OP-EOCM2000 ONU+OR+2EOC ALL IN ONE EOC

OPTOSTAR's OP-EOCM2000 is an All In One EOC Master with EOC master module, ONU module and OR module. We can use one OP-EOCM2000 to instead of three type products, HFC optical node, EPON ONU and EOC mater. It can reduce the number of active node in the system, decreasing failure rate and saving a space. It is the best choice of CATV, Internet and VOD for the operator.

The EOC Master Module in the OP-EOCM2000 is based the Qualcomm AR7410 chipset solution，with high anti jamming capability OFDM technology. The 7.5-65MHz low frequency band is used for EOC signals. Built in high isolation filter as CATV RF and EOC signal mixer, the EOC signal and CATV signal in 87~862MHz can run on one cable without interference. The EOC Master can provide high speed data service. The PHY Layer speed is 600Mbps, the MAC Layer throughput is up to 320Mpbs.

The OR module in the OP-EOCM2000 can provide an HFC optical input and one RF output. The CATV signal will convert from optical to RF signal here. The OR module is a high quality optical receiver product. It received the optical signal from the TX of HFC network, and the signal processed by the PIN, Amplifier, EQ and AGC to a stable RF output. The output level will be up to 108dBuv.

The ONU module in the OP-EOCM2000 designed with one EPON port, two standard 10/100/1000 Base-TX Ethernet ports. It provides the key functionality of 802.3ah EPON ONU. By using the EPON technology, the ONU module provides a high-speed data channel through a single optical fiber with a rate of 1.25 Gbit/s on bi-direction. In addition, it offers the QOS, flexible bandwidth allocated to provide quality high-speed data service, voice service, and video service.

Features

- High integration with two EOC Master modules, one ONU module and one OR module
- Aluminum alloy die casting shaping, good heat dissipation
- Outdoor waterproof designed, 60V/220V power supply optional
- 5-65Mhz frequency for EOC signals., no influence on CATV Service
- Support data encryption
- Support broadcast storm limitation
- Support data packet statistics
- Support auto-update and auto-configuration
- Support the optical power monitor
- Flexible bandwidth allocation function
- Support various QOS service level
- EMS network management based on SNMP
- Provide a rich fault alarm function, easy to fault diagnosis
- Support software online upgrade
- OR support AGC
- CATV RF output up to 108dBuv
- ONU module compliant with IEEE802.3ah and CTC2.1standards.
- ONU module provides tow auto-negotiation GE ports
- ONUmodule support interconnection with the third-party OLT
- Support the EMS network based on SNMP

Parameter

Item	Parameters	Specification
Specification of EOC Module		
Interface and LED Indicator	RF Port	1*EOC low-frequency signal output port, support F- Female or SMB connector
	Ethernet Port	Two 10/100/1000Mauto-negotiation, RJ45
	LED Indicator	1 for Power Supply Status 1 CABLE Link Status indicator 2 for Ethernet Ports Status
Performance Parameters	RF Parameters	Frequency Band :7.5-65MHz RF Output Level:110±5dBuv@ output of Module Receive sensitivity: 45dBuv Return Loss:>16Db Output Resistance:75Ω
	Transmission	PHY Layer:600Mbps Throughput on MAC Layer:320Mbps
	Modulation Mode	OFDM~ 2690~carriers 4096,1024,256,64,16,8~QAM, QPSK, BPSK, ROBO
	Working Mode	TDMA/CSMA
	Encryption Mode	AES-128
Standard	EOC Standard	IEEE P1901(Draft) HomePlug AV
	Ethernet Standard	IEEE 802.3, IEEE 802.3x, IEEE 802.3u IEEE802.1P, IEEE802.1Q
Software	Network Management	WEB, CLI, SNMP

	Software Features	VLAN,QOS,Bandwidth Control,Broadcast storm limitation
Specification of OR		
Optical Specifications	Wavelength	1100～1600 nm
	Optical Power Input Range	-8～+2 dBm
	Recommend optical Power Input Range	-6～0 dBm
	Optical Input Return Loss	≥45 dB
RF Specifications	Bandwidth	45～870 MHz
	Flatness	≤±0.75 dB
	Stability of RF output under Operating Temperature	≤5 dB
	Nominal RF Output Level	108 dBuV
	Impedance	75 Ohm
	Return Loss	≥14 dB
	CNR	≥51 dB
	CSO	≥60 dBc
	CTB	≥65 dBc
	Power consumption	<7.5 W
Optical	Stability of RF	≤±1 dB

and temperature AGC	output under optical AGC	
	AGC Scope	-6～0dBm
LED Indicator	**Indicator Description**	RUN: module operating RF: RF signal PWR：Power is coming up OPTH: Optical power is higher OPTM: Optical power is nominal OPTL: Optical power is lower
Specification of ONU Module		
Interface	PON Interface	One EPON port Meet 1000BASE-PX20 standard Up to 1.25Gbps Upstream and Down-stream SC Connector Single-mode fiber, single-strand Maximum split ratio 1:64 Up to 20Km distance @ 1:32
	Ethernet Interface	Two 10/100/1000Mauto-negotiation Full/Half-Duplex RJ45 type connector , Auto MDI/MDI-X Up to 100m distance
Performance Parameters	PON Optical Parameters	Wavelength: Upsteam1310nm, Downstream 1490nm Transmitter Optical Power: 0～4dBm Optical Receive Sensitivity: -27dBm Saturation Optical Power：-3dBm
	Data Transfer Parameters	Data Transfer Rate: Upstream 900Mbps； Downstream 950Mbps LAN Interface: 1000Mbps Packet Loss：<1*10E-12 latency：<1.5ms
	Business Capability	Layer 2 wire speed switching

		Support VLAN TAG/UNTAG，VLANconversion Support Port-based speed limitation Support Priority classification Support storm control of broadcast
Network Management	Management Mode	Support IEEE802.3 QAM, ONU can be remotely managed by OLT Support Remote management through SNMP and Telnet Local management
	Function	Status monitor, Configuration management, Alarm management, Log management
Indicator	Indicator Description	PWR: Power up or down LOS: Optical Link Status PON：ONU registered LNK: Link Status
Physical Features		
Physical Features	Power supply & Consumption	Power Supply：220V/60V optional Consumption：<24.5W
	Size & Net weight	Dimension：290×220×120mm Weight：3.7kg
	Environment Attribute	Working Temperature：－10～65℃ Storage Temperature：-40～85℃ Working humidity：10%～90%non-condensing Storage humidity：10%～90% non-condensing

Application

- CATV
- Internet Access
- VOD
- IPTV
- Camera monitor system

Network Construction

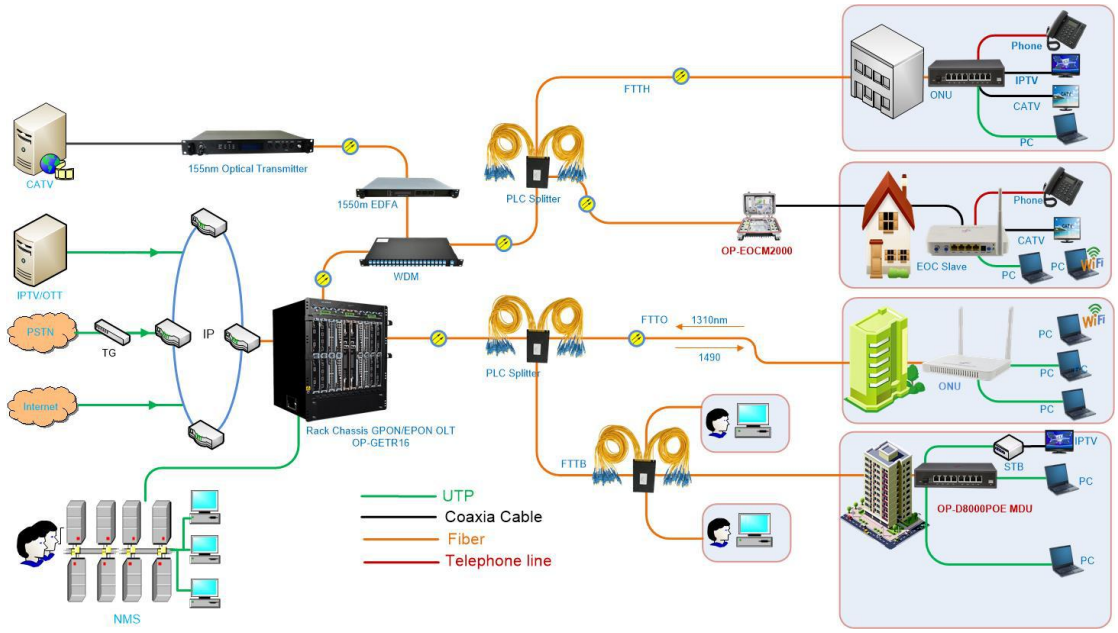

Figure: OP-EOCM2000 Application Diagram

Ordering Information

Product Name	Product Model	Descriptions
INDOOR TYPE EOC MASTER	OP-EOCM1000	2*EOC signals RF Outpu+2*TV RF Input Port+2*10/100/1000M Auto-negotiation RJ45 ports

Product	Item	Description
EOC All-In-One (ONU+OR+2*EOC)	OP-EOCM2000-220VAC	Built-in one ONU Module, one OR module and two 74 series chipset EOC Modules；One EPON uplink port, one CATV optical input, fourTV+data mixed output port. Outdoor waterproof designed. 220VAC power supply.
EOC All-In-One (ONU+OR+2*EOC)	OP-EOCM2000-60VAC	Built-in one ONU Module, one OR module and two 74 series chipset EOC Modules；One EPON uplink port, one CATV optical input, fourTV+data mixed output port. Outdoor waterproof designed.60VAC power supply.
EOC All-In-One	OP-EOCM2001-220VAC	Built-in one ONU Module, one OR module and two 74 series chipset EOC Modules；One EPON uplink port, one

(ONU+OR+2*EOC)		CATV optical input, twoTV+data mixed output port. Outdoor waterproof designed. 220VAC power supply.
EOC All-In-One (ONU+OR+2*EOC)	OP-EOCM2001-60VAC	Built-in one ONU Module, one OR module and two 74 series chipset EOC Modules；One EPON uplink port, one CATV optical input, two TV+data mixed output port. Outdoor waterproof designed.60VAC power supply.