

## CuteLink CL-GW16 16E1 to Ethernet Access Gateway

### CL-GW16

#### Product Overview

CL-GW16 16E1 GATEWAY is the a multi-E1 convergence-type bridge equipment, it provides 16 E1 and 4 FE interfaces, possesses



Channel convergence function, according to the different bandwidth can divide into 1~16 Channel. Each Channel is composed of one or multi-E1 lines, the Channel as the link unit carries the Ethernet data transparently, and it has the function which is similar to EPON, any Channel under the user need can set up isolation or communication. Make use of the Channel as the link unit what is composed of E1 lines can realize point to point or point to multi-point flexible networking, and meet the users' variety of bandwidth and centralized network management needs.

CL-GW16 16E1 GATEWAY not only provides complete alarm instructions of the line side and the Ethernet side, but also provides the error rate statistics, timeout warning, Ethernet traffic statistics management or other exhaustive management information. Network management approach respectively provide based on WEB, PC interface which based on TCP / IP, and library files which based on SNMP to build the SNMP network management that can be unified operation and management.

- Provide 16 E1 interfaces, and 4 FE Interfaces.
- Support 1 ~ 16 Channel division configuration, each Channel is composed of 1~16 E1 that have been specified by users, the Channel as link unit point to point carrying Ethernet data transparently and independently.
- Support one point to multi-point applications (Channel number is greater than 1), and point to point networking applications (Channel number is equal to 1), up to one point to 16-point networking

application.

- Under the point to multi-point mode, support the different manufactures' single E1 Bridge and multi-E1 Bridge as the remote device mixed networking application.
- When Channel is composed of one E1, it compatible with single-E1 bridge equipment that is realized by CL-EOP and CL-C protocol converter.
- When Channel is composed of two or more than two E1 lines, it compatible with multi-E1 Bridge equipment that is realized by CL-C series, and will also compatible with all Bridge device that from different manufacturers but supports the EOP protocol.
- Support communication between any Channel, and can set isolation or communication according to the user's need.
- Each Channel supports 802.1Q Tag VLAN and QinQ function.
- The Ethernet data from Channel completes frame re-sequencing technology at the E1 line side, effectively guarantees the frame sequence and improves the transmission efficiency.
- The maximum transmission delay is 64ms between any two E1 lines in Channel, it can guarantee steady operation under kinds of complex networks.
- Each E1 line only costs 64Kbps overhead.
- The Channel automatically detects available E1 lines in it, and automatically allocates bandwidth.
- The Channel supports each E1 line to set CRC error threshold in it, when one line's error rate exceeds the threshold, the system can automatically shut down the E1 line for isolation.
- The Channel achieves a one-way off-isolation in it, only cuts off the E1 line that over the BER threshold, and the other direction of transmission is not affected, Ethernet data can be asymmetrically transmitted in both direction, in order to ensure the maximum data transmission efficiency when the E1 line goes wrong.
- When one direction of E1 line received a LOSS or AIS alarm in Channel, the sending direction of the E1 line will not be affected, then realizes the asymmetric transmission on the E1 line.
- When receiving direction of all the E1 lines are cut off in Channel at the same time, local alarm and network management information can still be transmitted to remote via sending direction, achieves a one-way transmission on E1 line. This feature is particularly suitable for protocol converter cooperates with optical communication equipment. It can judge the faults of the lines when the optical

communication equipment appears a one-way fiber cases.

- Support loop-back and loop-back protection of each E1 line.
- Support Ethernet packets statistics function.
- Support local system to control each remote E1 loop-back.
- Support the transfer function of full fault alarm.
- Support BERT testing function of E1 line.
- Support remote alarm indication.
- Support particular Ethernet packet statistics function.
- Support WEB network management features, support network interface of the PC which based on TCP / IP, open SNMP library files, support the customer to complete network management that based on SNMP.

## Device Feature

**Protocol:** G.703, G.704, G.736, G.823, I.431 IEEE802.3

### E1 interface

Subject	Description
Bit rate	2.048Mb/s±50ppm
Code format	HDB3
Impedance	75 Ohm is default, Optional 120 Ohm
Jitter transfer, Jitter tolerance comply with ITU-T G.703、 G.704、 G.823 recommendations	

### Electrical Ethernet Interface

Subject	Description
Connector	RJ-45
Working mode	Auto - negotiation is the default setting
Complies with IEEE 802.3 and 10/100 Base-Tx Ethernet Protocol	

**Ethernet parameters**

Subject	Description	Remark
MAC address table capacity	1K	
MAC aging time	five minutes	
Minimum frame-length	64 bytes	
Maximum frame-length	1916 bytes	
Working mode	Support auto-negotiation compliant to IEEE802.3u. Enabled as default	Configured via Web network management
VLAN function	Disabled as default	
Flow control	Enabled as default	
Bandwidth	$\approx n \times E1$ (n=0~16) Default is $16 \times E1 \approx 31.68\text{Mbps}$	

**E1 interface**

Subject	Description
Bit rate	2.048Mb/s $\pm$ 50ppm
Code format	HDB3
Impedance	75 Ohm is default, Optional 120 Ohm
Jitter transfer, Jitter tolerance comply with ITU-T G.703、G.704、G.823 recommendations	

**Dimension, weight and power consumption**

Subject	Description
Dimension	434mm $\times$ 44mm $\times$ 155mm (width $\times$ height $\times$ depth)
Weight	3.5 kg
Power consumption	8W $\pm$ 10%

### Environmental requirements

Subject	Description
Operating temperature	-5°C ~ 45°C
Storage temperature	-40°C ~ 70°C
Humidity	≤95%, free from condensing

### CL-GW16 Web SNMP NMS

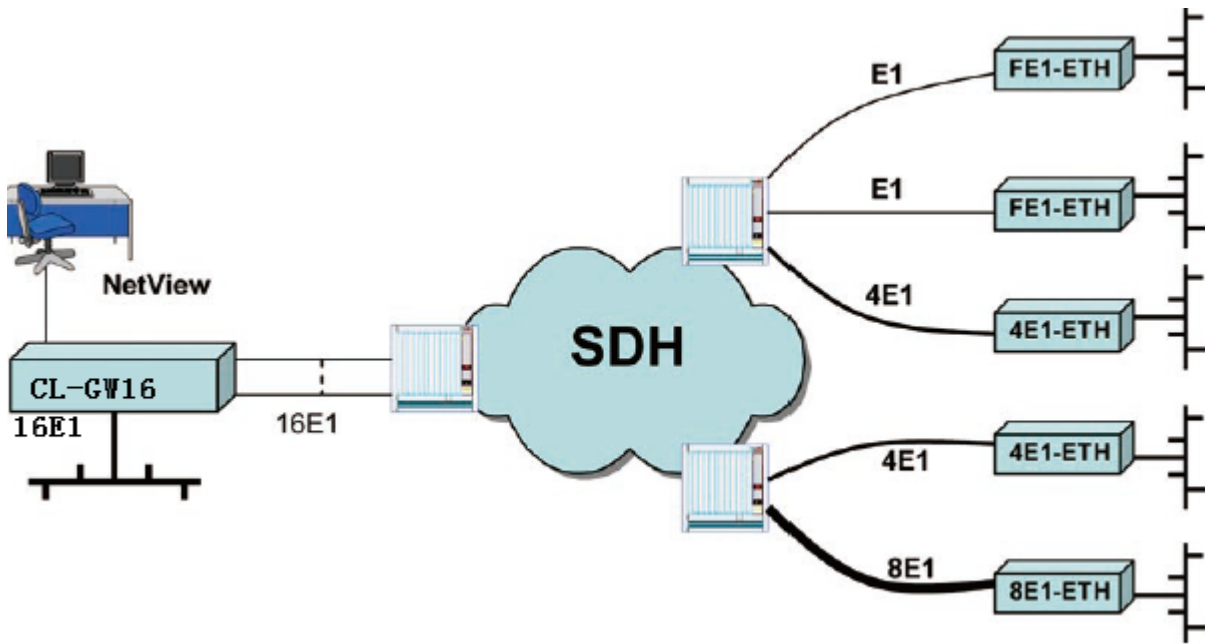
The screenshot shows the main interface of the CL-GW16 NMS. It features a navigation menu on the left with options like 'Running', 'System Management', 'E1 Management', and 'VLAN Management'. The main content area displays two tables: 'The local E1 port status' and 'Remote working condition'. Both tables show 16 E1 ports with columns for 'E1 Status', 'Used', 'LOF', 'LOS', 'AIS', 'OVT', and 'CRC'. The local status table shows ports 1-4 as 'Used' and 5-16 as 'Unused'. The remote status table shows all ports as 'Unused'. A legend at the top right indicates 'Link' (green) and 'Unlink' (grey).

CL-GW16 NMS main interface

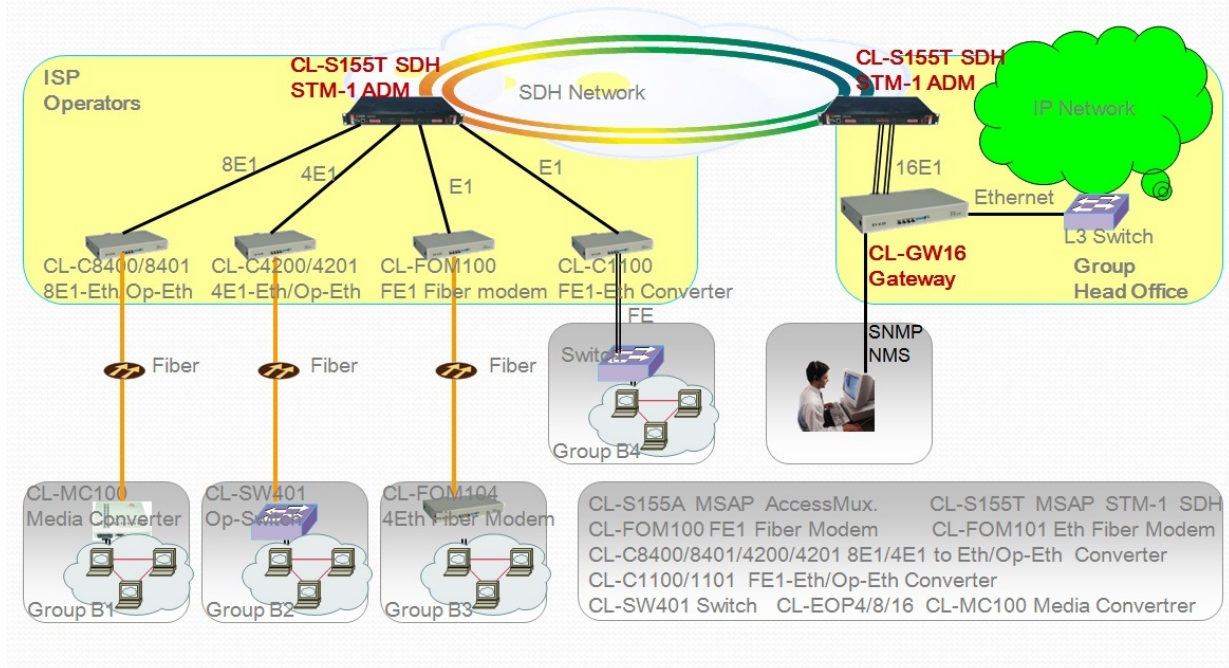
The screenshot shows the 'E1 Channel Configuration' page. It includes a legend for 'Link' (green) and 'Unlink' (grey). The configuration area contains several fields: 'Global information' with checkboxes for 'Failover', 'Loop-back protection', and 'Group Visits'; 'E1 Channel ID' set to 1; 'Trigger Port(1->16)' with checkboxes for ports 1-16; 'Remote Mode' with radio buttons for 'Define1', 'Define2', 'HDLC', and 'EOP'; 'Threshold' with radio buttons for 'Disable', '1x10<sup>-4</sup>', '1x10<sup>-5</sup>', and '1x10<sup>-6</sup>'; and 'Visits Group(1->16)' with checkboxes for ports 1-16. A note states: 'Note: Local E1 port must be a continuous distribution when the remote E1 equipment for multi-port.' Buttons for 'Viewall', 'Submit', 'Clear', and 'Help' are at the bottom.

CL-GW16 NMS E1 Channel E1 Group configuration

Application



## CuteLink CL-GW16 16E1 to Ethernet Access Gateway Solution



Model

Model	Description
<b>CL-GW16</b>	4Eth support Vlan,16E1 uplink can work with CL-EOP and CL-C converter,support Web SNMP NMS
<b>Compatible With Cutelink CL-C and CL-EOP Protocol Converter</b>	
<b>CL-C1100</b>	10/100M Base-T to E1, 75/120ohm, (N*64K)framed/(2M)UnFramed,Support Vlan,AC220V or DC-48V
<b>CL-C4200</b>	4*10/100MBase-T to 4E1, 75/120ohm, framed,AC220V+DC-48V(4 Ethernet ports,4E1 Ports)
<b>CL-C8400</b>	4*10/100M to 8E1, 75/120ohm, framed,AC220V+DC-48V(4 Ethernet ports,8E1 Ports)
<b>CL-EOP4/8/16</b>	CL-EOP4/8/16, Ethernet to 4/8/16E1 converter with components of 'EOP4 /8/16motherboard +4/8 E1 card +4Ethernet port LAN cards