The G.SHDSL.bis ATM EFM Router is 2/4/8wires Ethernet Bridge/Router that complies with G.991.2 standards and has an built-in four port 10Base-T/100Base-TX auto-negotiation and auto-MDIX switch. The G.SHDSL.bis ATM EFM Router provides multi-rate 2-wire / 5.7Mbps or 4-wire / 11.4Mbps and 8-wire / 22.78Mbps payload rates over existing single or two pair copper wire. The G.SHDSL.bis ATM EFM Router is designed not only to optimize the service bit rate from central office to customer premises but also integrates high-end Bridging/Routing EFM bonding capabilities with advanced functions such as virtual server mapping and VPN pass through. The G.SHDSL.bis ATM EFM Router allows customers to leverage the latest in broadband technologies to meet their growing data communication needs. In bridge mode, the four switching ports may be configured for IEEE802.1Q VLAN or port based VLAN applications. The modem can be configured in either central or client mode providing a point-to-point solution.

### Features
- Supports Ethernet over ATM over SHDSL
- Full ATM protocol stack implementation over G.SHDSL.bis
- Adaptive rate installation maximizes data rate based on loop conditions
- Standard ITU G.991.2 (2004) supports improved reach, speed and interoperability compared to conventional G.SHDSL
- Supports point-to-point configurations
- Local management interface via console port
- Intuitive Web based management
- SNMP management with SNMPv1/v2 and MIB II
- Build-in advanced SPI firewall (Firewall routers)
- Efficient IP routing and transparent learning bridge to support broadband Internet services
- VPN pass-through for safeguarded connections
- DMZ host/Multi-DMZ/Multi-NAT, multiple PCs on a LAN with only one IP address
- PPPoA and PPPoE support user authentication with PAP/CHAP/MSCHAP
- Raw and time stamped statistics
- Supports firmware upgrade via web interface
- EFM (Ethernet in the First Mile) bonding per IEEE 802.3-2005;2/4-wire bonding for HDLC per G991.2

### Specifications

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Data Rate</td>
<td>Line Code: TC-PAM 16/32/4/128</td>
</tr>
<tr>
<td>N x 64 Kbps (N=3~89)</td>
<td>Max. 5.686Mbps (1-Pair)</td>
</tr>
<tr>
<td>Max 11.392Mbps (2-Pair)</td>
<td>Max. 22.78Mbps (4-Pair)</td>
</tr>
<tr>
<td>Max. 64 Kbps (N=3~239)</td>
<td>Using TC-PAM 64/128</td>
</tr>
<tr>
<td>Max. 15.296 Mbps (1-Pair)</td>
<td>Max. 30.592 Mbps (2-Pair)</td>
</tr>
<tr>
<td>Max. 61.184Mbps (4-Pair)</td>
<td>Impedance: 135 ohms</td>
</tr>
<tr>
<td>LAN RJ-45 x 4-Ports 10/100 Base-T Ethernet ports</td>
<td>Power (Green)</td>
</tr>
<tr>
<td>Serial Console</td>
<td>Push Button</td>
</tr>
<tr>
<td>Factory Default Reset LED</td>
<td>RS-232(Female) Connector</td>
</tr>
<tr>
<td>Power, (Green)</td>
<td>WAN: LINK/ACT (Green), one LED per pair</td>
</tr>
<tr>
<td>LAN (Port 1 ~ Port 4):</td>
<td>LINK/ACT (Green:100M, Orange:10M)</td>
</tr>
<tr>
<td>ALARM, (Red)</td>
<td></td>
</tr>
</tbody>
</table>

### SHDTU04bF-ET10RS

G.SHDSL.bis ATM EFM Router

ATM Support
- Multiple protocols over AALS (RFC1483) (Not support IPoA/PPPoA)
- Only 1 PVC

EFM Support
- EFM mode compliant to IEEE 802.3
- PPP over Ethernet (RFC2516)
- Support of OAMPDU information and functionality (ITU-TY.1731)
- VLAN base QOS (802.1P/Q), Priority Queue

Internet Access Sharing
- NAT (includes multi-to-multi NAT) / SUA, 8192 NAT sessions
- Port restricted cone NAT
- SIP ALG pass-through
- NAT server (Port forwarding)
- Multi-NAT
- Dynamic DNS
- DHCP server/client/relay

Security
- User Authentication (PAP, CHAP) with PPP (RFC 1334, RFC 1994)
- Microsoft CHAP
- Stateful packet inspection firewall
- Content filter
- Prevent Denial of service
- Access control of service
- Real-time attack alert and log

Network Management
- Web-based Configuration, Command-line interface
- Password-protected Telnet support
- SNMP MIB I/MIB II support
- Multi-NAT
- Port restricted cone NAT
- NAT (includes multi-to-multi NAT) / SUA, 8192 NAT sessions
- VLAN base QOS (802.1P/Q), Priority Queue

Routing/Bridge Support
- IP (RFC 791) routing is supported
- TCP UDP, ICMP, IGMP v1 and v2, ARP, RIP v1, RIP v2, OSPF, BGP-4
- Transparent bridging (IEEE 802.1D)
- PPP BCP (RFC 3185) support
- IGMP snooping

VPN
- IPSec VPN support, 10 VPN tunnels
- IKE/Manual Key, DES/3DES/AES Encryption
- MD5/SHA1 Authentication, FQDN
- MULTI NAT pass-through for IPSec, IPSec VPN keep-alive
- IPSec NAT Traversal
Diagnostics Capabilities
The router can perform self-diagnostic tests. These tests check the integrity of the following circuitry:
- FLASH memory
- SDSL circuitry
- RAM
- LAN port

Others
DNS Proxy
UNIX syslog
Each Ethernet port can be only tagged or only untagged
Application QoS
IPv6

Ordering Information

<table>
<thead>
<tr>
<th>Model/Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHDTU04bF-ET10RS</td>
<td>4-Port 10/100Base-TX ATM Bridge / Router w/Firewall (2-wire 5.7Mbps)</td>
</tr>
<tr>
<td>SHDTU04bAF-ET10RS</td>
<td>4-Port 10/100Base-TX ATM Bridge / Router w/Firewall (4-wire 11.4Mbps)</td>
</tr>
<tr>
<td>SHDTU04bCF-ET10RS</td>
<td>4-Port 10/100Base-TX ATM Bridge / Router w/Firewall (8-wire 22.78Mbps)</td>
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</tbody>
</table>