

Router SHDSL TT-SHDSL-11M1



Advanced Layer 3 and 2 features

Extensive IP routing and Ethernet functionalities with advanced QoS mechanisms

Bonding support up to 4 copper pairs

Secure

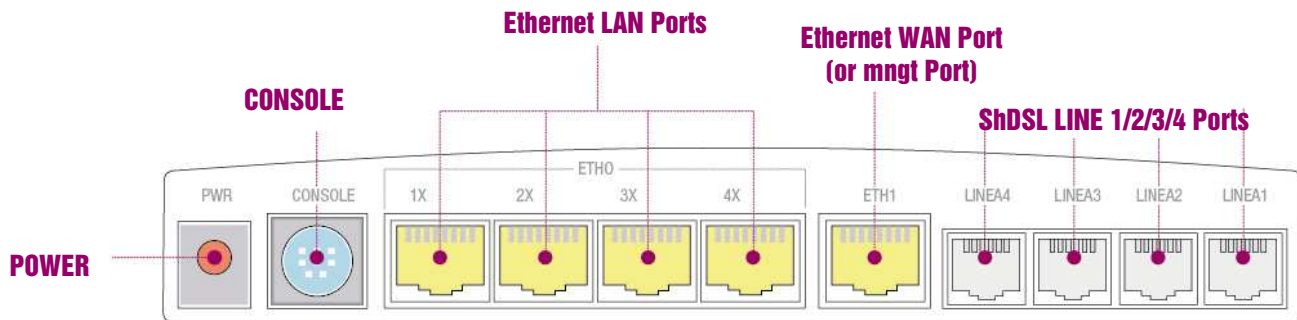
Data protection with IPSEC encryption and firewall security

Future Proof

IEEE 1588 support (HW-based)

Innovative

Cutting edge devices with state-of-the-art technology Full EFM functionalities (e.g. 64/65B encapsulation, PAF for aggregation) HW-implemented



Traffic Management Capabilities

Router SHDSL TT-SHDSL-11M1 solution for high performance connections supports traffic shaping and Quality of Service at both layer 3 and layer 2. It also provides interworking mechanisms between the two layers, which allow Telecom Operators the maximum flexibility in defining traffic management policies for transit switches/routers in their access & core networks.

Full IP Services & Security Features

The Router SHDSL TT-SHDSL-11M1 solution provides advanced routing and bridging configuration also offering firewall functionality and VPN data protection (including IPSec hardware encryption). IEEE 1588 support (transparent clock mode) enables deployment of CESoP.

Powerful Configuration & Management

Router SHDSL TT-SHDSL-11M1 solution offers a web-based interface for easy configuration and monitoring. It includes remote management via an internal web server (HTTP and HTTPS), Telnet or SSH server using the Command Line Interface.

LED Indicators

- PWR
- ETH0
- ETH1
- ShDSL (L1-L2-L3-L4)

Physical Interfaces

- 4-port 10/100bT Ethernet switch with RJ-45 connectors (Eth0)
- 1-port 10/100bT Ethernet with RJ-45
- 1-port 10/100bT Ethernet with RJ-45 connectors (Eth1) (all models)
- 1-port console with MiniDIN 8P connector

ShDSL Network Interfaces

- 4-pair ShDSL.bis interface
- 2-pair ShDSL.bis interface
- ETSI TS 101 524
- ITU G.991.2 Annex A
- ITU G.991.2 Annex B
- ITU G.991.2 Annex F
- ITU G.991.2 Annex G
- IEEE 802.3ah EFM
- Line rate up from 192 kbps to 22800 kbps (with bonding)

IP Functions

- IP Routing
 - RIP v1/v1c/ v2, BGP, OSPF
 - Enhanced Network Address and Port Translation (NAPT) engine, with multiple ALGs (including SIP, TFTP and H.323)
 - DHCP Server/Client/Relay, DHCP Learning
 - Multicast IGMP v1/v2/v3, PIM-SM, Static
- Routing Filtering Redistribution
- Firewalling
 - Extended Access Lists
 - Stateful Packet Inspection including Denial of Service attacks
- IP Services
 - DNS proxy
 - DDNS client
 - VPN (GRE, IP, PPTP server/client)
 - IPSec with DES, 3DES and AES
 - ICMP, IGMP snooping, Telnet, TFTP
 - Layer 3 QoS according to DiffServ model (RFC2474, RFC2475)

- Priority based queuing (Absolute Priority, WFQ, RED)
- Extensive monitoring, tracing and troubleshooting facilities

Ethernet Services

- Self Learning Bridge with up to 1k MAC addresses and automatic ageing
- Full-Duplex IEEE 802.3x
- Half-Duplex back pressure flow control
- Automatic MDI/MDI-X crossover
- Broadcast/Multicast storm protection
- VLANs (802.1Q and 802.1p) port based management
 - Tag/Re-Tag/Untag
 - Trunking (VLAN multiplexing)
 - Priority based queuing

Access Protocols

- PPP over Ethernet (RFC2516)
- IEEE 802.3

Authentication

- PAP/CHAP/MS-CHAPv1 and v2 authentication

Service Resiliency

- VRRP (RFC2338)

Management & Configuration

- Password Protected Access
 - 2 login levels + configurable privilege access right
 - AAA and local authentication
 - TACACS+
- Local Management
 - Console port
 - Extensive CLI
- Remote Management
 - CLI (internal Telnet Server)
 - HTTP (embedded WEB Server)
 - HTTPS (embedded Secure HTTP WEB Server)
 - SNMP Agent (v1, v2c, v3)
 - SSH
 - Syslog
 - Network Performance Monitor
 - Ping MIB
 - TR-069
- Firmware upgrades: Local and Remote (TFTP & FTP client embedded)

Synchronisation

- IEEE 1588 support (transparent clock mode) HW-based (factory set-up optional feature)

Ethernet OAM functionality

- Link Layer OAM (IEEE 802.3ah OAM)
- Service Layer OAM (IEEE 802.1ag)
- Connectivity Fault Management
- ITU-T Y.1731 Performance Monitoring

Environment

- Operating Temperature:
 - $-5^{\circ} \div 45^{\circ}\text{C}$ ($23^{\circ} \div 113^{\circ}\text{F}$)
- Non-Operating Temperature:
 - $-40^{\circ} \div 70^{\circ}\text{C}$ ($-40^{\circ} \div 158^{\circ}\text{F}$)
- Operating Humidity:
 - $10 \div 93\%$ (noncondensing)

Compliance & Approvals

- Storage:
 - ETSI EN 300 019-2-1 T 1.3
- Transportation:
 - ETSI EN 300 019-2-2 T 2.3
- Operating Conditions:
 - ETSI EN 300 019-2-3 T 3.2
- EMC:
 - EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3
- Protection: ITU-T K.21
- Safety: EN 60950-1

Power

- External power supply
- AC input voltage: 110-240 Vac
- AC input frequency: 50-60 Hz
- AC input current: 0.2 A