TOPVISION

CC8800-E-X1

Product Specifications

TOPVISION

CC8800-E-X1 Introduction

Topvision CC8800-E-X1 is a high-performance and cost-effective cable network edge device, which is designed based on DOCSIS 4.0, and compatible with DOCSIS 3.1/ DOCSIS 3.0/ DOCSIS 2.0/ C-DOCSIS.

Product Features

- Compatible with DOCSIS 4.0/ 3.1/ 3.0/ 2.0/ C-DOCSIS, thus the existing investment is protected.
- Support DAA/ DCA access architecture, support operation and management through remote distributed controller.
- Support up to 1K CM.
- Support DOCSIS, PacketCable/ PCMM and Optical receiver, which can satisfy applications including internet, VOIP, VoD and CATV application.
- More installation methods: supports field installation, corridor installation, wall-mounted and hanging-cable installation.

Performance and Specifications

CC8800-E-X1 Introduction

CC8800-E-X1 is mainly composed of DOCSIS module, power module and RF module.

- DOCSIS module: provide 1 x 10G SFP+ Interface, support GE/10GE uplink and daisy chain.
- Support DOCSIS Broadcast EQAM function.
- RF module: provide optical receiver RF platform.
- Power module: Local power supply (AC110/ AC220V) or Cable-based power supply (AC60/ AC90V).
- (Optional) CWDM component specifications.
- (Optional) Industrial grade SFP+ optical module.

Overall characteristic

Parameter	Specification
Dimension	265(L)mm*232.5(W)mm*142(H)mm
Product form	Field-type
Weight	< 5kg (rough weight)
Ingress protection rating	IP67
Surge protection level	6 kV in both common and differentiated modes for the AC power port
Operating temperature	-40~+55℃(startup on -25℃)
Operating humidity	5%-95% (non-condensing)
Power supply	Local power supply/cable-based power supply
Power consumption	100W
Overcurrent protection	
Continuous overcurrent	≥15A
Burst overcurrent	≥25A
Device grounding	PGND
Optical receiver module local test point	Support
LED indicators	Support
Optional status monitoring and control	Support
Electronic attenuator for each port	
Forward path	Provide individual level control for each port
Reverse path	Provide individual level control for each port
Number of ports	
Power supply port or AC only port	1
RF out port	2
Frequency division	42/ 54MHz, 65/ 87MHz, 85/ 108MHz, 204/ 258MHz, 300/ 372MHz, 396/ 492MHz, 684/ 834MHz
Output impedance	75ohm
Default RF port type	F type

DOCSIS Module

RMD DOCSIS module provides 4/5 OFDM + 2/4 OFDMA, 10G SFP + interface, 10GE uplink, end-to-end QoS and unified network management.

The SFP + optical interface requires industrial grade optical modules.

Highlights

- ✧ Supports DAA/ DCA access architecture,
- ✧ Supports up to 5*OFDM and 4*OFDMA, US support 2 Service Group (SG), supports 10Gbps+ throughput per fiber node.
- ✧ Experienced in Remote CCAP solution, 10w+ fiber nodes deployed.

CC8800-E-X1 RMD DOCSIS module characteristic

Parameter	Specification	
Standard	DOCSIS 4.0	
	DOCSIS 3.1	
	DOCSIS 3.0/ Euro-DOCSIS 3.0	
	DOCSIS 2.0/ Euro-DOCSIS 2.0	
	C-DOCSIS	
SNI[1]	1* GE|10GE SFP+ uplink interface	
	1* GE|10GE SFP+ daisy chain interface	
Management interface	1*GE RJ45 management interface	
	1*RJ45 console interface	
	1*RJ45 monitor Interface (transponder interface)	
CM Qty. supported		
DOCSIS 4.0/3.1 CMs	≤300	
DOCSIS 3.0 & 2.0CMs	≤1000	
Total CMs	≤1000	
MAC address	4K	

Working channel	**DS**	**US**
Channel frequency range		
DOCSIS 3.1 & 4.0	108/ 258~1218/1794MHz	5~42/ 65/ 85/ 204 /300 /396 /492 / 684MHz
DOCSIS 3.0		
European standard	87/ 108~1006MHz	5~65/ 85MHz
American standard	54~1002MHz	5~42MHz
Working channel		
DOCSIS 3.1&4.0	Defult 4 (OFDM)	Defult 2 (OFDMA)
	Up to 5 (OFDM)	Up to 4 (OFDMA)
DOCSIS 3.0	32	16
Channel width		
OFDM/ OFDMA	24~192MHz	6.4~96MHz
SC-QAM	6/ 8MHz	1.6/ 3.2/ 6.4MHz
Communication protocol		
DOCSIS 3.1	/	OFDMA
DOCSIS 3.0	/	ATDMA
Modulation		
OFDM/ OFDMA	OFDM (16/ 64/ 128/ 256/ 512/ 1024/ 2048/ 4096 QAM)	OFDMA (BPSK, QPSK, 16/ 32 /64 /128/ 256 /512/ 1024/ 2048 QAM)
SC-QAM	64/ 256/ 1024 QAM	QPSK, 16/ 32/ 64/ 256 QAM
Configurable receiving level range	/	-13 - +23dBmv
Qty. of service flow	4K	4K

System function		
MTU	2000 Byte	
IPv6	Support IPv4 and IPv6 dual-stack	
DHCP	Support DHCP relay/ snooping	
	Support DHCP bundle	
	Support DHCP lease query	
	Support insert CMTS capabilities and CM MAC	
DHCPv6	Support DHCPv6 relay/ snooping	
	Support DHCPv6 bundle	
	Support DHCPv6 lease query	
	Support DHCPv6-PD	
	Support according to Option 60 to identify equipment type	
	Support insert Remote-ID, Interface-ID, CMTS capabilities and CM MAC	
VLAN&L2VPN	Support 802.1ad/ 802.1q/ subnet VLAN	
	Support service flow-based VLAN addition or deletion	
	Support VLAN addition according to device type	
	Support the L2VPN	
	Support VLAN conversion	
MAC domain management	Support MDD & MDF enable and disable	
	Support MTC & MRC enable and disable	
	Support UDC enable and disable	
	Support upstream automatic frequency hopping	
	Support piggyback, shared-secret, channel bonding	

Specifications are subject to change without notice.　　　　　　　　　　　　　　　　　　　　3

Multicast	Support multicast authentication
	Support IGMP V2/ V3 Snooping
	Support MLD V1/ V2
Load balance	Support RLBG/ GLBG
	Support load balance priority
QoS	Support static/ dynamic service flow
	Support service class
	Support best effort, UGS, UGS-AD, RTPS, NRTPS
	Support the DOCSIS 3.0 USCB scheduling
	Support PowerBoost
Packetcable	Support Packetcable 1.5/ 2.0 & PCMM
	Support DQoS

Management & Monitor

CM management	Support CM status review
	Support CM steer
	Support CM blacklist
	Support CM dispersion degree
	Support remote query
	Support flaplist
	Support admission control
CPE management	Support CPE query and clear
Network management	Support SSH/telnet
	Support SNMP V1/ V2c/ V3
	Support SYSLOG
	Support graphical standalone WEB management
	Support RMD Controller centralized management
	Support integrating to NMS
System diagnostic and monitor	Support system information acquisition and monitoring
	Support optical receiver information monitoring
	Support debug mode
	Support showtech
	Support ping, DOCSIS ping, tracert
	Support spectrum monitor
IPDR	Support IPDR/ SP over TCP
	Support DOCSIS IPDR
	Support based on the data IPDR/XDR encoding
	Support time interval/event-based/ adhoc data acquisition method
Security guarantee	Support AAA (TACACS+, RADIUS)
	Support RA guard
	Support ACL
	Support BPI+
	Support EAE
	Support source verify
	Supports message speed
	Support prevent DoS attack
	Support blacklist, white list, the firewall
Software upgrade	Support CLI/ WEB GUI/ EMS(NM3000)/ RMDC upgrade
	Support remote upgrade, version reversion when upgrade failure

Note:

1, Industrial-grade SFP+ module has to be used in DOCSIS module.

2,Using different software can provide different device capabilities,
software capability 1: DOCSIS3.0 32*DS+16*US, DOCSIS3.1&4.0 5*OFDM+2*OFDMA,
software capability 2: DOCSIS3.1&4.0 5*OFDM+4*OFDMA, DOCSIS3.0 no support.

RF Module

- 2 RF output, support all electric function, support local adjustment and remote regulation, 1 CATV optical receiver, the

  maximum channel frequency range can be supported to 1.8GHz.

CC8800-E-X1 RF module characteristic

Parameter	Specification

Forward receiver (RX) module

Wavelength	1290~1600nm
Optical connector types	SC/ APC
Number of optical receiver module	1
Optical AGC options	-7~+2dBm
Passband	47~1002MHz
Flatness	±0.75dB
Optical input test point (± 20 %)	1V/ mW

Reverse transmitter (TX) module

Wavelength	1550 nm
	1310 nm
Optical connector types	SC/ APC
Optical reflection loss	>45 dB
Transmit optical power	3±1 dBm
Flatness	±0.5dB

RF section specifications[1]	Forward	Reverse
Return loss	≥16dB (258MHz~550MHz)	≥16dB
	≥14dB (550MHz~1002/ 1794MHz)	
Internal RF test points (± 1 dB)	-20dB	-20dB
Port to port isolation	50dB	50dB
Maximum output level	112dBuV@1794MHz@20dB EQ	
Maximum QAM output level [2]	48 dBmV@96 channels	
	51 dBmV@64channels	
	53 dBmV@32 channels	
	57 dBmV@16 channels	
	60 dBmV@8 channels	
	63 dBmV@4 channels	
	66 dBmV@2 channels	
	69 dBmV@1 channel	
Tilt range (±1.0 dB)	20dB	
Flatness[3]	±0.75dB	±0.75dB
Level stability (-40～+55℃)	±1.5dB	
MER[4]	● 108–600 MHz	
OFDM	≥48 dB (any single subcarrier)	
	≥ 50 dB (average over the complete OFDM channel)	
	● 600–1002 MHz	
	≥45 dB (any single subcarrier)	
	≥47 dB (average over the complete OFDM channel)	
	● 1002–1794 MHz	
	≥43 dB (any single subcarrier)	
	≥45 dB (average over the complete OFDM channel)	
	≥39dB (Equalizer off)	
DOCSIS3.0	≥43dB (Equalizer on)	

99 PAL channels(CW)[5]

CSO	>60dBc
CTB	>65dBc
C/N	>51dBc

Accessories

Fuses (15A)	2pcs

Note:

1, All of RF section specifications are tested under default configuration.

2, Output level of each channel can be reduced based on the maximum output level.

3, The RF launch amplifier performance.

4, The values are obtained on RF OUT ports. Based on Cablelabs DOCSIS 3.1 test standard.

MER test conditions:

a) The total frequency width 528 MHz, including 2*192 MHz (OFDM channel) + 24*6MHz (SC-QAM channel).

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b) 528 MHz equal to 88 DOCSIS 3.0 channels (calculated using the U.S. standard 6M channel bandwidth).

5, Test conditions for C/ N, CTB and CSO

59 PAL-D analog signals (less than 550 MHz), 56 8MHz QAM signals (550-1218 MHz), and QAM signals are 6 dB lower than the analog signal carrier. 0dBm optical power input, 18dB equalization, 112dBuV@1218MHz output.

Power Module

Topvision CC8800-E-X1 supports local power supply and cable-based power supply. Different type of power supply plug can be suit for different power supply standard.

Power module characteristic

Parameter	Specification
Qty. of power module (whole device)	1pcs
Power supply	
Local power supply	AC110V/ AC220V, 90V~264V, 50/ 60Hz
Cable-based power supply	AC60V/ AC90V, 36V~110V, 50/ 60Hz
Max. output power	118W
Power efficiency	85%
Local power supply plug	
European standard plug	Type E (CEE 7/7 plug), Length 1000mm
American standard plug	Type B (NEMA 5–15 U.S. 3 pin), Length 1000mm
British standard plug	Type G (BS 1363 UK), Length 1000mm