![IPITEK logo] **IPITEK**

INTEGRATED PHOTONICS TECHNOLOGY

ISO 9001 Registered

# DIGITAL TRANSMISSION SYSTEM
## MSP-VSG

**IPITEK FIBER OPTIC DIGITAL TRANSPORT**



## Description

IPITEK's MSP-VSG is a full-featured Gigabit Ethernet (GigE) transport solution built for Video-on-Demand (VoD), Voice-over-IP (VoIP), and data applications. The MSP-VSG achieves a unique combination of flexibility and low cost-per-stream through the use of dense wavelength division multiplexing (DWDM), GigE interfaces, layer 2 packet processing and layer 1 path management. The MSP-VSG is designed with a flexible reverse path, a robust but inexpensive redundancy scheme and the capability to transport over 30,000 MPEG streams on a single fiber.

## Major Features

The MSP-VSG, a **compact 2 RU** modular system, can be configured to support 3 GigE's to 12 GigE's per chassis, saving valuable rack space and making it suitable for any size VoD deployment. Used in conjunction with IPITEK's passive DWDM system, networks are scalable from a single 3 GigE module up to 120 GigE's in under 25 RU's.

**41 Channel ITU DWDM long haul 3.125 Gb/s optics** give long reach, high density, and efficient fiber utilization with excellent granularity. The MSP-VSG DWDM system offers scalability from small SVoD (Subscription VoD) to very large EoD (Everything-on-Demand) networks. Systems using 1 Gb/s optics cannot effectively take advantage of advanced multiplexing technologies and thus underutilize your fiber plants capability; costly 10 Gb/s optics are most often underutilized resulting in high "cost of ownership".

**Layer 2 link aggregation** delivers efficient use of switch ports and optimizes optical throughput while offering flexible Ethernet switching capability. Networks can realize all the benefits of lambda sharing with the cost benefits of dedicated point-to-point style networks.

**Flexible reverse path configuration** allows the user to tailor their network specifically for the VoD application at hand. VoD applications are inherently asymmetrical, forward path traffic is generally many times greater than reverse path traffic. Symmetric full duplex systems double laser costs while halving fiber utilization, simplex-only systems require complicated user configuration and maintenance.

**Integrated optical protection switching and EDFA** functionality assures redundancy protection and amplification required to get to points at the far reaches of your network.

The MSP-VSG offers a comprehensive suite of **low-cost protection options** including 1:1 optical and power redundancy and route diversity.

# SPECIFICATIONS

## Optical

| | |
|---|---|
| Transmitter output: | +3 dBm, (min.) Class 1 |
| Wavelength ITU Grid: | (100GHz) ±0.1nm |
| ITU channels: | 19 - 59 |
| Chronic dispersion allowance: | 2800 ps/nm for <3 dB dispersion power penalty (175 km for G.652 fiber) |
| Receiver sensitivity: | -25 dBm (BER <1x10-13) |
| Max. input: | -6 dBm |
| Input aperture: | Singlemode (9µ) |
| Optical connector: | LC type - Singlemode |

## GigE Interfaces Supported

1000BASE-SX (LC type - multimode)
1000BASE-LX (LC type - singlemode)
1000BASE-T (copper, RJ45)

## Power

| | |
|---|---|
| Input voltage (AC version): | 100 to 240 VAC, 50/60Hz |
| Input voltage (DC version): | -38.4 to -57.6 VDC |
| Power consumption: | 220W (max.) |
| BTU/hr: | 750 (max.) |

## Management

Command Line Interface via Craft and Telnet, SNMPv2C compliant, fault management alarms and traps, HP OpenViewTM compatible*

## Standards Compliance

FCC Part 15, EN55022, EN55024, CISPR22, UL60950, cUL, CE

## Environmental

| | |
|---|---|
| Operating temperature: | 0ºC to +40ºC |
| Relative humidity: | 5% to 90% non-condensing |
| Storage temperature: | -40º C to +70º C |

## Physical

| | |
|---|---|
| Chassis dimensions: | 2RU (3.5"H x 19"W x 22"D) |
| Chassis weight: | 18.5 lbs (fully loaded 31 lbs) |
| Rack mount requirements: | 19" rack mount per EIA-310-D |
| Chassis Front: | 2 power supply slots<br>1 management module slot<br>1 fan tray slot |
| Chassis Rear: | 4 service module slots:<br>- 3 GigE per I/O module<br>- OPS module<br>- EDFA module<br>- OPS/EDFA module |

## EDFA Module

| | |
|---|---|
| Optical output power: | +17 dBm (min.) |
| Optical gain: | +23 dB, typ. |
| Optical connectors: | LC type-Singlemode |

## Optical Switch Module

| | |
|---|---|
| Insertion loss: | 1.0 dB (max.) pass through path |
| Isolation: | 40 dB (min.) |
| Optical connectors: | LC type-Singlemode |

*OpenView is a trademark of Hewlett Packard Corporation

# ORDERING INFORMATION

| MSP-VSG - 03 | - | XX | - | XX | - | XX | - | XX | - | X |
|---|---|---|---|---|---|---|---|---|---|---|
| *MSP Video Session Gateway* | | **Bandwidth**<br>**03**=3 GigE channels | | **WAN 1**<br>**TX**=Tx only<br>**RX**=Rx only<br>**TR**=Transceiver | | **WAN 1 Wavelength**<br>**(ITU Ch. #)**<br>**XX**=Ch. 19-59<br>**00**=None or receiver | | **WAN 2**<br>**TX**=Tx only<br>**RX**=Rx only<br>**TR**=Transceiver<br>**00**=None | | **WAN 2 Wavelength**<br>**(ITU Ch. #)**<br>**XX**=Ch. 19-59<br>**00**=None or receiver | | **LAN Ports 1, 2, 3**<br>**S**=SX(multimode)<br>**L**=LX(singlemode)<br>**T**=Copper (RJ-45) |

| MSP-VSG-OFA - LC | - | P |
|---|---|---|
| *MSP Video Session Gateway Optical Amplifier* | **Optical Connector**<br>**LC** = LC | **Polish**<br>**P** = UPC |

| MSP-VSG-OPS - LC | - | P |
|---|---|---|
| *MSP Video Session Gateway Optical Protection Switch* | **Optical Connector**<br>**LC** = LC | **Polish**<br>**P** = UPC |

| MSP-VSG-OFAOPS - LC | - | P |
|---|---|---|
| *MSP Video Session Gateway Optical Amplifier/Optical Protection Switch* | **Optical Connector**<br>**LC** = LC | **Polish**<br>**P** = UPC |

| MSP-VSG-CH | - | XX | - | XXXX |
|---|---|---|---|---|
| *MSP Video Session Gateway Chassis* | | **Rack Size**<br>**19** = 19"<br>**23** = 23" | | **Power**<br>**ACAC** = 2 AC inputs<br>**ACDC** = 1 AC, 1 DC<br>**DCDC** = 2 DC inputs |

| MSP-VSG-PS | - | XX |
|---|---|---|
| *MSP Video Session Gateway Power Supply* | | **Rack Size**<br>**AC** = 110/220 VAC<br>**DC** = -48 VDC |

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