

# symmetry SSI5200

Self-install Indoor WiMAX subscriber station

## Universal, versatile and cost-effective

At the subscriber end of your WiMAX network resides the symmetry SSI5200—a universal (802.16-2004 or 802.16e-2005), self-install indoor WiMAX SS that provides fixed or nomadic access to voice, Internet and advanced multimedia service connections in an elegant, compact design.

SR Telecom's SSI5200 self-install indoor SS provides carriers a quick, easy and cost-efficient way to deliver a full range of revenue-generating WiMAX services—including VoIP, high-speed Internet, streaming multimedia and online gaming—to subscribers within their network.

Perfectly-suited for your residential subscribers or home-based businesses, the SSI5200 can be quickly and easily installed by a technician or the end-user thanks to its sophisticated user interface and integrated signal quality LED display. The SSI5200's fully integrated design features a built-in high-gain antenna to maximize signal strength in an NLOS environment while still supporting the use of an external antenna.

And since it supports **symmetryMX** and **symmetryMXe**, the industry's most advanced WiMAX air interfaces, SSI5200 offers all basic and advanced WiMAX features—including Space-time Coding, sub-channeling, advanced QoS and antenna diversity—to optimize the use of your valuable spectrum

- Fixed or nomadic access to full range of voice, Internet and multimedia services
- Compact, fully integrated design ideal for residential or SME subscribers
- Quick and simple installation using a sophisticated, web-based user interface and integrated signal quality display
- Supports end-user or professional Installations
- Optimized CAPEX—carriers can provide a full range of revenue generating services in a cost efficient unit
- Supports **symmetryMX** and **symmetryMXe**, the industry's most advanced WiMAX air interfaces

## Flexibility to meet subscriber needs and maximize return on investment

The SSI5200 is available in three distinct, cost-effective option packages, each offering a unique set of access interfaces designed to meet the specific needs of your subscriber base. This enables you to maximize your return on investment potential by establishing revenue models based on packaged subscriber services.

<b>Multimedia basic package</b>	Provides 1x Ethernet port. <i>Ideally suited for IP multimedia services to residential and small and medium sized businesses.</i>
<b>VoIP/IP gateway package</b>	Provides up to 4x Ethernet and 2 POTS lines <i>Perfect for individual residential and SOHO users</i>
<b>VoIP/IP gateway and WiFi package</b>	Provides 4x Ethernet, 2 POTS lines and WiFi <i>Perfect for individual residential and SOHO users with WiFi phones and laptops</i>



### Interfaces

<b>Multimedia basic package</b>	10/100Base-T [RJ-45 Unshielded]: One port with VLAN support
<b>VoIP/IP indoor gateway package with PoE</b>	10/100Base-T [RJ-45 Unshielded]: Four ports VLAN switch POTS [RJ-11]: Two ports
<b>VoIP/IP indoor gateway and WiFi package with PoE</b>	10/100Base-T [RJ-45 Unshielded]: Four ports VLAN switch POTS [RJ-11]: Two ports WiFi: 802.11g

### Services

<b>Network segmentation and prioritization</b>	VLAN: IEEE 802.1Q, 802.1D [802.1p]
<b>Packet switching</b>	Multimedia and VoIP gateway options: L2 Switching by 802.1D Bridging  Low latency Layer-2 switching and policy switching that enables easy inter-working with routers, gateways, firewall/NAT, IP PBX, media gateway, demilitarized zone (DMZ) host, multicast routers, Diffserv networks and MPLS switches.  VoIP/IP gateway option: Layer 3 switching: L3 gateway <ul style="list-style-type: none"> <li>• Network address port translation (one-to-many address mapping)</li> <li>• PPPoE client</li> </ul>
<b>User traffic protocol</b>	IPv6, IPv4, PPPoE, L2TP, IPSec, PPTP, MPLS
<b>IP configuration</b>	<ul style="list-style-type: none"> <li>• IPCP for PPPoE mode</li> <li>• DHCP customer support or static configuration for the gateway</li> <li>• DHCP server support for local host IP configuration</li> <li>• Static default address for local web interface</li> </ul>
<b>Services and applications</b>	Residential and enterprise internet access Multimedia applications (video conferencing and gaming) VoIP (Integrated POTS or external gateway interoperability)
<b>Remote configuration and management</b>	NMS supports full-range of OAM&P functions SNMP v2/v3, and TFTP
<b>Local configuration management</b>	Web browser access
<b>Software maintenance</b>	Over-the-air software upgrades

**VoIP/IP gateway package services**

<b>Signalling</b>	SIP, H.323, MGCP
<b>Codec</b>	G.711/G.729/G.723
<b>Voice processing</b>	Echo cancelling / voice activity detection / confort Noise generation
<b>FXO</b>	PSTN back-up VoIP/PSTN switching
<b>QoS</b>	L2 QoS VLAN based IP QoS (FXS Priority) QoS WFQ Diffserv
<b>VPN</b>	VPN SSL VPN Passthrough VPN IPSEC VPN L2TP VPN PPT
<b>Firewall</b>	NAT and Statefull Inspection Firewall
<b>WiFi</b>	WiFi 11g; WEP/WPA; WMM; Multiple SSID; Easy pairing
<b>IP gateway</b>	IP V4; UDP/TCP; ICMP; ARP; RARP; DHCP Server/ Client DHCP Relay/proxy; DNS relais/Proxy; Client IP Routing RIP1&2 NAT/PAT Firewall ALG Support (including H323,SIP,MGCP) DMZ Traceroute IGMP snooping/proxy
<b>Gateway management interface</b>	symmetryMX/Mxe EMS Telnet FTP Server/Client TFTP Server/Client SNMP HTTP Server/Client HTTPS SSL/TLS Web GUI multilingual CLI HTML remote management Multiple user support UPnP

**MAC layer features**

<b>Convergence sub-layer service</b>	Packet over Ethernet/802.3, IPv4 over 802.3, IPv6 over 802.3
<b>Convergence sub-layer packet classification</b>	<ul style="list-style-type: none"> <li>• Extensive packet classification</li> <li>• Layer 2: IEEE 802.3 addresses and type, IEEE 802.1Q, IEEE 802.1D (802.1p)</li> <li>• Layer 3: IP addresses and protocol, differentiated Services Code Point/TOS</li> <li>• Layer 4: Port number and/or range</li> </ul>
<b>Convergence sub-layer traffic conditioning</b>	<ul style="list-style-type: none"> <li>• Traffic priority marking, per flow, multimedia queuing,</li> <li>• Traffic conformance metering, soft rate limiting/traffic shaping,</li> <li>• Congestion control (WRED), latency and jitter control</li> </ul>
<b>Filters</b>	<ul style="list-style-type: none"> <li>• Broadcast and multicast storm,</li> <li>• Source and destination Mac filters; <ul style="list-style-type: none"> <li>• Broadcast, multicast filters,</li> <li>• Broadcast storm filters</li> </ul> </li> <li>• Access control list defined through classifier rules</li> </ul>
<b>QoS scheduler options</b>	<ul style="list-style-type: none"> <li>• Advanced scheduling algorithm with full QoS support.</li> <li>• Unsolicited grants (UGS), enhanced real time polling (ertPS) real-time polling (rtPS), non-real time polling (nrtPS) and best effort (BE)</li> </ul>
<b>Airlink optimization 802.16-2004 air interface</b>	<ul style="list-style-type: none"> <li>• Automatic retransmission reQuest (ARQ)</li> <li>• Payload header suppression</li> </ul>
<b>Airlink optimization 802.16e-2005 air interface</b>	<ul style="list-style-type: none"> <li>• Automatic retransmission reQuest (ARQ) and Hybrid – ARQ</li> <li>• Payload header suppression</li> <li>• Robust header compression</li> </ul>
<b>Service flow support</b>	<ul style="list-style-type: none"> <li>• Policy enforcement for each service flow</li> <li>• Each SS supports multiple classes of service</li> </ul>
<b>Security options 802.16-2004 air interface</b>	Authentication based on X.509 certificate
<b>Security options 802.16e-2005 air interface</b>	EAP Client TLS and TTLS End-to-end PKMV2 Authentication based on X.509 certificate

**Electrical, mechanical, environmental specifications**

<b>Mechanical (W x H x D)</b>	155.5 x 117.1 x 47.5 mm
<b>Operating temperature</b>	0 to +45°C
<b>Humidity</b>	5 to 95%
<b>Power supply</b>	110/240VAC
<b>SSI5200 Power consumption</b>	15 Watts

## Physical layer 802.16d-2004 software options

<b>Air interface</b>	IEEE 802.16-2004
<b>Frequency range</b>	2.5 GHz [2500MHz – 2695MHz] 3.5 GHz [3300 – 3800 MHz]
<b>Channel bandwidth</b>	Scalable 2.5 GHz: 3.5, 5.0, 7.0 MHz TDD 3.5 GHz: 1.75, 3.5, 7.0 MHz H-FDD 3.5 GHz: 3.5, 5.0, 7.0 MHz TDD
<b>Duplexing</b>	H-FDD; TDD (dynamic partitioning)
<b>RF access scheme</b>	OFDM (256 FFT)
<b>Adaptive modulation</b>	64-QAM 3/4, 2/3 16-QAM 3/4, 1/2 QPSK 3/4, 1/2 BPSK 1/2
<b>Frame size</b>	5, 10 ms
<b>Maximum RF transmit power</b>	23 dBm
<b>Antenna type</b>	Integrated panel antenna (8 dBi) External antenna port option for higher gain antennas
<b>Receiver sensitivity</b>	1.75MHz: -100dBm (BPSK 1/2) to -83 dBm (64 QAM 3/4)
<b>Cyclic prefix</b>	1/4, 1/8, 1/16, 1/32
<b>Smart antenna system/ RF path diversity</b>	STC alamouti coding and maximum ratio combining MRC
<b>Channel coding</b>	Reed-salomon and convolutional coding; rate 1/2, 2/3, 3/4
<b>ATPC (automatic power control)</b>	Uplink power control with adaptive modulation
<b>Sub-channelling</b>	2, 4, 8 and 16 sub-channels
<b>DL:UL ratio (TDD)</b>	Configurable

## Physical layer 802.16e-2005 software options

<b>Air interface</b>	802.16e-2005 (IEEE 802.16-2004 as amended by IEEE 802.16-2005)
<b>Frequency range</b>	2.5 GHz [2500MHz - 2695MHz] 3.5 GHz [3300 – 3800 MHz]
<b>Channel bandwidth</b>	Scalable 2.5 GHz: 5.0, 10.0 MHz 3.5 GHz: 5.0, 7.0, 10.0 MHz
<b>Duplexing</b>	TDD (dynamic partitioning)
<b>RF access scheme</b>	SOFDMA (512, 1024 point FFT)
<b>Adaptive modulation</b>	64-QAM 1/2, 2/3, 3/4, 5/6 16-QAM 3/4, 1/2 QPSK 3/4, 1/2 QPSK 1/2 Repetitive coding 1x, 2x, 4x, 6x
<b>Frame size</b>	5 ms (TDD)
<b>Maximum RF transmit power</b>	23 dBm
<b>Antenna type</b>	Integrated panel antenna (8 dBi) External antenna port option for Higher gain antennas.
<b>Receiver sensitivity</b>	For 5MHz : -97 ( QPSK 1/2 1x ) -105 ( QPSK 1/2 6x)
<b>Cyclic prefix</b>	1/8
<b>Smart antenna system/ RF path diversity</b>	STC Alamouti coding & MRC
<b>Channel coding</b>	Convolutional coding with tail biting Convolutional turbo coding
<b>ATPC (Automatic Power Control)</b>	Open and closed loop power control with adaptive modulation
<b>Sub-carrier allocation</b>	PUSC, FUSC, AMC 2x3
<b>DL:UL ratio</b>	Configurable

## WiMAX. Clearly here and now

SR Telecom is a pioneer and acknowledged leader in the broadband wireless access (BWA) industry. With 26 years of experience in designing, developing and deploying wireless access networks for top-tier carriers around the world, SR Telecom's BWA solutions have been installed in over 110 countries, serving more than two million people.

The first company to commercially deploy an OFDM-based broadband solution, SR Telecom is the only BWA vendor with a decade of experience deploying advanced WiMAX technologies in end-to-end solutions. We provide top-tier carriers with the industry's highest link budget and verifiable performance metrics, not just predictions on how a product will perform based on lab testing. With this real-world experience driving our product innovation, SR Telecom focuses on delivering premium broadband technology, and business-driven services that exceed operators' expectations and drive their business forward. Our solutions and support strategies are key enablers for large-scale WiMAX rollouts by top-tier carriers.

