

Ethernet over SDH (STM-1)

Product Brochure & Data Sheet

COMARRA

E-Mail: info@comarra.co.uk

Web Site: <http://www.comarra.co.uk>

Product Overview

Comarra Ethernet over SDH (STM-1) provides a simple, cost effective and compact solution to convert 10/100BaseT data interface on the user side and transport Ethernet traffic over a STM-1 SDH link. The converter is an effective method for converting and transporting 10/100BaseT ethernet data over an STM link.

The converter solution complies with relevant ITU-T SDH specifications of G.703, G.707, G.781, G.782, G.783, G.784, G.803, G.813, G.823, G.825, G.841, G.857, G.958. This compact and robust solution is used for transporting Ethernet over SDH networks.



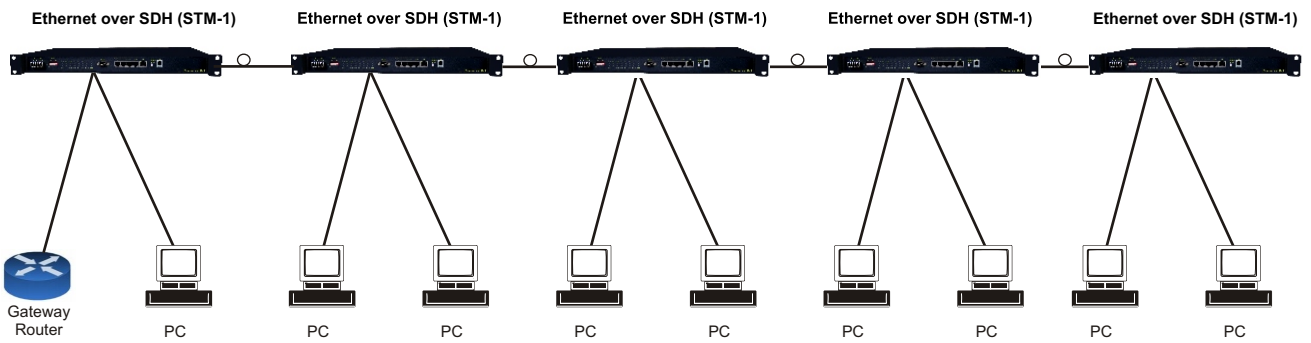
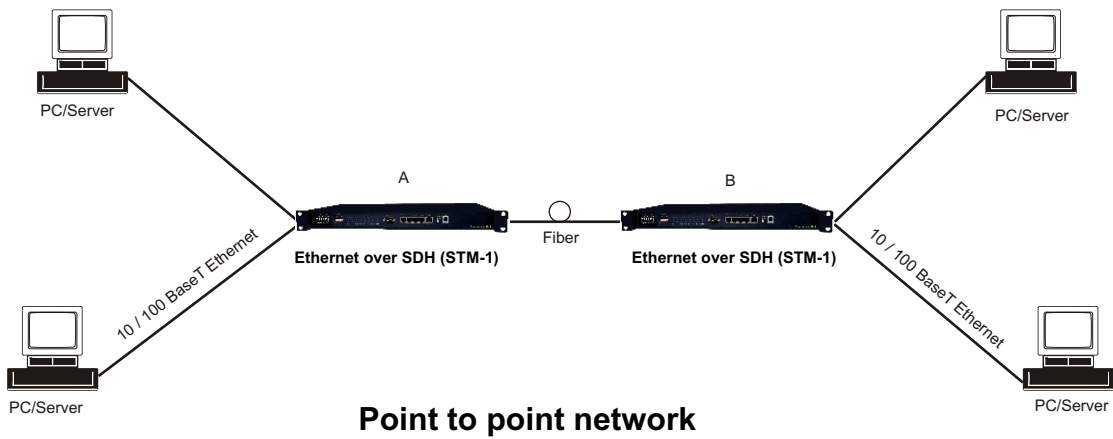
Features

- 1U height, 19-Inch standard rack-mountable chassis with 3 service card slots
- Service interfaces
 - › 2 x STM-1 optical interfaces, SFP optical module (LC connector)
 - › 2 x STM-1 electrical interfaces, SFP electrical module (Mini BNC connector) - Optional
 - › 4 x 10/100BaseT Ethernet (electric) interface. Options - 4 Port 4 Channel (4 VCG), 4 Port 1 Channel (1 VCG)
 - › 1 x GigE (GigaBit) Ethernet interface. Options - Optical, Electrical
- Management and Maintenance interfaces
 - › 10/100BaseT Ethernet management interface
 - › RS232 serial management interface
 - › Remote (Telnet) management interface
 - › Windows XP based Graphical User Interface (GUI)
 - › SNMP V2 Monitoring
 - › SNMP based NMS
 - › In-Band Monitoring and Management through DCC Channel
 - › RS232 user (low speed) data channel interface (RJ-45)
 - › Engineering Order Wire (EOW) interface (RJ-11)
- Timing mode
 - › Synchronization with STM-1 line timing
 - › External timing source option - 120 Ohms 2Mbps (External Bits Clock)
 - › External timing source - 120 Ohms 2MHz (External TTL Clock) - Factory Configurable
 - › Internal Clock - ITU-T G.813 internal oscillator
 - › The timing source can be auto-switched according to default or operator programmed settings

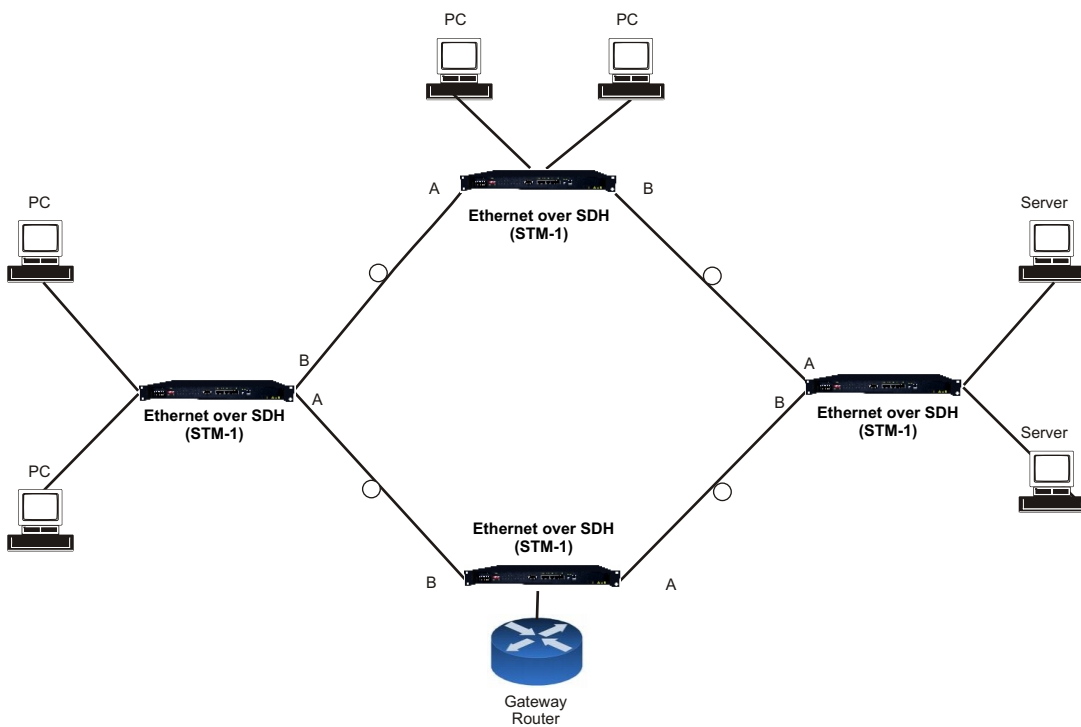
Features

- Ethernet Standards Conformity
 - › Generic Framing Procedure GFP-F compliant with ITU-T G.7041
 - › VCAT compliant with ITU-T G.707 and LCAS compliant with ITU-T G.7042
 - › Ethernet flow control on WAN port and LAN port
 - › Maximum Frame length (MTU size):1536 bytes with 4 port 1 channel (1 VCG) Ethernet Card
 - › Maximum Frame length (MTU size):2036 bytes with 4 port 4 channel (4 VCG) Ethernet Card
 - › Auto MID/MID-X for ethernet interfaces
 - › Support 802.1Q based VLAN tagging (4 port 1 channel Ethernet Card only)
 - › Support Port based VLAN tagging (4 port 1 channel Ethernet Card only)
- Supports 1+1 Line Protection and Automatic Protection Switching (APS) with less than 50ms recovery
- Local management and network-based management via a unified platform
- Supports Remote Power Down Detection (RPD) and Auto Laser Shutdown (ALS)
- Supports STM-1 loop-back for troubleshooting
- 1310nm wavelength and 1550nm wavelength supported
- Ethernet mapping adopts GFP/VC-12 virtual concatenated technology; according with MSTP criterion
- Provides Ethernet over SDH mapping through standard GFP and VC-12 virtual concatenation (VCAT).
- Ethernet bandwidth can be adjusted between 2M~100M by set the number of VC-12s (1~48) through management software
- Supports MAC Address list filtration, learning and updating function
- Easy to operate
- Redundant power supply card option. Both 220V AC and -48VDC options available
- Power consumption less than 20W.

Application Diagrams



Chain Network * (Required 4 VCG Ethernet Card)



Ring Network * (Required 4 VCG Ethernet Card)

Technical Specifications

STM-1 Electrical Interface

Data Rate	155.52 Mbps
Standard	ITU-T G.703 Compliant
Line Code	CMI
Physical Connector	Mini BNC
Automatic 1+1 line protection	Less than 50 ms switching

STM-1 Optical Interface

Data Rate	155.52 Mbps
Standard	ITU-T G.967 compliant
Bit rate	155.520Mbps
Coding	NRZ
Connector	LC
Light source	Class 1 Laser
Wave length	1310nm or 1550nm (optional)
Transmit power	S 1.1, L 1.1, L 1.2 (- 11 dBm to - 2.5 dBm - as may be ordered)
Receive sensitivity	S 1.1, L 1.1, L 1.2 (- 28 dBm to - 34 dBm - as may be ordered)
Automatic 1+1 Line Protection	Less than 50 ms switching / recovery
Automatic Laser Shut Down Option	Provided - User selectable options

Ethernet Interface Specification: 10/100BaseT (Electrical)

Interface Types	10/100BaseT
VCAT Compliance	ITU-T G.707
LCAS Compliance	ITU-T G.7042
GFP-F	ITU-T G.7041
Frame Size	1536 bytes - 1 VCG / 2036 bytes - 4 VCG
Transmission Bit Rate	10/100BaseT
Connectors	RJ-45 (10/100 BaseT Electrical)

Clock Synchronization Options

Clock Synchronization options	Internal Clock
	STM-1 line clock
	Clock synchronization from any of the E1 links (1-16)
	External 2 Mbps clock source (Factory configurable)
	External 2 MHz clock source (Factory configurable)

NMS

- Windows XP compatible
- SNMP V2 based NMS

Power Supply Options

AC Main Input	110Volts-240 Volts, 50Hz/60Hz
DC Mains Input	- 48VDC (range 40V DC to 60V DC)
Power Consumption	< 20 Watts

Operating Conditions

Ambient temperature	-20°C ~ +65°C
Relative humidity	<90% (at 35°C)

Mechanical Specifications

Rack Mounting	Standard 19 Inch. DIN Rack
Height	44 mm.
Depth	256 mm.
Width	440 mm.
Weight	3.5 kg

Ordering Information

S. No.	Part #	Product Description	Qty.
1	ETH-STM-1-e	4 Ethernet over SDH 19" Metal Box 1U High Rack Mount Version, 4 Ethernet (10/100BaseT Electrical RJ45), 1 x STM-1 (Electrical), 2 x STM-1 (Electrical) - Optional, 2 x -48V DC Power Supply	1
2	ETH-STM-1-o	4 Ethernet over SDH 19" Metal Box 1U High Rack Mount Version, 4 Ethernet (10/100BaseT Electrical RJ45), 1 x STM-1 (Optical), 2 x STM-1 (Optical) - Optional, 2 x -48V DC Power Supply	1

Note: _____

Technical specifications are subject to changes without notice.
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COMARRA

E-Mail: info@comarra.co.uk
Website: <http://www.comarra.co.uk>