

Product Brief:

SDC-PC10AG 802.11a/g Compact Flash Module with Antenna Connectors

The SDC-PC10AG PC Card (PCMCIA) radio module from Summit Data Communications combines a high-performance 802.11a/g radio with customized software, both proven on mobile computers and other business-critical mobile devices that operate in harsh environments. No other Wi-Fi® radio module can match the range, robust security, seamless mobility, and easy administration of the PC10AG module.



Each PC10AG module delivers:

- Hardware: Maximized radio range, minimized power consumption, and broad operating temperature range
- Software: Enterprise-level security, fast and reliable roaming, and easy administration
- Certifications: Regulatory certifications plus Wi-Fi Alliance® and CCX V4 certifications

The SDC-PC10AG PCMCIA radio module is designed for use in business-critical mobile devices and the challenging RF environments in which they operate.

The PC10AG module is backed by a full set of support services including system integration support, regulatory process assistance, and technical support from product and wireless LAN (WLAN) experts.

Hardware Capabilities

The PC10AG module is designed for use in business-critical mobile devices and the challenging radio environments in which they operate. Hardware innovations enable the PC10AG module to provide far greater performance and range than WLAN radio modules designed for office and consumer applications while minimizing power consumption and allowing for operation in extreme environments. Key hardware capabilities include:

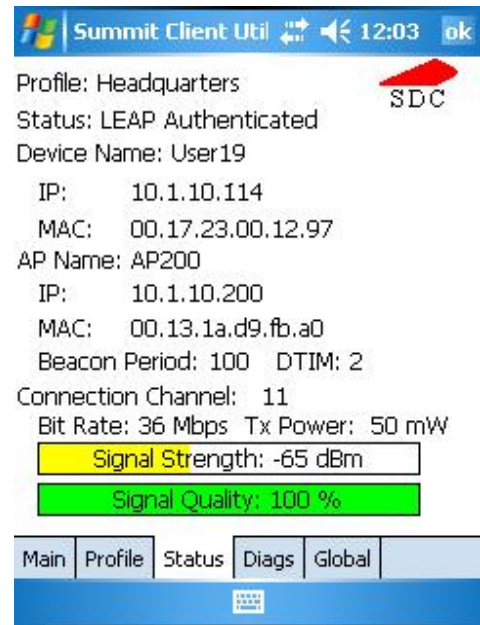
- **802.11a and 802.11b/g:** By supporting both the IEEE 802.11a protocol and the IEEE 802.11g protocol, the PC10AG module provides for a maximum data rate of 54 megabits per second (Mbps) in both the 5 GHz and 2.4 GHz portions of the radio frequency spectrum. Because 802.11g is a superset of the popular 802.11b standard, the PC10AG module can be thought of as an 802.11a, 802.11b, and 802.11g module.

- **Antenna connectors:** The PC10AG module supports antennas of varying types and gains. With four Hirose U.FL antenna connectors, two for 2.4 GHz and two for 5 GHz, the module supports transmit and receive diversity in both frequency bands to maximize performance in high multipath environments.
- **Range:** To maximize radio range – how far the module can be from a WLAN access point and still send data to that AP and receive data from it – the PC10AG module offers market-leading transmit power, receiver sensitivity, and delay spread. As a result, the PC10AG module delivers reliable connectivity, even in environments with few APs, many substances that absorb or reflect radio waves, and many devices that compete for the airwaves.
- **Low power consumption:** With power consumption that's up to 40% lower than other 802.11a/g radio modules, the PC10AG module maximizes device battery life to provide for full-shift operation.
- **Extended operating temperature:** To allow for device operation in extreme environments such as factories, warehouses, freezers, and the outdoors, the PC10AG module provides an extended operating temperature range of -30° to +75° C, which far exceeds the capabilities of most other radio modules.

Software Capabilities

To operate effectively in a business-critical mobile device, a WLAN radio needs specialized software to deliver the security, trouble-free operations, and manageability that customers demand. Software for the PC10AG module includes a driver, an integrated supplicant, and a full-featured management and monitoring utility called the Summit Client Utility (SCU). Key capabilities of PC10AG module software include:

- **Operating system support:** PC10AG software operates on:
 - Windows Embedded CE 5.0, 6.0 R3, 6.0 R2, and 6.0
 - Windows Mobile 5.0, 6.0, 6.1, and 6.5
 - Windows XP Professional and Embedded
- **Security:** Compliance with IEEE 802.11i, which is certified by the Wi-Fi Alliance through testing for Wi-Fi Protected Access™ 2 (WPA2) Enterprise, provides for the highest level of interoperable WLAN security available. An integrated 802.1X supplicant supports



SCU is a graphical utility for configuration, troubleshooting, and management



authentication via pre-shared keys as well as a broad range of EAP types including EAP-TLS, EAP-TTLS, PEAP-MSCHAPv2, PEAP-GTC, PEAP-TLS, LEAP, and EAP-FAST. Data privacy is ensured via encryption and decryption using AES (WPA2), TKIP(WPA), or WEP.

- **Mobility:** A mobile device often roams from one AP to another. When scanning for a better AP or roaming to that AP, a device's radio cannot send or receive data. If roaming takes too long, a business-critical application that requires a constant connection can be disrupted. Summit radios support the fastest roaming in the industry and enable an administrator to tune roaming behavior to the needs of an application and its environment.
- **Administration:** SCU enables a user to view, and an administrator to configure, all radio operation and security settings. SCU also enables a user or administrator to view status and troubleshoot issues. All SCU functions are available to centralized management applications through the Summit software developer's kit (SDK).
- **Integration:** Summit provides device manufacturers with the Summit Manufacturing Utility, a tool that can be used to set regulatory parameters such as channel set and maximum transmit power to provide for worldwide compliance across multiple platforms.

Certifications

The PC10AG module is certified as compliant with all applicable regulations as set forth by agencies such as ETSI, the FCC, and TELEC. Thanks to software support for all Wi-Fi requirements and key Cisco innovations, the PC10AG module is Wi-Fi CERTIFIED™ and certified for Cisco Compatible Extensions (CCX) Version 4 for application-specific devices.

Summit helps device manufacturers achieve regulatory, Wi-Fi, and CCX certifications for devices equipped with the PC10AG module. By leveraging existing grants, test reports, and approvals, Summit customers incur minimal costs when attaining all required certifications.

Support Services

A business-critical mobile device depends on its WLAN radio for communication with the business network. **Summit understands that, if the radio doesn't work, the device doesn't work. If the device doesn't work, the end user can't do his or her job.**



Summit tests the PC10AG module on a broad range of devices. For device vendors that offer the PC10AG module as a device component or option, Summit provides consultation and documentation to aid in hardware and software integration. When devices experience issues with the PC10AG module in the field, Summit's support team provides Level 2 technical support to device vendors. That team is well-versed in radio frequency characteristics, wired and wireless network architectures, and security protocols.

SDC-PC10AG Specifications

System Interface	16-bit Compact Flash Type I with 50-pin connector <i>Note: This card is not designed for operation in the CF slot on standard laptop and desktop PCs. For these devices, Summit suggests using the SDC-PC20G in the PC Card (PCMCIA) or CardBus slot found on most laptops and desktops.</i>
Antenna Interface	4 Hirose U.FL connectors for dual band antenna diversity
Chipset	Broadcom BCM4318E
Input Power Requirements	3.3 VDC +/- 5%
Typical Power Consumption (at maximum transmit power setting)	Transmit: 440 mA (1320mW) Receive: 180 mA (594mW) Standby: 10 mA (33 mW)
Operating Temperature	-22° to 167°F (-30° to 70°C)
Operating Humidity	10 to 90% (non-condensing)
Length	3.3" (85.6 mm)
Width	2.13" (54 mm)
Thickness	0.2" (5 mm)
Weight	1.0 oz (30g)
Mounting	68 pin connector
Wireless Media	Direct Sequence-Spread Spectrum (DSSS) Orthogonal Frequency Divisional Multiplexing (OFDM)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Network Architecture Types	Infrastructure and ad hoc
Network Standards	IEEE 802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i
Data Rates Supported	802.11a (OFDM): 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b (DSSS): 1, 2, 5.5, 11 Mbps 802.11g (OFDM): 6, 9, 12, 18, 24, 36, 48, 54 Mbps
Modulation	1, 6, 9 Mbps: BPSK 2, 12, 18 Mbps: QPSK 5.5, 11 Mbps: CCK 24, 36 Mbps: 16-QAM 48, 54 Mbps: 64-QAM
Regulatory Domain Support	FCC (Americas, Parts of Asia and Middle East) ETSI (Europe, Middle East, Africa and Parts of Asia) TELECOM (Japan)
2.4 GHz Frequency Bands	ETSI 2.4 GHz to 2.4835 GHz FCC 2.4 GHz to 2.4835 GHz

	<p>TELEC 2.4 GHz to 2.4897 GHz</p>
5 GHz Frequency Bands	<p>ETSI 5.15 GHz to 5.35 GHz 5.47 GHz to 5.725 GHz</p> <p>FCC 5.15 GHz to 5.35 GHz 5.47 GHz to 5.725 GHz 5.725 GHz to 5.82 GHz</p> <p>TELEC 5.15 GHz to 5.25 GHz</p>
2.4 GHz Operating Channels	<p>ETSI: 13 (3 non-overlapping) FCC: 11 (3 non-overlapping) TELEC: 14 (4 non-overlapping)</p>
5 GHz Operating Channels	<p>ETSI: 19 non-overlapping FCC: 23 non-overlapping TELEC: 4 non-overlapping</p>
<p>Transmit Power Settings</p> <p><i>Maximum transmit power will vary according to individual country regulations. All values nominal, +/-2 dBm</i></p>	<p>802.11a: 15 dBm (30 mW) 10 dBm (10 mW) 0 dBm (1 mW)</p> <p>802.11b: 18 dBm (63 mW) 17 dBm (50 mW) 15 dBm (30 mW) 10 dBm (10 mW) 0 dBm (1 mW)</p> <p>802.11g: 15 dBm (30 mW) 10 dBm (10 mW) 0 dBm (1 mW)</p>

<p>Typical Receiver Sensitivity</p>	<p>802.11a 6 Mbps: -85 dBm 9 Mbps: -84 dBm 12 Mbps: -83 dBm 18 Mbps: -80 dBm 24 Mbps: -76 dBm 36 Mbps: -73 dBm 48 Mbps: -70 dBm 54 Mbps: -65 dBm (PER <= 10%)</p> <p>802.11b 1 Mbps: -96 dBm 2 Mbps: -95 dBm 5.5 Mbps: -94 dBm 11 Mbps: -90 dBm (PER <= 10%)</p> <p>802.11g 6 Mbps: -94 dBm 9 Mbps: -91 dBm 12 Mbps: -88 dBm 18 Mbps: -86 dBm 24 Mbps: -83 dBm 36 Mbps: -78 dBm 48 Mbps: -76 dBm 54 Mbps: -75 dBm (PER <= 10%)</p>
<p>Delay Spread</p>	<p>1 Mbps: 600 ns 2 Mbps: 500 ns 5.5 Mbps: 400 ns 6 Mbps: 400 ns 9 Mbps: 400 ns 11 Mbps: 200 ns 12 Mbps: 350 ns 18 Mbps: 350 ns 24 Mbps: 250 ns 36 Mbps: 250 ns 48 Mbps: 150 ns 54 Mbps: 150 ns</p>
<p>Operating Systems Supported</p>	<p>Windows Mobile 6.5 Windows Mobile 6.1 Windows Mobile 5.0 Windows Embedded CE 6.0 (R2 and R3) Windows Embedded CE 5.0 Windows Mobile 2003</p> <p>Windows XP Professional Windows XP Embedded</p>

<p>Security</p>	<p>Standards Wireless Equivalent Privacy (WEP) Wi-Fi Protected Access (WPA) IEEE 802.11i (WPA2)</p> <p>Encryption Wireless Equivalent Privacy (WEP, RC4 Algorithm) Temporal Key Integrity Protocol (TKIP, RC4 Algorithm) Advanced Encryption Standard (AES, Rijndael Algorithm)</p> <p>Encryption Key Provisioning Static (40 and 128 bit lengths) Pre-Shared (PSK) Dynamic</p> <p>802.1X Extensible Authentication Protocol Types EAP-FAST EAP-TLS and EAP-TTLS PEAP-GTC and PEAP-TLS PEAP-MSCHAPv2 LEAP</p>
<p>Compliance</p>	<p>ETSI Regulatory Domain EN 300 328 EN 301 489 EN 301 893 EN 60950 EN 50371 EU 2002/95/EC (RoHS)</p> <p>FCC Regulatory Domain FCC Part 15 Subpart B, Class B FCC Part 15.247, 15.207 Subpart C and E ANSI C63.4-2003</p> <p>Industry Canada RSS-210</p>
<p>Certifications</p>	<p>Wi-Fi Alliance 802.11a, 802.11b, 802.11g WPA Enterprise WPA2 Enterprise</p> <p>Cisco Compatible Extensions (CCX) Version 4</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
<p>Warranty</p>	<p><u>Limited Lifetime</u></p>
<p><i>All specifications are subject to change without notice</i></p>	



Summit Data Communications, Inc. designs, manufactures, and supports WLAN radio modules for business-critical mobile devices such as data terminals, medical devices, and industrial equipment. Summit delivers comprehensive solutions of hardware, software, certifications, and support services that ensure trouble-free integration and operation.

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