Cisco 3201 802.11b/g Wireless Mobile Interface Card

The Cisco® 3201 Wireless Mobile Interface Card (WMIC) for the Cisco 3200 Series Rugged ISR provides integrated 802.11b/g wireless WAN or LAN capabilities. Designed in the same ruggedized, compact PC/104-Plus form factor as other Cisco 3200 Series interface cards, the Cisco 3201 WMIC is designed to be integrated as part of a Cisco 3200 Series rugged router solution, eliminating the need to use external 802.11b/g bridges or access points. The integrated WMIC provides access to a mobile network in vehicles or to outdoor wireless infrastructure.

The Cisco 3200 Series Rugged ISRs (see Figure 1) offer organizations such as public safety, homeland security, and transportation agencies the following key solution benefits:

- A rugged router in a modular compact design, suited to create mobile networks in and around vehicles
- Standards-based connectivity for a wide range of wireless technologies, including 802.11b/g, 4.9 GHz, third-generation (3G) cellular networks, and satellite, upgradable to future wireless technologies
- Always-on wireless access for vehicle networks, with easy mobility through Mobile IP regardless of location or movement
- Advanced IP services through standards-based Cisco IOS® Software, offering robust network security, reliability, quality of service (QoS), and remote management functions
- Rugged enclosure from Cisco or options for third-party enclosures

Refer to the Cisco 3200 Series Rugged ISR data sheets for more information about networking solutions using the Cisco 3200 Series routers: http://www.cisco.com/en/US/products/hw/routers/ps272/products_data_sheets_list.html

Figure 1 shows a Cisco 3230 Rugged ISR card bundle with a Cisco 3201 WMIC.

Figure 1. Cisco 3200 Series Rugged ISR Interface Cards with an 802.11b/g WMIC

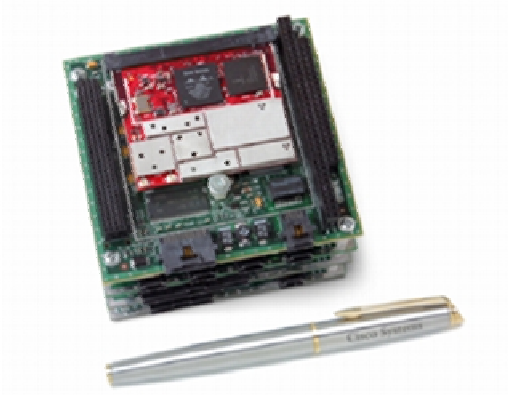

Table 1 provides features and benefits of the Cisco 3201 WMIC. Table 2 shows part numbers, and Table 3 provides product specifications.

Table 1. Features and Benefits of the Cisco 3201 WMIC

Feature	Benefit
Integration with the Cisco 3200 Series Rugged ISRs	• Eliminates the need for external 2.4-GHz 802.11b/g LAN or WAN devices • Simplifies hardware and power design for in-vehicle networks and outdoor wireless infrastructure • Provides an important component of a Cisco 3200 Series router solution that combines Layer 2 and Layer 3 wireless networking
Rugged, compact form factor	• Built with industrial-grade components in the PC/104-Plus architecture • Extended temperature range of -40º to +85ºC • Meets MIL-STD-810F and SAE standards • Stacks on other Cisco 3200 interface cards, sharing a common power supply
Configurable as an access point, bridge, or workgroup bridge (client)	• Configurable as a workgroup bridge or universal workgroup bridge, providing interoperability with standards-based 802.11b/g access points, including the Cisco 1500 Series Outdoor Mesh Access Points • Software configuration allows flexibility in the function of the WMIC's capabilities

Table 2. Cisco 3201 WMIC Part Numbers

Part Number	Description
The Cisco 3201 WMIC is sold mainly as part of a Cisco 3200 Series product bundle or as a spare card. For additional information, refer to the Cisco 3200 Series ordering brochure: http://www.cisco.com/en/US/products/hw/routers/ps272/prod_brochure0900aecd803fabbf.html	
C3201WMIC-A-K9=	Cisco 3201 802.11b/g WMIC for operation in most of the Americas
C3201WMIC-TPAK9=	Cisco 3201 802.11b/g WMIC with thermal plates for operation in most of the Americas
C3201WMIC-E-K9=	Cisco 3201 802.11b/g WMIC for operation in most of Europe
C3201WMIC-TPEK9=	Cisco 3201 802.11b/g WMIC with thermal plates for operation in most of Europe
C3201WMIC-J-K9=	Cisco 3201 802.11b/g WMIC for operation in Japan (30 mW output power)
C3201WMIC-TPJK9=	Cisco 3201 802.11b/g WMIC with thermal plates for operation in Japan (30 mW output power)
C3201WMIC-J10-K9=	Cisco 3201 802.11b/g WMIC for operation in Japan (10 mW output power)
C3201WMIC-TPJ10K9=	Cisco 3201 802.11b/g WMIC with thermal plates for operation in Japan (10 mW output power)

Table 3. Product Specifications for the Cisco 3201 WMIC

Feature	Description
Data Rates Supported	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Network Standard	IEEE 802.11b and IEEE 802.11g
Frequency Band	2.4 to 2.497 GHz
Network Architecture Types	Vehicular mobile networks, outdoor wireless infrastructure
Media Access Protocol	Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA)
Modulation	**Wireless modulation 802.11b** Direct sequence spread spectrum (DSSS): • Differential Binary Phase Shift Keying (DBPSK) at 1 Mbps • Differential Quadrature Phase Shift Keying (DQPSK) at 2 Mbps • Complementary Code Keying (CCK) at 5.5 and 11 Mbps **Wireless modulation 802.11g** Orthogonal frequency divisional multiplexing (OFDM): • BPSK at 6 and 9 Mbps • QPSK at 12 and 18 Mbps • 16-quadrature amplitude modulation (QAM) at 24 and 36 Mbps • 64-QAM at 48 and 54 Mbps

<table>
<tr><th>Feature</th><th>Description</th></tr>
<tr><td>Operating Channels</td><td>North America: 11; ETSI: 13; Japan: 14</td></tr>
<tr><td>Nonoverlapping Channels</td><td>3 (United States)</td></tr>
<tr><td>Receive Sensitivity</td><td>• 1 Mbps: -94 dBm
• 2 Mbps: -91 dBm
• 5.5 Mbps: -89 dBm
• 11 Mbps: -85 dBm
• 6 Mbps: -90 dBm
• 9 Mbps: -89 dBm
• 12 Mbps: -86 dBm
• 18 Mbps: -84 dBm
• 24 Mbps: -81 dBm
• 36 Mbps: -77 dBm
• 48 Mbps: -73 dBm
• 54 Mbps: -72 dBm</td></tr>
<tr><td>Delay Spread</td><td>• 1 Mbps: 500 ns
• 2 Mbps: 400 ns
• 5.5 Mbps: 300 ns
• 11 Mbps: 140 ns
• 6 Mbps: 300 ns
• 9 Mbps: 300 ns
• 12 Mbps: 300 ns
• 18 Mbps: 300 ns
• 24 Mbps: 240 ns
• 36 Mbps: 240 ns
• 48 Mbps: 120 ns
• 54 Mbps: 120 ns</td></tr>
<tr><td>Available Transmit Power Settings</td><td>802.11b:
• 100 mW (20 dBm)
• 50 mW (17 dBm)
• 30 mW (15 dBm)
• 20 mW (13 dBm)
• 10 mW (10 dBm)
• 5 mW (7 dBm)
• 1 mW (0 dBm)
Maximum power setting will vary according to individual country regulations.
802.11g:
• 30 mW (15 dBm)
• 20 mW (13 dBm)
• 10 mW (10 dBm)
• 5 mW (7 dBm)
• 1 mW (0 dBm)
Maximum power setting will vary according to individual country regulations</td></tr>
<tr><td>Range (typical @ 100-mW transmit power setting with 6 dBi diversity dipole antenna)</td><td>Outdoor:
• 0.5 mile (804 m) at 45 Mbps
• 1 mile (1609 m) at 11 Mbps
• 3 miles (4827 m) at 1 Mbps</td></tr>
<tr><td>Compliance</td><td>Operates license free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with ETS 300.328, FTZ 2100, and MPT 1349 standards; rugged version complies with UL 2043</td></tr>
<tr><td>Simple Network Management Protocol (SNMP) Compliance</td><td>MIB I and MIB II</td></tr>
<tr><td>Antenna</td><td>Antennas Supported for 2.4 GHz (Stationary)
ANT3549 PATCH 9 dBi | ANT1729 PATCH 6 dBi | ANT250 OMNI MAST 5.2 dBi | ANT24120 OMNI MAST 12 dBi | ANT2410 YAGI 10 dBi | ANT1949 YAGI 13.5 dBi | ANT3338 DISH 21 dBi
Mobile Antennas Supported
BMAXC24503 Mobile MAG Mount 3 dBi | BMAXC24505 Mobile MAG Mount 5 dBi | BMAXC24003 Mobile MAG Mount 5 dBi
For more information on antennas, refer to the Cisco 3200 Series antenna brochure: http://www.cisco.com/en/US/products/hw/routers/ps272/prod_brochure_list.html</td></tr>
<tr><td>Workgroup Bridge</td><td>Allows the Cisco 3200 Series router to connect as a client device to Cisco 152x Mesh Access Points</td></tr>
<tr><td>Universal Workgroup Bridge</td><td>Allows the Cisco 3200 Series router to connect as a client device to standards-based 802.11b/g access points with the ability to use multiple profiles for various authentication types.</td></tr>
<tr><td>VLAN Support</td><td>Allows segmentation of up to 16 user groups, creating increased system flexibility by allowing differentiation of LAN policies and services, such as security and QoS, for different users.</td></tr>
<tr><td>Multiple Basic Secure Set Identifiers (BSSIDs)</td><td>Multiple BSSIDs provide up to 16 SSIDs to use with multiple VLANs.</td></tr>
<tr><td>Quality-of-Service (QoS) Support</td><td>Wireless Multimedia (WMM) as part of the 802.11e specification for wireless QOS. Prioritization of traffic for different application requirements to improve the voice and video user experience.</td></tr>
</table>

Feature	Description
Security	Cisco Wireless Security Suite supporting Wi-Fi Protected Access (WPA) and WPA2, including: **Authentication** • 802.1X support, including Cisco LEAP, Projected Extensible Authentication Protocol (PEAP), Extensible Authentication Protocol Transport Layer Security (EAP-TLS) (Root-AP and Client), EAP Tunneled TLS (EAP-TTLS), EAP Subscriber Information Module (EAP-SIM), and EAP Flexible Authentication via Secure Tunneling (EAP-FAST) **Encryption** • WPA: Cisco TKIP or WPA TKIP • WPA2: AES (802.11i)
Status Indicators	Signals for four status indicators (ETH, RF, INSTALL, and STATUS) to provide information concerning association status, operation, error or warning, firmware upgrade, configuration, network or modem, and radio status
Automatic Configuration Support	BOOTP and Dynamic Host Configuration Protocol (DHCP)
Remote Configuration Support	Telnet, HTTP, FTP, Trivial File Transfer Protocol (TFTP), and SNMP
Local Configuration	Direct console port
Dimensions	• 3.775 in. wide x 0.937 in. high x 3.550 in. deep • Height dimension includes component side height, board height, and the shroud height on the solder side
Weight	0.22 lb (0.102 kg)
Rugged Enclosure	The Cisco 3200 Series offers system bundles in a rugged enclosure. For details, see: http://www.cisco.com/en/US/products/hw/routers/ps272/products_data_sheet0900aecd8028e3a7.html
Environmental	• Operating temperature:* -40 to +85C (operating) • Operating altitude: 15,000 ft • Nonoperating temperature: -40°to +85℃ • Nonoperating altitude: 40,000 ft
Input Power Requirements	3.3V and 5.0V input required (same as the Cisco 3200 card stack)
Warranty	90 days
Wi-Fi Certification	

* Immediate local ambient temperature around onboard components; system level external ambient operating temperature may vary depending on the enclosure and the thermal solution used.

Ordering Information

The Cisco 3201 WMIC was developed for the Cisco 3200 Series Rugged ISRs to provide integrated 802.11b/g wireless WAN or LAN capabilities. For additional information, refer to the Cisco 3200 Series ordering brochure: http://www.cisco.com/en/US/prod/collateral/routers/ps272/prod_brochure0900aecd803fabbf.html

Service and Support

Cisco offers a wide range of service programs to accelerate customer success. These innovative service programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you protect your network investment, optimize network operations, and prepare the network for new applications to extend network intelligence and the power of your business. For more information about Cisco services, refer to Cisco Technical Support Services or Cisco Advanced Services.

For More Information

For more information about the Cisco 3200 Series Rugged ISRs, visit http://www.cisco.com/go/3200 or contact your local Cisco account representative.

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