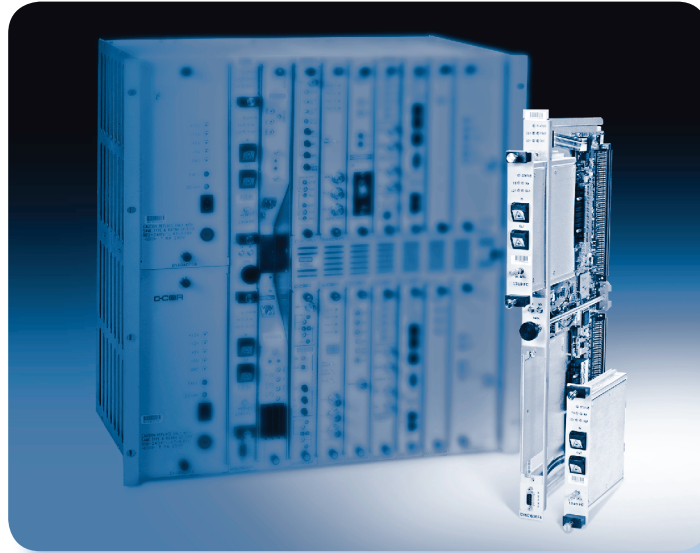


DV6000 VIDEO TRANSPORT

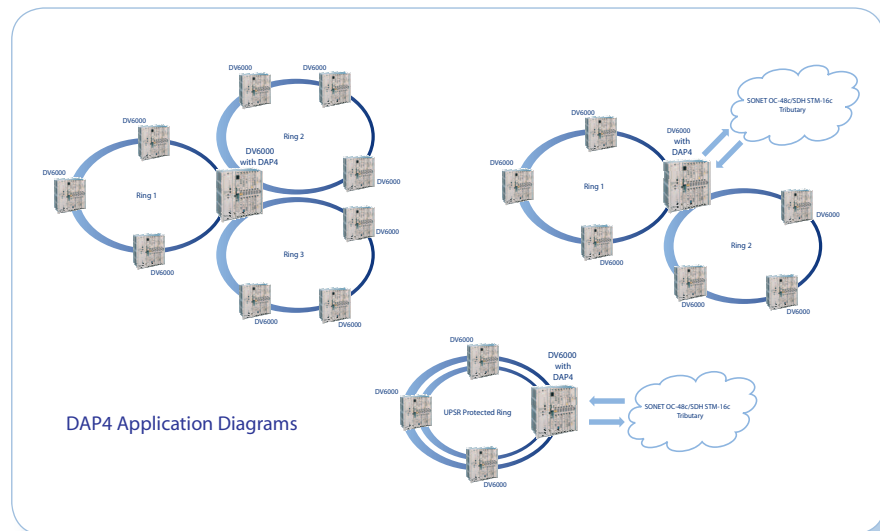
DAP4 Combined Optics and Controller



Features:

- Backwards compatible with existing DV6000 networks
- Provides new UPSR style network protection mode
- Enables ring closing and full redundant optical repeating within DV6000 equipment shelf
- Contains 64 x 64 timeslot interchange for channel aggregation or ring interconnection
- Dual hot-swappable 2.38Gbps transceivers plug directly into main control module
- Built-in self-test (BIST) mode and an embedded test encoder/decoder
- Provides a menu driven interface (MDI) for setup and control accessed via a terminal connection
- Remote monitoring and day-to-day control via IMI-9000 (Information & Monitoring Interface)

The DAP4 Combined Optics and Controller for the DV6000 Universal Digital Transport System functions as a DV6000 Equipment Shelf controller as well as a housing for up to two new compact optical transceiver modules. With enhanced functionality such as an internal 64 x 64 timeslot interchange and new network protection capabilities, the DAP4 Combined Optics and Controller provides unmatched architecture flexibility for both new and existing DV6000 networks.



## DAP4 Combined Optics and Controller

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### General Description

The DAP4 Combined Optics and Controller consists of two unique sub-module types: a main controller module and plug-in optical transceiver modules. The main controller module occupies the control module slot in a DV6000 equipment shelf and contains the 64 x 64 timeslot switch fabric, the backplane interface, overall shelf controller, menu-driven interface (MDI), and module status LEDs. Additionally, this main module contains an internal electrical DV6000 transmitter and receiver (and associated front panel connectors), as well as two bookshelf style slots for the plug-in optical transceivers.

The plug-in optical transceivers are compact modules that optically transmit and/or receive the DV6000 2.38 Gbps digital bitstream. Available in both standard and CWDM wavelengths, these modules also provide an electrical output that can be used to feed additional legacy DV6000 transmitters located within the equipment shelf or a repeater shelf.

### Applications

The DAP4 has the ability to interface three incoming 2.38Gbps DV6000 data paths, two via the DAP4 plug-in transceivers and one via a connection to a receiver in a regular shelf optical module slot. Likewise, the DAP4 can interface three outgoing 2.38Gbps DV6000 data paths via the same modules. Besides providing a more cost-effective direct DAP2 module replacement, the DAP4 can enhance existing DV6000 architectures through the following new features and capabilities:

- DV6000 ring closing
- Redundant drop and optical repeat within a shelf
- Aggregation of partially filled DV6000 signals
- Spurring 16 channel tributaries off a protected ring within a shelf
- Selectable A/B data polarity per input/output port for primary/standby fiber path switching

### Protection Modes

The DAP4 has two protection modes that can be used to configure multiple types of protected architectures. These two modes can be used separately or together to protect architectures ranging from simple two-site point-to-point video links to complex multiple source location to multiple destination location ring networks.

### Fiber Failure Timeslot Protection Mode

Also called high speed protection mode, this unidirectional path switch ring (UPSR) style mode protects against failures in the fiber path and is intended for applications involving video distribution from a single source (one encoder) via two fiber paths.

### Functionality and Features

- All protection occurs at the decoder shelf.
- Each decoder is assigned a primary dropped timeslot and backup dropped timeslot.
- A detected fiber failure initiates a protection switch that drops the backup timeslot to the decoder.
- Auto or manual revertive switching restores the primary timeslot to the decoder.
- All fiber paths are constantly monitored to ensure switching results.
- Shelf outputs other than the impacted timeslot are not affected.
- Compatible with legacy MUX2/DMUX2/DAP2 networks with fiber path redundancy.
- Operates in both linear and ring based architectures.
- Referred to as high-speed protection mode as the fiber path switchover time is less than 50ms.

### Encoder/Source Protection Mode

Also called low speed protection mode, this mode protects against failures in the encoder/signal source and is intended for applications involving video distribution from a primary and a backup source (two encoders).

### Functionality and Features

- Each of the two encoders feed unique timeslots that are designated for a particular decoder as either the working or protect timeslot.
- The working and protect timeslots may be transported in the same or separate fiber paths.
- A detected decoder alarm caused by an encoder or source failure initiates a protection switch that drops the protect timeslot to the decoder.
- Manual switching is required to restore the working timeslot to the decoder.
- Operates in both linear and ring based architectures.
- Referred to as low speed protection mode as the switchover time is less than 2 seconds for a detected encoder or source failure.

Additionally, the DAP4 provides special protection functionality for networks with centralized backup source sites, for example, a backup cable headend.

## DAP4 Specifications

### Physical

Dimensions	(W x H x D) 1.35 x 19.25 x 10.81in. (3.43 x 48.90 x 27.46cm)
Weight	< 5 lbs
Power Consumption	< 38.5W
Temperature (Note 1)	Operating: 0 to 50°C; Storage: -40 to 70°C
Humidity, non condensing	5 to 85%

### Communication Interfaces

Front Panel	One RS-232 port w/ DB-9 female connector for accessing MDI
Rear Panel	Uses DV6000 shelf's RS-485 ports for communication w/ IMI-9000
Alarm Contacts	Uses DV6000 shelf's minor alarm contacts for T1/E1 BITS clock timing input Uses DV6000 shelf's major alarm contacts for all major and minor alarms

### Control/Monitoring

Setup and Configuration	Via the MDI (a terminal session with a PC is required) Remote Monitoring/Day to Day Control Via the IMI-9000
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### Transceiver Specifications

	1310nm Transceivers	1550nm Transceivers
Transmitter Bit Rate	2.38Gbps	2.38Gbps
Optical Wavelength	1310nm	1550nm
Laser Type	DFB	DFB
Optical Connectors	FC/UPC, SC/UPC	FC/UPC, SC/UPC
Optical Output Power	0dBm	0dBm
Wavelength Stability	—	0.05nm
Extinction Ratio	—	7 ± 1, min.
Dispersion Penalty	—	~2dB @ 1800ps/nm
Receiver Photodiode Type	InGAsP APD	InGAsP APD
Optical Receiver Sensitivity, for BER of 10 <sup>-10</sup>	-30dBm	-30dBm
Optical Receiver Maximum Input Power	-6dBm	-6dBm

### Ordering Information

Part Number	Description
DV6016DAP4	DV6000 DAP4 Controller Module
DV46301/(DV46301SC)	DV6000 DAP4 Optical Transceiver, 1310nm, FC/UPC Connector/(SC/UPC Connector)
DV46501/(DV46501SC)	DV6000 DAP4 Optical Transceiver, 1550nm, FC/UPC Connector/(SC/UPC Connector)
DV46xxxxyy	DV6000 DAP4 CWDM Optical Transceiver, 1470 to 1610nm (xxx=last 3 digits), FC/UPC Connector (yy=blank), SC/UPC Connector (yy=SC)
DV46101/(DV46101SC)	DV6000 DAP4 Receiver only Module, FC/UPC Connector/(SC/UPC Connector)
DV46300E	DV6000 DAP4 Electrical Transceiver
CASS10	10" SMB-SMB Right Angle Plug Jumper
DV4BLANK	DV6000 DAP4 Optical Transceiver Blank Panel

