

DATASHEET

1651

10G Ethernet Access Device



The 1651 10G Ethernet Access Device provides CSPs with a service delivery platform for high-speed Ethernet services for enterprise customers and is applicable for both wholesale and retail scenarios. The demarcation version of the 1651 focuses on Ethernet service termination while the aggregation version is designed to aggregate multiple gigabit Ethernet connections into 10G. Scalable SLA monitoring functions provide the measuring tools to support managed MEF services and the implementation of various service activation tests can further reduce operational costs while deploying high-speed managed Ethernet services. Supporting both CLI and Netconf/ YANG as management interfaces, the 1651 provides a future-proof solution for managing Ethernet services in a next-generation orchestration environment while still providing familiar CLI-based operation of the device.

1651 Demarcation

The 1651 Demarcation version provides 2 SFP+ ports for WAN connectivity and 2 SFP+ ports for customer connectivity. Two additional GigE Combo ports are provided for additional Ethernet connections.

This device is positioned to provide cost-effective 10G demarcation for both wholesale and retail Ethernet service providers and comes as a desktop version with redundant external power supplies. Alternatively, the device is also available as a 19" rackmount version with dual internal hot-swappable and load-sharing power supplies.

1651 Aggregation

The Aggregation version provides 2 SFP+ ports for WAN connectivity, 2 SFP+ ports for subscriber connectivity and up to 12 customer facing GigE LAN ports (4x UTP, 4x SFP, 4x Combo).

This device is positioned to aggregate multiple GigE connections into a 10G uplink and comes as a rackmount 1U device with built-in redundant, hot-swappable and load-sharing power supplies.

Metro Ethernet Services

The 1651 supports delivery of Ethernet services like E-LINE, E-LAN, E-Tree, E-ACCESS and E-Transit.

OAM Monitoring

OAM monitoring of Ethernet data flows enables to monitor multiple quality parameters like service availability, Frame Delay, Inter Frame Delay Variation and Frame Loss. Some of these parameters are further processed internally to provide time-based statistics. Both point-to-point OAM monitoring (IEEE802.3ah) and end-to-end performance monitoring (IEEE802.1ag & ITU-T Y.1731) are supported on all Ethernet interfaces. Results can be retrieved in real time or can be further processed locally to provide statistical records based on 2h, 24h, 7 days or 1 month statistics. These processes can run in the background and can be retrieved when needed, avoiding the need to permanently keep track of thousands of parameters in a backoffice server.

Service Activation Testing

The 1651 10G EAD supports SAT testing based on RFC2544 or with the more advanced Y.1564 and implements both traffic generator and traffic reflector. After completing the test, a birth certificate in plain text is delivered by the system for local storage or for archiving purposes. The 1651 Demarcation desktop version supports SAT testing up to 1 Gbps while the 1651 rackmount versions supports SAT testing up to 10Gbps. SAT testing allows operators to provide an intrusive end-to-end test to verify that the offered service complies to the agreed SLA agreements. The ability to perform these tests without going on-site enables operators to install, turn on and modify services at minimal cost.

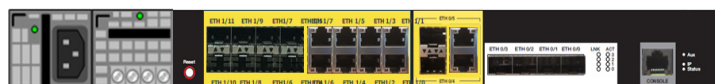
Technical Specifications



1651 10G Demarcation EAD (Desktop)



1651 10G Demarcation EAD (Rackmount)



1651 10G Aggregation EAD (Rackmount)

Ethernet Interfaces

- Model Demarcation Desktop (1651 4G+2Gb2T DT)
 - 4x SFP+, 2x GigE Combo (UTP or SFP)
- Model Demarcation Rackmount (1651 X4G+2Gb2T RM)
 - 4x SFP+, 2x GigE Combo (UTP or SFP)
- Model Aggregation Rackmount (1651 X4G+10Gb10T RM)
 - 4x SFP+ 6x GigE Combo (UTP or SFP), 4x GigE UTP, 4x GigE SFP
- SFP+ interfaces are dual rate (1/10Gbps)

Additional Interfaces

- Console: V.24/V.28 with RJ-45

Scalability

- Switching capacity: 50 Gbps
- Up to 768 EVCs
- 8K policers/shapers
- 32.000 MAC addresses
- Max MRU: 10.240 bytes

Ethernet Frame Handling

- Basic and extended L2 filtering
- BDPU filtering
- L2PT for tunnelling of L2 protocols
- Configurable Multicast Traffic Behaviour
- Port mirroring
- IGMP Snooping
- Configurable L2CP transparency
- IEEE802.3x Flow control

Layer 2 Protocols

- IEEE 802.1D Transparent Bridging
- IEEE 802.1D Spanning Tree Bridging
- IEEE 802.1W Rapid Spanning Tree Bridging
- IEEE 802.1S Multiple Spanning Tree Bridging

VLAN Support

- IEEE 802.1Q VLAN Tagging
- VLAN Switching
- Port-based VLANs
- QinQ (VLAN stacking up to 2 levels)
- IEEE802.1ad Provider Bridging (C-Tag, S-Tag)
- Policy-based Bridging

Tunnelling Mechanisms

- GRE tunnelling
- L2TPv2, v3 tunnelling
- VXLAN tunnelling (roadmap)

Quality of Support (QoS)

- IEEE 802.1p QoS
- Classification based on Source & Destination MAC Address, VLAN ID, priority bits, Protocol (EtherType), Port-based VLAN-ID
- Egress shaping
- Ingress Policing (three colour, two rate)
- Congestion Avoidance: RED, WRED
- Hierarchical QoS per EVC and EVC COS

OAM

- IEEE 802.3ah EFM-OAM Link Management
- IEEE 802.1ag Connectivity Fault Management (CFM)
- ITU-T Y.1731 Performance Monitoring
- Multi-COS OAM
- Link State Tracking and Notification to local link
- Dying Gasp (SNMP & Syslog)
- Ethernet Loopback with MAC Address Swapping
- TWAMP Light Reflector
- TWAMP Light Sender
- TWAMP full implementation

Technical Specifications

Backup & Redundancy

- G.8031 end-to-end linear protection based (1+1 unidirectional, 1+1 bidirectional, 1:1 bidirectional)
- G.8032 Ring Protection Switching (roadmap)
- IEEE802.3ad Link Aggregation (LAG, active/standby mode or load balancing)
- IEEE802.1AX Link Aggregation Control Protocol (LACP)

SAT (Service Activation Testing)

- Embedded RFC2544 test generator and analyzer
- ITU-T Y.1564 Service Activation Testing
- Up to 1Gbps for Demarcation desktop version, 10 Gbps for both Aggregation & Demarcation rackmount versions

Security

- IEEE802.1x Port Authentication
- BDPU Guard

Management

- CLI over console port, Telnet, SSHv2
- Multi-user, protocol-dependent and multi-level access security
- User Authentication: Local, Radius or TACACS+
- Selective enable/disable management protocols
- SNMP v1, v2, v3, MIB II + proprietary MIB
- SNMP traps
- Netconf/YANG
- CWMP (TR-069) with Zero-Touch provisioning
- DHCP-based provisioning
- Syslog, Ping, NTP/SNTP Server, TraceRoute
- TFTP Client, FTP Client, SFTP Client, SCP Server, HTTP/HTTPs Client (configuration or software download)
- Inbound or outbound Access Lists on Management Traffic
- Two firmware images can be stored in flash memory
- Timed Statistics 15', 2h, 24h (Interface related)
- Inbound & Outbound bandwidth usage
- Embedded Event Manager
- Packet Capturing with Filters to console port, file or remote server
- Automated provisioning and software management with OneManage
- Backward compatible with TMA EMS

Dimensions & Environmental

- 1651 Demarcation desktop:
 - WxHxD: 360 x 44 x 221 mm (14.17" x 1.73" x 8.7")
 - Weight: 3Kg (6.61 lbs)
 - Rack mount kit is available
- 1651 Rackmount (both Aggregation and Demarcation versions):
 - WxHxD: 440 x 44 x 240mm (17.32" x 1.73" x 9.45")
 - Weight: 4.5 Kg (9.92 lbs)
 - Rack mountable in 19" Rack
- Operating temperature: 0 – 45°C (32°F – 113°F)
- Humidity: 5 – 90% non-condensing

Power Supply

- 1651 Demarcation Desktop:
 - 2 external power adapters for power redundancy and load sharing (12V, 5A, 60W each)
- 1651 Rackmount (Demarcation & Aggregation versions)
 - 2 internal redundant hot swappable Power Supplies supporting load sharing (2 x 60W)
- Internal AC PSU: Voltage range: 90 – 264 VAC, 50/60Hz
- Internal DC Internal PSU: Voltage range: 24/48 VDC (optional item)

Versions and Standard Codes

- 71688 1651 4G+2Gb2T DT: Demarcation desktop
- 71690 1651 X4G+2GBT RM: Demarcation rackmount
- 71797 1651 X4G+10GB10T RM: Aggregation rackmount

About



Ekinops is a leading provider of open and fully interoperable Layer 1, 2 and 3 solutions to service providers around the world. Our programmable and highly scalable solutions enable the fast, flexible and cost-effective deployment of new services for both high-speed, high-capacity optical transport networks and virtualization-enabled managed enterprise services

Our product portfolio consists of three highly complementary product and service sets: Ekinops360, OneAccess and Compose.

- Ekinops360 provides optical transport solutions for metro, regional and long-distance networks with WDM for high-capacity point-to-point, ring and optical mesh architectures, and OTN for improved bandwidth utilization and efficient multi-service aggregation.
- OneAccess offers a wide choice of physical and virtualized deployment options for Layer 2 and Layer 3 access network functions.
- Compose supports service providers in making their networks software-defined with a variety of software management tools and services, including the scalable SD-WAN Xpress.

As service providers embrace SDN and NFV deployment models, Ekinops enables future-proofed deployment today, enabling operators to seamlessly migrate to an open, virtualized delivery model at a time of their choosing.

A global organization, with operations in 4 continents; Ekinops (EKI) - a public company traded on the Euronext Paris exchange - is headquartered in Lannion, France, and Ekinops Corp., a wholly-owned subsidiary, is incorporated in the USA.

