



Ultra Symmetric High Bandwidth with Port Bonding

- 1U-height Multi-service IP DSLAM, each Port Operates at Up to 5.69 Mbps
- 16 and 32 Trellis Coded Pulse Amplitude Modulation
- AC (100 V ~ 240 V) or DC (-36 V ~ -72 V)(*) Power Input
- STU-C or STU-R Mode with Different FW Download
- ATM-based Multi-paired Bonding Support (G.998.1); Bonding of Up to 8 ports at 45.6 Mbps is Supported



8-port G.SHDSL
IP DSLAM with AC/DC
Power Input

IES-708-22A
IES-708-22

Benefits

End-to-end Solution for Symmetric Bandwidth Services

With different firmware uploaded, the IES-708-22A/IES-708-22 can act as either a STU-C or a STU-R. The per-port line rate can be configured as 2.3 Mbps, 4.096 Mbps or 5.69 Mbps. When configured as a STU-C, the IES-708-22A/IES-708-22 can work with the P-791/P-792 to provide 2-wire G.SHDSL connections, work with the P-793 to provide 4-wire G.SHDSL connections, or work with another IES-708-22A/IES-708-22 (in STU-R mode) to provide 16-wire G.SHDSL connections. If configured as a STU-R, the IES-708-22A/IES-708-22 can work with various SLC line cards in the IES DSLAM portfolio.

Robust Ultra-high Bandwidth for Business Applications

With the ATM-based multi-paired bonding feature, the IES-708-22A/IES-708-22 supports up to 8 bonded groups and 8 member links in each group. All upper-layer traffics of a bonded group will be segmented and transmitted over the member links. If one of the member links fails, the conveyed traffic will be moved to other working links; when the failed link recovers, it will seamlessly return to the bonded group and share the transmission of the upper-layer traffic.

Within a bonded group, the underlying bit rates of the individual ports can be freely and independently changed by their respective PHY layer. The port-bonding feature not only provides higher symmetric bandwidth to subscribers, but also offers more reliable bandwidth pipes for business applications.

Different TCPAM for Lower Power Spectrum Density

The IES-708-22A/IES-708-22 supports 16-layer and 32-layer TCPAM modulations. Operators can select one of these in "auto" or "force" mode; the former determines the modulation by negotiating with the peer device, while the latter forces the use of configured modulation. In order to avoid the cross-line noise, many Telco operators restrict the power spectrum density for G.SHDSL service but allow the transmission rate of the links to increase. With the dual-modulation feature, the goal will be much easier to realize.

Sophisticated Features for Triple-Play Services

The IES-708-22A/IES-708-22 comes with complete ATM and Ethernet QoS, as well as various IP QoS features (Packet classification/Rate Limitation/Queue Scheduling). The seamless QoS-mapping not only allows consistent and appropriate traffic treatment of packets, but also enables fulfillment of triple-play services.

The number of the supported multicast groups is 256, while each group can have 9 members. At least 30 multicast IGMP join/leave requests can be processed in one second and the maximum channel processing time is less than 250 ms. For security, anti MAC address spoofing, broadcast storm prevention, MAC count limiting and packet filtering features are provided. Triple-play services like high-speed Internet access, VoIP, Near VOD, Broadcast TV and TV on Demand can be easily provided as well.

Specifications

Software Specifications

- Delivery of Ethernet in the first mile using legacy LAN technologies
- Support expandable configuration with device stacking
- SNMP v1, v2 manageable
- Web management
- FTP/TFTP for firmware upload
- Console port configuration (RS-232)
- Telnet configuration and monitoring
- Spanning tree algorithm (802.1D) for loop free connection
- 802.1Q VLAN aware bridging
 - IGMP snooping supports multicast traffic
 - QoS support with 802.1p
 - DHCP relay agent option 82
 - Port isolation
 - 256 static VLAN entries (full-range VLAN ID 1 ~ 4094)
 - 4 K MAC address entries
- Packet prioritizing per 802.1p (QoS)
 - Static configuration—default priority setting
 - 4 priority queues per PVC (up to 4 PVCs)
- Multicast
 - IPv4 multicast forwarding (through L2 MAC)
 - Static multicast membership configuration
 - IGMP v1, v2 snooping & IGMP proxy mode support
 - Shared VLAN multicast
 - 256 multicast groups and each group can contain 13 members
 - IGMP filtering profile
 - IGMP count limiting
 - MVLAN
 - DSL port multicast bandwidth control
- Management support
 - CLI-based management from console/ Ethernet port
 - SNMP v1, v2 and telnet through Inband Ethernet interface and NetAtlas Access, PC-based EMS management support
 - Web-based management through Inband Ethernet interface

- Secured Host: configure remote host IP addresses for management
- UNIX syslog
- F/W upgrade, configuration backup & restore via FTP and Web
- Text-based configuration file support
- Port configuration
- Alarm/Status Surveillance
- Performance monitoring
- Security and Memory Backup
- Self diagnostics
- Remote reset
- EMS Management support (*)
- MIB
 - SNMP MIB II (RFC1213)
 - SNMP v1
 - SNMP v2
 - RFC1493 Bridge MIB
 - RFC1643 Ethernet MIB
 - RFC1757 Four group of RMON
 - RFC2674
 - RFC4319 (formerly RFC3276) SHDSL Line MIB

Hardware Specifications

- Line coding: 16/32TC-PAM
- Transmit power: up to 13.5 dBm
- SHDSL payload format: ATM
- Rate Adaptation Mode: fixed, line probing
- Annex A and annex B PSD mask
- SHDSL line profile
- SHDSL alarm profile
- Power backoff
- ATM-based multi-paired bonding
- Standard Compliance
 - ETSI SDSL (ETSI TS 101 524 V 1.2.1)
 - ITU G.shdsl (ITU-T G.991.2 (2001))
 - ITU G.shdls.bis (ITU-T G.991.2 (2004))
 - ITU-T G.998.1

Physical Specifications

- 19" 1U rack mountable
- Dimensions: 270 (W) x 350 (D) x 44.45 (H) mm
- Weight: 4.8 Kg

- One Telco 50 connectors for 8-port G.SHDSL.bis
- One mini RJ11 console port for local management
- Two 100Base-TX for uplink/cascading
- Status LEDs- System Status, Ethernet Link Status, Ethernet Active Status, G.SHDSL.bis ports status, Alarm



Power Supply (AC/DC)

IES-708-22A

- AC Power: 100 ~ 240 VAC, 50 ~ 60 Hz

IES-708-22

- DC Power: -36 ~ -72 V DC (*)

Power Consumption

- 12.84 Watt (AC power)

Environmental Specifications

- Operating Temperature: 0°C ~ 50°C
- Storage Temperature: -20°C ~ 70°C
- Operating Humidity: 10% ~ 90% (non-condensing)
- Storage Humidity: 10% ~ 95% (non-condensing)

Certification

- RoHS
- Safety
 - UL 60950-1
 - CSA 60950-1
 - EN60950-1
 - IEC 60950-1
- EMC
 - FCC Part 15B Class A
 - EN55022 Class A
 - EN55024 Class A
 - ETSI 300 386
- Reliability
 - ETSI 300 019
- Telecom
 - ITU-T K20

(*) Firmware upgradeable for future enhancement



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