

# WCG200 Cable Gateway Product Specification

## Product Overview

WCG200 is a DOCSIS 1.1 compliant wireless cable residential gateway that provide high-speed connectivity to residential, commercial, and education subscribers on public and private networks via an existing cable infrastructure. WCG200 is equipped with 4-port Ethernet switch, USB, and IEEE802.11g Wireless interfaces. WCG200 can inter-operate with any DOCSIS compliant headend equipment. It provides high-speed access to local area networks and high-speed Internet access. The data security secures upstream and downstream communications.

## Features

General	<ul style="list-style-type: none"><li>• F-Connector for the cable interface</li><li>• Four ports 10/100BaseT Ethernet switch with auto-negotiation function and auto-media dependent interface crossover (MDIX)</li><li>• USB Connector for USB interface</li><li>• IEEE802.11g Wireless Access Point</li><li>• Clear LED Display</li><li>• Plug and Play</li><li>• UPnP support</li></ul>
CableLabs DOCSIS 1.0/1.1 Standard Compliant	<ul style="list-style-type: none"><li>• Up to 42.88 Mbps downstream and up to 10.24 Mbps upstream</li><li>• Frequency agility</li><li>• Bridging wired &amp; wireless segments of network</li><li>• Security with X.509 Authentication / RSA protected Key Exchange / 56 bits DES Data Encryption</li><li>• Interoperable with any DOCSIS compatible headend equipment</li></ul>
Two-Way Cable Residential Gateway	<ul style="list-style-type: none"><li>• NAT (Network Address Translation) to support multiple users with one IP account for routing mode<ul style="list-style-type: none"><li>- One to Many</li><li>- Many to Many</li><li>- Reverse NAT</li><li>- PPTP, L2TP &amp; IPsec Pass-Through</li></ul></li></ul>

- Advanced Application Level Gateways (ALG) Support
  - Transparent bridging for IP traffic for bridge mode
  - DHCP Client/Server
  - DNS Proxy
  - DNS Server
  - Dynamic DNS
  - Firewall Function
  - Virtual Servers for Web, FTP, and Mail
- Wireless
  - Fully 802.11g (Draft) Compatible
  - Fully 802.11b Compatible
  - Up to 54 Mbps Data Rate
  - Auto Channel Selection
  - Seamless Link Quality Around Home & Business Office
  - Support Efficient Power Management
  - 64/128 bit WEP Encryption for Wireless Security
  - Support Wi-Fi Protected Access ( WPA )
  - Support Temporal Key Integrity Protocol (TKIP)
  - IEEE 802.1x Port-Based Authentication with RADIUS Client, support MD5, TLS, TTLS
  - Support Authentication: Open System, Shared Key
  - Wireless LAN MAC Filtering
  - Association Control List (ACL) for Wireless Clients Management
- Firewall
  - IP Filtering
  - Stateful Packet Inspection (SPI)
  - Intrusion Detection System (IDS)
  - Application Content Filtering
  - Configurable Access Policy
  - Web-Based User Interface Management and Administration
  - Remote User Access
  - Logging & Alert
  - DMZ Hosting
- Management & Maintenance
  - Support Web pages and private DHCP server for status monitoring

monitoring

- SNMP v1/v2c/v3 Management
- Remote secured operating firmware downloading
- Reset To Default Settings by RESET Push Button
- Syslog (Remote)
- Event Log (Local)

## Specifications

### Cable RF :

	<u>Downstream</u>	<u>Upstream</u>
Operating Frequency Range	88-860MHz	5-42MHz
Frequency Channel	HRC, IRC, STD	
Frequency Selection	Auto Scanning	Controlled by Headend
Bandwidth	6MHz	Programmable (200*N KHz) N=1, 2, 4, 8, 16
Characteristic Impedance	75Ω Nominal	75Ω Nominal
Signal Level Range	-15 to +15dBmV/64QAM -15 to +15dBmV/256QAM	+8 to +58dBmV/QPSK +8 to +55dBmV/16QAM
Modulation	64QAM/256QAM	QPSK/16QAM
Modulation Rate	5.056941/5.360537 Msym/sec	160/320/640/1280/2560 Ksym/sec
Maximum Bit Rate	42.88Mbps/256QAM 30.34Mbps/64QAM	10.24Mbps/16QAM 5.12Mbps/QPSK
Forward Error Correction (FEC)	RS(128,122)/Trellis	Reed Solomon
Signal to Noise Ratio (SNR)		>30
Bit Error Rate (BER)	1×10 <sup>-8</sup> @ C/N=23.5dB, 64QAM with FEC 1×10 <sup>-8</sup> @ C/N=30dB, 256QAM with FEC, received power = -6dBmV to +15dBmV 1x10 <sup>-8</sup> @ C/N=33dB, 256QAM with FEC, received power = -15dBmV to -6dBmV	

---

**Physical & Hardware:**

Dimensions	<ul style="list-style-type: none"> <li>• L = 186 mm</li> <li>• W = 154.5 mm</li> <li>• H = 63 mm</li> </ul>
Weight	<ul style="list-style-type: none"> <li>• TBD</li> </ul>
Ports	<ul style="list-style-type: none"> <li>• 4 * 10/100 Ethernet Port (RJ-45)</li> <li>• USB port (Type B)</li> </ul>
Antenna	<ul style="list-style-type: none"> <li>• Dual External Antenna</li> </ul>
Case	<ul style="list-style-type: none"> <li>• Lay down</li> </ul>
Reset Button	<ul style="list-style-type: none"> <li>• Restore Factory Default Settings</li> </ul>
Power	<ul style="list-style-type: none"> <li>• 12VDC, 1.0 A</li> </ul>

---

**LED Status:**

<b>Power</b>	Green ON	Power On / Device Ready
	Orange ON	Error
<b>Cable Activity</b>	OFF   Blinking	Scanning D/S channels
	OFF   ON	D/S channel acquired, Start ranging process
	Blinking   OFF	Ranging complete, start DHCP / TFTP / ToD / Registration
	ON   OFF	Registered
	ON   Blinking	Traffic (Send / Receive)
<b>Ethernet</b>	OFF	No Ethernet Link
	Green ON	Ethernet Link
	Green Blinking	Traffic
	Orange Blinking	Collision
<b>USB</b>	OFF	No USB Link or PC Off

	Orange Blinking	USB cable attached / but drivers not loaded
	Green ON	USB Link / drivers loaded and port functional
	Green Blinking	Traffic
<b>Wireless</b>	Green OFF	No 802.11g module installed or wireless is disabled from WEB
	Green ON	802.11g module is functional
	Green Blinking	Traffic
	Orange Blinking	802.11g module is installed but in Error condition

---

### Wireless:

- Media Access Control
  - CSMA/CA with ACK for unicast data frames
  - CSMA/CA with ACK for broadcast data frames and management frames
- Data Rate
  - 802.11g
    - 54, 48, 36, 24, 18, 12, 9, 6 Mbps
  - 802.11b
    - 11, 5.5, 2, 1 Mbps
- Frequency Range
  - 2.4 GHz ~ 2.4835 GHz ISM Band
  - N.America/FCC: 2.412~2.462GHz (1 - 11Channels)
- Modulation
  - 802.11g
    - OFDM
  - 802.11b
    - Barker (1Mbps, 2Mbps)
    - CCK (5.5Mbps, 11Mbps)
  -
- Receiver Sensitivity
  - -80 dbm @ 11Mbps
- Output Power
  - 11b: 14 dBm
  - 11g: 14 dBm
- Operating Range
  - Indoors:
    - 20m @ 54Mb
    - 30m @ 18Mb

35m @ 11Mb  
40m @ 5.5Mb  
45m @ 2Mb  
50m @ 1Mb  
• Outdoors:  
50m @ 54Mb  
70m @ 18Mb  
100m @ 11Mb  
150m @ 5.5Mb  
250m @ 2Mb  
300m @ 1Mb

---

**Standards & Protocols:**

Standards	<ul style="list-style-type: none"><li>• DOCSIS 1.0/1.1 Compliant</li><li>• IEEE 802.11g</li><li>• IEEE 802.11b</li><li>• IEEE 802.3</li><li>• IEEE 802.3u</li><li>• IEEE 802.1x</li><li>• USB v1.1</li></ul>
Protocols	<ul style="list-style-type: none"><li>• TCP/IP</li><li>• DHCP</li><li>• NAT</li><li>• RIP</li><li>• DNS</li><li>• ICMP</li><li>• ARP</li><li>• SNMP v1/v2c/v3</li><li>• Syslog</li><li>• HTTP</li><li>• TFTP</li><li>• UPnP</li><li>• Kerberos</li><li>• WPA / TKIP</li></ul>

---

**MIB Support:**

- MIB 2
- RFC2786
- RFC2669
- CableLabs Private MIBs

---

**Environment:**

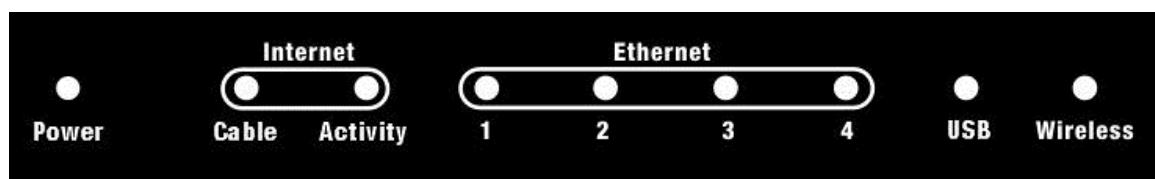
Operating Temperature	• 32°F ~ 104°F (0°C to 40°C)
Storage Temperature	• -4°F ~ 158°F (-20°C to 70°C)
Humidity	• 20% ~ 90% Non-condensing

---

**Certification:**

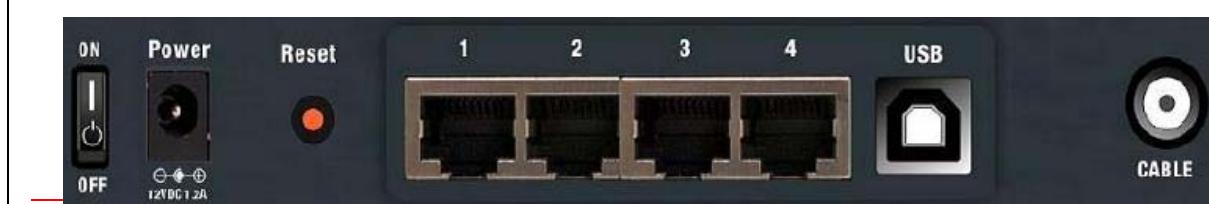
Standards	• DOCSIS / WHQL
Safety	• UL
EMC	• FCC Part 15 • CE
Wireless	• Wi-Fi Compliant
UPnP	• UIC

---

**FrontView:**



### Rear View:



- CABLE: F-Connector
- USB: USB Connector
- ETHERNET: Four ports RJ-45 10/100BaseT Ethernet switch
- RST: Reset-to-Default push button
- 12VDC: Power connector

