STM-16 Aggregate Unit

TN1U SDH Multiplexer
Technical Data Sheet

B86419-21

Trusted SDH Transport for Critical Communications Networks

The STM-16 Aggregate Unit provides SDH security and performance guarantees for the distribution of voice, data, specialty teleprotection and E1 TDM services, as well as 10/100/1000 Mb/s Ethernet WANs. The unit's simple, flexible and economical design supports optical reach choices up to 120 km, as well as hot swappable capacity upgrades from STM-1 and STM-4 rates. It is hardened to IEC 61850-3 electrical utility specifications and due to low power consumption permits reliable fanless convection cooling of TN1U nodes.

DESCRIPTION

The STM-16 Aggregate unit, as part of the field proven TN1U digital transport and access system, supports the complete product family feature set, including integrated network management and synchronous 64 kb/s tributaries.

By using the STM-16 Aggregate unit, the add and drop capacity of a node can grow as required in modular steps of virtual containers (VC-12, VC-3, VC-4, VC-4-4c), up to the full STM-16 SDH payload.

The unit has five configurable bandwidth (CBW) service distribution ports. Three CBW ports can support up to 12 TUG-3s, while two CBW ports can support up to 24 TUG-3s, or an equivalent capacity of VC-4 and VC-4-4c virtual containers.

The CBW ports are integrated with built-in low order and high order cross-connects, supporting both add/drop and hairpin applications. This provides a flexible traffic engineering solution for mixed service requirements.

FEATURES AND BENEFITS

Functions as a SDH STM-16 add and drop multiplexer, providing flexible payload access to VC-11/VC-12, VC-3, VC-4 and VC-4-4c virtual containers.

- Both narrowband and broadband multi-protocol service requirements can be economically addressed
- Mix of 64 kb/s voice, data and teleprotection; E1, as well as Video and 10/100/1000 Mb/s Ethernet WAN services can be effectively integrated

Supports sub-network connection protection (SNCP) ring, multiple rings and spurs, as well as linear system topologies

- Guarantees maximum network deployment flexibility

1310 nm or 1550 nm Small Form Factor Pluggable (SFP) optical transceiver options (other lambdas available)

- Provides cost effective alternatives for fibre optic cable spans up to 120 kms (75 miles)
- Updated optical performance monitoring available through intelligent Digital Monitor Interface

Offers VC-12, VC-3, VC-4, VC-4-4c hairpinning

- Cost effective traffic tie between subtended STM-1, STM-4 or STM-16 TN1U rings
- Additional add and drop options provided at subtended ring tie sites

Two user configurable traffic images stored in FLASH non-volatile memory

- Supports VistaNET Alternate Traffic Routing (ATR) network management feature for critical outage response
- Configuration parameters maintained after a loss of power
- Configuration data not lost during firmware upgrades

Compatible packaging with STM-1 and STM-4 Aggregate units

- Simple migration from STM-1 or STM-4 to STM-16 system capacity, via Aggregate unit substitution

Local or remote unit configuration, performance monitoring and diagnostics with Windows-based PC

- Allows simple installation, ongoing management and maintenance of unit without expensive workstations

Front panel LED status indicators

- Permit quick visual confirmation of a working unit, as well as effectively pinpointing the probable causes of various unit alarm conditions

Built-in test capabilities

- No costly SDH test instruments required

Low power consumption

- Low heat dissipation eliminates the need for forced-air cooling systems

Technical Specifications

OPTICAL INTERFACE

- Connector: LC, transmit and receive fibres
- System Gain (singlemode fibre):

  @ 1310 nm: min. 13 dB, IR-1
  Intermediate reach - up to 15 km,

  @ 1310 nm: min. 26 dB, LR-1
  Long reach - up to 40 km

  @ 1550 nm: min. 26 dB, LR-2
  Extra long reach - up to 80 km

  @ 1550 nm: min. 31 dB, LR-2
  Extra long reach - up to 120 kms

OPTICAL LINE RATE

- 2.488 Gb/s

LINE CODE

- NRZ

TRANSPORT CAPACITY

- 1008 x VC-12
- 48 x VC-3
- 16 x VC-4
- 4 x VC-4-4c

CROSS-CONNECT CAPACITY

- 126 x 252 VC-12 and 48 x 84 TUG-3 add/drop TSI
- 16 x 28 VC-4 and 4 x 7 VC-4-4c add/drop TSI
- 105 x 126 VC-12 and 48 x 60 TUG-3 hairpin TSI
- 16 x 20 VC-4 and 4 x 5 VC-4-4c hairpin TSI

MULTI-PROTOCOL SERVICE ACCESS

- Three TIF ports support up to 21 x TU-12
- Five CBW ports, each supports up to 12 or 24 x TUG-3 capacity; mix of VC-12, VC-3, VC-4 and VC-4-4C virtual containers

CONFIGURATIONS SUPPORTED

- Dual fed SNCP ring, per ITU-T recommendation G.841
- Two fibre linear systems
- Multiple TN1U rings plus spurs
- TN1U ring ties via TU-12 and CBW ties

ENVIRONMENTAL - GENERAL

- Operating Temperature: -10° to +60° C (+14° to +140° F)
- Storage Temperature: -40° to +70° C (-40° to +158° F)
- Humidity: 5-95% non-condensing
- Shipping Altitude: 15,000 meters (50,000 ft.)
- Shock and Vibration:
  - Earthquake Risk Zone 4
  - Vibration (transit) : MILS-STD810E
  - Bench handling: TS 1-00446.06

ENVIRONMENTAL - ELECTRIC POWER SUBSTATION

Meets IEC 61850-3, which includes the following:

- EMI/RFI - IEC 61000-4-6
- Isolation/SWC - IEC 61000-4-4 and IEC 61000-4-12

PHYSICAL DATA ON UNIT

- Height: 115 mm (4.5 inches)
- Width: 57 mm (2.25 inches) Occupies 1 shelf slot position
- Depth: 203 mm (8 inches)
- Weight: 625 grams (22 oz.)

POWER CONSUMPTION

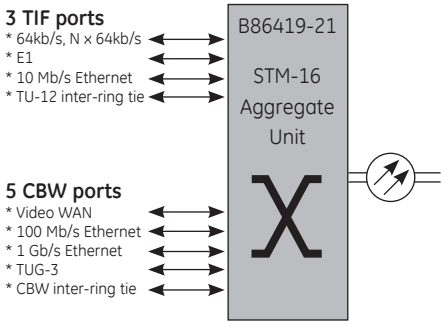
- 5 watts

NETWORK MANAGEMENT CAPABILITIES

- Network visibility at every node, as well as local and remote provisioning (monitoring and configuration)
- Alarm logging and time stamping via VistaNET and SNMP
- Critical outage response using main and alternate traffic routing images

Ordering

Part #	Decription
B86419-21/ AA	**STM-16 Aggregate Unit** 1310 nm IR-1 (Intermediate Reach) laser
B86419-21/ BB	**STM-16 Aggregate Unit** 1310 nm LR-1 (Long Reach) laser
B86419-21/ CC	**STM-16 Aggregate Unit** 1550 nm LR-2 (Extra Long Reach) laser
B86419-21/ EE	**STM-16 Aggregate Unit** 1550 nm LR-2 (Extra Long Reach) laser



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