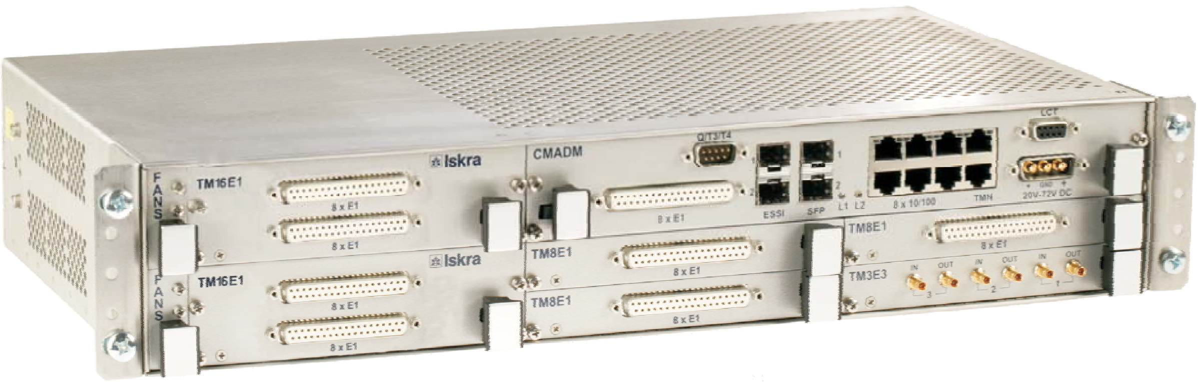
Iskra
Iskra Sistemi

SparkLight
ADM-1/4

Spark Light ADM-1/4
Next Generation SDH
Add/Drop Multiplexer



Compact, high-density next generation SDH access multiplexer that enables service providers to offer subscribers reliable, high performance, high-speed communications services such as LAN interconnection, Internet access, voice & data services, etc.

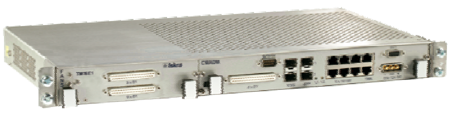
SPARKLIGHT
optical transmission system

Introduction

SparkLight ADM-1/4 is a compact, powerful and user-friendly device for providing PDH (E1, E3), SDH (STM-1, STM-4) and Ethernet (FE, GbE) over SDH networks.

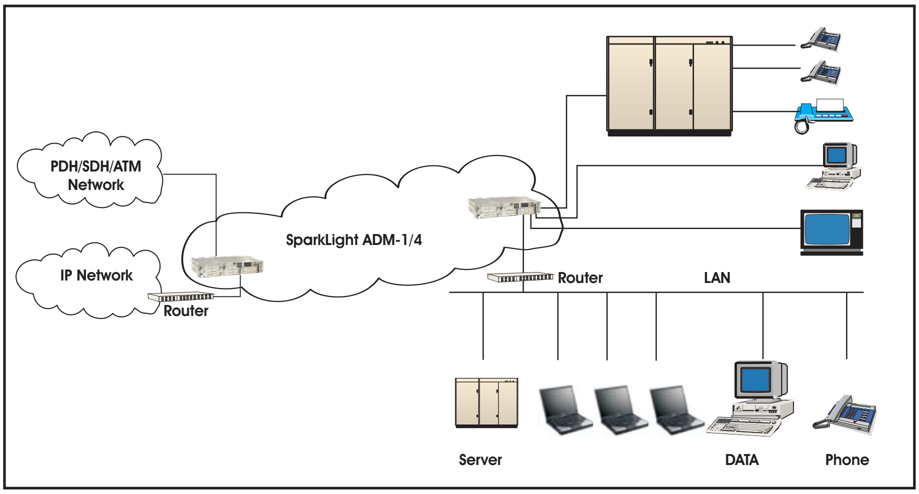
SparkLight ADM-1/4 2U

Integrated Ethernet L2 switch enables point-to-point and point-to-multipoint LAN traffic with many possibilities for traffic protection (on SDH or L2 switch level). The management system with Java Web Start user interface, SNMP agent and OSPF router is built into the device. No additional equipment except a standard PC with built-in web browser is needed to set up the telemanagement system.



SparkLight ADM-1/4 1U

Used as an add/drop multiplexer on the SDH ring (or as a terminal multiplexer at the remote site), the SparkLight ADM-1/4 improves Ethernet bandwidth efficiency via GFP, VCAT and LCAS protocols, and also supports TDM mapping for termination at any point in the SDH network.



Various tributary interfaces on central module, many optional tributary modules, and a high capacity cross-connect matrix capacity with stacking connectivity gives an opportunity to set up flexible and effective multi-service communication node.

SparkLight ADM-1/4 is ideally suited for next generation IP services coexisting with legacy voice and TDM private line services in public telecommunications networks as well as in large corporations networks like: railways, oil/gas distribution companies, telecommunications along highways, government and private organizations.

Benefits

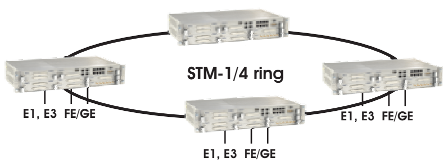
- Provides revenue-generating next generation Ethernet services while preserving investiments in legacy SDH networks.
- Optimized bandwidth utilization for Ethernet services using GFP, VCAT, LCAS functionality.
- Effective management integration using Java Web Start GUI and SNMP protocol transported by an embedded IP/OSPF telemanagement network.
- Integrated optical/electrical and microwave radio SDH lines in the same device.
- SFP modules for up to 120 km.
- By stacking more ADM devices with ESSI interfaces a STM-1/4 non-blocking crossconnect node could be set up with no additional hardware.
- Easy migration from TDM to IP.
- Combination of TDM and IP traffic.
- Low OPEX/CAPEX.

Features

- Compact 1U/2U high19/ETSI compatible device.
- 32xSTM-1 equivalent CC capacity.
- Up to 2xSTM-1/4 electrical/optical line interfaces on the central module.
- Up to 2xSTM-1 microwave radio line interfaces.
- Up to 72xE1 interfaces. 8xE1 on the central module.
- Up to 3xE3 interfaces.
- 6xFE interfaces on the central module.
- 8xGFP mappers for P2P FE connections
- 1xGE interface on the central module.
- Up to 2xESSI interfaces for equipment CC stacking.
- GFP, VCAT, LCAS and embedded L2 switch for EoS.
- Supported many different radio and SDH protection mechanisms.
- Java Web Start and SNMP based integrated management.
- xWDM ready.

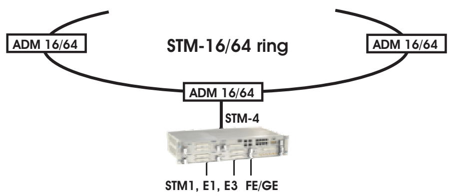
Aplication

SDH STM-1/4 ring



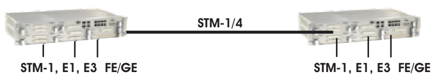
Ring is the most effective SDH topology. Only 1U high chassis equipped only with central module CMADM is needed for ADM STM-4 node with up to 8xE1 and 6xFE/1xGE tributary ports.

Access to backbone SDH STM-1 16/64 network



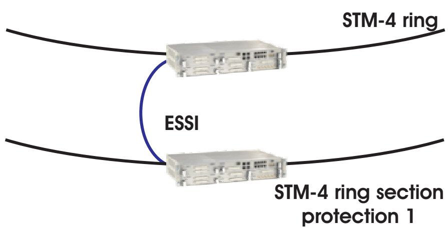
SparkLight ADM-1/4 is an ideal solution for remote locations connecting to optical backbone network. Different combinations of STM-1, E1, E3, FE/GE tributary signals are possible.

E1, E3, FE, GE, STM-1 PTP connections



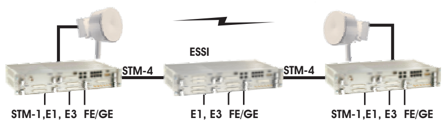
SparkLight ADM 1/4 gives many possibilities for point-to-point connections.

Card & section protection



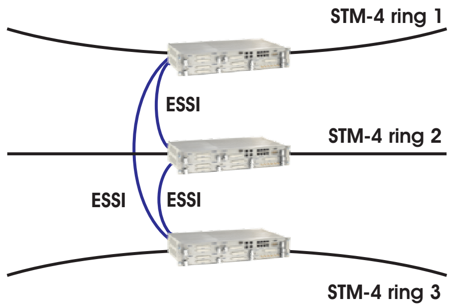
By stacking of several SparkLight ADM-1/4 devices effective central module card protection and the optical line section protection could be achieved.

Microwave radio STM-1 protection of SDH optical network



Only one additional RM module, an outdoor unit for required radio frequency band and an antenna are needed to establish SDH STM-1 protection of an optical network.

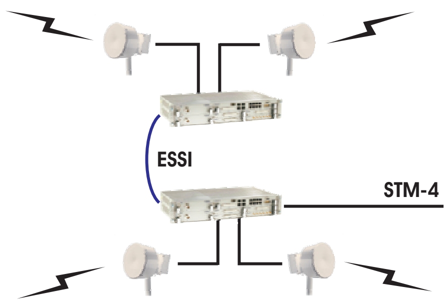
SDH STM-4 rings interconnection



By using of ESSI (Extended Serial SONET/SDH Interface) stacking of more SparkLight ADM-1/4 nodes is enabled.

Thus non-blocking crossconnect functionality for up to 6 STM-4 signals is achieved.

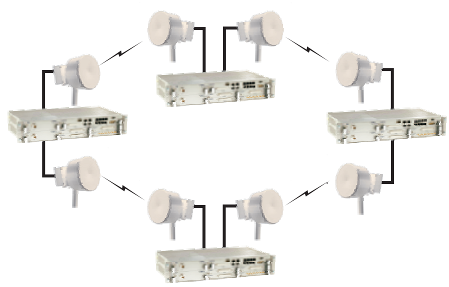
SDH STM-4 access to microwave radio STM-1 points



There are two positions in the chassis that can be used for RM (radio module) enabling STM-1 microwave radio connection.

Thus many different SDH radio/optical applications are possible.

Microwave radio STM-1 ring



Elements of SparkLight ADM-1/4 equipment could be used for pure radio networks as well.

More detailed description of such systems could be found in SparkWave SDR ADM documentation.

Technical Data

Chassis arrangement	Number of 1U positions Number of 1/2U positions Additional tributary modules for 1/2U positions Additional tributary modules for 1U positions	2 in 2U chassis, 1 in 1U chassis 4 in 2U chassis, 0 in 1U chassis 8xE1, 3xE3, EOW 16xE1, Radio module, CWDM module	
Crossconnect Matrix	Capacity: incoming/outgoing Cross-connect resolution	32/16xSTM-1 equivalent, nonblocking VC12,VC3,VC4	
	Traffic protection	MSP (Multiplex Section Protection) SNC/P (Subnetwork Conn. Protection)	
Radio link protection*	Configurations	1+0, 1+1, 1+1 with low priority traffic, 2+0	
	Protection configurations	Hot stand-by, Space/Frequency diversity Hitless switch	
	*For link protection a 2U chassis is necessary		
STM interfaces	Compatibility	SFF-8472, SFF-8074i, MSA Digital Diagnostics Monitor compliant SFP Transceiver MSA Spec.	
	Suitable SFP modules	Optical STM-1/4 up to 120km, ITU-T G.957 Electrical STM-1	
	Number of SFP interfaces on central module	2	
PDH interfaces	Tributary interface type	E1	E3
	ITU-T Rec. Bite rate	G.703 point 6. 2.048 kbit/s 34,386 kbit/s	G.703 point 8.
	Nominal amplitude	3V ±10% symmetrical 1 V ±10% 2.37V ±10% asymmetrical	
	Nominal impedance	120 Ohm symmetrical 75 Ohm asymmetrical	75W
	Max connecting cable attenuation Connector type Number of interfaces on central module Number of interfaces on tributary module	6 dB at 1.024 kHz SubD 37 pins 8 8 - SDR TM8E1	12 dB at 17.184 kHz 1.0/2.3 coaxial 0 3 - SDR TM3E3
Ethernet interfaces	Number of Eternet 10/100 interfaces per module Number of Eternet 1000 interfaces per module Ethernet 10/100 interface types	6 on central module, 1 on central module 10Base-T/100Base-TX adaptive	
	Compatibility	IEEE 802.3 half duplex and full duplex IEEE 802.3 management statistics IEEE 802.3u auto-negotiation	
	Ethernet 1000 interface types	1000Base-SX/LX/CX or 1000Base-T Depends on used SFP module	
	Mapping mode	ITU-T G.7041, GFP (Generic Framing Procedure) ITU-T G.707/Y.1322 in G.783, VCAT (Virtual Concatenation) ITU-T G.7042/Y.1305 LCAS (Link Capacity Adjustment Scheme)	
	Transmitting capacity via SDH Connector type for Ethernet 10/100/1000	Adaptive N x VC12/VC3/VC4 RJ45/RJ45/SFP module	
Other interfaces	Service/Management interface	10Base-T/100Base-TX adaptive	
	Service/Management channel capacity	192 kb/s (DCCR), 576 kb/s (DCCM) or 768 kb/s (DCCM+DCCR)	
Technical data - general	Climatic conditions (temp./humidity.) Storage/transport conditions EMC compatibility Power supply Power consumption (1U/ 2U) Dimensions in mm (HxWxD) (1U/2U) Weight IDU (1U/2U)	-5-+45°C/8-100% ETSI EN 300 019 class 3.1E ETSI EN 300 019 class 1.1/class 2.3 ETSI EN 301 489-4 From 20 V to 72 V, ETSI EN 300 132 <35W / <57W 45x442x240/86x442x240 3,26kg/<6,05kg	

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