



Description

The Loop-H3310 provides high-speed digital transport over a single copper pair using standard 16 TCPAM/32 TCPAM technology. Versatility of this series comes from a choice of digital interfaces and a choice of line rates, with the lower line rates applicable to longer reaches.

This standalone version is intended for customer premises installation only. H3310 provides a high-speed data link with DTE interfaces: E1, V.35, E1 plus 2 Ethernet (Bridge or Router mode), 2 Ethernet (Bridge or Router mode). With the Hardware Bridge option, H3310 supports up to 2-pair G.SHDSL. bis with QoS function. The H3310 supports configuration and diagnostics from a local or remote terminal. This allows execution of in-service diagnostics and fault isolation.






Features

- Point to point application
- WAN port
 - 1-pair/2-pair/1+1 G.SHDSL mode selectable
 - 1 pair G.SHDSL.bis
 - 1-pair/2-pair G.SHDSL.bis with hardware bridge option only
 - STU-C(master) or STU-R(slave) mode selectable
- Tributary port
 - Support up to 1-pair G.SHDSL.bis
 - One E1 port
 - One V.35 DTE port
 - One E1 and Two Ethernet ports (Router/SNMP Mode)
 - One E1 and Two Ethernet ports (Bridge/SNMP Mode)
 - Two Ethernet ports (Bridge/SNMP Mode)
 - Two Ethernet ports (Router/SNMP Mode)
 - Support up to 2-pair G.SHDSL.bis
 - One E1 and Two Ethernet ports (hardware Bridge/SNMP Mode) with QoS function
 - Two Ethernet ports (hardware Bridge/SNMP Mode) with QoS function
- Power:
 - Fixed AC (100 to 240 Vac)
 - Fixed DC (-48 Vdc, -42 to -72 Vdc)
 - Fixed AC (100 to 240 Vac) and DC (-48 Vdc, -42 to -72 Vdc)
- Local and remote firmware download
- Local configuration upload/download
- Multi-color LED indicators
- Local/remote management through console port, LAN, or WAN
- Management port and interface
 - LCD and keypad (optional)
 - Console port with VT-100 menu
 - SNMP
 - Embedded SNMP
 - Telnet
- Standard compliance
 - ITU-T G.991.2 (G.SHDSL Annex A, B) and G.994.1
 - ITU-T G.991.2 (G.SHDSL.bis Annex F) and G.994.1

Ordering Information

To specify options, choose from the list below:

Note: RoHS compliant units are identified by the letter **G** appearing at the end of the ordering code.

Model (RoHS compliant)	Model (non RoHS compliant)	Description
Loop-H3310-SC-dte-sp-pp1- G	Loop-H3310-SC-dte-sp-pp1	Standalone with LCD & LED displays
Loop-H3310-SE-dte-sp-pp1- G	Loop-H3310-SE-dte-sp-pp1	Standalone with LED display only
Loop-H3310-SC-ERJ2BRH -sp-pp1- G		Standalone with 1 E1(RJ48C), 2 Ethernet ports support hardware bridge, QoS, and SNMP functions with LCD & LED displays, optional support 2-pair G.SHDSL. bis
Loop-H3310-SE-ERJ2BRH -sp-pp1- G		Standalone with 1 E1(RJ48C), 2 Ethernet ports support hardware bridge, QoS, and SNMP functions with LED display only, optional support 2-pair G.SHDSL. bis
Loop-H3310-SC-2BRH-sp-pp1 - G		Standalone with 2 Ethernet ports support hardware bridge, QoS, and SNMP functions with LCD & LED displays, optional support 2-pair G.SHDSL. bis
Loop-H3310-SE-2BRH-sp-pp1 - G		Standalone with 2 Ethernet ports support hardware bridge, QoS, and SNMP functions with LED display only, optional support 2-pair G.SHDSL. bis
Accessories		
Power Cord (All power cords are RoHS compliant.)		
Loop-ACC-PC-USA- G	AC power cord for Taiwan/USA	
Loop-ACC-PC-EU- G	AC power cord for Europe	
Loop-ACC-PC-UK- G	AC power cord for the UK	
Loop-ACC-PC-AUS- G	AC power cord for Australia	
Loop-ACC-PC-CH- G	AC power cord for China	
Tray		
81. TRAY19.1000 G		19" Tray (One tray for two base units)
Software		
Loop-H3310-UPGR-1bis	Activation code for upgrading 1-pair G.SHDSL to 1-pair G.SHDSL.bis. Only available for 1-pair G.SHDSL	
Loop-H3310-UPGR-2bis	Activation code for upgrading 2-pair G.SHDSL to 2-pair G.SHDSL.bis. Only available for 2-pair G.SHDSL with ERJ2BRH and 2BRH ordering code	
Loop-H3310-UPGR-RT	Activation code for upgrading bridge function to router function which only available for ERJ2BR and 2BR ordering code	
User's Manual		
Loop-H3310-S-UM	User's Manual (paper hard copy-optional). A CD version of the manual is already included as standard package.	
Firmware Upgrade		
Loop-H3310-FWUPGR	Firmware Upgrade. Customers who have a desire to upgrade to the most current firmware can purchase this option. Upgrades contain the newest software features and functionality as they are available. Upgrades are downloaded using TFTP and are easily installed.	


Where **dte**=

dte	RoHS compliant	non RoHS compliant	Description
11	Available	Available	V.35 DTE interface with M34 connector
E75	Available	Available	75 ohm BNC E1 interface
E120	Available	Available	120 ohm Twisted Pair RJ48C E1 interface
ERJ2BR	Available	Available	1 E1(RJ48C), 2 Ethernet ports support bridge and SNMP functions
ERJ2RT	Available	Available	1 E1(RJ48C), 2 Ethernet ports support router and SNMP functions
2BR	Available	Available	2 Ethernet ports support bridge and SNMP functions
2RT	Available	Available	2 Ethernet ports support router and SNMP functions

Where **sp=**

sp	
kk	For 1-pair line rate Nx64K bps (G.SHDSL Annex A, B. N=3 to 36)
mm	For 2-pair line rate Nx64K bps (G.SHDSL Annex A, B. N=3 to 36)
kb	For 1-pair line rate Nx64K bps (G.SHDSL.bis Annex F. N=3 to 89)
mb	For 2-pair line rate Nx64K bps (G.SHDSL.bis Annex F. N=3 to 89) Note: This option only support in ERJ2BRH and 2BRH ordering code

Where **pp1=**

pp1	Description	Note
P2	100 to 240 Vac	<ul style="list-style-type: none"> For AC, choose an appropriate power cord
P7	100 to 240 Vac with sealing current looped	
DC	Fixed DC -48Vdc (-42 to -72 Vdc)	
AoD	Powered by AC 100 to 240 Vac or DC -48Vdc (-42 to -72 Vdc), but not both simultaneously. Support sealing current looped	<ul style="list-style-type: none"> For AC, choose an appropriate power cord. For DC, wire to included IEC socket. No safety certification for AoD power unit 

Note: All power modules are RoHS Compliance**Example1:**Loop-H3310-SC-ERJ2BR-mm-AoD-**G**

H3310 with 1 E1(RJ48C), 2 Ethernet ports support Bridge and SNMP option with LCD & LED displays, 2-pair G.shdsl line rate, and AC or DC power module

Example2:Loop-H3310-SC-ERJ2BRH -mb-P2-**G**

H3310 with 1 E1(RJ48C), 2 Ethernet ports support hardware bridge, QoS, and SNMP functions with LCD & LED displays, 2-pair G.SHDSL. bis line rate, and AC power module

Loop-H3310 G.SHDSL Standalone Product Specification

WAN – G.SHDSL Line Interface

Number of pairs	G.SHDSL: 1 or 2 pair		
	G.SHDSL.bis: 1 pair, 2 pair (only for ERJ2BRH and 2BRH)		
Line rate (per pair)	8K+N x 64 Kbps, N =3 to 36 for 1 pair or 2 pair G.SHDSL		
	8K+N x 64 Kbps, N =3 to 89 for 1 pair or 2 pair (only for ERJ2BRH and 2BRH) G.SHDSL.bis		
Line code	16-TCPAM/32-TCPAM, full duplex with adaptive echo cancellation over unconditioned 19-26 AWG twisted pair		
Sealing Current	Max. 20ma sink current		
Standard	ITU-T G.991.2 (G.SHDSL Annex A, B) and G.994.1		
	ITU-T G.991.2 (G.SHDSL.bis Annex F) and G.994.1		
Connector	RJ48C		

E1 Interface

Line Rate	2.048 Mbps ± 50 ppm	Framing	ITU G.704
Line Code	HDB3/AMI	Connector	BNC(75ohm)/RJ48C(120ohm)
Input Signal	ITU G.703	Output Signal	ITU G.703
Electrical	75Ω Coax/120Ω twisted pair (jumper selectable for ordering code: dte= E75 or E120)		

DTE Interface (V.35)

Data Port	Single DTE		
Data Rate	N x 64K bps, N =1 to 36 (2.304M bps) for 1-pair G.SHDSL		
	N x 64K bps, N =1 to 72 (4.608M bps) for 2-pair G.SHDSL		
	N x 64K bps, N =1 to 89 (5.696M bps) for 1-pair G.SHDSL.bis		
Connector	M34 connector for V.35 interface		

Ethernet Interface (ERJ2BR, ERJ2RT, 2BR, 2RT ordering option)

Number of Ports	2
Connector	RJ45
Physical Interface	10/100 Base-T, Ethernet Switch inside.
Data Rate	N x 64K bps, N =1 to 36 (2.304M bps) for 1-pair G.SHDSL N x 64K bps, N =1 to 72 (4.608M bps) for 2-pair G.SHDSL N x 64K bps, N =1 to 89 (5.696M bps) for 1-pair G.SHDSL.bis
Throughput (1518bytes)	2.4 Mbps for for 1-pair G.SHDSL 4 Mbps for 2-pair G.SHDSL 5.4 Mbps for 1-pair G.SHDSL.bis
Ethernet Bridge	<u>BR ordering option</u> <ul style="list-style-type: none"> • Layer 2 protocol: HDLC, PPP, Frame Relay (up to 10 Frame Relay PVCs), Cisco compatible HDLC • Remote bridge support (padding/ un-padding Ethernet CRC checksum) • User configurable aging time • Up to 2K MAC Table • Cisco ISL packet transparent • VLAN packet transparent, maximum frame size 1784 bytes (IEEE 802.1q) • Bridge with management IP • Spanning Tree Protocol/Rapid Spanning Tree Protocol (IEEE 802.1d/802.1w) • Bridge option can be software upgraded to Router (see Layer2, Bridge mode available for transparent bridging)
IP Router	<u>RT ordering option</u> <ul style="list-style-type: none"> • Static Route, RIP v1 & v2 • Layer 2 protocol: HDLC, PPP, Frame Relay (up to 10 Frame Relay PVCs), Cisco compatible HDLC • NAT/NAPT • Port Forwarding: Static/dynamic address/port forwarding table for NAT and NAPT
DHCP	<u>RT ordering option</u> <ul style="list-style-type: none"> • DHCP server support for LAN users (RFC2131, RFC2132) • BOOTP compatible

Ethernet Hardware Bridge (ERJ2BRH and 2BRH ordering option)

Number of Ports	2
Connector	RJ45
Physical Interface	10/100 Base-T, Ethernet Switch inside.
Data Rate	N x 64K bps, N =1 to 36 (2.304M bps) for 1-pair G.SHDSL N x 64K bps, N =1 to 72 (4.608M bps) for 2-pair G.SHDSL N x 64K bps, N =1 to 89 (5.696M bps) for 1-pair G.SHDSL.bis N x 64K bps, N =1 to 178 (11.392M bps) for 2-pair G.SHDSL.bis
VLAN	Packet transparency up to 1784 bytes IEEE 802.1Q, 802.1ad (Q-in-Q)
QoS	Max. 16 VLANs 4 priority queues Queuing algorithm: Weighted Round Robin (WRR) QoS determined by port Per G.SHDSL/G.SHDSL.bis port rate limiting (N x 64K bps)
Bridge with management IP	IEEE 802.1d self learning, up to 1K MAC addresses Rapid Spanning Tree Protocol (RSTP) (802.1w)

SNTP

- SNTP client support
- Sync with up to 4 time servers

Clock

Source	G.shdsl looped, Internal at ± 32 ppm, or E1/DTE
Mode	Plesiochronous, Synchronous, Hybrid (downstream synchronous, upstream plesiochronous)

Console Port

Connector	DB9S at rear panel
Electrical	RS232 interface (DCE)
Protocol	Menu driven VT-100 terminal

System Configuration Parameters (All in non-volatile memory)

Active Configuration Current working configuration
Default Configuration Manufacture default configuration

Diagnostics Test

G.shdsl Loopback To-LINE, To-Line-payload
E1 Loopback To-E1, To-LINE
DTE Loopback To-DTE, To-LINE
Slave Loopback Line-Side (through EOC and V.54)

Front Panel

Multi-color LED Indicators

Physical/Electrical

Dimensions 210 x 41.5 x 140 mm (WxHxD)
Power AC: 100-240 Vac, 50/60 Hz,
ACorDC: 100 to 240 Vac, 50/60 Hz; -48Vdc (-42 to -72 Vdc)
DC: 100 to 240 Vac, 50/60 Hz; -48Vdc (-42 to -72 Vdc)
Temperature range 0 – 65 °C
Humidity 0 – 95% RH (non-condensing)
Mounting Desk-top stackable, Wall Mount, Rack Mount with 19" tray available

Standard Compliance

ITU-T G.991.2 (G.SHDSL Annex A, B) and G.994.1
ITU-T G.991.2 (G.SHDSL.bis Annex F) and G.994.1
IEEE 802.1q, 802.1ad, 802.1w

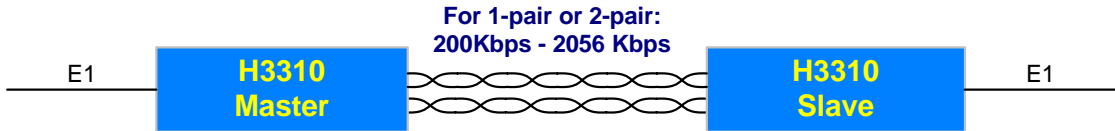
Certification

EMI/EMC EN55022, EN50081-1, EN50082-1
Safety EN60950

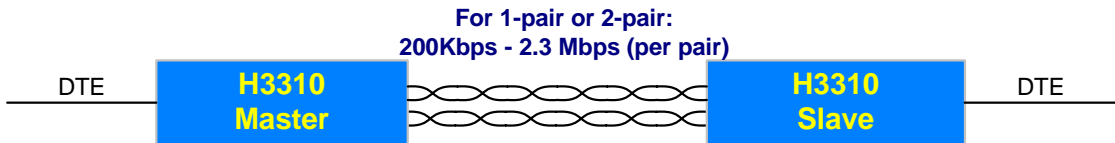
Application Illustrations

G.SHDSL Solution

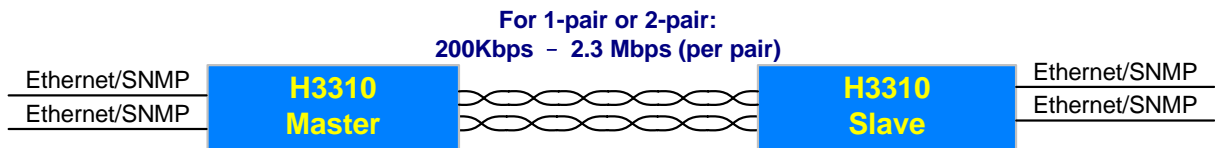
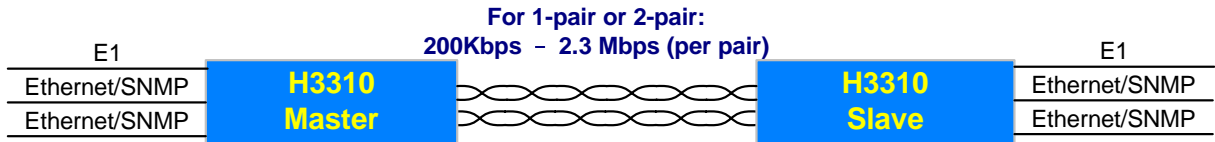
Single E1 Option



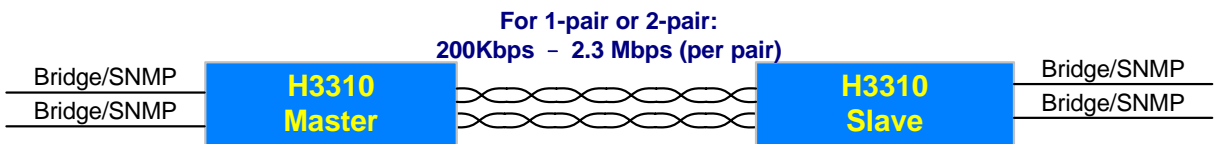
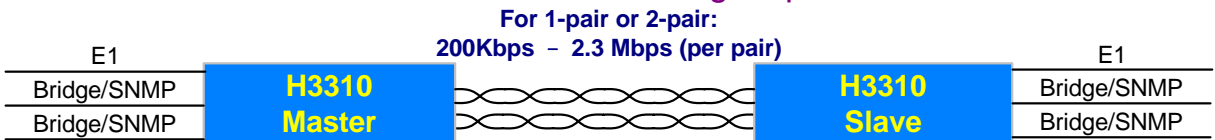
Single DTE (V.35) Option



Ethernet Option

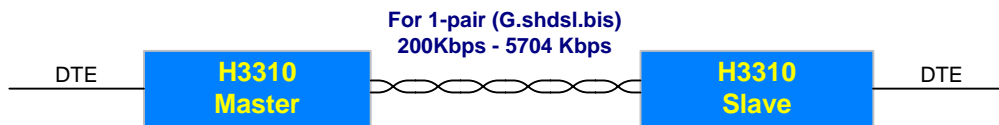


Ethernet Hardware Bridge Option

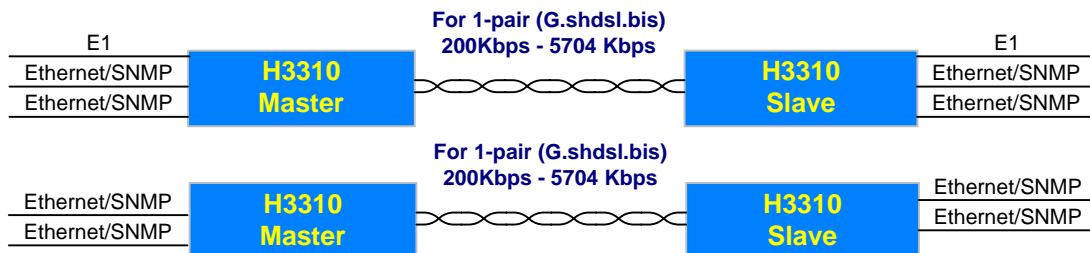


G.SHDSL.bis Solution

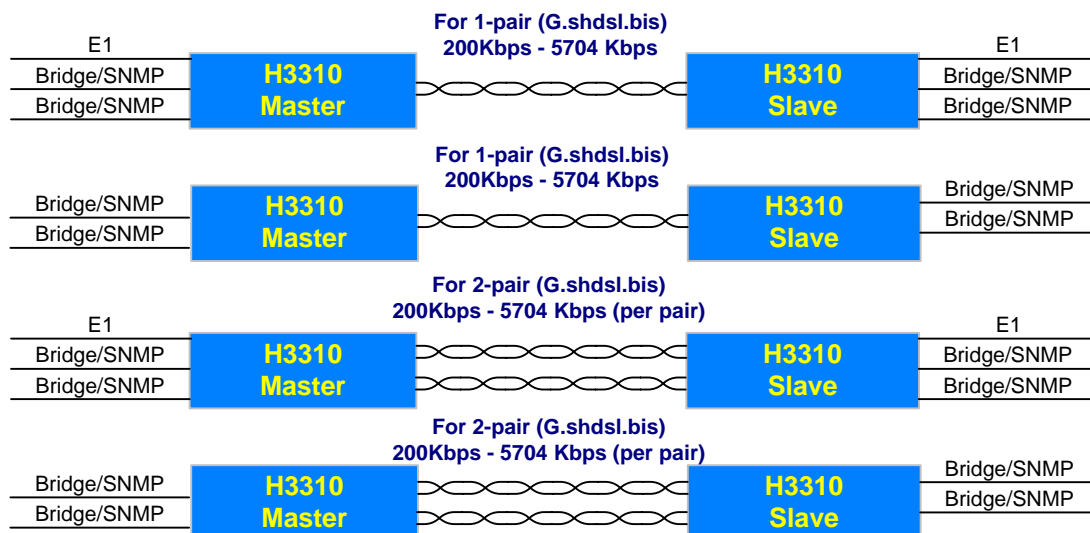
Single DTE (V.35) Option



Ethernet Option



Ethernet Hardware Bridge Option



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