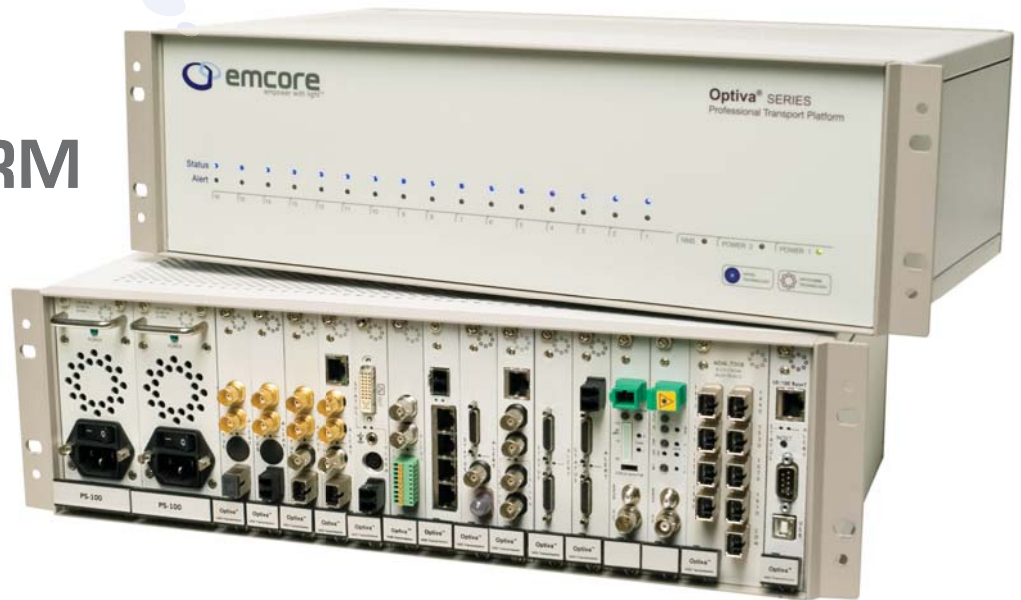


# optiva PLATFORM

## Configurable Communication Platform



The Optiva™ Series of digital fiber optic transmission systems are designed entirely by you. They are built to accommodate your precise video, audio and data transport needs. Almost any configuration is available, all over one fiber. With a short visit to the “Product Configurator” at [www.opticomm.com](http://www.opticomm.com), you can select the exact video, audio and data signals you wish to transport, the optics and connectors you need and an application specific enclosure.

### System Design

Optiva™ systems utilize Daisy-Chain Time Division Multiplexing (TDM) to optimize bandwidth allocation. Optical multiplexing can be integrated to enable increased channel requirements. All cards are hotswappable and can be housed in a 19” rack solution (3RU or 1RU) or as stand alone units using a number of different ruggedized Desktop Card Racks (DT-CRs). The Platform enables future add-ons and upgradeability.

### Features

- Selectable Video/Audio/Data configuration
- Multimode or singlemode fiber choices
- Daisy-chain capability
- Digital transmission
- Uncompromised transmission quality
- SNMP network management
- No EMI or RFI and no ground loops
- Stand alone or rack-mount, hot-swappable
- Up to 2.5 Gbps per optical wavelength
- “Future Proof” Upgrade Path

### Enclosure Options



OT-CC-4-1U  
4-Slot Enclosure



OT-DTCR-2  
2-Slot Enclosure



OT-DTCR-1  
1-Slot Enclosure

# The Benefits of the Opticomm Optiva™ Configurable Communication Platform for Video, Audio and Data Optical Networking

The Optiva™ digital daisy-chained fiber optic transmission platform significantly improves upon existing solutions for video, audio, and data fiber optic networking. The following outlines the unique primary benefits of the Optiva™ Platform.

## Customizable Multi-Application Video, Audio and Data Input Configuration

The signals listed above are supported, in virtually any configuration, addressing almost all signals deriving from commercially available video, audio and/or data equipment, across all professional industries. Using advanced firmware embedded within each card, the specific card configuration and other vital information are transmitted over the backplane to other cards via a Time Division Multiplexing (TDM) based Daisy-Chain path (defined below). The optics card accepts and optically transports the relevant signals.

Video Signals	Model Code
12-Bit Composite	V
8-Bit Composite	LV
Extended Composite	EV
S-Video	SV
SD-SDI	SD
HD-SDI	HD
3G HD-SDI	HDP
DVB-ASI	AS
DVI / VGA	DVI
RGB / Component	DVI

Audio Signals	Model Code
Analog (Terminal Block)	BA
Analog (MD25)	EA
Digital AES/EBU	DA

Data Signals	Model Code
RS-232	D
RS-422	DJ
RS-485 (2-Wire)	DK
RS-485 (4-Wire)	DW
Contact Closure	CC
10/100 Ethernet	E
1Gb Ethernet	GE

## Daisy-Chained Time Division Multiplexing

Optiva™ utilizes proprietary and unique methods of (TDM) to electronically combine and multiplex the various video, audio and data signals. This is made possible through the advanced firmware embedded in each Optiva™ card ensuring smooth and continuous communication between all cards situated on the same backplane. This chain of communication is referred to as a “daisy-chain”. Each Optiva™ enclosure contains one dedicated backplane thereby offering a single “platform” upon which all cards convert to a powerful and tightly managed optical transmission system. Note: Optiva 3G HD-SDI & DVI/VGA/RGB signals are not Daisy-Chain capable, both however support CWDM multiplexing.



1. Start with an Optical Card

2. Add “Non-Optics” Card

3. Continue adding new cards

**You may add cards to the chain, with any combination of Optiva Video, Audio or Data Protocols**

## Intelligent Bandwidth Allocation

One of the primary concerns of any communication-based application is bandwidth. Fiber strands are very expensive to lease where they are not proprietary and additional fiber is typically very complex and expensive to install, even when the cable is proprietary.

Optiva™ sets industry precedents in the number of Video, Audio and Data signals that can be transported over one fiber, both for single and multiple wavelength transmission.

With Optiva™, the only limitation to the number of channels that can be transported over each wavelength would be the bandwidth that the laser and backplane can support. At present, this limitation is 2.5 Gigabits Per Second (Gbps). In comparison, other products are bandwidth limited, and also only transport a pre-determined set of video, audio and data signals in a specific configuration, not necessarily the specific quantity and mix of signals you require.

As each card is electronically multiplexed with one or more additional cards via the TDM daisy-chain communication path, all signals utilize the same optical wavelength via one fiber connected to an optical card (situated to the left of all other cards). By allocating up to 2.5 GB of bandwidth for each wavelength, Optiva™ truly maximizes wavelength bandwidth allocation. Each “maximized” wavelength can then be optically multiplexed with additional wavelengths by simply integrating Coarse Wave Division Multiplexing (CWDM) onto the platform, if necessary or desired.

## Upgrade Path and Modularity

With other optical transmission products offering only a set configuration of video, audio or data channels, your upgrade path is non-existent. This means that you are forced to purchase additional systems (typically requiring additional fiber strands) for future expansion, even if only one extra video, audio or data input is required. Optiva™ is inherently modular and upgrading is easy, without the need for additional fiber allocation.

You will always maintain the option of adding additional signals onto the same optical path within the bandwidth allowance. Transporting more video, audio or data signals onto the same wavelength is accomplished by simply adding more cards to an existing daisy-chain (ie. in the same enclosure). Any “Optiva™ Standard” product can be ordered without optics to serve as an upgrade to an existing Optiva™ daisy-chain (see the Optiva™ Standard product series). The newly added signals are automatically communicated to the existing optics card(s) and transported over the existing wavelength. The Optiva 19” Sub-Rack can accommodate up to 16 different Optiva™ insert cards. For exceptionally high bandwidth application, up to 16 optical outputs (deriving from any number of sub-racks) would be optically multiplexed onto one fiber using a passive CWDM Mux/Demux (such as Opticomm’s MDM-7000 Series).

All Optiva™ units come as insert cards that can be inserted into one of four different enclosures, rack mount or stand-alone. Whether the application demands a distribution frame or stand-alone solution, Optiva™ will adapt. All insert cards are hot swappable and can be transferred from one enclosure to another (stand-alone or rack-mount) at any time, providing the flexibility required for evolving environments and applications.

## Quality Transmission

Optiva® offers the highest quality transmission across all professional industries. Where applicable, Studio Broadcast industry standards are strictly applied to all communications. As a result, not only are the platform's transmission standards sufficient for all industries, they in fact exceed the expectations of non-broadcast industries providing exceedingly higher quality video and audio transmission. For example, in surveillance applications, Optiva® would enable studio quality video outputs ensuring absolute attention to detail in video resolution and audio precision.

All Optiva® systems utilize digital transmission for optimum quality. 10-Bit digitally encoded broadcast quality transmission is standard for all Optiva® analog-based video systems. 12-Bits are applied for studio quality video processing. All analog audio systems utilize 24-Bit digitally encoded transmission. With digital source signals such as digital video, digital audio or virtually any data protocol, Optiva® maintains the digital source applying transmission techniques to the source directly, without conversion.

## Online Configuration and System Design

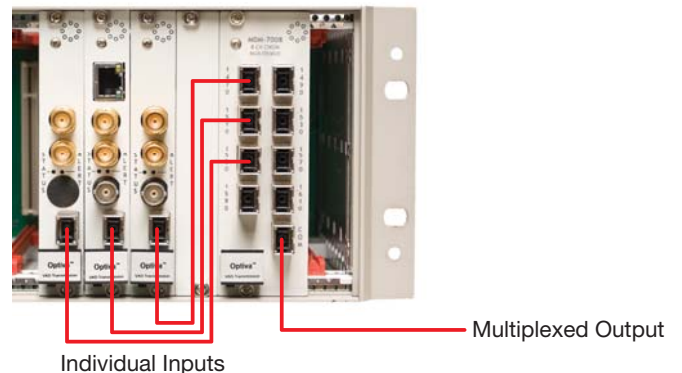
Opticomm has developed an advanced web-based system that allows any user to configure an Optiva™ system on-line. A user is able to select his or her precise signals to be transported, rack or stand-alone preference, optical budget and cable requirements, and even the desired optical connector type.

The use of this tool offers the potential customer with instant gratification by receiving an immediate system overview, Build of Materials (BOM), and system diagram. Moreover, all Optiva™ systems designed are maintained in a personal folder that the user can securely access each time he or she is signed in, serving as an exceptional project management tool. You are encouraged to register for the "Product Configurator" at [www.opticomm.com](http://www.opticomm.com) and design an Optiva system.

## Single Fiber, Long Haul CWDM Transport

With the need to maximize the utilization of every fiber optic core, Optiva offers a comprehensive selection of CWDM & WDM Optical Multiplexing / De-Multiplexing choices. Once you have selected a system, you can easily upgrade the optical transceivers to operate on any of the 16 CWDM wavelengths from 1270nm to 1610nm. Combined with our MDM & MDA series of multiplexers and optical add/drop modules, you can easily integrate an Optiva system into an existing fiber optic transport network, with little downtime. As you configurator your system online, options will appear that allow automatic optimization of the optical selections to run every signal you have configured, over a single fiber. Similarly, if you would like to reduce overall system costs and fiber count is not critical, you can choose to optimize for cost savings, giving you total control over your fiber optic configurations.

Example of CWDM Multiplexing



## Redundancy and Reliability

Optical redundancy is easily implemented using an additional optics card (Model: ORC-400) thereby duplicating the transport of all signals over a separate optical path without the need for additional electrical sources. Power redundancy is available in all rack solutions.

## Network Management

All Optiva® systems can be managed remotely with the OptivaView® SNMP Management Suite. The management system enables the remote display of vital operational data as well as control functionality.

In modern networks, various types of equipment are installed. OptivaView® makes remote management simple in its utilization of SNMP (Simple Network Management Protocol) offering a uniform software platform for efficient integration with other devices operating alongside the Optiva® Platform. The OptivaView® NMS Controller Card (Model: OPV-CTRL-IC) serves as an agent that fits within any Optiva® enclosure requiring only one slot. This agent collects the data coming from the personally designed Optiva® systems and the OptivaView® Graphical User Interface Management Software Module analyzes and displays the data to the user.

A Management Information Base (MIB) is integrated within the OptivaView® NMS Controller Card. The MIB stores and provides all information required by the Network Management Software to understand the data presented by the OptivaView® NMS Controller Card. This means that regardless of which viewing medium you select, the designated software will receive all collected data.

OptivaView® provides fiber optic link status, link budget and bandwidth management, operations and fault detection, and logging. These features ensure that you are constantly provided with important data for essential optical system management and that you remain aware of critical concerns to ensure maintenance of a safe and healthy network at all times.

The OptivaView® Graphical User Interface Management Software offers a professionally designed and user-friendly interface maintaining a simple yet comprehensive tunnel view to your optical network.

The Controller Card will transmit and collect data to and from the other cards situated within the Optiva® Chassis via the daisy-chain. Local control room monitoring is provided by LED “status” and “alert” indication on the Optiva sub-rack. Moreover, every sub-rack will detect the presence of a Controller Card and notify the local control room operator that remote monitoring is operational via an “NMS” LED located on the front of each rack.

## Product Regulatory Compliance, Quality Assurance and Warranty

All Optiva™ systems conform to applicable Conformite' Europe (CE) regulations, CSA safety standards, and the Federal Communications Commission Part 15 (FCC Part 15) regulations for emissions control. All Opticomm systems are subject to stringent quality control processes implemented as part of Opticomm's ISO-9001:2000 certified Quality Management System. All Optiva systems are backed by a 3-Year Warranty.

## Video Specifications

8-Bit Composite	
Bit Resolution	8-Bit Digital Transmission
Level	1.0 Volt p-p
Compatibility	NTSC, PAL, SECAM
Signal to Noise Ratio	> 50 dB
Connector	BNC (IEC 60169-8)

12-Bit Composite	
Standard	SMPTE 170; RS-250C (Short Haul)
Bit Resolution	12-Bit Digital Transmission
Level	1.0 Volt p-p
Bandwidth	5.5 MHz
Differential Gain	< 2%
Differential Phase	< 0.7°
Chroma/Luma Delay	<12ns
Compatibility	NTSC, PAL, SECAM
Signal to Noise Ratio	> 67 dB
Connector	BNC (IEC 60169-8)

DVB/ASI	
Standard	SMPTE
Pathological Test Code	RP-178
Bt Rate	270 Mbps
Bit Error Rate	10 <sup>-14</sup>
Connector	BNC (IEC 60169-8)

SDI	
Standard	SMPTE 259
Pathological Test Code	RP-178
Nominal Bit Rate	270 Mbps
Bit Error Rate	10 <sup>-14</sup>
Connector	BNC (IEC 60169-8)

HD-SDI	
Standard	SMPTE 292 & 259
Pathological Test Code	RP-178
Nominal Bit Rate	1.485 Gbps; 270 Mbps
Bit Error Rate	10 <sup>-14</sup>
Connector BNC	(IEC 60169-8; Gold Plated)

3G HD-SDI*	
Standards	SMPTE 424M, 292M, 259M
Data Rate	2.97 Gbps; 1.485 Gbps; 270 Mbps
Connector	BNC (IEC 60169-8) Gold Plated
Video Modes	480i/480p, 720p, 1080i/1080p
Max Resolution	1920 x 1080 @ 50/60 Hz
Pathological Test Code	RP-178

DVI / HDMI*	
Standards	DVI 1.0/VESA
Resolutions	DVI: 2560 x 1600 (max)
Connector	DVI-I
Color Depth	24 Bit
Video Signal-to-Noise Ratio	>55 dB

RGBHV / VGA / RGB*	
Standards	VESA
Resolutions	VGA: 1920 x 1200 (max) RGBHV: 1920x1080 (max)
VGA Connector	DB-15 (via Adapter)
RGB/HV Connector	BNC / RCA (via Breakout Cable)
Color Depth	24 Bit
Video Signal-to-Noise Ratio	>55 dB

■ DVI, HDMI, VGA, RGB & 3G HD-SDI are not Daisy-Chain capable

## Audio Specifications

Analog Audio	
Level	18 dBm In/Out
Bandwidth	20 Hz to 20 KHz
Signal to Noise Ratio	> 80 dB
Total Harmonic Distortion	< 0.1%
Signal Coding	24-bit
Connector	Terminal Block / Micro DB-25

Digital AES/EBU	
Digital Format	AES/EBU AES3-1992 (ANSI S4,40) SMPTE 276M
Connector	Micro DB-25

## Data Specifications

10/100/1000 Ethernet	
Standard	Ethernet IEEE 802.3
Data Rate	10/100/1000 Mbps (auto negotiation)
Connector	RJ-45

RS-232	
Data Rate	DC to 200 Kbps
Connector	Micro DB25

RS-422 (2 Wire)	
Data Rate	DC to 1 Mbps
Connector	Micro DB25

RS-485 (2 Wire)	
Data Rate	DC to 1 Mbps
Connector	Micro DB25

RS-485 (4 Wire)	
Data Rate	DC to 1 Mbps
Connector	Micro DB25

Contact Closure	
Data Rate	DC to 1 Mbps
Connector	Micro DB25
Type	Latching & Non-Latching

## General

Specifications	Values
Dimensions (Insert Card)	6.3"D x 0.8"W x 4.0"H
Weight	11 oz.
Operating Temperature	0° to +50°C
Storage Temperature	-30°C to +85°C
Humidity	0 to 95% non-condensing
Power Consumption	3-8 Watts per Insert Card
System Latency	< 1ms

## Monitoring & Control

Specifications	Values
Local	Front panel LED status and alert indicators
Remote	OptivaView® SNMP Management Suite*

■ Requires OptivaView SNMP Controller Card (Model: OPV-CTRLR)



## Compliance

