliable wireless solutions offer broadband data rates for real-time data access.
Use case: water/wastewater

Network Topology Summary
- Corporate Network extended via Microwave or Fiber backbone
- Water Tower locations accommodated via backbone
- Multi-Mile end point locations via RUGGEDCOM WIN WiMAX 4.9GHz Point to Multipoint
- Local end point locations via SCALANCE W WiFi
- Backbone constructed in ring topology for redundancy/availability
Use case: ITS wireless broadband

Secure wireless broadband coverage for mobile and stationary applications
Security information:

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, solutions, machines, equipment and/or networks. They are important components in a holistic industrial security concept. With this in mind, Siemens’ products and solutions undergo continuous development. Siemens recommends strongly that you regularly check for product updates.

For the secure operation of Siemens products and solutions, it is necessary to take suitable preventive action (e.g. cell protection concept) and integrate each component into a holistic, state-of-the-art industrial security concept. Third-party products that may be in use should also be considered. For more information about industrial security, visit http://www.siemens.com/industrialsecurity.

To stay informed about product updates as they occur, sign up for a product-specific newsletter. For more information, visit http://support.automation.siemens.com.