IPITEK
INTEGRATED PHOTONICS TECHNOLOGY
ISO 9001 Registered

PRO VIDEO LINK

MSP-220-T Digital Transmission System

Media Service Platform

One Model:	**Simultaneous Bidirectional Service for NTSC/PAL TV-1 Video/Audio + 270 Mbs SDI + 100 Mbs Ethernet**
Modular Optics:	**SFPs with up to 30 dB link**
Management Built in:	**IP addressable, SNMP**

- **NEBS III tested and certified**
- **SONET/SDH OC-12c/STM-4c standard interface (for reliable quality and interoperation)**
- **TV- GR-338 compliant with Diplexed Audio Option**
- **Agile SDI that supports SMPTE 259M, DVB-ASI, or SDTI**
- **Loopback testing at Terminal or Link Level**
- **Common Language codes registered with Telcordia**

The IPITEK MSP-220-T is a state of the art transport solution ideal for broadcasters and carriers that wish to transport the highest quality contribution video between two points. This compact 1 RU system replaces multiple single channel alternatives by allowing for the TDM of 3 services: analog TV-1 + 4 audio channels, digital SDI (270 Mbs), and 100 Mbs Ethernet over a single bidirectional circuit. This allows content creators and distributors of media programming to access conventional and legacy analog transport switches and systems. But the MSP-220-T also provides a path to migrate to the digital TV realm with either SDI or Ethernet circuits without disconnecting or replacing their links with new equipment.

Typically, these links are point to point over dark fiber or a channel in a CWDM or WDM system. But the MSP-220-T with its standards based OC-12c/STM-4c format can be installed as local aggregation device to a nearby SONET/SDH access point or can be used in a hybrid scenario incorporating a fiber link over distance to and/or from the SONET/SDH access point. SONET/SDH transport is known to have optimal characteristics for video specifications in terms of SNR, latency, delay variation (jitter) and delivery reliability.

Besides the simplicity and cost savings of single model in stocking, sparing, and provisioning, the inherent design of a bidirectional encoder/decoder system like the IPITEK MSP-220-T offers other operational advantages. While the system can be installed with unidirectional traffic provisioned only, if the facility is available for two-way connectivity, the units can be remotely managed from end or the other. This is especially useful when the operator can be enable or disable channels, adjust gain and tilt, etc. from a receiving point by making adjustments on the remote side that is transmitting to him.

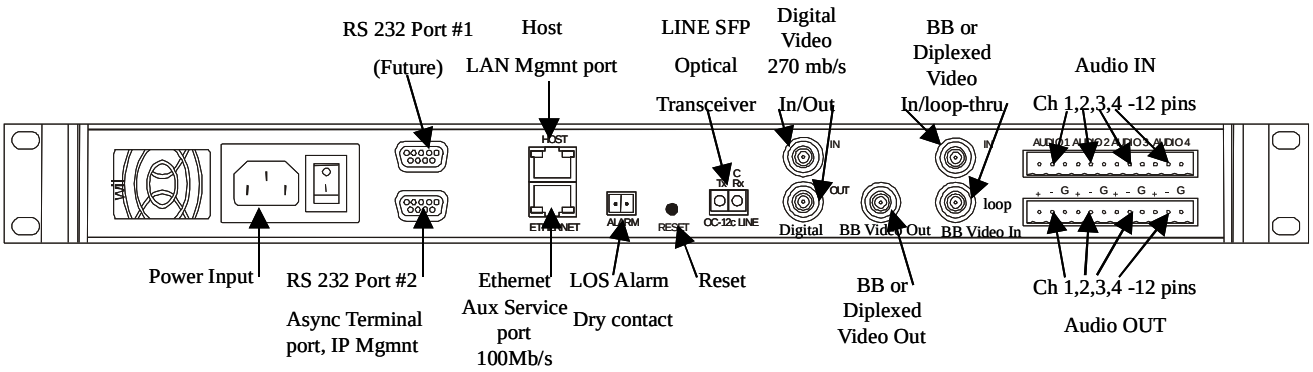
Adjustable audio with built-in level monitoring, built-in adjustable cable equalizers and front panel mounted analog and digital in/out monitoring jacks provide Operations staff with the tools needed to easily turn-up and diagnose the service quality.

Built-in IP Web-based user interface and remote in-band management via SONET/SDH overhead DCC provides full featured local and remote status monitoring, provisioning, and loopback diagnostic test capabilities.

Extensive multi-level password-based security ensures only authorized persons can setup the services provided. SNMP-based network management is also included as is software download to future-proof the units service longevity.

IPITEK FIBER OPTIC DIGITAL TRANSPORT

Rear Panel View



SPECIFICATIONS

Baseband Video

Signal-to-Noise Ratio:	≥73 dB, quiet line
Frequency Response:	
4.2 MHz mode:	±0.2 dB
6.0 MHz mode:	±0.2 dB
(PAL-B,D,H,I,M,N video signal transport)	
Chroma-Luma Gain:	±2 IRE
Chroma-Luma Delay:	±10 ns
Chroma Non-Linear Gain:	±1 IRE
Chroma Non-Linear Phase:	1.0°
Chrom-Luma Intermodulation:	1 IRE
Differential Gain:	2%
Differential Phase:	0.7°
Maximum Input Level:	1.143 V p-p, typical 1V p-p

Digital Video

Connector:	BNC, 75 ohm
Baud Rate:	270 Mbps ± 100ppm
Max. Cable Length:	300 meters, Belden 8281, Auto-Eq
Tx return loss:	15 dB (per SDI and DVB-ASI)
Tx Amplitude:	800 mV ±10% (per SDI and DVB-ASI)
TX DC Offset:	0.0V ±0.5V (per SDI)
Tx rise and fall time:	0.4ns - 1.5ns (per SDI exceeds DVB-ASI)
Tx rise and fall differential:	0.5ns (per SDI exceeds DVB-ASI)
TX overshoot:	<10% (per SDI)
Jitter (SMPTE - RP184):	<0.2UI p-p Tx and Rx
Jitter (CENELEC EN50083-9 DVB-ASI):	<10% DJ, <8% RJ
Layer 2 Protocols:	transparent, DC coupled and scrambled

Ethernet

Line Rate:	100 Mb/s Full duplex

Baseband Audio

Signal-to-Noise Ratio:	≥ 78 dB
Total Harmonic Distortion:	≤ 0.5%
Frequency Response:	±0.5 dB, 20 Hz to 20 KHz
Transmission Time Differential:	10 ms lag ms
Audio Channels:	2,3,4

Craft Async

RS-232 (2):	57.6 Kb/s, 8/N/2

Optical

Link budget	
IR1 (1310nm):	13 dB(≥ -15 dBm out)
Rx Sensitivity:	-28 to -8 dBm
LR1 (1310nm):	25 dB(≥ -3 dBm out)
Rx Sensitivity:	-28 to -8 dBm
LR2 (1550nm):	25 dB(≥ -3 dBm out)
Rx Sensitivity:	-28 to -10 dBm
HXX (CWDM Ch 47/49/51/53/55/57/59/61):	30 dB(≥ 0 dBm out)
Rx Sensitivity:	-30 to -9 dBm
Connector:	LC/UPC

Environmental

Operating Temperature:	0º to 50º C
Storage Temperature:	-55º to +75ºC
Operating Humidity:	to 90%, non-condensing
Dimensions:	1.75"H x 19" or 23" W x 14"D
Power:	-48 VDC or 110/220 VAC, 42 watts
Heat:	143.3 BTU/Hr
Weight:	7 lb

ORDERING INFORMATION

MSP-220-T - XX

MSP-220-T Pro Video Link	**Version** **AC** = AC Powered **DC** = DC Powered

MSP-SFP - XXX SONET GR-253 Compliant

MSP-220-T Optics Modules	**Type** **IR1** = 1310nm(13 dB link) **LR1** = 1310nm (25 dB link) **LR2** = 1550nm (25 dB link) **HXX** = CWDM (30 dB link) XX=ch# (47, 49, 51, 53, 55, 57, 59, 61)

MSP-SFPs include two LC to SC/UPC 2 meter adapter fiber jumpers

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