

R&S®SITLINE ETH-XL

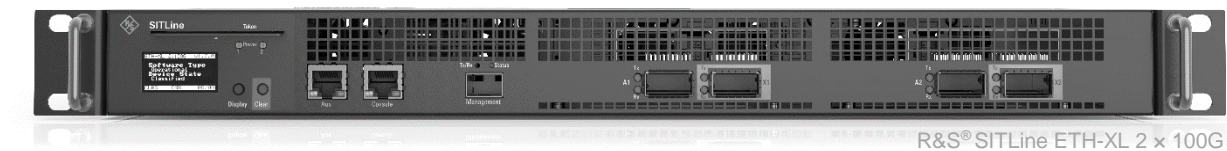
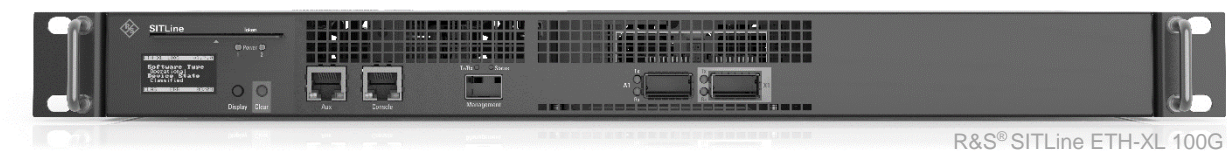
ETHERNET- ENCRYPTOR

Specifications

R&S®SITLine ETH-XL is an Ethernet encryption device that secures the confidentiality and integrity of data that is exchanged over Ethernet services. Depending on the product variant, the high-quality, cutting-edge encryption uses the entire line bandwidth of up to 2 independent 100-Gbit/s lines in full-duplex mode regardless of the package size being transferred. In combination with the low latency, the device is integrated into the data network without any significant compromise to the network functionalities and performance.

Device variants

R&S®SITLine ETH-XL 100G	Port Line Speed	100 Gbit/s
	Number of lines	1
	Number of data ports	2
R&S®SITLine ETH-XL 2 x 100G	Port Line Speed	100 Gbit/s
	Number of lines	2
	Number of data ports	4



Data sheet | Version 01.00

ROHDE & SCHWARZ

Make ideas real



General data

Installation		
Form factor	Rack	19"
	W x H x D	1 RU 435 mm x 44 mm x 540 mm
Mounting	Mounting brackets for the rack in two sizes, max. distance of the mounting rails	Mounting depth from 600 to 820 mm, Mounting depth from 360 to 600 mm (optional)
Weight		9,7 kg ETH-XL 100G 10,0 kg ETH-XL 2 x 100G
Power supply		
AC power supply units		2 modules, replaceable during operation / hot-swappable
Input voltage		110 – 240 V AC, 50/60 Hz
Power consumption	On the AC power socket	Max. 100 W ETH-XL 100G Max. 150 W ETH-XL 2 x 100G
Battery	Type	ER14505, Lithium
	Voltage	3,6 V
	Durability	5 years, replaceable during operation
Climatic and environmental conditions		
Ambient temperature	Storage	-20 °C bis +70 °C
	Operating temperature	+5 °C bis +40 °C
Humidity	Without condensation	Up to 90 % relative
Air pressure	Transport	Min. 566 hPa (corresponds to approx. 4,500 m above sea level)
	Operation	Min. 795 hPa (corresponds to approx. 2,000 m above sea level)
Heat loss	Maximum	Approx. 342 BTU/h variant ETH-XL 100G Approx. 512 BTU/h variant ETH-XL 2 x 100G
Ventilation	Air flow	From front to back (cold aisle compatible)
	Fans	2 cartridges, replaceable during operation
Reliability		
MTBF	In accordance with SN 29500 at 25 °C	78.000 h variant ETH-XL 100G
Device without additional components		68.000 h variant ETH-XL 2 x 100G

Network

Data ports		
Number of data ports	Data lines (2 ports for each line)	QSFP28-Ports: – „A1“ private/unencrypted – „X1“ public/encrypted t – „A2“ private/unencrypted only for variant ETH-XL 100G – „X2“ public/encrypted only for variant ETH-XL 2 x 100G
Data rates	Line rate	100 Gbit/s Full Duplex
Frame type	Ethernet (IEEE Frame, DIX Ethernet II)	IEEE802.3, Ethernet II
Ethernet MTU	IEEE Frame	1.518/1.522 Byte
	DIX Ethernet II	9.216 Byte
Media types	Transceiver QSFP28	100GBASE-SR4 100GBASE-LR4 100GBASE-IR4
FEC support		Yes
VLAN support	VLAN, Q in Q	802.1Q, 802.1ad, 802.1ah
WAN-services		
Port-based	In accordance with MEF	EPL, EP-LAN, Dark Fiber
VLAN-based	In accordance with MEF	EVPL, EVP-LAN, Dark Fiber
Frame processing		
Transfer mode		FPGA based Cut-through
Latency	Frame size	
	64 Byte	max. 3 µs
	1.518 Byte	max. 3 µs
	9.198 Byte	max. 4 µs

Frame filter	Configurable controlled bypass	IEEE Layer 2 Control Protocols Cisco Layer 2 Control Protocols Precision Time Protocol
--------------	--------------------------------	--

Cryptography and security

Operational mode		
Standard	Full Ethernet payload including ET field encrypted	For all network services (P2P/EPL/EVPL, P2MP, MP2MP, EPLAN/EVPLAN)
Ethernet tunnel	New Ethernet frame, full original frame encrypted	Only for point-to-point services (P2P/EPL/EVPL, P2MP)
Secured connections		
Number of secure associations		Up to 1.000 session keys at the same time
Connection establishment		Automatic
Key assignment	Configurable	Port or first VLAN tag
Encryption offset	Configurable	Up to 3 VLAN tags
Symmetric cryptography		
Algorithm		AES
Block length		256 Bit
Mode		GCM
Integrity protection	Configurable	0 Byte (off), 8 Byte, 12 Byte, 16 Byte
Replay protection	Configurable	<ul style="list-style-type: none"> Replay protection per port/VLAN and per service class (PCP value) Replay window of size 8
Key agreement		
Protocol		Authenticated Diffie-Hellman ECKAS-DH
Authentication		ECGDSA
Key lifetime		
Master Key	Automatic key renewal without interrupting the connection	10 – 65.535 s (Standard 36.000 s)
Session Key	Automatic key renewal without interrupting the connection	1 – 32.767 s (Standard 180 s)
Authentication/ signatures		
Device certificate		X.509
	Certificate storage	Secure on smart card
	Certificate change	Online without interruption Offline/manually with interruption
Asymmetric cryptography		ECC (ANSI X9.62, ECDSA/ECGDSA)
	Key length	<ul style="list-style-type: none"> 384 Bit ECC for authenticating security connections to partner devices 512 Bit ECC (Brainpool) for authenticating TLS connections to the Management Server
	Hash algorithm	<ul style="list-style-type: none"> SHA-384 for authenticating security connections to partner devices SHA-512 for authenticating TLS connections to the Management Server
Connections to the security management		
Management connection		TLS 1.2
Remote management connection		TLS 1.2 and management transport channel (secured connection between primary and secondary device)
Additional functions		
Device security	Secure boot	Only firmware signed by the manufacturer
	Protection against manipulation (tamper resistance)	Tamper security module
	„Clear“	Button on the front of the device, resets it to the delivery state
	Hardware Monitoring	Built-in test during booting and operation, temperature, fan operation

Device management

Management ports		
Number of ports		1 × SFP-Port Management for – Out-of-band-management
Media types		– 1000BASE-SX – 10/100/1000BASE-T
Aux-Port		
Number of ports		1 × RJ-45 Port „AUX“ for – constructional preparation for QKD
Media Types		– 10/100/1000BASE-T
Local management		
Number of ports		1 × RJ-45 Port „Console“ for – SSH – HTTP; for Log export und local Firmware update
Media types		– 10/100/1000BASE-T
Remote/ Online management		
VLAN support		IEEE 802.1Q
Supported IP versions		IPv4, IPv6
		Static IP address
Access	Out-of-band	Local management port
	In-band	Red data ports „A1“, („A2“ for variant ETH-XL 2 × 100G)
	Remote management via primary device	Black data ports „X1“, („X2“ for variant ETH-XL 2 × 100G)
Card reader		
Format	Contact smart card	ID-1 (ISO 7816-2)
Security management		
Managing and monitoring network parameters		
Protocol		Proprietary
Management-Station		R&S®Trusted Objects Manager NE
Security anchor		Smart card, secure configuration memory
Managing and monitoring network parameters		
Protocol	SNMP	v2c, v3
Supported MIBs	Standard	SNMP MIB (RFC 3418), Interfaces Group MIB (RFC 2863), Ethernet-like Interfaces MIB (RFC 3635), MAU MIB (RFC 4836)
	Company-specific	SITLine-II MIB

Approvals and certificates

Safety		LVD 2014/35/EU: EN 62368-1:2014+AC:2015
EMV		EMCD 2014/30/EU: EN 55032:2015+A11:2020 (Class A), EN 55035:2017+A11:2020, EN61000-3-2:2014, EN61000-3-3:2013
Security approvals	National	VS – NUR FÜR DEN DIENSTGEBRAUCH
	NATO	NATO RESTRICTED (NR)
	EU	RESTREINT UE/EU RESTRICTED

Rohde & Schwarz Cybersecurity GmbH
Muehldorfstrasse 15 | 81671 Munich, Germany
Info: +49 30 65884-222
Email: cybersecurity@rohde-schwarz.com
www.rohde-schwarz.com/cybersecurity

Rohde & Schwarz GmbH & Co. KG
www.rohde-schwarz.com

Certified Quality Management
ISO 9001

R&S® is a registered trademark of Rohde & Schwarz GmbH & Co. KG
Trade names are trademarks of the owners
Data without tolerance limits is not binding | Subject to change
PD 3608.9760.22 | Version 01.00 | December 2023 (NP)
R&S®SITLine ETH-XL Ethernet-Encryptor
© 2023 Rohde & Schwarz Cybersecurity GmbH | 81671 Munich, Germany