

## GE-7900

### Outdoor Mini-CMTS Headend



#### Product Overview:

Most cable operators are looking for a highly competitive solution with low TCO and increased ARPU, to help them upgrade their existing unidirectional HFC network to a bidirectional solution.

Gospell's GE-7900 is a DOCSIS/Euro DOCSIS 3.0 and C-DOCSIS compliant Mini-CMTS headend with high performance, high QoS and low system delay, and is designed for high bandwidth combined with low investment enabling bi-directional network over existing coaxial network utilising DOCSIS Cable Modems, This enables bi-directional services, such as Video-On-Demand, OTT, VoIP, internet access and many more where bi-directional functionality is needed.

The GE-7900 features a compact structure with an aluminum alloy housing and high enclosure protection level that can protect the electronics from heat emission and weather, which is convenient for installation and deployment in any outdoor environments close to optical nodes. GE-7900 adopts modular design, provides built-in GPON/EPON/10G EPON module for PON + DOCSIS applications.

Moreover, it supports SNMP and CLI management, making it easy for management and maintenance. With Gospell's Mini-CMTS solution, it enables operators to provide a high-performance, cost-competitive, flexible and reliable bi-directional service based on existing 'Last 100-meter' coaxial in MDU, offices and hotels.

## Main Features:

### State-Of-The-Art Technology

- Complies with DOCSIS 3.0, Euro DOCSIS 3.0 and C-DOCSIS standards
- Compatible with DOCSIS 3.0 cable modem
- Backward compatible with DOCSIS 2.0, 1.1 and 1.0 cable modems
- Superior anti-noise performance benefits from A-TDMA/S-CDMA technology used

### High Performance

- Supports up to 300 cable modems
- Supports up to 16 downstream channels and 4 upstream channels
- Channel bonding for both upstream and downstream
- Provides up to 800Mbps downstream and 160Mbps upstream bandwidth

### High Security and Versatile Functions

- DES link encryption
- DHCP and PPPoE authorization
- Supports IPv4 and IPv6 CPEs
- Anti-DoS attack, anti-ICMP/IP attack, MAC address filtering, firewall blacklist, permitted/denied IP address segment
- Supports Dynamic Bandwidth Allocation (DBA), service filtering and bandwidth limitation, minimum bandwidth guarantee
- Supports carrier-grade QoS guaranteed, hierarchical QoS, service/user-based classification
- 802.1ad and 802.1q VLAN, service-based VLAN addition, transfer and deletion
- Supports DHCP Relay Option43, Option60 and Option82, DHCP Snooping
- IGMP Snooping, IGMP Proxy
- Anti-broadcast storm

### Highly Environmental Adaptation

- Wide operating temperature range from -40°C to 60°C

- High enclosure protection level: IP65, water-proof, dust-proof and anti-corrosion, suitable for any harsh environments deployment
- Surge protection for both RF and power supply input and output

### Flexible Deployment

- Can be deployed in optical nodes and regional headend
- Supports 220V AC standard power supply
- Optional 60/90V AC coaxial feed, supports combined or separate feed for power supply and RF signal, cascading coaxial feed output
- Multiple uplink options: GE copper, GE optical, GPON, EPON and 10G EPON
- Optional built-in CATV optical receiver
- Built-in RF mixer, reduces installation nodes
- Suitable for different installation location, such as wall and strand-mounted, outdoor cabinet, basement and so on

### Convenient management and maintenance

- SNMP, Telnet and CLI management
- In-band and out-of-band management
- Remote monitoring, software upgrades
- Supports auto-configuration, auto-recovery, off-line and batch configuration
- Supports remote fault diagnosis, debugging, alarm, analysis and locating
- Supports end-to-end unified network management for xPON and DOCSIS system
- Provides graphical user interface for visual performance analysis, historical data inquiry, analysis and statistics

## Technical Specifications:

### General Parameters

<b>Main Components</b>	CMC	1 x CMC Module
	ONU(optional)	1 x GPON/EPON/10G EPON ONU
	CATV(optional)	1 x CATV RF/Optical Receiver & Mixed Module
	Power Supply(optional)	1 x 220/60/90VAC Power Supply
<b>External I/O</b>	Uplink (4 options)	1 x 100/1000Base-T Ethernet(RJ-45)
		1 x GPON(SC/PC)
		1 x 100/1000Base-T Ethernet(RJ-45)
		1 x EPON(SC/PC)
	CATV Input and DOCSIS Output (3 options)	1 x 100/1000Base-T Ethernet(RJ-45)
		1 x 10G EPON(SC/PC)
		1 x 100/1000Base-T Ethernet(RJ-45)
		1 x 100/1000Base-LX Ethernet (SC)
		1 x CATV RF Input (5/8 F-Type, female, 75Ω)
		1 x DOCSIS RF Mixed Output(5/8 F-Type, female, 75Ω)
Test Port	2 x CATV RF Input (5/8 F-Type, female, 75Ω)	
	2 x DOCSIS RF Mixed Output(5/8 F-Type, female, 75Ω)	
	1 x CATV Optical Input (SC/PC)	
<b>Power Supply</b>	4 x DOCSIS RF Mixed Output (5/8 F-Type, female, 75Ω)	
	Power Supply (3 options)	2 x RF Test Port(with -20dB attenuation)
	220VAC Standard: 90-240VAC, 50/60Hz	
<b>Surge Protection</b>	Power Consumption	60VAC Coaxial: 40-95 VAC, 50/60Hz
	Power Supply Port	90VAC Coaxial: 35-120 VAC, 50/60Hz
	Ethernet	55 W (1 RF In, 1 RF Out), 65 W (2 RF In, 2 RF Out)
	RF Port	>5KV
<b>Environmental</b>	Grounding Resistance	>1KV
	Operating Temperature	<5 Ω
	Storage Temperature	-40°C to 60°C(-40°F to 140°F)
	Operating Humidity	-40°C to 75°C(-40°F to 167°F)
<b>Mechanical</b>	Operating Altitude	100%, non-condensing
	Enclosure Protection	≤4000m
	Heat Dissipation	IP65
	Installation	Fanless design, conduction cooled
	Product Dimensions (L x W x H)	Wall mounted, Strand mounted
Product Weight	370 mm x 170 mm x 115mm (14.6" x 6.7" x 4.5")	
		Approx. 8.9 Kg (19.6 lbs)

### CMC Parameters

<b>Downstream</b>	Modulation	64QAM, 256QAM, 1024QAM
	Frequency Range	87-1002MHz
	Channel Bandwidth	Annex A: 8MHz Annex B: 6MHz
	Number of Channel	16
	Maximum Bandwidth	50Mbps@1024QAM per Channel, 800Mbps(max.)
	Output Level	105dBuV(typ.)

	Return Loss	≥16dB
<b>Upstream</b>	Modulation	TDMA, SCDMA, QPSK, 16QAM, 64QAM, 256QAM
	Frequency Range	5-65MHz
	Channel Bandwidth	1.6 MHz, 3.2 MHz, 6.4 MHz
	Number of Channel	4
	Maximum Bandwidth	40Mbps@256QAM per channel, , 800Mbps(max.)
	Return Loss	≥16dB
	<b>Uplink Parameters</b>	
<b>GE Copper</b>	Standard	IEEE 802.3, IEEE 802.3u, IEEE 802.3ab
	Interface	1 x 100/1000Base-T, RJ-45
	Transmission Distance	100m
<b>GE Optical</b>	Standard	IEEE 802.3, IEEE 802.3u, IEEE 802.3z
	Interface	1 x 100/1000Base-LX, SC
	Transmission Distance	10Km
	Optical Fiber Type	9/125um, Single Mode, Two Fiber
	Wavelength	1310nm
	Optical Power	-11dBm to -3 dBm
	Receiving Sensitivity	-19 dBm
<b>EPON</b>	Standard	IEEE 802.3ah
	Interface	1 x 1000Base-PX 20, SC/PC
	Transmission Rate	Upstream: 1.25Gbps, Downstream: 1.25Gbps
	Transmission Distance	20Km@1:32
	Optical Fiber Type	9/125um, Single Mode, Single Fiber
	Wavelength	Upstream: 1310nm, Downstream: 1490nm
	Optical Power	+2.5dBm to +7dBm
	Receiving Sensitivity	-30 dBm
<b>GPON</b>	Standard	ITU-T G.984.x
	Connector	SC/PC
	Transmission Rate	Upstream: 1.244Gbps, Downstream: 2.488Gbps
	Transmission Distance	20Km
	Optical Fiber Type	9/125um, Single Mode, Single Fiber
	Wavelength	Upstream: 1310nm, Downstream: 1490nm, 1550nm
	Optical Power	+1.5dBm to +5dBm(Class B+), +3dBm to +7dBm(Class C+)
	Receiving Sensitivity	-28 dBm(Class B+), -32 dBm(Class C+)
<b>10G EPON</b>	Standard	IEEE 802.3aV
	Transmission Rate	Upstream: 1.25Gbps, Downstream: 1.25Gbps/10.3125Gbps
	Connector	SC/PC
	Transmission Distance	20Km
	Optical Fiber Type	9/125um, Single Mode, Single Fiber
	Wavelength	Upstream: 1310nm, Downstream: 1490nm(1.25Gbps)或1577nm(10.3125Gbps)

Optical Power	+2dBm to +5dBm
Receiving Sensitivity	-29 dBm

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## For More Information

Please visit our website: <http://www.gospell.com> or contact your local sales representative:

### GOSPELL Shenzhen, China

Overseas Sales Center  
Block F10-F13, F518 Idea Land, Baoyuan road,  
Bao'an Central District, Shenzhen City 518102,  
Guangdong Province, China  
TEL: +86-755-26716172  
FAX: +86-755-29114035  
E\_mail: [sales.dtv@gospell.com](mailto:sales.dtv@gospell.com)

### GOSPELL India (Office)

Office No.C-503, 5th Floor, L.B.S. Road,  
Bhandup (West), Mumbai-400078  
TEL: +91 9167995 705  
E\_mail: [ashish@gospell.com](mailto:ashish@gospell.com)

### GOSPELL Mexico (Office)

Avenida Patria NO3489.EL Tapatio  
Tlaquepaque Jal.Mexico C.P.45588  
TEL: +52 (33) 3860-7059  
E\_mail: [ventas@gospell.mx](mailto:ventas@gospell.mx)

### GOSPELL Brazil (Joint Office)

Rua Engenheiro Prudente, 477/483, Sao Paulo,  
Brazil  
TEL: +55 (11) 2274-1455  
E\_mail: [zhouyong@gospell.com](mailto:zhouyong@gospell.com)

### GOSPELL Paraguay (Joint Office)

Tte. Garay 1795 esq. Campo Vía Barrio San  
Vicente Asunción - Paraguay  
TEL: +595 21 33 43 02

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