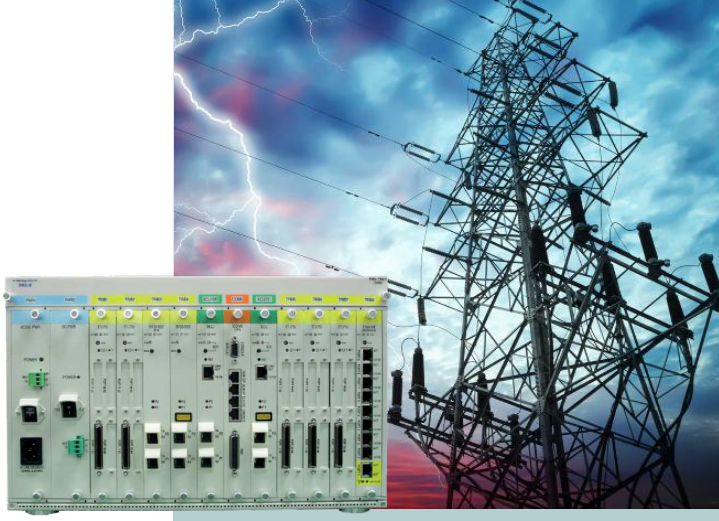
Grid Solutions



GRIDCOM DXC-S

SDH Multiplexer Equipment

Reliable and fast communications are vital to the continuous operation of power delivery systems and their mission-critical automation services (protection, voice and data).

The modern high voltage electrical substation hosts many applications, including a great number of legacy interfaces, which in time may migrate to ethernet connectivity.

Gridcom DXC-S STM-1/4/16 (OC-3/12/48) is a standard compliant high density NGN SDH/SONET ADM/TM with a full T1/E1 cross-connect rack system.

With STM-1/4/16 (OC-3/12/48) aggregate interfaces on cross-connect modules and 16 STM-1 (OC-3) interfaces on tributaries, the DXC-S offers the service provider a versatile protection scheme including SNCP (UPSR), and MSP (1+1) protection for both ring and linear network topology.

All interfaces are fully compliant with the relevant ETSI standards and ITU recommendations. The **Gridcom DXC-S** provides powerful operation, administration, maintenance and provisioning (OAM&P) functionality, including fault management, performance monitoring, configuration management, and network security management. Through a console port, LAN port, In-band E1, and DCC channel, the OAM&P can be achieved both locally and remotely via SNMP or menu-driven interfaces.

It provides a complete set of operation interfaces that are consistent with the Telecommunication Management Network (TMN) concept (ITU Recommendation M.30, G.784) for SDH/SONET Network Element/Operations System (NE/OS), NE/NE, and NE/Craft communications. Users can easily operate the **Gridcom DXC-S** locally or remotely for centralized management.

Full Add and Drop Capability

- For controller STM-1/4 (OC-3/12) aggregate cross connect module, up to:
  - 5 STM-4 interfaces
  - TDMoG interfaces
  - 12 STM-1 interfaces
  - 18 E3/T3 interfaces
  - 378 E1/T1 interfaces
  - 48 10/100M Ethernet EoS interfaces
  - 6 GbE EoS interfaces
- For controller STM-1/4/16 (OC-3/12/48) aggregate cross connect module, up to:
  - 3 STM-16 protected (MSP 1+1)
  - 8 STM-4 interfaces
  - 20 STM-1 interfaces
  - 24 E3/T3 interfaces
  - 504 E1/T1 interfaces
  - 64 10/100M Ethernet EoS interfaces
  - 8 GbE EoS interfaces
  - 56 FOM interfaces
  - 4 TDMoG interfaces

GE VERNOVA

Main Features

- 6U height, full front access (ETSI) shelf, RoHS compliant
- Hot-swappable cross-connect modules, tributary modules and power modules
- Temperature-controlled fan tray
- Aggregate cross-connect modules (controller modules)
  - Up to STM-1/4/16 (OC-3/12/48) aggregate lines with software configuration (CC16)
  - Up to STM-1/4 (OC-3/12) aggregate lines with software configuration (CC4)
- Tributary modules
  - 8 tributary slots
    - Dual ports STM-16 (OC-48) module
    - Dual ports STM-1/4 (OC-3/12) module
    - Triple ports E3/T3 module
    - 16/32/63 ports E1/T1 tributary module
    - 1 GbE and 8 FE tributary module with L2 switch
    - 4 GEoSDH with L2 switch tributary module
    - TDMoG tributary module
    - 7 FOM module
- Power Modules
  - DC module (-36 to -72 Vdc)
  - AC/DC hybrid module (90 to 240 Vac; -36 to -72 Vdc)
  - Dual power (1+1) protection
- Protection
  - Controller-Cross-connect Unit (XCU) protection, MSP (1+1), SNCP/UPSR
  - Tributary protection
    - E1/T1: Card, Port, Line
    - E3/T3: Line
    - B155/622: MSP, SNCP/UPSR
    - Ethernet
    - FOM: Line
    - 4GEoSDH: Card
    - TDMoG: Card
- TM, ADM, and cross-connect
- Full cross-connect at VC11/VC12/VC3/VC4 levels
- External/Internal/Line timing source with SSM
- Ethernet supports GFP, LAPS, VCAT, BCP, LCAS and non-LCAS
- Ethernet Order Wire (EOW) using VoIP technology
- Management
  - Console port, VT100 menu-driven,
  - SNMP port: both V1 and V3 supported
  - Telnet, SSH
  - Centralized management with EMS/NMS over DCC channel
  - iNET GUI Element Management System
  - iNMS with full FCAPS and end-to-end circuit management
  - RoHS compliant

Capacity

Max. Number of Cross-connect Modules

- 4 STM-1/4 (OC-3/12) aggregate lines
- 4 STM-1/4/16 (OC-3/12/48) aggregate lines

Max. Number of interfaces for STM1/4 (OC3/12) Cross-connect Module

- 5 STM-4 interfaces
- TDMoG interfaces
- 12 STM-1 interfaces
- 18 E3/T3 interfaces
- 378 E1/T1 interfaces
- 48 10/100M Ethernet EoS interfaces
- 6 GbE EoS interfaces

Max. Number of interfaces for STM1/4/16 (OC3/12/48) Cross-connect Module

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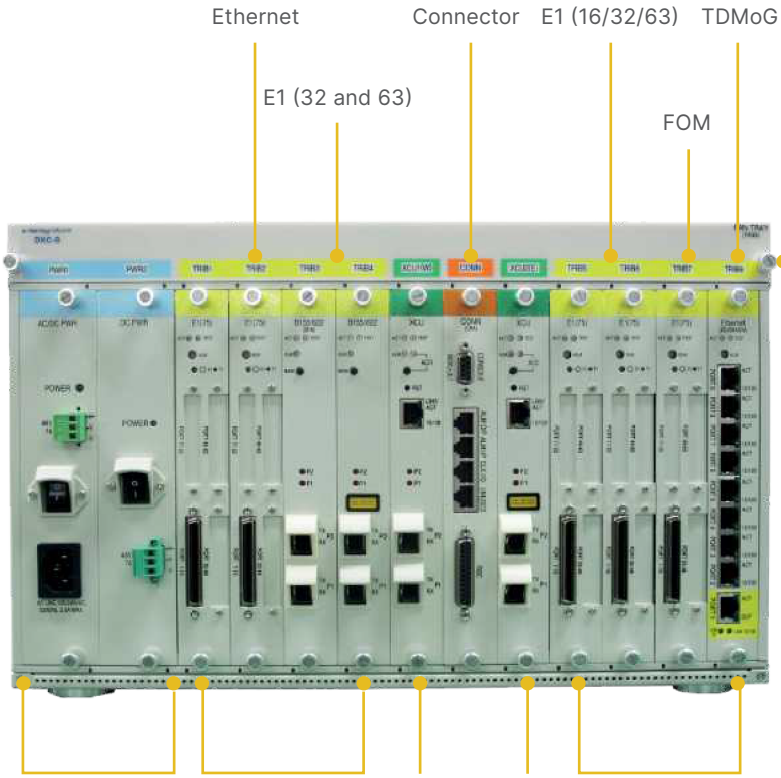
Technical Data

DXC-S Front View



Front View

Support Key Cards hot swappable

Total: 13 slots
2* slots: Power
8* slots: Tributary
2* slots: XCU4 or XCU16
1* slot: Connector

Line Interfaces

E1 (2Mbps) Interface Boards

- Line rate: 2.048 Mbps +/- 50 ppm
- Line code: AMI or HDB3
- Impedance: 75/120 Ohms
- Number of ports: 16/32/63
- Equipment protection: 1+1 EPS
- Line protection: 1+1 APS

Optical Line Interface Boards

- Type of board: 1 slot
- Number of interfaces 7 (SFP)
- Line rate: 4*2 Mbps
- 1 + 1 line protection

STM1/4 Interface Boards

- GNumber of interfaces 2 (SFP)
- GLine rate: 155/622 Mbps
- GProtection: MSP/SNCP

Ethernet Boards (EoS)

- Physical interface 8 FE and 1 GE Vernova
- L2 switch
- L2 protocol: RSTP, VLAN
- Processing: VCAT, GFP, LAPS and LCAS
- Equipment protection: 1+1 EPS

4 GEoSDH Interface Boards

- Number of interfaces: 4 GE Vernova (2x combo SFP/GE Vernova)
- Speed: 10/100/1000BaseT
- L2 protocol: RSTP, VLAN, Flow control, MSTP, IGMP, QoS
- Processing: VCAT, GFP, LAPS and LCAS

TDMoG Interface Boards

- Number of interfaces: 2 combo GE Vernova (SFP/GE Vernova) + 4 10/100/1000BaseT

STM16 Interface Boards

- Number of interfaces: 2 (SFP)
- Line rate: 2.5 Gbps
- Protection: MSP 1+1

Others Data Interfaces

- GT1, E3, T3

System Clock

Clock Source

- Internal clock
- 4 aggregate line clocks (STM-1/4/16)
- 6 tributary clocks
- 2 external input clocks (2MHz or E1/T1)

Clock Output

- 2 external output (E1/T1)

Management Interface

- LED Multi colors
- Console Electrical: RS232, DCE
- Connector: DB9, female
- User interface: Menu driven VT-100
- Telnet
- SNMP SNMPv1, RFC1213
- OSS interface 10/100BaseT FE (IEEE 802.3u)
- NE/NE interface
- DCC/HDLC/PPP/Ethernet type II, Inband E1

Alarm Input / Output

Inputs

- 4x channels
- Connector RJ45

Outputs

- 4x channels
- Connector RJ45

Diagnostics / Performance

- Loopback Test
- BERT Test
- Performance
- Reports
- Alarms

Power

- AC and DC coexistent module: 90 to 240 Vac, 50/60 Hz, -48 Vdc (-36 to -72 Vdc)
- DC module: -48 Vdc (-36 to -72 Vdc)

Mechanical Characteristics

- Dimensions: 433 × 264 × 223.5 mm (W/H/D)
- Mounting: 19” rack mountable - 6U height

Operating Condition

- Operating temperature: 0°C to 50°C
- Humidity: 0 to 95% (non-condensing)

Standards Compliance

- ITU-T
- G.703,
- G.707,
- G.751, G.747, G.7041, 7042, G.775, 783, 806,
- G.813,
- G.823,
- G.841, G.824, G.826,
- G.747, X.86, 664
- ANSI T1.105, T1.107
- IEEE 802.1q (VLAN), 802.1w (RSTP),
- 802.1s(MSTP), 802.1ad (stack VLAN),
- 802.3x (flow control),
- 802.3u, 802.1p (QoS)

Certification

- EMC FCC Part 15 Subpart B, Class A;
- EN 55022, Class A; EN55024; EN300386
- Safety IEC60950-1/EN 60-950-1

For more information, visit
gevernova.com/grid-solutions

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