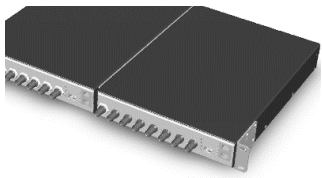


Software Defined - Distributed Matrix Switch

ADAPTABLE, FLEXIBLE, POWERFUL, & UNIVERSAL: THE MODERN MATRIX SWITCHING SOLUTION

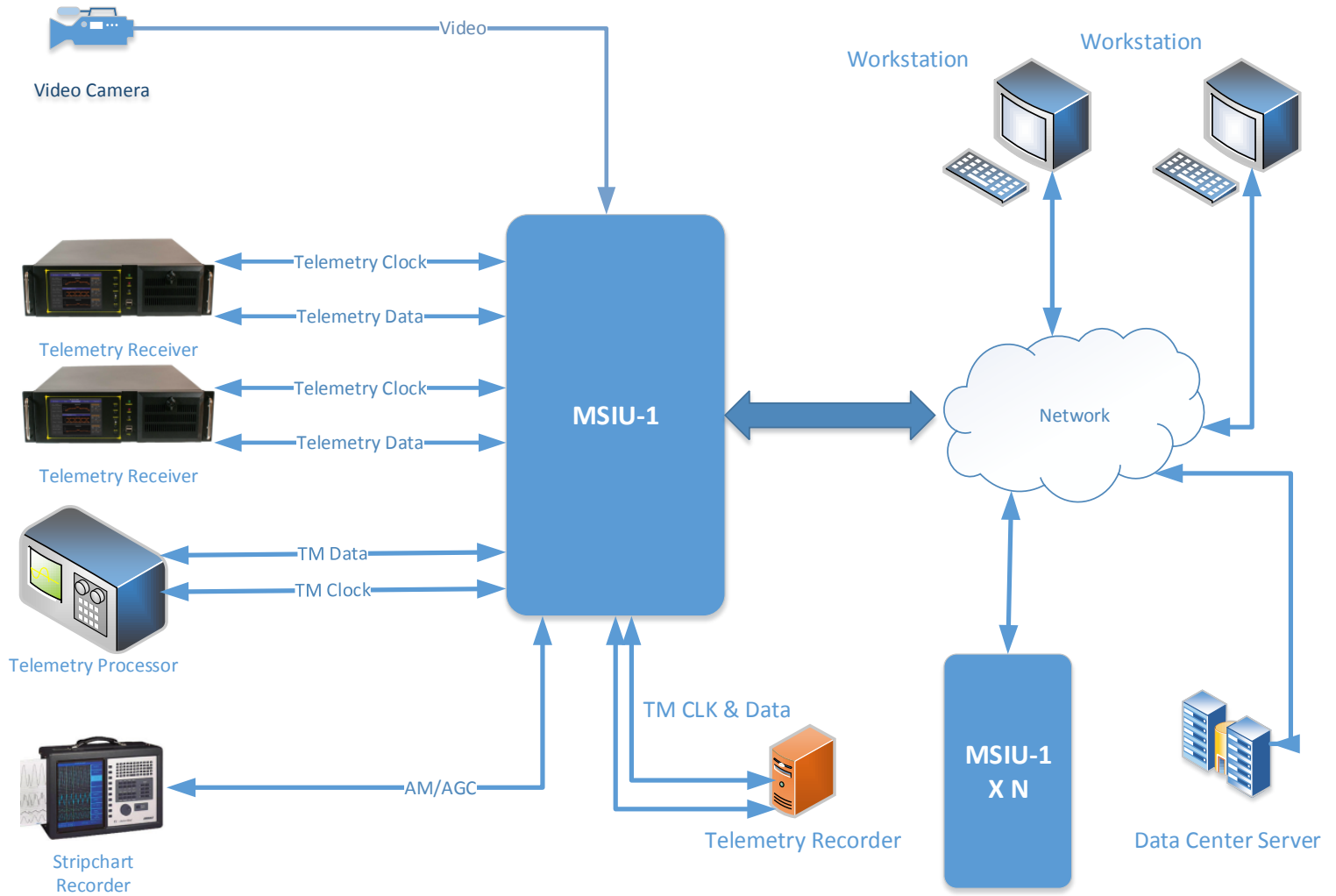
SD-DMS Features:

- **DISTRIBUTED - DECENTRALIZED MATRIX:** Distribute Channels of the SD-DMS where you need them, cost effectively, customized to fit signal types & channel counts
- **FIELD PROGRAMMABLE:** Multi-Function Service Ports enables the user per port basis to provision the SD-DMS to select Signal Types & Configure #'s of Inputs/Outputs "on the fly"
- **MULTIPLEX/DEMULTIPLEX:** Combine multiple signals & types into single streams
- **NETWORK GATEWAY:** RCC 218 compliant **TMoIP** Gateway and Inverse **TMoIP** Gateway
- **DATA RATES:** 80 bps to 400 Mbps+
- **SIGNAL TYPES:** PCM Telemetry, Serial (RS 232/422), TTL, ECL, Analog, Audio, HD/SD/NTSC/PAL Video, IRIG, T1/E1, & Others...
- **BIT SYNCHRONIZATION:** Available Bit Sync per Channel
- **TRANSMISSION:** Locally via Cabling AND Over Fiber & Copper Networks Simultaneously
- **FLEXIBILITY:** Switch locally or over Network
 - Strip & Ship individual channels to specific IP addresses within network
- **BUILT-IN TEST CAPABILITY:** Each channel comes with its own test source for signal types: Bit Error Rate Tester (BERT), Video Pattern Generator, & Analog Sine Wave Signal Generator
- **SCALABLE:** In Both Hardware Ports & Network IP Ports (Addresses)
 - H/W Channel Counts: 2x2, 4x4, 8x8, 6x16, 32x32, 64x64, ... 512x512
 - Remember! Not permanently set Inputs/Outputs as they are PROGRAMMABLE!
 - Plus! Outputs can be distributed over Network: PC's, Workstations, Network Recorders, & Telemetry Recorders. From 2 to over 1000 Devices

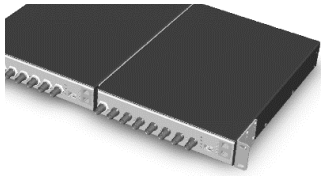


Overview

The SDMS combines Local/Internal switching AND Network switching technologies to enable any port to any port or multi-port connectivity of all of the analog and digital services listed above; providing a DECENTRALIZED federated architecture for sharing information. This modern platform could be the perfect WANIU or serial data switch matrix replacement for the flight test and space ranges.



SOFTWARE DEFINED MATRIX SWITCH FUNCTIONAL BLOCK DIAGRAM



Maintaining Time/Data Correlation

The SDMS is equipped with Flat Line Response and adaptive IP packet payload length technology providing a fixed, user configurable, end to end latency regardless of the PCM telemetry data rate or Service type (IRIG, Video or Audio) to ensure the time/data correlation is maintained at all times.

The TMoIP/Network Gateway also performs controlled latency of the segmentation process for PCM telemetry and other signals, which are converted to Ethernet packets for transmission ensuring the time/data correlation is maintained for Software Telemetry Processing, & Recording systems.

The Integrated Video Switch and Distribution technology Overview

The integral switching and distribution platform uses one or more universal 960Gb/s central switching platforms that are connected to the switch interface unit via multi-mode or single mode optical fibers. As an example, each switch core is capable of routing more than 300 digital 1920x1080p60 video streams. One solution uses two switch cores and is capable of routing an excess of 140 125MHz RGB signals, plus 70 NTSC signals. Larger systems or systems with redundancy can be built by deploying multiple switch cores.

The SDMS video+ switch enables the interfacing of both composite NTSC video with baseband audio, and multiple Digital Video SD/HD-SDI/3G-SDI/HDMI formats; permitting an easy migration between legacy video distribution and distribution of state of the art digital video formats.

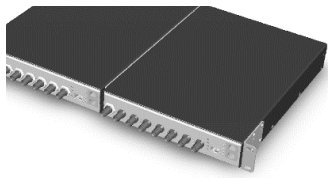
Management, Monitoring, & Control Tool

Seamless Integration of Control for Telemetry & Video

The Service Management & Monitoring Tool (SMMT) enables a practical method to manage and monitor signal routing service provisioning. The integration of telemetry and video control provides the customer with superior resource management by automatically creating point-to-point and point-to-multi-point connections through an automated process.

- Scheduled Service Start & Stop Times
- Timeout service after specified minutes
- Statistics for service and network quality
- Mission Statistics from Service Start to Stop
- Create & Save Service Configuration Profiles
- Secure SNMPv3 Communication
- User Defined Graphical Network Display
- Integrated 24/7 Alarm and Network Monitor
- Scalable from 2 devices to over a 1,000
- Automatic Device Discovery
- Deployable in less than 10 minutes
- List of all Provisioned Services
- Drag & Drop Service Provisioning

CrossPoint Technologies, Inc. CrossPoint Technologies 3 Foshay Road Dudley, MA 01571
David Bowne: David@ifengineering.com (860) 935-0284
Dorse DuBois for more information: dorse@mannateksolutions.com Cell: (719) 964-3557



SPECIFICATIONS:

CRSPNT1 MIU-1



Module

4-8 Multi Service Ports per 1RU. Each 'Port' has Two (A & B) BNC Connectors

Connector: BNC **Impedance:** 50 ohm, 75 ohm (unbalanced), 110 ohm (Balanced)

Telecom: E1, T1 (CESoIP) (PWE3) Connector: BNC & RJ45 (with optional Balun adapter)

Telemetry/Serial Signals: PCM Telemetry (TTL, ECL, CML, Bipolar, Auto)

Telemetry over IP (**TMoIP**) Digital Data Acquisition Format Support

Data Rate: 80bps - 50Mbps; 10 Mbps to 600 Mbps (With MIU-1HS) Widest TMoIP Range Available

Bit Sync: 1000 bps – 50 Mbps

IRIG A, B & G (1, 10, & 100 KHz);

Signal Level: Input: 0.2Vpp min. 10Vpp max. Output: 3Vpp (50 ohm), 10Vpp (25 ohm)

Impedance: Input: Hi-Z, 600 ohm & 50 ohm. Output: 25, 50, & 600 ohm

Analog: Baseband Analog Signals, Signal Level: 5Vpp max, Impedance: 50 ohm & 75 ohm

Bandwidth: Up to 10 MHz

Video: NTSC & PAL; Video Data Rates: 10 Mbps – 400 Mbps (User Configurable)

Video Processing Latency: 2mS

Audio: (HiFi) (DC-22Khz & DC-90Khz); SAToIP; ASYNC RS-232 Audio TS streaming (up to 24 audio channels per port)

Remote Management

Built-in Web-based GUI and SNMPv2 and v3

Ethernet Network Interface

One pluggable SFP+ module. 1/10Gb/s Base-X
Two RJ45.10/100/1000Base-T

Physical Dimensions

1RU, ½-width 19". Two units fit in a 19":

(H x W x D) 1.75" x 8.50" x 10.00" (4.45 x 21.59 x 25.54) cm

Environmental Conditions

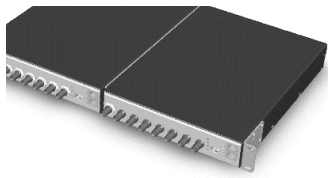
Operating Temperature: 0 to 40°C (32F to 104F)

Storage Temperature: -40 to 70°C (-40F to 158F)

Relative Humidity: 5% to 90% (Non Condensing)

Power

100 – 264V AC (47 – 63Hz) < 60W



CRSPNT2 MIU-2 Module:

Base System interfaces:

Baseband Video Input & Output

Composite 1Vp-p Video (PAL B/D/G/H/I/M/N & NTSC M), 75 Ohms unbalanced, BNC connector

HDMI Input & Output Interfaces

HDMI (720X480i30 to 1920X1080@60, with embedded audio support for SD & HD video)

Baseband Audio

Analog Audio Input ports

Density: 1 stereo or 2 mono

Format: balanced

Impedance: > 10Kohms or 600 ohms, user selectable

Max input level: +21 dBu

Connection: DB-9

Analog Audio Output ports

Density: 1 stereo or 2 mono

Format: balanced

Impedance: 25 ohms or 600 ohms, user selectable

Max output level: +21 dBu

Connector: DB-9

Serial Data port

Density: 1 port Bi-directional (RS232/422)

Connector: DB-9

Serial Digital Video/Audio interfaces

SDI Video Configurable Input or output

Density: 2 BNC connector

Configurable for: 2 inputs or 2 outputs or 1 input & 1 output

Formats: SDI, HD-SDI, 3G-SDI (with support for embedded audio), DVB/ASI

Digital AES/EBU Audio Interface



Density: 2 ports

Configurable for: 2 inputs or 2 outputs or 1 input & 1 output

Format: AES/EBU, balanced 110 ohms

Connector: DB-9

Compression Options (Hardware configurations)

Video: No-compression, MPEG-2, H264, AVC-I 50/100, Proprietary Low latency compression

Audio: SMPTE302, MPEG-1 Layer 2, AAC-LC, HE-AAC, AC-3

Remote Management

Built-in Web-based GUI and SNMPv2 and v3

Ethernet Network Interface

One pluggable SFP+ module. 1/10Gb/s Base-X

Two RJ45.10/100/1000Base-T

Physical Dimensions

1RU, ½-width 19". Two units fit in a 19":

(H x W x D) 1.75" x 8.50" x 10.00" (4.45 x 21.59 x 25.54) cm

Environmental Conditions

Operating Temperature: 0 to 40°C (32F to 104F)

Storage Temperature: -40 to 70°C (-40F to 158F)

Relative Humidity: 5% to 90% (Non Condensing)

Power

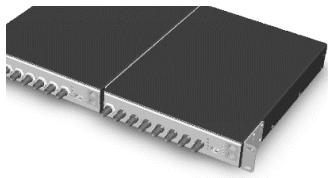
100 – 264V AC (47 – 63Hz) < 60W

CRSPNT MIU-400 Module:

CrossPoint Technologies, Inc. CrossPoint Technologies 3 Foshay Road Dudley, MA 01571

David Bowne: David@ifengineering.com (860) 935-0284

Dorse DuBois for more information: dorse@mannateksolutions.com Cell: (719) 964-3557



The MIU-400 provides a flexible solution for high-speed telemetry transmission. The system is user configurable to support one-way

transmission as well as full duplex operation.

The MIU-400 is a COTS solution that enables transmission over optical fiber infrastructures as well as standard Ethernet Networks with SFP support for short, long, and CWDM wavelength optical transceivers.

The system supports (one-way) single fiber operation and (two-way) two-fiber operation.

The built-in Ethernet Switch enables additional aggregation multiplex capabilities by daisy chaining of multiple TNP-100/200/300/400 units allowing for higher fiber utilization.

The MIU-400 provides LAN extension for Two 1Gbps services between local and remote sites.

MIU-400 SPECIFICATIONS:

Multi-Function Interface

2 Multi-Service Ports

Telemetry Input/Output (User configurable)

Density: 8 BNC connectors (Clock & Data),

Format: Balanced ECL terminated 50 Ohms to – 2V

Data rate up to 1-400Mb/s.

Remote Management

Built-in Web-based GUI and SNMPv2 and v3

Ethernet Network Interface

One pluggable SFP module. 1000/10000Base-X

CWDM SFP's are also supported.

Two RJ45.10/100/1000Base-T

Physical Dimensions

1RU, ½-width 19". Two units fit in a 19": (H x W x D) 1.75" x 8.50" x

10.00" (4.45 x 21.59 x 25.54) cm

Environmental Conditions

Operating Temperature: 0 to 40°C (32F to 104F)

Storage Temperature: -40 to 70°C (-40F to 158F)

Relative Humidity: 5% to 90% (Non Condensing)

Power

100 – 264V AC (47 – 63Hz) < 30W