

## Overview

The Cadant® C3™ Cable Modem Termination System is a CableLabs® DOCSIS® 2.0 Qualified Cable Modem Termination System (CMTS) delivering superior performance for up to 3000 registered cable modems while occupying only one rack unit (1RU) of space (1.75 in) in a cable operator's head-end facility. This small size allows operators successful deployments of next generation IP services in both new and existing cable networks in any size market worldwide.

The system utilizes a dual RISC processor architecture for supporting high traffic volume with excellent latency control and ample reserve processing resources. Transmit and receive capacity is scalable with a single system supporting one downstream RF channel via an integrated upconverter and up to six upstream RF channels. The two network interfaces support 10/100/1000 BaseT Ethernet.

## Flexible Upstream Channel Configurations

With two, four or six physical upstream channels available for the Cadant C3 CMTS, an operator can tailor the number of upstreams in the system to match the anticipated traffic conditions and node sizes in the network. The optimal number of upstreams can be chosen to balance both cost and service growth potential in a given deployment area.

## Advanced RF Performance

The Cadant C3 CMTS includes a fully digital receiver supporting TDMA, ATDMA and SCDMA. This allows operators to utilize parts of the upstream below 20 MHz that were previously unusable due to noise conditions. The added benefit is that existing legacy DOCSIS or Euro-DOCSIS 1.x cable modems can operate in 16 QAM mode or use wider channels on existing HFC cable plant.

## Operator Selectable Layer 2 or Layer 3 Forwarding

Networks implementing Layer 2 bridging technology can take advantage of the Cadant C3 CMTS's Layer 2 mode of operation. Additionally the Cadant C3 CMTS offers static routing and an optional choice of RIPv2 or OSPFv2 Layer 3 routing protocols. With the option of up to 250 sub-interfaces per physical interface, operators have the flexibility to provision individual Layer 3 routing protocols or Layer 2 bridging on a per sub-interface basis.

## Bandwidth on Demand

Boosted data rates for ultra-high-speed applications is a premium service which provides an additional source of revenue for cable operators. This is supported through a PacketCable Multimedia™ (PCMM) interface for Common Open Policy Service (COPS) Dynamic Quality of Service (DQoS) with a Policy Server.

## Scalable and Reliable VoIP

Up to 1,000 voice lines may be provisioned on one Cadant C3 CMTS. For E-MTA's, NCS and SIP are supported using DOCSIS Dynamic Service QoS and PacketCable Multimedia COPS DQoS. For stand-alone MTA's, SIP is supported using Dynamic Polling. Voice and data packets can be copied and forwarded to a lawful intercept mediation device.

## Commercial Services Solutions

The Cadant C3 CMTS enables end-to-end VLANs using 802.1Q tagging. Optional downstream broadcast privacy allows each VLAN to operate as a secure and private network for VPN-like service.

DS1 and E1 service is enabled when the C3 CMTS is deployed with ARRIS circuit emulation equipment. Typical applications are PBX and cellular backhaul.

- **Versatile Design to Deliver Next Generation IP Services Worldwide**
- **Superior RF Performance Overcomes Challenging HFC Plant Applications**
- **Advanced Technology Maximizes Subscriber Service Penetration**



**Specifications**

<b>RF</b>	Frequency Range (MHz) .....	88-860
<b>Downstream:</b>	Modulation .....	64 or 256 QAM QPSK, 16 QAM for wireless applications
	Data Rate (Mbps) (max.) .....	30 (6MHz, 64QAM) - 56 (8MHz, 256QAM)
	RF Output Level (dBmV) .....	+45 to +61
<b>RF Upstream:</b>	Frequency Range (MHz) .....	5-42 (DOCSIS) 5-55; 5-65 (Euro-DOCSIS)
	Modulation .....	QPSK, 8, 16, 32, 64 QAM 128 QAM with Trellis Code Modulation
	Data Rate (Mbps) (max.) .....	31 per upstream
<b>Installation Environment:</b>	RF Receive Level (dBmV) .....	-20 to +26
	RF Interfaces .....	External 'F' type connector
	Network Interface .....	Dual RJ-45 Ethernet connections
<b>Physical:</b>	Network-side Interfaces .....	10/100/1000 BaseT Ethernet
	Power .....	Dual power supply unit: -48 volt DC or universal AC
	AC Powering .....	100-240 VAC, 2A, 47-63 Hz
<b>Software Support:</b>	DC Powering .....	-40 to -60V, 4A
	Power Consumption .....	87 Watts max.
	Operating Temperature °F (°C) .....	32-104 (0-40)
<b>Physical:</b>	Storage Temperature °F (°C) .....	-40-167 (-40-75)
	Operating Humidity (min – max) .....	10-80% (non-condensing)
	Thermal Dissipation .....	90 Watts max, 80 Watts typical
<b>Software Support:</b>	Dimensions (HxWxD) in. (cm) .....	1.75 x 19 x 18.3 (4.4 x 48.3 x 46.5) 1 rack unit (RU) high
	Weight lbs (kg) .....	22 (10)
	DOCSIS 2.0 Qualified and Euro-DOCSIS 2.0 Based	
<b>Software Support:</b>	PacketCable Multimedia COPS DQoS	
	3,000 Registered Cable Modems	
	Ingress Noise Cancellation	
<b>Software Support:</b>	DHCP Relay Agent (Option 82)	
	Layer 2 Bridging	
	PPPoE support in Routing Mode	
<b>Software Support:</b>	DOCSIS MIBs and ARRIS Enterprise MIBs	
	Command Line Interface (CLI)	
	SNMP v1, v2 and v3	
<b>Software Support:</b>	CLI Configurable SNMP	
	Telnet	
	Secure Shell 1/2	
<b>Software Support:</b>	TACACS+ AAA	
	In-band or Out-of-band Management	
	30 ACLs with 30 entries per ACL and Subscriber Management Filtering	
<b>Software Support:</b>	Cable Source Verify and Packet Throttling	
	Numerical Load Balancing	
	Bandwidth Aware Periodic Load Balancing	
<b>Software Support:</b>	Upstream Channel Change (UCC)	
	802.1Q VLANs (basic)	
	802.1Q VLANs (advanced) .....	Separate license required
<b>Software Support:</b>	Static Routing	
	RIPv2 (RFC 2453) .....	Separate license required
	OSPFv2 (RFC 2328) .....	Separate license required
<b>Software Support:</b>	RIP-to-OSPF Route Redistribution .....	RIP and OSPF licenses required
	Route Redistribution Filtering	
	IGMPv2 Proxy	
<b>Software Support:</b>	Payload Header Suppression (PHS)	
	Scalable and Reliable VoIP (NCS or SIP) – up to 1000 provisioned lines	
	Lawful Intercept	
<b>Software Support:</b>	DS1/E1 Commercial Service	
	Wireless DOCSIS .....	Separate license required

**Regulatory:** EMC: FCC Part 15 Class A, CE, UL

Note: Release 4.4 software is backward compatible with the previous generation C3 CMTS hardware that supports DOCSIS 1.1/Euro-DOCSIS 1.1 and ATDMA but not SCDMA.

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**Cadant C3 CMTS, DOCSIS 2.0  
Ordering Codes & Descriptions**

2 Upstream Ports

#720920A .....	Australian AC Cord
#720920E .....	European AC Cord
#720920J .....	Japanese AC Cord
#720920N .....	North American AC Cord
#720920U .....	United Kingdom AC Cord

4 Upstream Ports

#720921A .....	Australian AC Cord
#720921E .....	European AC Cord
#720921J .....	Japanese AC Cord
#720921N .....	North American AC Cord
#720921U .....	United Kingdom AC Cord
#714914 .....	DC Cord

6 Upstream Ports

#720922A .....	Australian AC Cord
#720922E .....	European AC Cord
#720922J .....	Japanese AC Cord
#720922N .....	North American AC Cord
#720922U .....	United Kingdom AC Cord
#714917 .....	DC Cord

**Software for each CMTS:**

#719483 .....	Software Rel. 4.4 Kit (base license, software & Documentation CD)
#713868 .....	RIPv2 Routing License (optional keyed feature)
#713869 .....	VLAN/Bridge Group License (optional keyed feature)
#713870 .....	RIPv2 & VLAN/Bridge Group License (optional keyed feature)
#714827 .....	OSPFv2 Routing License (optional keyed feature)
#714828 ..	OSPFv2 Routing License & VLAN/Bridge Group License (optional keyed feature)

**Upgrade Kits:**

#721136 .....	2 Upstream Ports
#721137 .....	4 Upstream Ports
#721138 .....	6 Upstream Ports

**Maintenance Plan (required):**

#710645 ..	Software Maintenance - Phone Plus Silver
#710646 ..	Software Maintenance - Phone Plus Gold

**Optional Items & Spares:**

#710626 .....	Compact DC Power Module
#710625 .....	Compact AC Power Module
#713842 .....	Dual Upstream Receiver Module
#713843 .....	Digital Receiver Module (2 upstream Ports)
#713844 .....	Digital Receiver Module (4 upstream Ports)
#713845 .....	Digital Receiver Module (6 upstream Ports)