



C3™ CMTS

Cable Modem Termination System

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



Overview

The ARRIS 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 ARRIS 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 ARRIS 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 ARRIS 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 ARRIS 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 ARRIS 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.

ARRIS C3™ Cable Modem Termination System (CMTS)

Specifications

RF Downstream:	Frequency Range (MHz).....88-860 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																																				
RF Upstream:	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 RF Receive Level (dBmV) -20 to +26																																				
Installation Environment:	RF Interfaces External 'F' type connector Network Interface Dual RJ-45 Ethernet connections 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 DC Powering -40 to -60V, 4A Power Consumption 87 Watts max.																																				
Physical:	Operating Temperature °F (°C) 32-104 (0-40) Storage Temperature °F (°C) -40-167 (-40-75) Operating Humidity (min – max) 10-80% (non-condensing) Thermal Dissipation 90 Watts max, 80 Watts typical 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)																																				
Software Support:	<table border="0"> <tr> <td>DOCSIS 2.0 Qualified and Euro-DOCSIS 2.0 Based</td> <td>Numerical Load Balancing</td> </tr> <tr> <td>PacketCable Multimedia COPS DQoS</td> <td>Bandwidth Aware Periodic Load Balancing</td> </tr> <tr> <td>3,000 Registered Cable Modems</td> <td>Upstream Channel Change (UCC)</td> </tr> <tr> <td>Ingress Noise Cancellation</td> <td>802.1Q VLANs (basic)</td> </tr> <tr> <td>DHCP Relay Agent (Option 82)</td> <td>802.1Q VLANs (advanced) - Separate license required</td> </tr> <tr> <td>Layer 2 Bridging</td> <td>Static Routing</td> </tr> <tr> <td>PPPoE support in Routing Mode</td> <td>RIPv2 (RFC 2453) - Separate license required</td> </tr> <tr> <td>DOCSIS MIBs and ARRIS Enterprise MIBs</td> <td>OSPFv2 (RFC 2328) - Separate license required</td> </tr> <tr> <td>Command Line Interface (CLI)</td> <td>RIP-to-OSPF Route Redistribution - RIP and OSPF licenses required</td> </tr> <tr> <td>SNMP v1, v2 and v3</td> <td>Route Redistribution Filtering</td> </tr> <tr> <td>CLI Configurable SNMP</td> <td>IGMPv2 Proxy</td> </tr> <tr> <td>Telnet</td> <td>Payload Header Suppression (PHS)</td> </tr> <tr> <td>Secure Shell 1/2</td> <td>Scalable and Reliable VoIP (NCS or SIP) – up to 1000 provisioned lines</td> </tr> <tr> <td>TACACS+ AAA</td> <td>Lawful Intercept</td> </tr> <tr> <td>In-band or Out-of-band Management</td> <td>DS1/E1 Commercial Service</td> </tr> <tr> <td>30 ACLs with 30 entries per ACL and Subscriber Management</td> <td>Wireless DOCSIS - Separate license required</td> </tr> <tr> <td>Filtering</td> <td></td> </tr> <tr> <td>Cable Source Verify and Packet Throttling</td> <td></td> </tr> </table>	DOCSIS 2.0 Qualified and Euro-DOCSIS 2.0 Based	Numerical Load Balancing	PacketCable Multimedia COPS DQoS	Bandwidth Aware Periodic Load Balancing	3,000 Registered Cable Modems	Upstream Channel Change (UCC)	Ingress Noise Cancellation	802.1Q VLANs (basic)	DHCP Relay Agent (Option 82)	802.1Q VLANs (advanced) - Separate license required	Layer 2 Bridging	Static Routing	PPPoE support in Routing Mode	RIPv2 (RFC 2453) - Separate license required	DOCSIS MIBs and ARRIS Enterprise MIBs	OSPFv2 (RFC 2328) - Separate license required	Command Line Interface (CLI)	RIP-to-OSPF Route Redistribution - RIP and OSPF licenses required	SNMP v1, v2 and v3	Route Redistribution Filtering	CLI Configurable SNMP	IGMPv2 Proxy	Telnet	Payload Header Suppression (PHS)	Secure Shell 1/2	Scalable and Reliable VoIP (NCS or SIP) – up to 1000 provisioned lines	TACACS+ AAA	Lawful Intercept	In-band or Out-of-band Management	DS1/E1 Commercial Service	30 ACLs with 30 entries per ACL and Subscriber Management	Wireless DOCSIS - Separate license required	Filtering		Cable Source Verify and Packet Throttling	
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Ordering Information

Part #	Description
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
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)

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