



# D3 Series CMTS

JH-HE3416

DOCSIS3.0



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## 1. Summary

All D3 CMTS series from Jinghong are developed based on DOCSIS3.0 and C-DOCSIS protocols. There are kinds of product types such as rack mount, outdoor and D-node.

D3 series adopt channel binding technology, for downstream (DS), there are 16 QAM channels which has 1.1Gbps data rate; for upstream, there are 4 QPSK/QAM channels which could reach up to 160Mbps. D3's downstream can be configured to data channels or IP QAM channel. For data port, there are GE port (RJ45) and GE optical port (SFP). With layer 3 routing function and perfect QoS, they can meet all kinds of working conditions and requirements from different operators.

Due to D3's high bandwidth, perfect QoS, it is very suitable for IPTV or VOD, such kind of video service. It is cost effective for cut down cost then, add value for traditional HFC network.

There are three ways to manage D3:

- CLI after log in via serial port or by telnet;
- Remote log in embed web NMS;
- External NMS server based on SNMP protocols which run windows OS.

D3 series can compatible with DOCSIS3.0/2.0 cable modem.

JH-HE3416 is one of a chassis CMTS with 19 inch 1U standard chassis, it is tailor made for head end room deployment. It is suitable for small broadband user's scaled network. It has wide coverage and high efficiency.



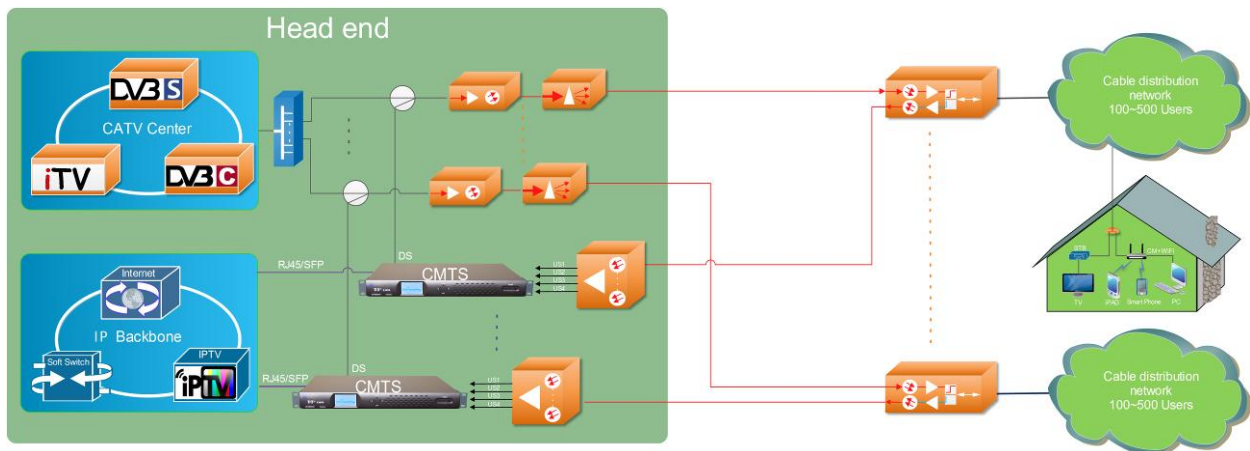
## 2. Features

- Compatible with DOCSIS3.0, C-DOCSIS standard, work with all cable modem based on DOCSIS, support both EURO DOCSIS and DOCSIS.
- 16 DS channels bounding, 64/256/1024QAM modulation mode optional. Data rate could reach up to 1.1Gbps@1024QAM.
- 4 US channels bounding, could be configured to QPSK, 3-8 grade QAM mode, data rate could reach up to 160Mbps.
- Flexible on channels bounding quantity set for operators convenient planning and use of channel resource.
- Layer 3 routing functions, support static route, VLAN and DHCP relay agent.
- There are GE RJ45 port and SFP on WAN port, convenient and flexible.
- Built-in DHCP/TFTP server, support PPPoE.

- Load balancing based on quantity of CM either DS or US.
- Support IPV6, IP multicast functions.
- QoS based on service flow ensures bandwidth needs for various services.
- Ensure network transmit safety via various kinds of methods such as BPI+, CM identification, anti-DOS attack , user isolation and IP source checking.
- Support US channel spectrum analysis via Web and NMS management
- Support three management ways: CLI after log in via serial port or by telnet; Remote log in embed web NMS; External NMS server based on SNMP protocols which run windows OS.

### 3. Typical Application

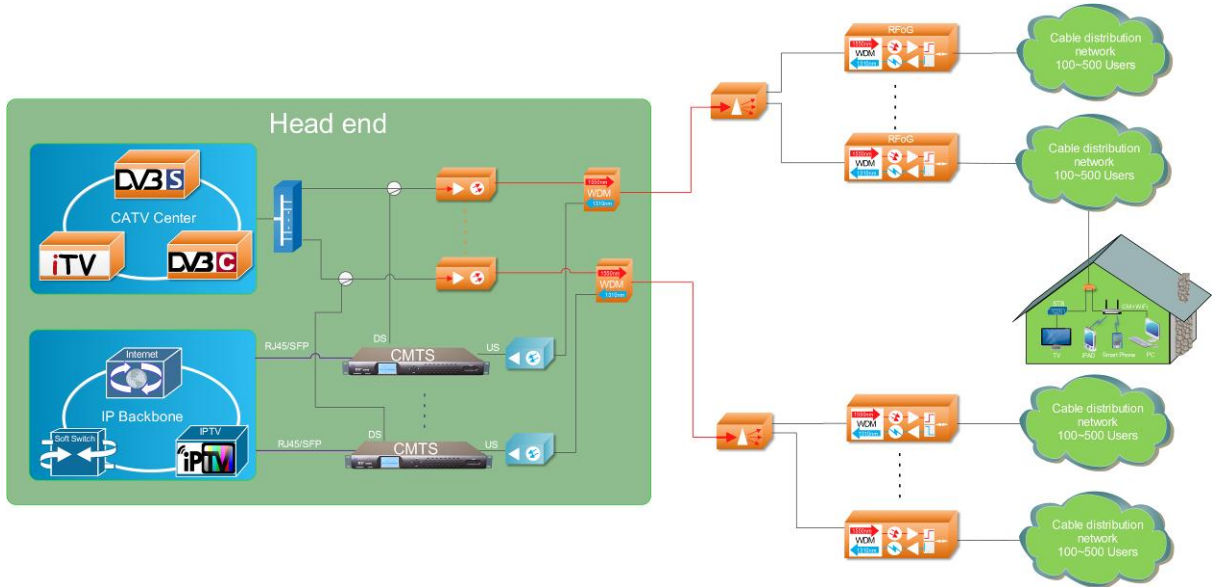
#### 1) Deployed at the headend



#### Features

- One CMTS for one optical transmitter, the downstream frequency can be used repeatedly.
- Superior coverage capacity 1000 users commonly.
- 1.1Gbps bandwidth for IPTV, VOD services, meets NGB requirement.
- Increase bandwidth by adding CMTS.

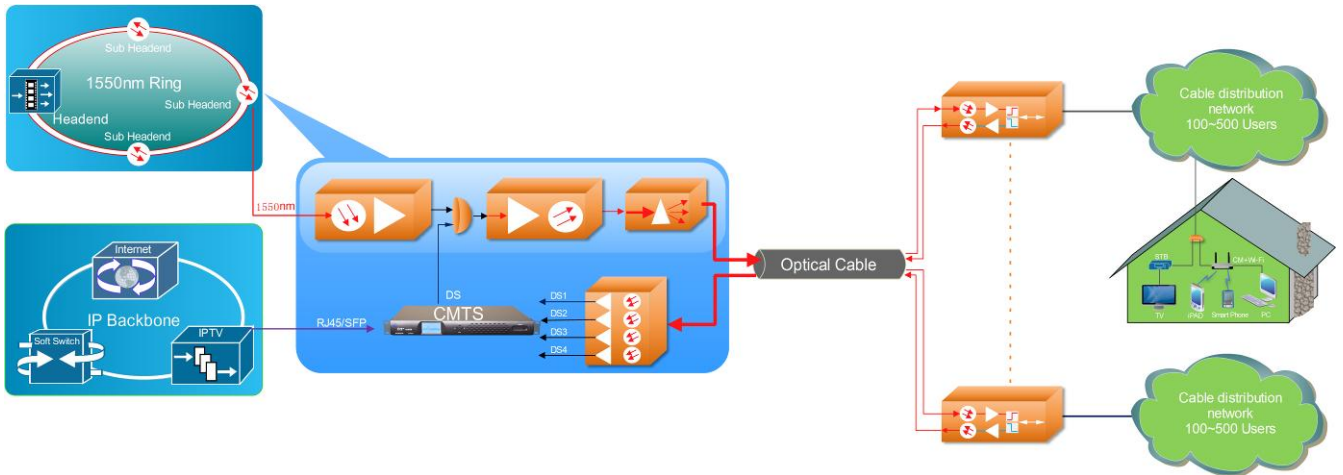
#### 2) Deployed at the headend , solve the fiber shortage problem via RFoG workstation



**Features**

- There is no more fiber on optical node for 1550nm fiber transport network.
- RFoG workstation can finish transmission between US and DS by only one core fiber.
- Greatly reduced the funnel noise.
- 1.1Gbps bandwidth could meet the NGB requirement.
- CMTS upstream channel choose mixed input port, the circuit is simple and clear.

**3) Deployed at the sub-front room**



**Features**

- HFC system fits for second optical transmission.
- The Downstream channel resource from different rooms can be used repeatedly.
- 1.1Gbps bandwidth, support IPTV VOD, such kind of video services.

## 4. Specification

		Downstream		Upstream				
		Euro-DOCSIS	DOCSIS					
Modulation Mode		64QAM/256QAM/1024QAM		256QAM/64QAM/32QAM/16QAM/8QAM/QPSK				
Frequency Range(MHz)		88~1000 adjustable	88~1000 adjustable	5~65				
Single channel bandwidth (MHz)		8	6	Single channel bandwidth (MHz)	6.4	3.2	1.6	
Binding channel quantity		16		4				
Max.total data bandwidth (Mbps)		1000	857	160				
Single channel data rate (Mbps)	64QAM	41	27	Single channel data rate (Mbps)	256QAM	40.96	20.48	10.24
	256QAM	55	38		128QAM	35.84	17.92	8.96
64QAM					30.72	15.36	7.68	
32QAM					25.60	12.80	6.40	
16QAM					20.48	10.24	5.12	
8QAM					15.36	7.68	3.84	
Output level (dBmV)		10~60 adjustable 1 stepping			QPSK	10.24	5.12	2.56
				Input level (dBmV)	-13~+23	-13~+23	-13~+23	
Single channel baud rate (Msyms)	64QAM	6.952	5.056941	Single channel baud rate (Msyms)	5.12	2.56	1.28	
	256QAM	6.952	5.360537					
RF port number		1		1				
Reflection loss(dB)		> 14		> 14				
Output impedance( $\Omega$ )		75		Input impedance ( $\Omega$ )	75			
Supported protocols		Euro-DOCSIS/DOCSIS3.0/2.0, TCP/IP, ARP, RIPv2, ICMP, VLAN, multicast, OSPF, DHCP, TFTP, SNMP, PPPoE, DHCP relay agent, Telnet Etc.						
<b>Physical parameters</b>								
WAN Port	GE SFP		Input voltage		AC100~230V			
	GE RJ45		Consumed power		< 50W			
RF port	F type socket (imperial)		Net weight		2.50Kg			
Console port	RJ45		Working conditions		Temperature: 0~40℃; Humidity: <90%			
Status display	LED		Size(W × H × D)		430mm × 44mm × 285mm			

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