

LSM1300 Datasheet

In the face of increasing demands for high bandwidth and multi-play services, operators have to make a balance between economy and mass roll-out. How to smoothly evolve from FTTC, FTTB and FTTCab to FTTH is a challenge in front of telcos nowadays. Operators are considering building a PON network that is green, future-proof and saves TCO.

Linkstar's LSM1300, the world's first future-proof and largest capability optical access platform, is developed with mass optical access roll-out as well as economy in mind. Its powerful functions and high performance make mass FTTx roll-out easier than ever before.



Key Features

- Unified platform for GPON/EPON/10G EPON/XGPON1 and P2P
- Large capacity and high density: meet operators' requirements for mass optical access roll-out
- Future-proof: support NG-PON, like 10G EPON, XGPON1, TWDM PON
- Abundant service support capability: IPTV, VoIP, HSI, VPN, mobile backhaul, etc
- Diverse interfaces: besides P2MP, P2P and TDM interfaces can also be provided for business and residential application
- Enhanced multicast function: meets mass IPTV roll-out
- Higher security assurance: ONT authentication, user ID identification, port isolation, address binding, packet filtering, and broadcast packet limitation.
- Service differentiation: Comprehensive QoS mechanisms for voice, video and high speed Internet services.
- Flexible networking topologies: Various uplink interface and subtending interface
- High reliability: key parts redundancy; support Type B and Type C protection for PON downlink and LACP/STP/RSTP/MSTP for uplink

Technical Specifications

■ System Architecture

- Chassis Configuration (21")
 - Total 23 slots
 - 16 slots for universal line cards
 - 2 slots for switch & control cards
 - 2 slots for power cards
 - 2 slots for uplink and cascading interfaces
 - 1 slot for environment monitoring card
- Chassis Configuration (19")
 - Total 21 slots
 - 14 slots for universal line cards
 - 2 slots for switch& control cards
 - 2 slots for power cards
 - 2 slots for uplink and cascading interfaces
 - 1 slot for environment monitoring card

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- Subscriber Card Density
 - GPON card: 8/16 ports per card
 - EPON card: 8/16 ports per card
 - P2P card: 24/48 ports per card
 - 10G EPON card: 4/8 ports per card
- Uplink interface card
 - 4*10GE uplink per card
 - 2*10GE+2*GE uplink per card
 - 4*GE uplink per card
 - 1*STM-4/OC12 or 2*STM-1/OC3 TDM uplink per card
 - 32* E1/T1 uplink card (balanced and unbalanced)
- Environment monitoring card
 - 2 * Hz/Bit external clock interfaces
 - 5 * Environment monitoring interfaces

■ PON Features

- EPON compliant with IEEE 802.3ah
- GPON compliant with ITU G.984.x
- 10GEPON compliant with IEEE 802.3av
- Support up to 1:128 optical split ratio for GPON, 1:64 optical split ratio for EPON and 1:256 optical split ratio for 10G EPON
- Support OLS (Optical Laser Supervising)
- Physical reach: 20~60km
- Highly-efficient DBA: NSR-DBA, SR-DBA
- 1PPS+TOD
- Transceiver power: Class B+ or class C+
- Type B and type C optical link protection
- FEC
- AES128
- SCB

■ L2/L3 Features

- 4K VLAN
- 1:1/N:1 VLAN
- 802.1ad, SVLAN, Selective QinQ, VLAN stacking
- Line-speed forwarding
- STP/RSTP/MSTP compliant with IEEE 802.1d/802.1w/802.1s
- Link aggregation IEEE 802.3ad
- DHCP server, DHCP Relay (option 60/82), DHCP proxy
- L3 routing:
 - Statistic routing
 - OSPF v2, BGP
- RMON II
- Multicast – IPTV
 - 1K Multicast groups
 - IGMP Snooping and proxy (v1/v2/v3)
 - MVLAN: 256 Multicast VLAN
 - Channel Access Control (CAC), Preview (PRV) and Call Detail Record (CDR) for IPTV
 - Less than 50ms channel zapping delay
- QoS
 - 8 queues per port
 - Queue & scheduling mechanism: SP, DWRR, SP+DWRR
 - IPv4 DSCP Diffserv
 - Stream classification, rate limiting, shaping and priority setting



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- Traffic statistics
- Service based rate limit
- WRED and triple color
- SLA: CIR, PIR, EIR, MBS
- Security
 - L2- L4 ACL
 - IEEE 802.1x subscriber authentication
 - IP and MAC source guard
 - Resistance against DOS attacks
 - MAC/IP anti-spoofing (MAC binding, IP binding, DHCP snooping)
 - Anti-flooding: broadcast packet suppression, IGMP packet suppression, DHCP packet suppression
 - MAC address number limit based on VLAN or GEM-port
 - Port mirroring
 - User port identification such as PPPOE+ and DHCP Option 82

■ O&M

- Operator security, Multi-privileged operator, SSH v1/v2, FTP/TFTP, ACL
- Management protocol and interface: CLI, Telnet ,SNMP V1/V2C/V3, MIBII
- Remote firmware download and upgrade
- Environment monitoring, control and alarm
- Performance statistics
- Over-heat protection

■ Environment

- Operating temperature: -5 °C ~ +45 °C
- Operating humidity: 5% ~ 95%, non-condensing

■ Power Supply

- Working voltage: -48 V (±20%) or 220V AC (±20%, 50Hz)

■ Dimensions

- 449.2mm (H) * 535mm (W) * 270mm (D) (21 inch shelf)
- 443.7mm (H) * 482.6mm (W) * 270mm (D) (19 inch shelf)
- 2200 mm (H) x 600 mm (W) x 300 mm ((D) (Rack)

■ Weight

- 60kg (Empty rack for 19inch and 21 inch)
- 175kg (19 inch rack)
- 183kg (21 inch Rack)

■ Power Consumption (in full configuration)

- GPON
 - : <1100 W (21inch with 16-ports PON card , <780W (21 inch with 8-ports PON card)
 - : <985 W (19inch with 16-ports PON card) , <705W (19inch with 8-ports PON card)
- EPON
 - : <1110 W (21inch with 16-ports PON card) , <750W (21inch with 8-ports PON card)
 - : <1000W (19inch with 16-ports PON card) , <685W (19inch with 8-ports PON card)
- 10G EPON
 - : 1450W (21 inch rack')
 - : 1290W (19 inch rack')



LSM1320 Datasheet

With the requirements of communication services increasing, the value-added services (VAS) including 3D network games, video conference/phone, Video on Demand (VoD) and IPTV are key means for operators to provide differential services to attract more subscribers, and gain income growth.

Linkstar's LSM-1-320, a small size, full-service optical access convergent platform, provides carrier class QoS and reliable network to meet the requirements for small-scale implementation of FTTx services.



Key Features

- Unified platform for GPON,EPON
- Small size and compact design, flexible network and fast deployment
- 2U frame with 2 service slots, compatible with LSM-1-300 line cards
- Abundant service support capability: IPTV, VoIP, HSI, VPN, mobile backhaul, etc
- Higher security assurance: ONT authentication, user ID identification, port isolation, address binding, packet filtering, and broadcast packet suppression.
- High reliability: key parts redundancy; support Type B and Type C protection for PON downlink and LACP/UAPS/STP/RSTP/MSTP for uplink
- Service differentiation: Comprehensive QoS mechanisms for voice, video and high speed Internet services.
- Support DC input redundancy
- Support AC power supply
- Support 1:1 protection for PON interfaces
- Support 1:1 protection for SW (core card) card
- Support Synchronous Ethernet

Technical Specifications

■ System Architecture

- Capacity
 - GPON up to 16 ports
 - EPON up to 16 ports
 - Uplink interfaces up to 4 *GE (Optical)+2*GE(Electronic) or 2*10GE(Optical)+2*GE(Optical)+2*GE(Electronic)
- Chassis Configuration (19")
 - Total 5 slots
 - 2 slots for universal line cards
 - 2 slots for switch& control cards
 - 1 slot for fan module
- Subscriber Card Density
 - GPON card: 8/16 ports per card
 - EPON card: 8/16 ports per card
 - GE card: 8 ports per card

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- Uplink interface card
 - 1*10GE optical port (Configurable 1*GE optical port)
 - 1*GE optical port
 - 1*10 M/100 M/1000 M electrical Ethernet port
- Common interfaces
 - 1*environment monitoring interface
 - 1*management interface
 - 1*maintenance serial interface

■ PON Features

- EPON compliant with IEEE 802.3ah
- GPON compliant with ITU G.984.x
- Support 1:64 optical split ratio for GPON/EPON
- Support OLS (Optical Laser Supervising)
- Max logical reach: 60km
- Max physical reach: 20km
- Max link difference: 20km
- High-efficient DBA: NSR-DBA,SR-DBA
- Synchronous Ethernet
- Transceiver power budget: Class B+ or class C+
- Type B and type C optical uplink protection
- Support FEC
- Support AES128
- Support SCB
- Support 1550nm for third party CATV broadcasting

■ L2/L3 Features

- 4K VLAN
- 1:1/N:1 VLAN
- 802.1ad, SVLAN, Selective QinQ, VLAN stacking
- Line-rate forwarding
- STP/RSTP/MSTP compliant to IEEE 802.1d/802.1w/802.1s
- UAPS/EAPS/LACP protection
- Link aggregation IEEE 802.3ad
- L3 routing:
 - 12K IPv4 routing forwarding entries
 - Statistic routing
- Multicast – IPTV
 - 1K Multicast groups
 - IGMP Snooping and proxy (v1/v2/3)
 - MVLAN: 256
 - Channel Access Control (CAC), Preview (PRV) and Call Detail Record (CDR) for IPTV
 - Less than 50ms channel zapping delay
- QoS
 - 8 queues per port
 - Queue & scheduling mechanism: SP, DWRR, SP+DWRR
 - IPv4 DSCP Diffserv
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■ Security

- L2- L4 ACL
- IP and MAC source guard
- Resistance against DOS attacks
- MAC/IP anti-spoofing (MAC binding, IP binding, DHCP snooping)
- Anti-flooding: broadcast packet suppression, IGMP packet suppression, DHCP packet suppression
- MAC address number limit based on VLAN or GEM-port
- Port mirroring
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■ O&M

- Operator security, Multi-privileged operator, SSH v1/v2, FTP/TFTP, ACL
- Management protocol and interface: CLI, Telnet ,SNMP V1/V2C/V3, MIBII
- Remote firmware download and upgrade
- Environment monitoring, control and alarm

■ Environment

- Operating temperature: --40° C ~65° C
- Operating humidity: 5% ~ 95%
- Air pressure: 70 kPa - 106 kPa

■ Power Supply

- DC: -48V+/-20%, -60V+/-20%;
- AC: 100V~240V

■ Dimensions

- 86.1mm (H) * 482.6mm (W) * 270mm (D) (19 inch shelf)
- 2200 mm (H) x 600 mm (W) x 300 mm ((D) (Rack)
- 1035 mm(H) x 770 mm(W) x 460 mm(D) (Outdoor Cabinet)

■ Weight

- LSM-1-320 shelf (Full) : 7kg
- 19 inch rack(Full) :74kg
- Outdoor cabinet(Full): 76kg

■ Power Consumption

- GPON: <190 W (with 16-ports PON card) , <150W (with 8-ports PON card)
- EPON: <190 W (with 16-ports PON card) , <145W(with 8-ports PON card)



LSM-2620 Datasheet

LSM-2620 is a GPON Optical Network Terminal designed for SFU (Single Family Unit) used in FTTH scenario. It provides subscriber with rich, colorful, individualized, convenient and comfortable triple-play services including voice, video (IPTV) and high speed internet access. It has a small, smart appearance and green, energy-saving advantage.

It provides a GPON interface to connect OLT with an ODN. It offers a new choice for operators to deliver FTTH access.



Interface Function

- Optical port (line terminal):
 - 1 * GPON interface (SC/APC)
- User network interface:
 - 4 * GE interfaces OR 1 GE + 3 * FE interfaces
 - Auto MDI/MDIX
 - 2 * POTS (VoIP) interfaces

Transmission Rate

- Line terminal: 2.488Gbps downstream and 1.244Gbps upstream
- User side interface: 10/100/1000Mbps auto-negotiation

Transmission Distance

- Link distance: 0 ~ 20km max.

Transmission Wavelength

- Receiving: 1,490 nm
- Transmitting: 1,310 nm

Receiving Sensitivity

- Data: Better than -28dBm

Transmitting Optical Power

- 0.5~5dBm

Overload Optical Power

- -8dBm

Physical Performance

- Power consumption: <8W
- Dimensions: 35mm (H) * 199 mm (W) * 150 mm (D)
- Working temperature: -5°C ~ 45°C
- Working humidity: 5% ~ 95%
- Weight: 332g
- Power supply: 12 V DC
- Mounting mode: Desktop/Cabinet/Wall mounting
- Backup battery: 3AH/6AH (Optional)

Service Function

- Service: VoIP, Internet, IPTV
- 802.1Q, 802.1P, 802.1ad and QoS policy
- IGMP snooping and controllable multicast
- Loop back detection
- Auto event alarm
- Security management
- Remote management
- Dying Gasp
- Optical power detection
- SIP/H.248
- G.711a/G.711u/G.723/G.729, T.30/T.38
- Up to 8 T-CONTs and 32 GEM Ports



LSM-2660 Datasheet

LSM-2660 is a GPON Optical Network Terminal designed for HGU (Home Gateway Unit) used in FTTH scenario, which supports L3 function to help subscriber construct intelligent home network. It provides subscriber with rich, colorful, individualized, convenient and comfortable triple-play services including voice, video (IPTV) and high speed internet access.

LSM-2660 provides a GPON interface to connect OLT with an ODN. It offers a new choice for operators to deliver FTTH access.



Interface Function

- Optical port (line terminal):
 - 1 * GPON interface (SC/APC)
- User network interface:
 - 4 * GE interfaces OR
1 GE + 3 * FE interfaces
 - Auto MDI/MDIX
 - 2 * POTS (VoIP) interfaces
 - 1 * Wi-Fi interface
 - 1 * USB host interface

Transmission Rate

- Line terminal: 2.488Gbps downstream and 1.244Gbps upstream
- User side interface: 10/100/1000Mbps auto-negotiation
- Wi-Fi interface
 - IEEE 802.11b/g/n

Transmission Distance

- Link distance: 0 ~ 20km max.

Transmission Wavelength

- Receiving: 1,490 nm
- Transmitting: 1,310 nm

Receiving Sensitivity

- Data: Better than -28dBm

Transmitting Optical Power

- 0.5~5dBm

Overload Optical Power

- -8 dBm

Physical Performance

- Power consumption: <11W
- Dimensions: 35mm (H) * 199 mm (W) * 150 mm (D)
- Working temperature: -5°C ~ 45°C
- Working humidity: 5% ~ 95%
- Weight: 380g
- Power supply: 12 V DC
- Mounting mode: Desktop/Cabinet/Wall mounting
- Backup battery: 3AH/6AH (Optional)

Service Function

- Service: VoIP, Internet, IPTV, Wi-Fi
- 802.1Q, 802.1P, 802.1ad and QoS policy
- IGMP snooping and controllable multicast
- Loop back function
- Auto event alarm
- Security management
- Remote management
- Dying Gasp
- Optical power detection
- Support TR069
- SIP/H.248
- G.711 /G.722 /G.723 /G.729 codec, T.30/T.38 FAX
- Up to 8 T-CONTs and 32 GEM Ports
- Support WPS
- Support DHCP server
- DoS protection
- USB Local Backup