MultiDyne®

Video & Fiber Optic Systems

CONFIGURATION AND INSTALLATION MANUAL

VERASTILE BRIX SERIES

MultiDyne

Harnessing The Power of Light

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This product was designed and manufactured in the
UNITED STATES of AMERICA

Important Safety Information

- Do not use this apparatus near water.
- Clean only with lint free dry cloth.
- Do not block any ventilation openings.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purposes of the grounding-type plug. A ground type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit in to your outlet, consult an electrician for replacement of the obsolete outlet.
- Install in accordance with the MultiDyne® installation instructions.
- Install all peripheral equipment (cameras, routers, etc.) in accordance with the manufacturer's instructions and safety requirements.
- Protect the power cord from being walked on or pinching particularly at plugs, convenience receptacles, and point where they exit from the apparatus.
- Only use attachments/accessories specified by MultiDyne®.
- Use only with the cart, rack, stand, tripod, bracket, or table specified by MultiDyne®, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

	**Warning** –indicate danger that requires proper procedures or practices to prevent injury or death to personnel.
	**Cautions** indicate proper procedures or practices to prevent damage to equipment or property.
	**Warning** –The safe operation of this product requires that a protective earth connection be provided. A grounding conductor in the equipment's mains supply cord provides this protective earth. To reduce the risk of electrical shock to the operator and service personnel, this ground conductor must be connected to an earthed ground. The mains plug shall remain readily operable.
	**Warning** –The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
	**Warning** - This symbol on the equipment indicates for use at altitudes not exceeding 2000 m.
	**Warning** - Contact your local authority for further details on the correct disposal of this waste, in accordance with your national legislation.

- Follow all local Electrical Codes for Grounding, Lightning Arrestment and Surge Protection. Unplug this apparatus during lightning storms or when unused for long periods of time.
- All Electrical Work to the facility must be performed by a qualified Licensed Electrician. All local Electrical Codes must be followed and, if necessary, must be inspected by a Local or State Inspector.
- All servicing of MultiDyne equipment must be perform at the factory by a MultiDyne trained service technician or engineer.
- Throughout this manual, a number of Warnings and Cautions and Notes may be presented to alert the user to important safety or operating information.
- Always adhere to local building, safety and fire prevention codes during the installation and operation of this product.
- Use only power cords that were shipped with specified for this product and certified for the country of use.
- Connect the unit only to a power source with the specified voltage rating.
- Unless otherwise stated in the Installation Instructions, and in adherence to local Electrical Codes MultiDyne® Equipment should only be plugged into a standard 15 amp dedicated circuit.

Laser Safety Information

This unit is classified as a **CLASS 1 LASER PRODUCT** according to EN60825-1 (EU) and FDA 21CFR 1040.10 (USA). Class 1 laser products are considered safe and do not result in biological hazard if used according to these instructions.

	**Warning** – Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
	**Warning** – Never look directly into the end of the optical fiber while either end of the system is operating.
	**Warning** – Never clean an optical fiber connector on equipment or cable that is carrying light.
	**Warning** – Always use dust caps on fiber optic connectors when cables are not connected. This will protect the connector from damage and accidental exposure of a human eye to an operating laser.

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INTRODUCTION

Overview

The Versatile Brix (VB) Series Box is a rack mounted stand-alone Video Serial Digital Interface (UHD-SDI) with audio, Ethernet, and data transport sub-system that extend the range limits for interfaces over fiber. There are three versions of the VB Series Boxes which include a two card unit (VB2), six card unit (VB6) and a ten card unit (VB10).

The VB Series are customized to specific customer needs and will combine, convert, receive and transmit all video, audio, and data signals over a single optical fiber link. The system will transport digital signals for video, analog audio, Audio Engineering Society (AES) digital audio, serial data, tally, General Purpose I/O (GPIO), and Ethernet signals.

HARDWARE DESCRIPTION AND FEATURES

Overview

The VB Box power supply is external and operates with a wide range of voltage inputs from 9V to 24V and contains a blower fan mounted to the front of the box that helps move air from the rear to the front. Figure 1 is an exploded view showing a sample of a six slot VB Box configuration locating two Video Cards, an Audio Card, Sync Card, Data Card, and Ethernet Card. This diagram also shows the connection relationship between the card locations and the hardware chassis components.

The VB Box uses Coarse Wavelength Division Multiplexing (CWDM) wavelengths ranging from 1270nm to 1610nm to multiplex different signals all transmitted over a single fiber. Every single optical input/output video channel occupies a single wavelength and audio, data and sync signals travel are on a wavelength.

Features and Functions

The VB Series Box can be configured for customer requirements. The versatility of the VB device comes from a configurable chassis design coupled with a flexible interface to individual circuit cards. Each VB box can be configured to hold two or six signal circuit cards and if required two VB Boxes can be linked together for a larger card configuration based on customer needs.

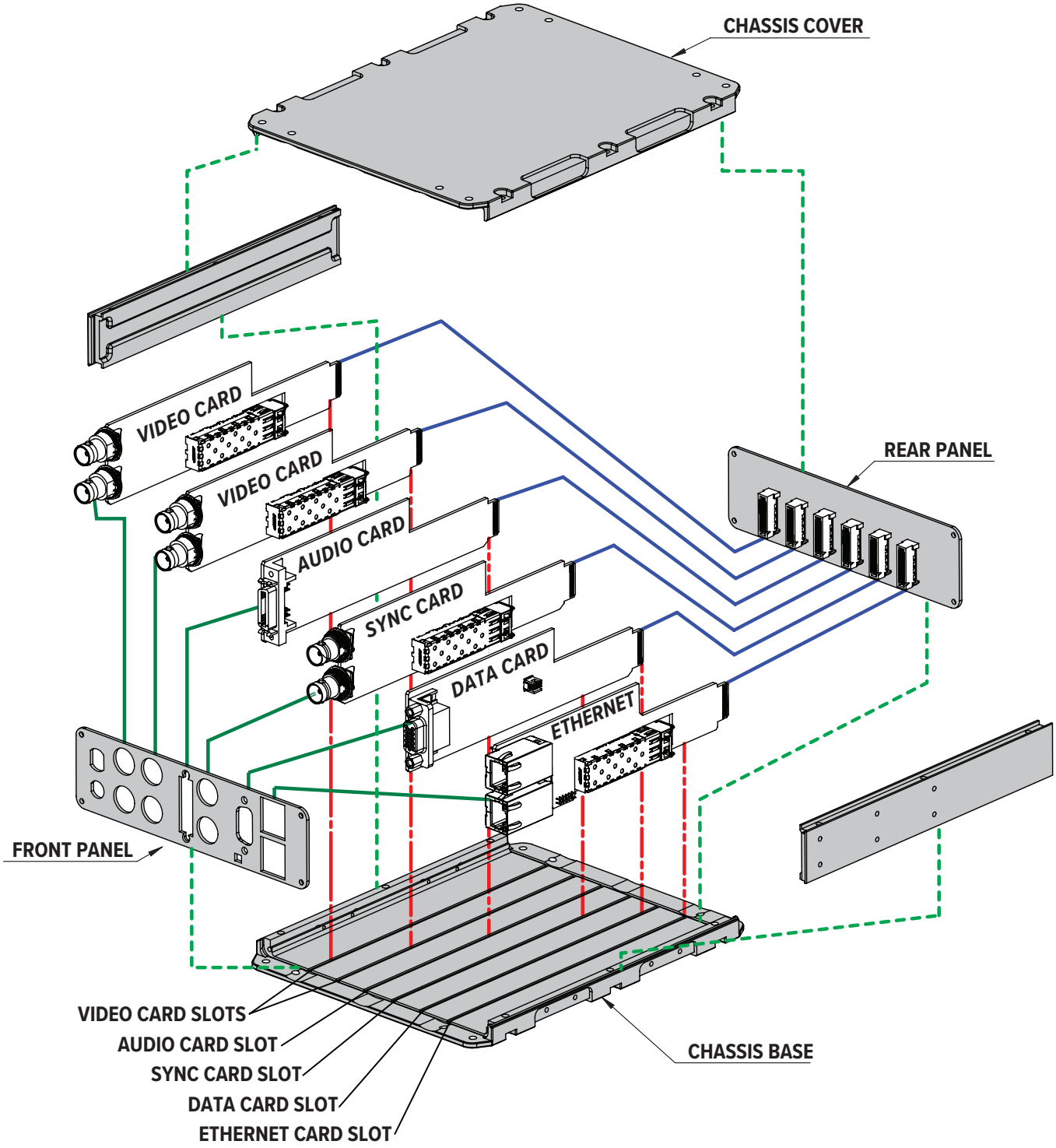


Figure 1. Versatile Brix Series Box Sample Configuration Exploded View.

VB SERIES CARD DESCRIPTIONS

Video Cards

The VB series Video Card supports all popular standards for digital video transport (e.g.; SMPTE ST 2082, SMPTE ST 2081, SMPTE 424M, SMPTE 292M, and SMPTE 259M) working at 12G-SDI, 6G-SDI, 3G-SDI, HD-SDI, SD-SDI respectively. In addition, the SDI interface will also transport signals compatible with DVB/ASI, and SMPTE 297M interfaces at defined rates. The units include a digital re-clocker and repeater for the SMPTE SDI standards as listed above. For other standards and rates, the signal is automatically bypassed through without re-clocking. For all SDI inputs, the units include automatic cable equalization, see Input Coax EQ for cable distances and driving based on the data rate detected.

The Video Cards are dual or single channel circuit cards. They can be ordered in two options based on the data rate required:

1. 3G Option,
2. 12G Option.

The Video Card is the standard model type that can be configured, based on customer requirements, into one of the following options:

- Dual Receive (2RX), see Figure 2.
- Dual Transmit (2TX), see Figure 3.
- Single Receive (RX), see Figure 4.
- Single Transmit (TX), see Figure 5.
- Transceiver (TRX), see Figure 6.

Customers can order the VB Boxes with any model type of Video Card that will meet their needs. When in transmit configuration, the board is configured to receive video from the BNC connector. The video signals are equalized and re-clocked before being transmitted over the Fiber Network. In receive configuration, video signals are received over Fiber Network where they are re-clocked and driven over the copper wire connection at the BNC connector by the cable driver. The data rates are indicated over the front panel:

- The 3G Video Card indicates SDI, HD and 3G,
- The 12G Video Card indicates 3G, 6G or 12G option.

The table below shows the supported rates for the 3G and 12G Video Cards.

SFP Installed/ Rates	SDI Path	HD Path	3G Path	6G	12G	MADI
3G	Yes	Yes	Yes	No	No	Yes (Bypassed)
12G	No	No	Yes	Yes	Yes	No

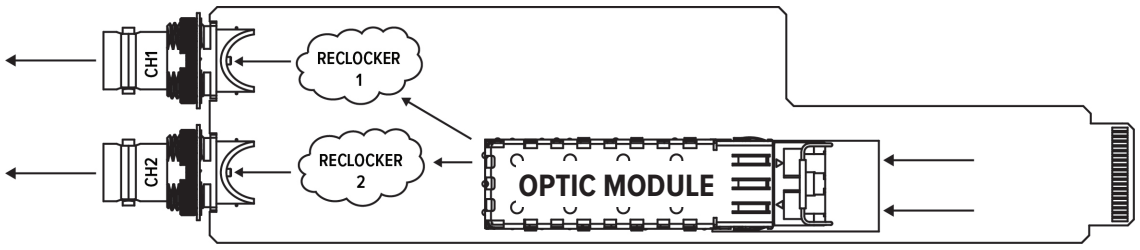


Figure 2. Sample Dual Video Receiver Signal Flow (2 SDI Outputs).

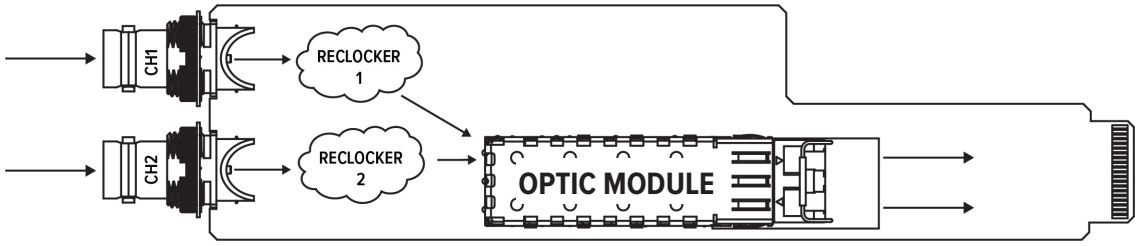


Figure 3. Sample Dual Video Transmitter Signal Flow (2 SDI Inputs).

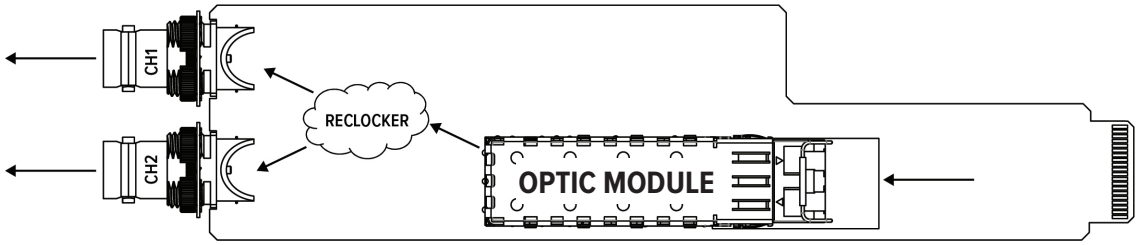


Figure 4. Sample Video Receiver Signal Flow (2 SDI Outputs, Same Signal).

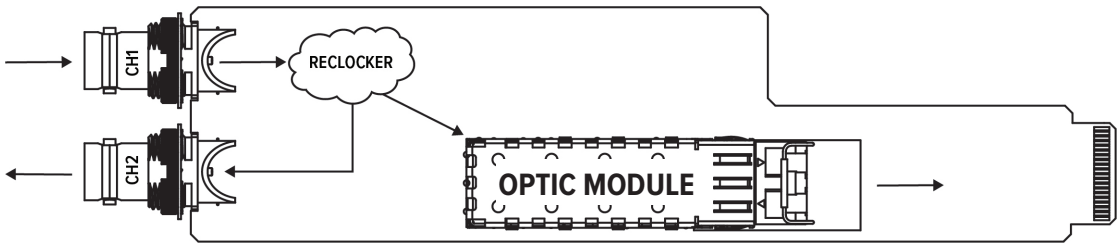


Figure 5. Sample Video Transmitter Signal Flow (1 SDI Input, 1 BNC Loop Out).

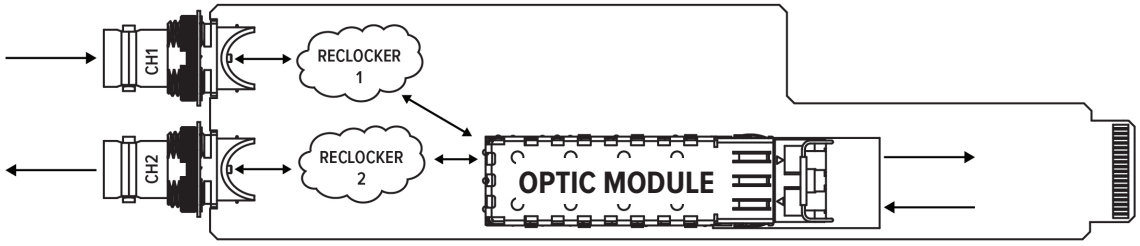


Figure 6. Sample Video Transceiver Signal Flow (1 SDI Input, 1 SDI Output).

Composite Video Card

The Composite Video Card, see Figure 7, is available in three versions:

1. Single Transmitter,
2. Single Receiver,
3. Transceiver.

In the Single Transmitter configuration, the video is received in the bottom BNC from the copper wire connection and transmitted over Fiber Network. The top TX LED for the slot in which the card is installed will illuminate to show the transmission of video sent to the board.

In the Single Receiver configuration, the video is received from the fiber connection and transmitted over copper wire connection at the top BNC. The bottom RX LED for the slot in which the card is installed will illuminate to show that video has been received by the card.

In the Transceiver configuration, the video is received and transmitted as a combination of both the Single Transmitter configuration and Single Receiver configuration.

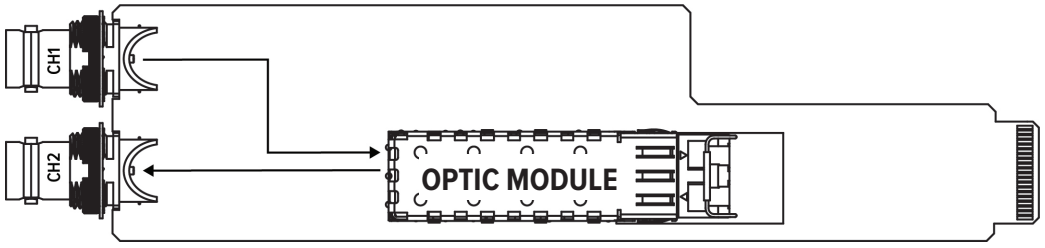


Figure 7. Composite Video Card Sample Flow

Audio Card

Audio Card Channels

The VB series also transports 4x4 analog audio channels over two digital AES pairs, up to 96 KHz, that cross convert with the four analog channels and a bidirectional stereo channel for intercom applications with maximum level of 4dBu:

- A sample of the Analog Audio Transceiver Card signal flow is shown in Figure 8.
- A sample of the AES Audio Transceiver Card signal flow is shown in see Figure 9.

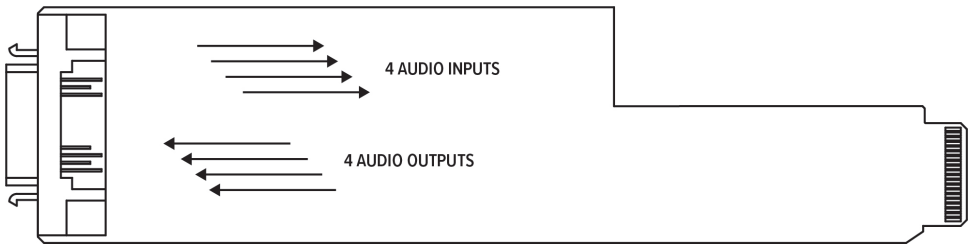


Figure 8. Sample Analog Audio Transceiver Card Signal Flow (4 Analog Audio Inputs, 4 Analog Audio Outputs).

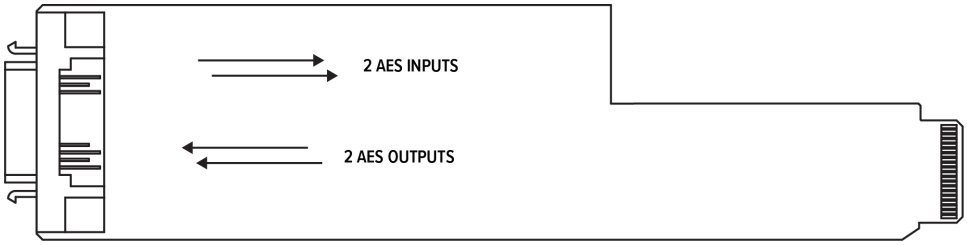


Figure 9. Sample AES Audio Transceiver Card Signal Flow (2 AES Audio Inputs, 2 AES Audio Outputs).

The Audio Card is available in three versions:

1. Analog Audio Only, see Figure 8,
2. AES Audio Only, see Figure 9,
3. Combination of Analog Audio and AES Audio signals.

Audio Card Diving Board

The Audio Card Diving Board is a compact plug in PCB that connects to the Audio Card and protrudes about two inches from the Audio Card back panel, see Figure 10. The Diving Board contains breakout headers where the customer can have a balanced XLR audio connection from a source to the PCB screw type connectors. These connections can be used for different audio inputs or outputs to the VB Box.

1.	AUD1+IN	9.	AUD4+IN	17.	AUD3+OUT
2.	AUD1-IN	10.	AUD4-IN	18.	AUD3-OUT
3.	GND	11.	GND	19.	GND
4.	AUD2+IN	12.	AUD1+OUT	20.	AUD4+OUT
5.	AUD2-IN	13.	AUD1-OUT	21.	AUD4-OUT
6.	GND	14.	GND	22.	GND
7.	AUD3+IN	15.	AUD2+OUT	23.	NO CONNECTION
8.	AUD3-IN	16.	AUD2-OUT	24.	NO CONNECTION

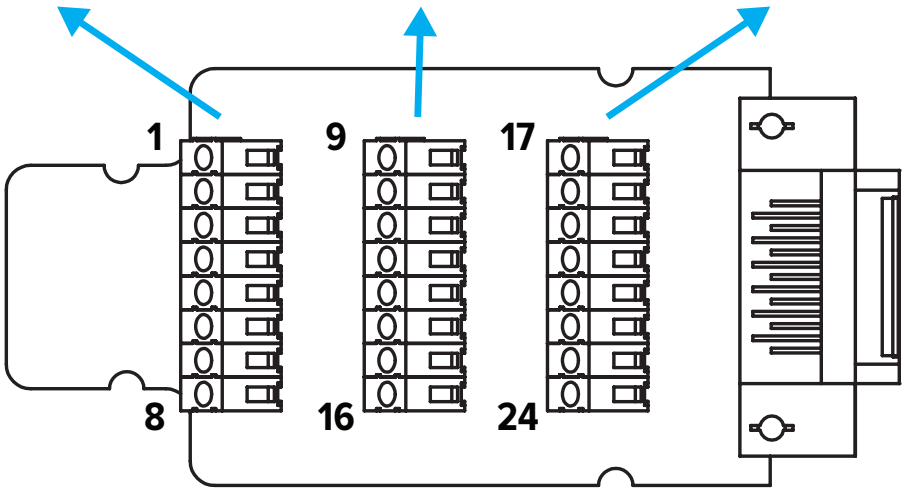


Figure 10. Audio Card Diving Board

Audio Card Connector

The Audio Card connector (PN 1026-3000PE) is a 26 Position cable receptacle connector, see Figure 11.

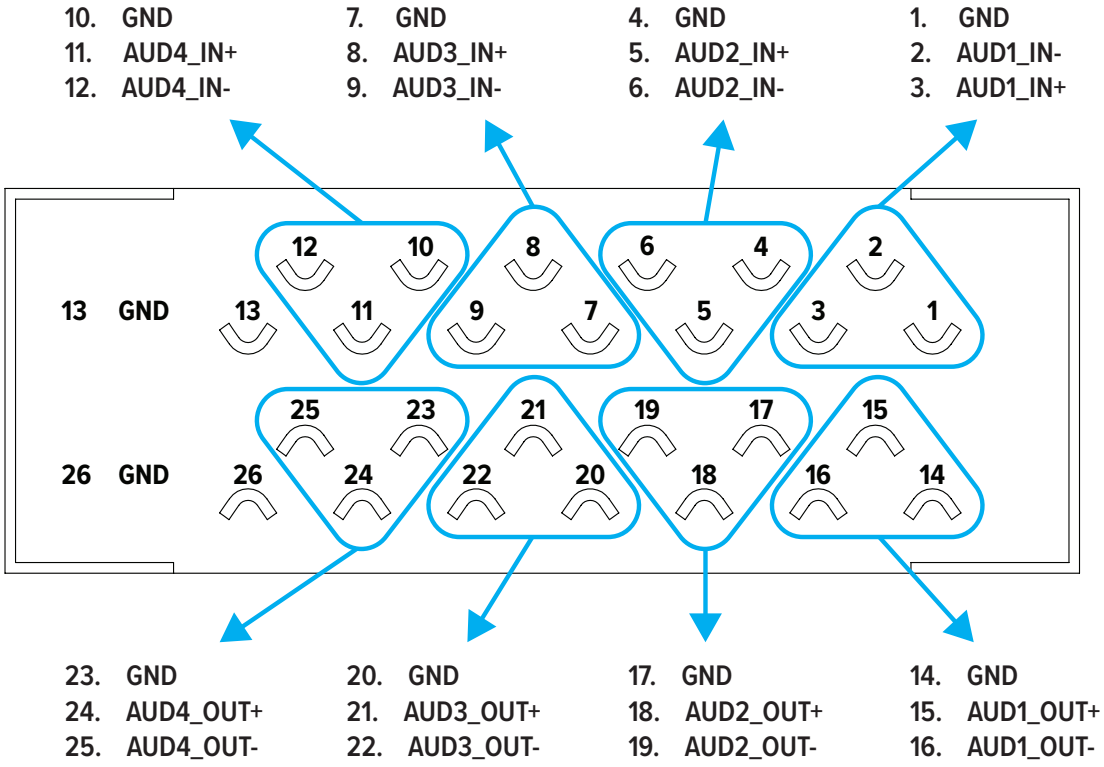


Figure 11. Audio Card Connector.

MDR CONNECTOR PINOUT	FUNCTION	XLR FEMALE	MDR CONNECTOR PINOUT	FUNCTION	XLR FEMALE
1	GND	XLR 1 PIN 1	14	GND	XLR 1 PIN 1
2	AUD1_IN-	XLR 1 PIN 3	15	AUD1_OUT+	XLR 1 PIN 3
3	AUD1_IN+	XLR 1 PIN 2	16	AUD1_OUT-	XLR 1 PIN 2
4	GND	XLR 2 PIN 1	17	GND	XLR 2 PIN 1
5	AUD2_IN+	XLR 2 PIN 2	18	AUD2_OUT+	XLR 2 PIN 2
6	AUD2_IN-	XLR 2 PIN 3	19	AUD2_OUT-	XLR 2 PIN 3
7	GND	XLR 3 PIN 1	20	GND	XLR 3 PIN 1
8	AUD3_IN+	XLR 3 PIN 2	21	AUD3_OUT+	XLR 3 PIN 2
9	AUD3_IN-	XLR 3 PIN 3	22	AUD3_OUT-	XLR 3 PIN 3
10	GND	XLR 4 PIN 1	23	GND	XLR 4 PIN 1
11	AUD4_IN+	XLR 4 PIN 2	24	AUD4_OUT+	XLR 4 PIN 2
12	AUD4_IN-	XLR 4 PIN 3	25	AUD4_OUT-	XLR 4 PIN 3
13	GND		26	GND	

Sync Card

Transport Options

Each VB Box Sync Card is capable of transporting a video reference signal in formats that include SD Black Burst (NTSC, PAL) and HD Tri-Level. Figure 12 shows the Base Side signal flow and Figure 13 shows the Camera Side signal flow. Only the sync portion of the signal is transported across a fiber link, all video and color information is stripped from the signal. HD SYNC supported formats are 720p60, 720p59.94, 720p50, 720p30, 720p29.97, 720p25, 720p24, 720p23.98, 1080p60, 1080p59.94, 1080p50, 1080p30, 1080p29.97, 1080p25, 1080p24, 1080p23.98, 1080i30, 1080i29.97, 1080i25, 1080i24 and 1080i23.98.

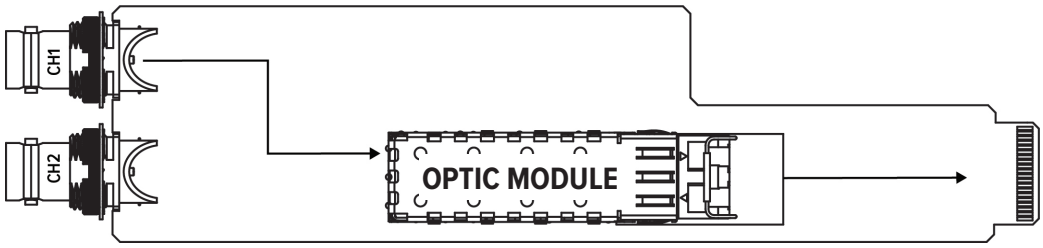


Figure 12. Sample Base Side Sync Card Signal Flow.

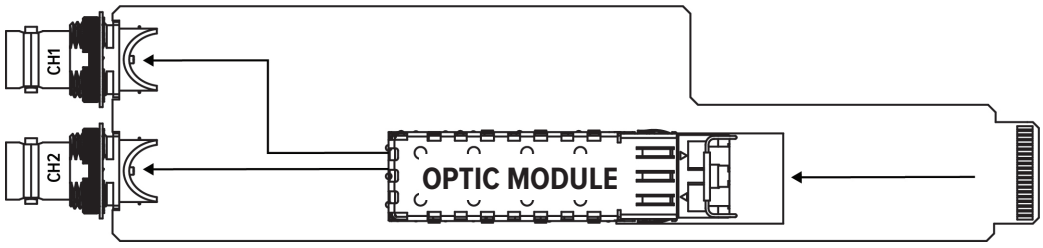


Figure 13. Sample Camera Side Sync Card Signal Flow.

Data Card

Channel Support

The VB series Data Card supports one Bidirectional Tally, one GPIO Bidirectional Channel, and two Data Channels transport up to 3Mbps. Data can be set in different configurations based on the customer specification. The cards can be configured with RS232, RS422 or RS485 by changing the switch settings, see Figure 14. The LEDs in the front will turn on showing the data paths are active. The RS232 and RS422 operate in the full duplex mode while the RS485 operates in half duplex.

POSITION	STATUS
SW1 OFF	CH1 RS232
SW1 ON	CH1 RS422/RS485
SW2 OFF	CH2 RS232
SW2 ON	CH2 RS422/RS485

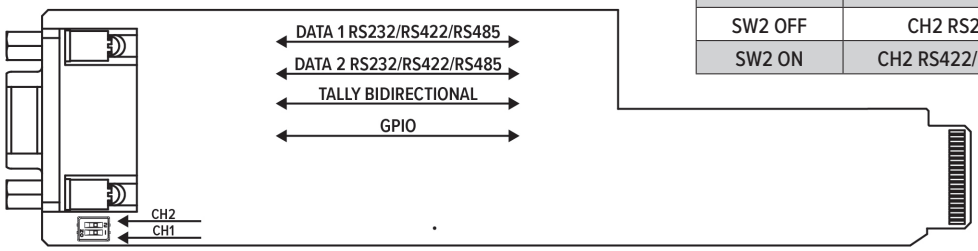


Figure 14. Sample Data Card Signal Flow (2 Bidirectional RS-232/RS-422/RS48, 1 Bidirectional Tally, 1 Bidirectional GPIO).

On a RS485 applications the TX and RX pins must be connected together with a small 680 Ohm Resistor, see Figure 15 for a simplified diagram for the resistors connection.

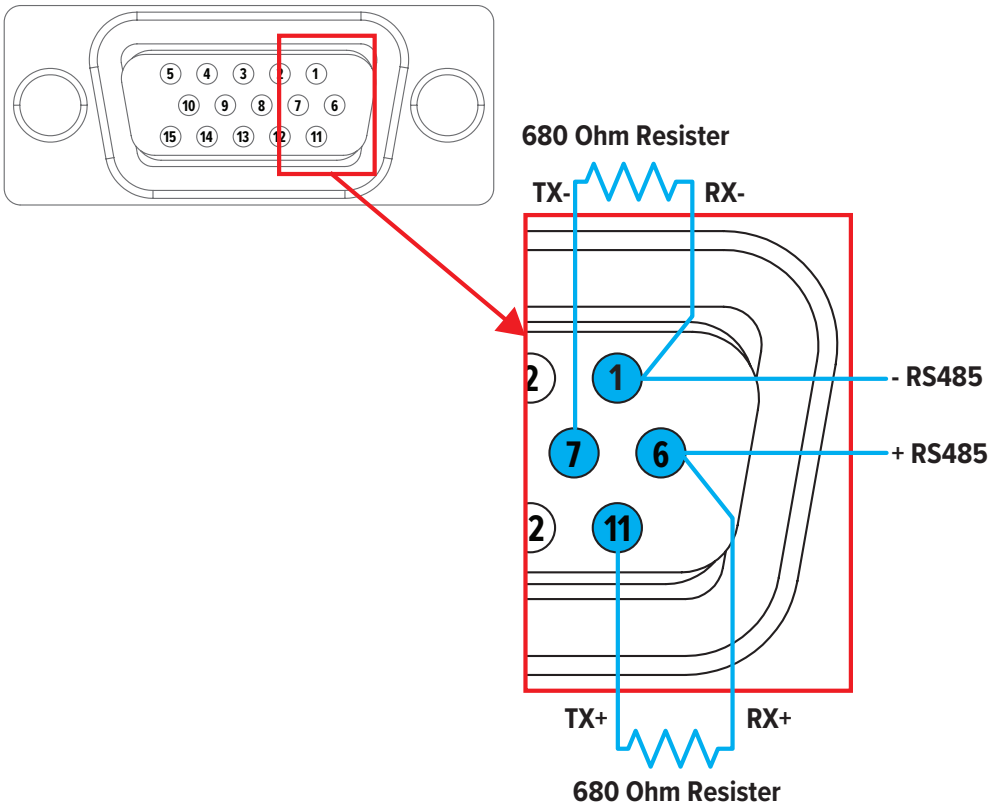


Figure 15. RS485 Resistor Connection.

Data Card Connector

The Data Card connector is a 15 Position D-Sub, high-density receptacle, female sockets connector, see Figure 16. The pin definitions for the connector are as shown below:

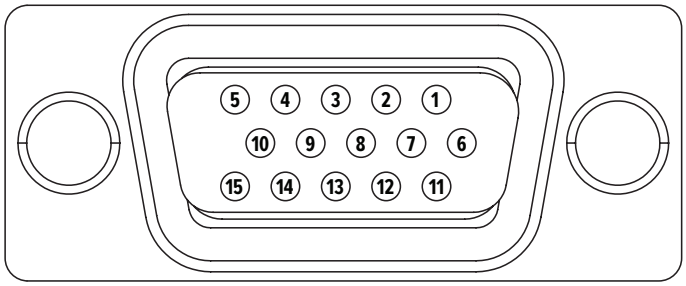


Figure 16. Data Card Cable Connector (Rear View).

PIN NUMBER	FUNCTION
1	CH1 RX-
6	CH1 RX+
7	CH1 TX-
11	CH1 TX+
2	CH2 RX+
8	CH2 RX-
12	CH2 TX+
3	CH2 TX-
9	TALLY IN
10	GPI
13	GPO
4	TALLY OUT
14	GND
15	GND

Ethernet Card

Ethernet Card Ports

The VB series can also be ordered with one or more Ethernet Cards that can contain one or two Ethernet ports. The card can be used to extend to Gigabit of Ethernet connectivity over the Fiber Network, see Figure 17. Rates of 10/100/1000 Mbps are supported by this Ethernet Card. The Gigabit Ethernet includes a connection for copper input to fiber Ethernet media converter. When a link is established between two units, the green LED on the front panel will turn on. Then as each port is connected the lights will flicker.

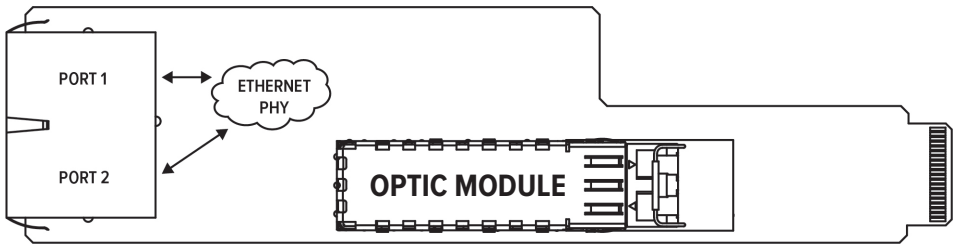


Figure 17. Ethernet Card Sample Flow.

Power over Ethernet (POE) Module

Power over Ethernet (POE) Module is operated with the "Juice48" Power Supply to provide the power necessary for cameras that provide power over ethernet. The VB Box, on the Camera side, and "Juice 48" are connected by a Hybrid Cable. A fiber cable is connected between the "Juice 48" and the Base Side to transmit and receive signals. The system is capable of working over 1000 feet of hybrid cable between the camera and "Juice 48" and 500 feet of CAT5 cable between the VB camera side and Camera. Internally the POE Module is located in the VB6 box and configured with an Ethernet Card.

PANEL INDICATORS

The VB Series are configured to accommodate customer requirements for specific and varying applications. There are three basic versions of the VB Series Boxes that can be ordered:

- VB2 configuration is a two card unit,
- VB6 configuration is a six card unit, or
- VB10 configuration is a ten card unit.

This section will provide illustrations of typical circuit card panel indicators for each of the PCBs that can be installed in a VB Box. Sample illustrations of the panels are shown in Figure 18 and Figure 19.

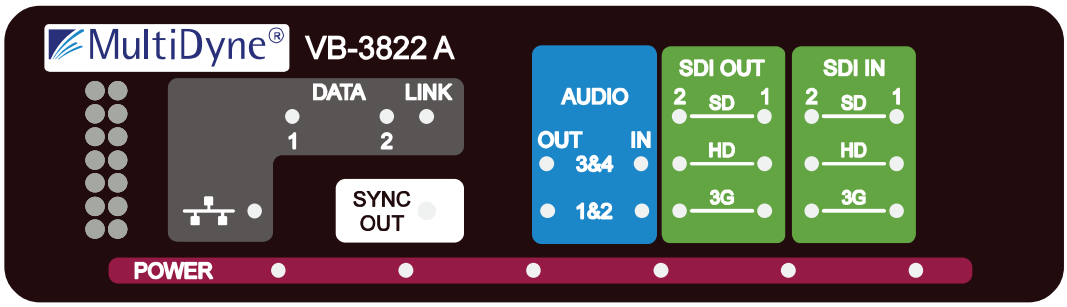


Figure 18. VB6 Front Panel Example for PN VB-3822-A.

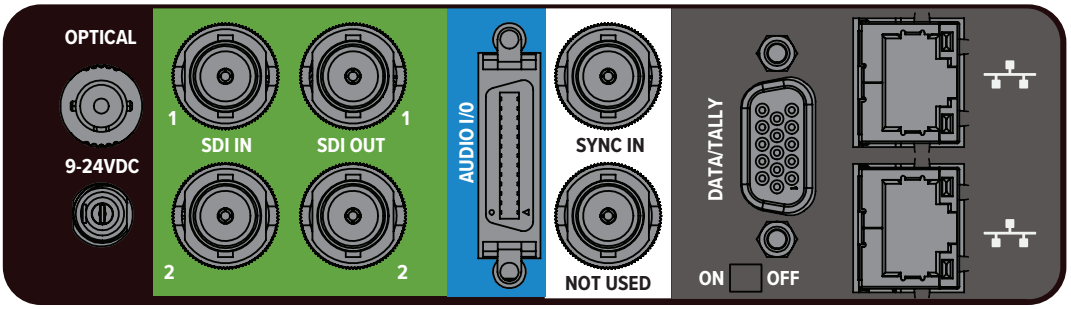


Figure 19. VB6 Rear Panel Example for PN VB-3822-A.

Video Card LED Indicators

The front panel of each VB Box contains an LED panel showing status indicators of the SDI cards installed within the box. The front panel shows the direction of the video channel, the channel number and data rate associated with the video signal, see Figure 18. The Video Card LED bitrates are shown below:

LED	BITRATES	CONDITION
SDI IN SD	270 Mbit/s, 360 Mbit/s, 143 Mbit/s, and 177 Mbit/s	Video Coming in from BNC
SDI IN HD	1.485 Gbit/s, and 1.485/1.001 Gbit/s	Video Coming in from BNC
SDI IN 3G	2.970 Gbit/s, and 2.970/1.001 Gbit/s	Video Coming in from BNC
SDI OUT SD	270 Mbit/s, 360 Mbit/s, 143 Mbit/s, and 177 Mbit/s	Video Output to BNC
SDI OUT HD	1.485 Gbit/s, and 1.485/1.001 Gbit/s	Video Output to BNC
SDI OUT 12G	12 Gbit/s	Video Output to BNC

Audio Card LED Indicators

The Audio Card front panel contains four LED indicators to show the presence of audio. For a typical illustration of the Audio Card indicator, see Figure 18. A breakdown of the channel indicators follows:

- Channels 1 and 2 Inputs have one LED,
- Channels 3 and 4 Inputs have one LED,
- Channels 1 and 2 Outputs have one LED,
- Channels 3 and 4 Outputs have one LED.

The Audio Card LED status and condition definitions are shown below:

LED	STATUS	CONDITION
INPUTS	Green LED Flickering Green LED Flickering Periodically	Analog Signal Input is Present AES Audio Signal Input is Present
OUTPUTS	Green LED Flickering Green LED Flickering Periodically	Analog Signal Output is Available AES Audio Signal Output is Available

Sync Card LED Indicators

The Sync Card has two LEDs. When the first one is lit, it indicates that the link has been established between two Sync Cards. Once the link light is on, the Audio Card and Data Card have also attained link. The second LED is the SYNC OUT or SYNC IN. Usually the camera side has the SYNC OUT indicator and the base side has the SYNC IN indicator. The presence of SYNC in either box illuminates the LED.

LED	STATUS	CONDITION
LINK	Green LED is Solid	Link is Stable
SYNC IN (Base Side)	Green LED is Solid	Reference is inputted at the BNC connector.
SYNC OUT (Camera Side)	Green LED is Solid	Reference is being output to the BNC connector.

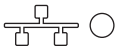
Data Card LED Indicators

The data light remains on when the channels are active. For a typical illustration of the Data Card indicator, see Figure 18. The Data Card LED status and condition definitions are shown below:

LED	STATUS	CONDITION
DATA 1	Green LED is Solid	Card is Ready to Transmit and Receive RS Data
DATA 2	Green LED is Solid	Card is Ready to Transmit and Receive RS Data

Ethernet Card LED Panels

The Ethernet LED is represented with the standard LAN symbol. It glows green when the Link has been established and it starts flickering as the data is being transmitted. For a typical illustration of the Ethernet Card indicator, see Figure 18 . The rear panel has two ports with a built in Ethernet switch.

LED	STATUS	CONDITION
	Green LED is Solid Green LED Flickering	Link is Established Data is being Transmitted/Received

INSTALLATION

Tools and Equipment Needed

The VB Series Box requires standard hand tools to complete the installation and there is no special equipment needed. There are three types of installation configurations for the VB box, they include a Rack Mount, Wall Mount or a Camera Mount.

Carefully remove the VB Box and components from the packaging and place onto stable flat surface. Packaging material should be recycled as appropriate to local area requirements.

NOTE:

The procedures in this section cover the various VB Series Boxes as well as the Power on Ethernet (POE), which is housed within the same modular container as a VB6 Box. Procedures in this section are therefore typical for all VB Boxes.

Three VB Box Rack Mount Installation

Verify package contents against the MultiDyne shipping order to make sure everything is present. If anything is missing, please contact MultiDyne immediately. The Three VB Box Configuration the unit arrives fully assembled and ready to install. A typical Three VB Box Configuration shipment includes:

PART NUMBER	DESCRIPTION
CUSTOMER NUMBER	A THREE VB BOX CONFIGURATION & THREE POWER CORDS
CXB-H-3180 A-v1a	RIGHT SIDE MOUNTING BRACKET
CXB-H-3180 A-v1b	LEFT SIDE MOUNTING BRACKET
IF ORDERED	CONNECTORS, HARDWARE ETC.

To install a Three VB Box Configuration in a rack:

1. Place the VB Boxes on a clean flat surface, see Figure 20. At the rack where the VB Boxes are to be located make sure all wiring and loose equipment has been cleared away to avoid any obstructions. Make sure the front and rear portions of the rack are clear so that the wiring can be routed to the individual VB Boxes.
2. Slide the Three VB Box configuration into the rack and secure with attaching hardware.
3. Connect all cables to the cards.
4. Connect the power cables to the VB Boxes.

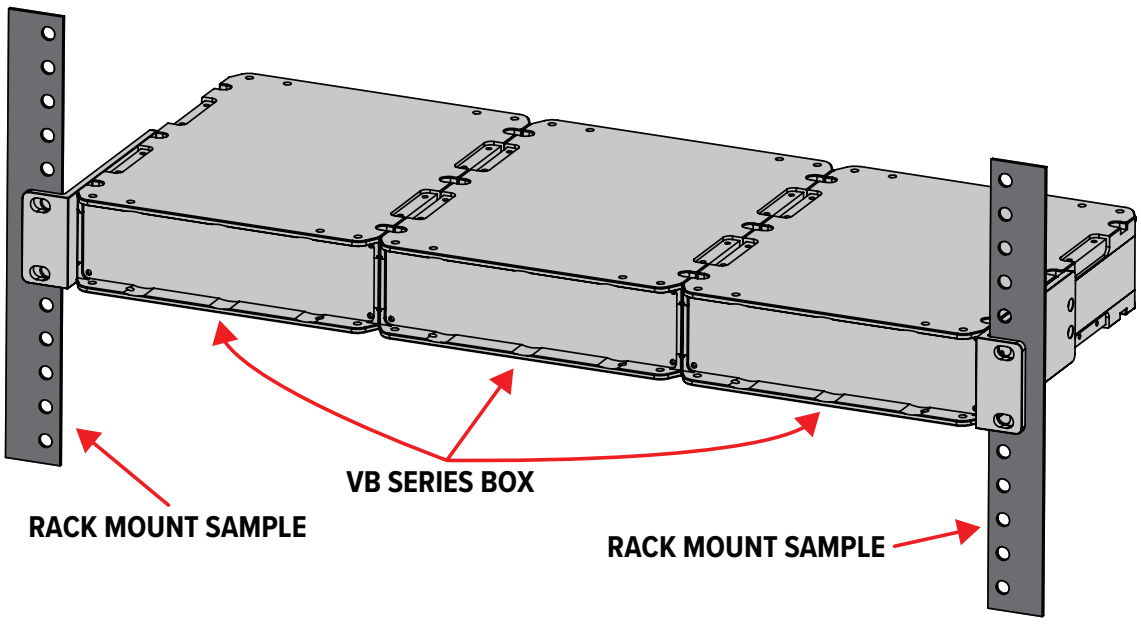


Figure 20. Three VB Box Horizontal Rack Mounting.

Two VB Box Rack Mount Installation

Verify package contents against the MultiDyne shipping order to make sure everything is present. If anything is missing, please contact MultiDyne immediately. For the Two VB Box Configuration the unit arrives fully assembled and ready to install. A typical Two VB Box Configuration shipment includes:

PART NUMBER	DESCRIPTION
CUSTOMER NUMBER	A TWO VB BOX CONFIGURATION & TWO POWER CORDS
CXB-H-3180 A-v1a	RIGHT SIDE MOUNTING BRACKET
CXB-H-3180 A-v1b	LEFT SIDE MOUNTING BRACKET
CXB-H-5178 A-v1a	RACK EXTENSION PLATE
IF ORDERED	CONNECTORS, HARDWARE ETC.

To install a Two VB Box Configuration in a rack:

1. Place the VB Boxes on a clean flat surface, see Figure 21. At the rack where the VB Boxes are to be located make sure all wiring and loose equipment has been cleared away to avoid any obstructions. Make sure the front and rear portions of the rack are clear so that the wiring can be routed to the individual VB Boxes.
2. Slide the Two VB Box configuration into the rack and loosely install the attaching hardware of the assembly to the rack. Position the Rack Extension Plate between the rack and the 1U Mounting Bracket and secure the plate to rack and Two VB Box configuration. Secure attaching hardware on the other side.
3. Connect all cables to the cards.
4. Connect the power cables to the VB Boxes.

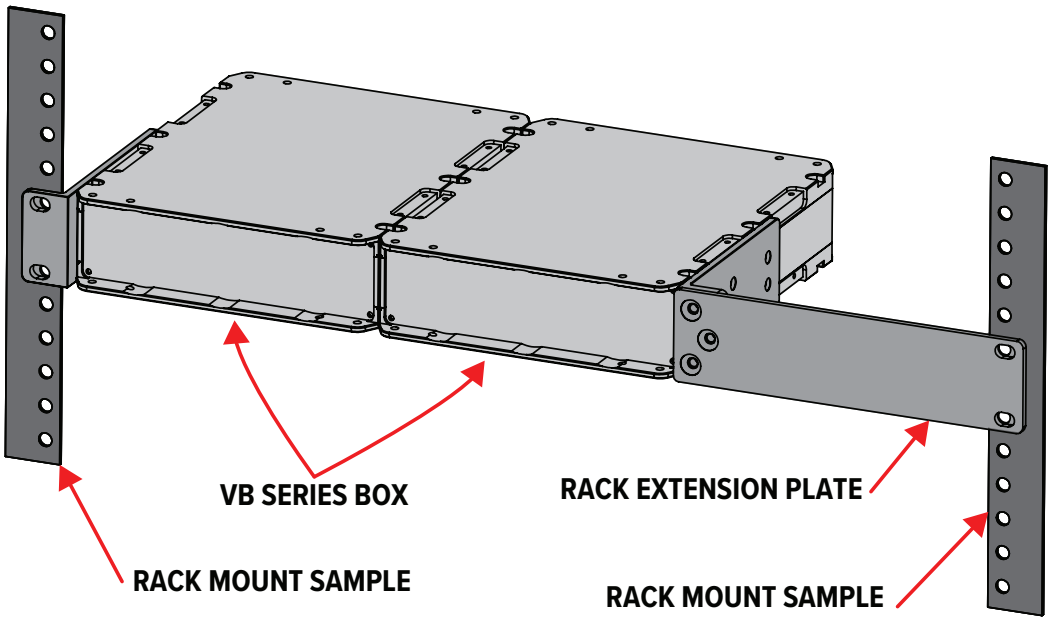


Figure 21. Two VB Box Horizontal Rack Mounting.

One VB Box Rack Mount Installation

Verify package contents against the MultiDyne shipping order to make sure everything is present. If anything is missing, please contact MultiDyne immediately. For the Single VB Box Configuration the unit arrives fully assembled and ready to install. A typical Single VB Box Configuration shipment includes:

To install a Single VB Box Configuration in a rack:

1. Place the VB Boxes on a clean flat surface, see Figure 22. At the rack where the VB Box is to be located make sure all wiring and loose equipment has been cleared away to avoid any obstructions. Make sure the front and rear portions of the rack are clear so that the wiring can be routed to the VB Box.
2. Slide the VB Box into the rack and loosely install the attaching hardware of the assembly to the rack. Position the Rack Extension Plate between the rack and the 1U Mounting Bracket and secure the plate to rack and VB Box. Secure attaching hardware on the other side.
3. Connect all cables to the cards.
4. Connect the power cables to the VB Boxes.

PART NUMBER	DESCRIPTION
CUSTOMER NUMBER	A VB BOX CONFIGURATION & POWER CORD
CXB-H-3180 A-v1a	RIGHT SIDE MOUNTING BRACKET
CXB-H-3180 A-v1b	LEFT SIDE MOUNTING BRACKET
CXB-H-5177 A-v1a	RACK EXTENSION PLATE
IF ORDERED	CONNECTORS, HARDWARE ETC.

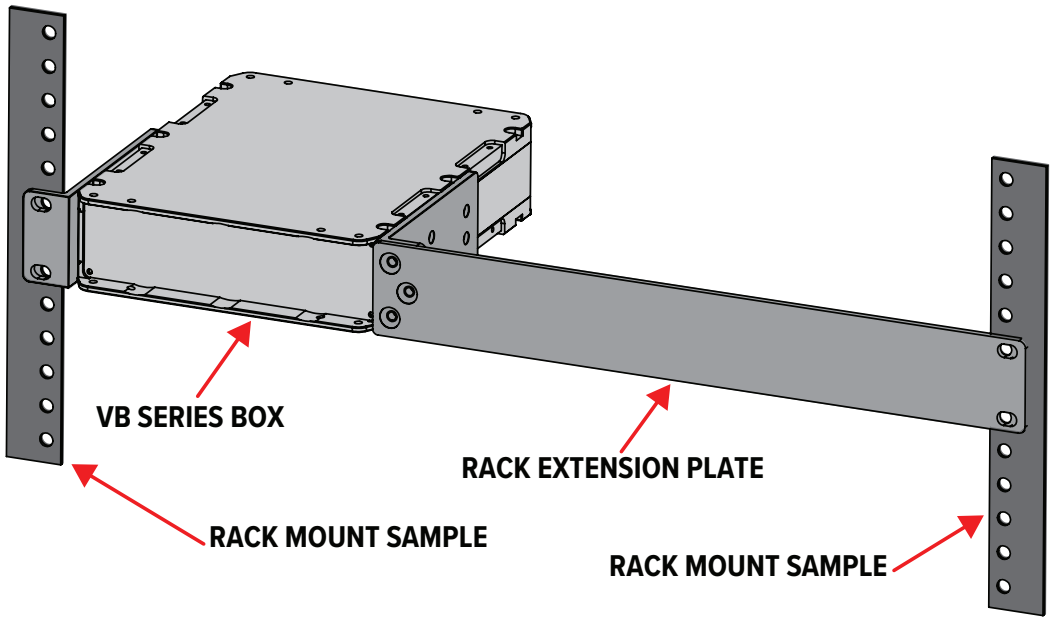


Figure 22. Single VB Box Horizontal Rack Mounting.

Wall Mounting

Wall mounting the VB Series Box requires two wall mounting brackets as well as attaching hardware to secure these brackets to the wall.

NOTE:
Because of the variety of building structures that are available (drywall, concrete, plaster and etc.), MultiDyne does not provide attaching hardware to secure the mounting plates to the building structure. It is recommended that a qualified technician perform the installation to make sure local building and electrical codes are in followed.

Verify package contents against the MultiDyne shipping order to make sure everything is present. If anything is missing, please contact MultiDyne immediately. For VB Box Wall mounting the wall brackets are not attached to the unit. A typical VB Box Wall Mounting Configuration shipment includes:

PART NUMBER	DESCRIPTION
CUSTOMER NUMBER	A VB SERIES BOX & POWER CORD
CXB-H-1330	TWO WALL MOUNTING BRACKETS & ATTACHING HARDWARE
IF ORDERED	CONNECTORS, HARDWARE ETC.

Planning the Wall Mounting Installation:

The VB Box measures approximately 5.75 inches in width. The wall mounting bracket, shown below, adds another 0.56-inch to the width on both sides, see Figure 23.

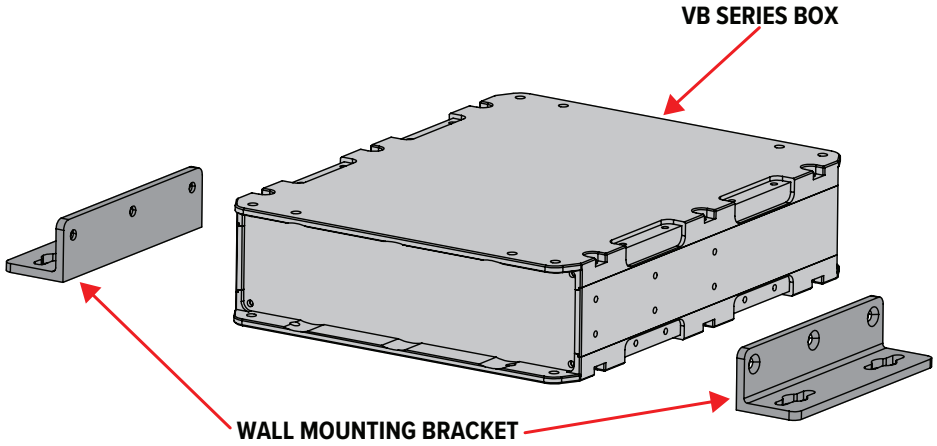


Figure 23. Wall Mounting Bracket Diagram.

VB Box Wall Mounting Procedure:

NOTE

It is suggested that the Technician assemble The VB Box with the brackets and use the unit itself as a template to mark the mounting location on the wall.

1. Working with the VB Box on a flat surface, install a Wall Mounting Bracket on one side of the VB Box and secure with the included attaching hardware.
2. On the other side of the VB Box install a Wall Mounting Bracket with the included attaching hardware.
3. At the location where the VB Box is to be installed make sure all wiring and loose equipment has been cleared away to avoid any obstructions.
4. Position the VB Box on the wall and mark the wall through the open mounting points on both brackets. Use standard shop practices for securing an anchor to the wall.
5. Secure the VB Box to the wall with attaching hardware provided with the separately purchased anchors.
6. If more than one VB Box is to be installed repeat steps 1 to 5 for the other location(s).
7. Connect all cables to the cards.
8. Connect the power cables to the VB Boxes.

Camera Mounting:

The Camera Mounting for the VB Box is commonly used with a Pan-Tilt-Zoom (PTZ) Camera. The VB Box is mounted to the building structure and the PTZ Camera is mounted to a special mounting plate on the VB Box.

NOTE:

Because of the variety of building structures that are available (drywall, concrete, plaster and etc.), MultiDyne does not provide attaching hardware to secure the mounting plates to the building structure. It is recommended that a qualified technician perform the installation to make sure local building and electrical codes are in followed.

VB Box Camera Mounting Procedure:

NOTE:

It is important to read the Installation Instructions provided with the PTZ Camera to be certain that the installation and connection of the VB Box goes smoothly.

1. At the location where the VB Box is to be installed, make sure all the necessary wiring is available to connect the VB Box to the structure. Figure 24 shows an example diagram of a PTZ Camera Mounting.
2. Position the Camera Adaptor Top mounting plate to the building structure and mark the through the open mounting points. Using standard shop practices secure and anchor the plate to the wall.
3. Position the VB Box and Camera Adaptor Bottom plate to the Camera Adaptor Top mounting plate, install four Vertical Mounting Plates and secure with attaching hardware.

NOTE:

The Camera Adaptor Bottom mounting plate contains all known mounting locations for the PTZ Cameras that are currently on the market. Before mounting the PTZ Camera to the mounting plate check the Camera installation instructions for any additional manufacturer requirements.

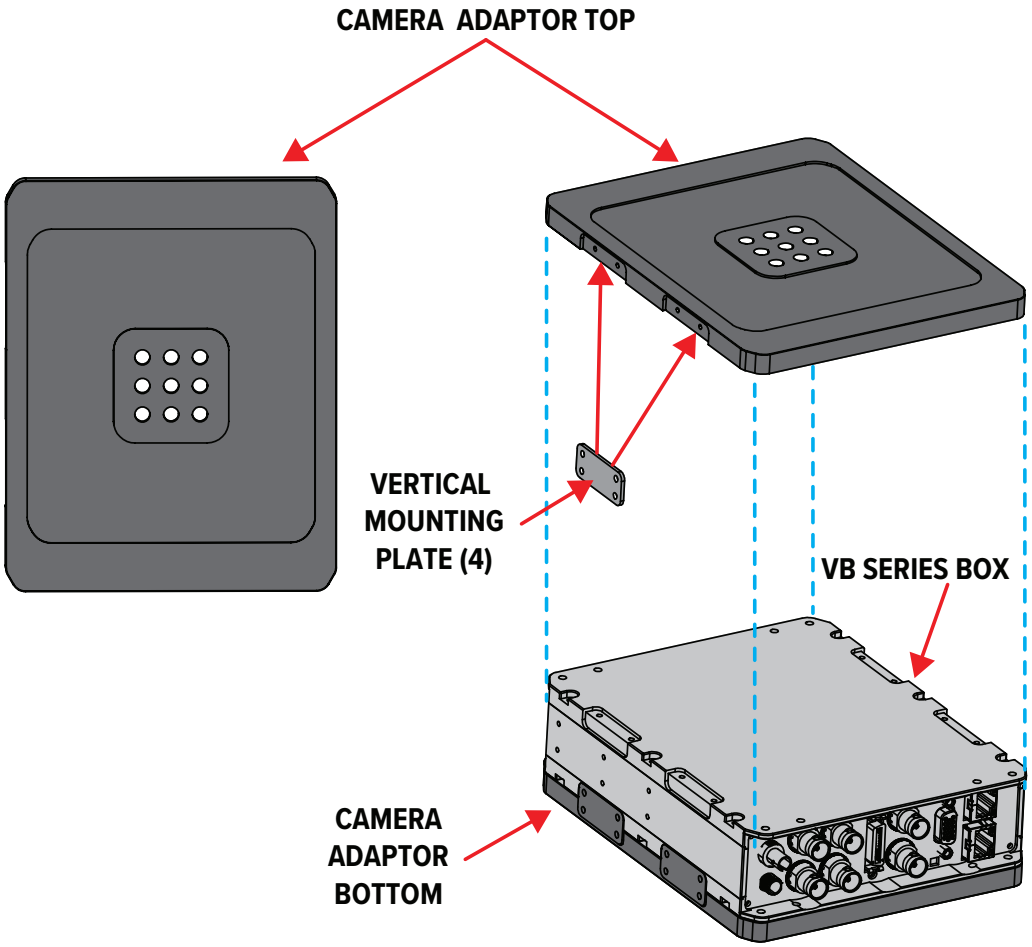


Figure 24. PTZ Camera Mounting Diagram Example

4. Using the Camera Installation instructions connect the PTZ Camera to the VB Box and mounting plate assembly, see Figure 25.
5. If more than one VB Box is to be installed repeat steps 1 to 4 for the other location(s).
6. Connect all remaining cables to the cards.
7. Connect the power cables to the VB Boxes

Figure 25. Typical PTZ Camera Installation.

POE Installation

POE installation includes two POE Boxes, one “Juice 48” module, one fiber cable, and one SMPTE 311M Hybrid cable. For the Base Side, the installation location of the POE Box depends on the customer site. Standard mounting configurations can be used and are provided in the INSTALLATION section of this manual. For the Camera Side the POE Box will be mounted to the PTZ Camera, see the Camera Mounting procedure in this manual.

It is important to note that the overall length of installation is a maximum of 24km. Careful routing of this cable must be observed to insure optimum performance of the installation, see Figure 26.

Once installed the POE can be connected as follow:

- Connect the Fiber Cable at the ST Connector on the POE box to the “Juice 48”.
- The SMPTE 311M Hybrid cable can be as long as 300 meters (1000 feet) Plug the SMPTE 311M Hybrid cable into the “Juice 48” and the other end into the SMPTE connector on the POE.
- Plug in and connect the “Juice 48” and POE power supplies.

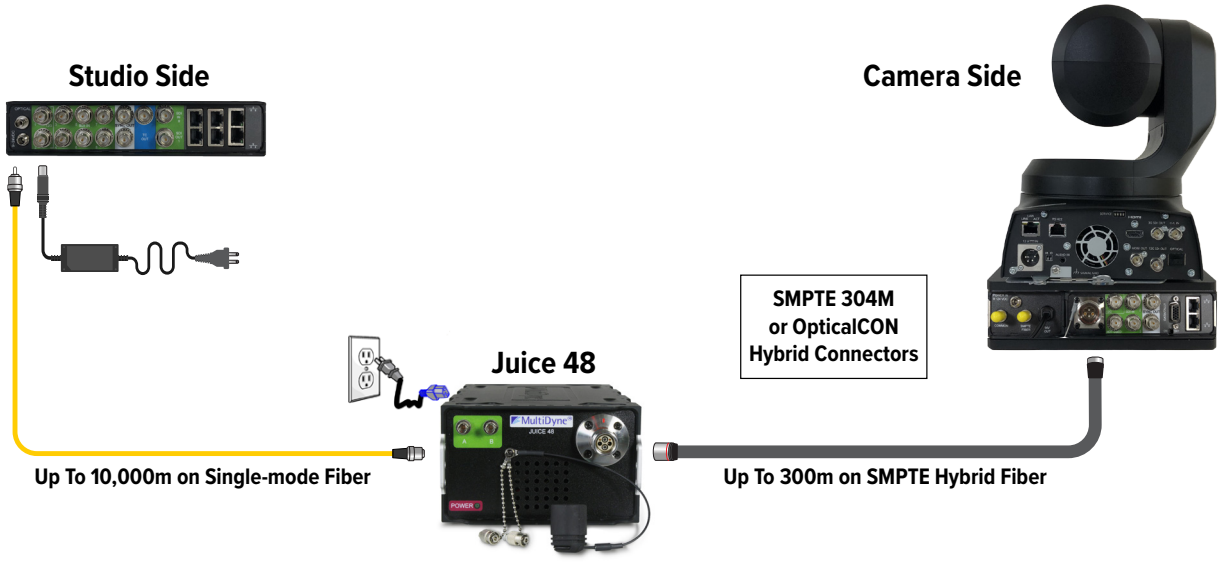


Figure 26. POE Connection Diagram.

TECHNICAL SPECIFICATIONS

Digital Video Interface

Input Coax EQ	75m at 11.88Gb/s
90m at 5.94Gb/s	
180m at 2.97Gb/s	
240m at 1.485Gb/s	
400m at 270mB/s	
Input Level	100mV (peak to peak)
Impedance	75 Ohms ts
Bit Error Rate	10-12
Rise/Fall Times	< 270ps
Return Loss	> 15 dB at 5 MHz – 1.485 GH > 10 dB up to 3 GH

Ethernet

Gigabit Ethernet	10/100/1000 Mbps

Sync

Sync Analog	NTSC-PAL, HDTV Tri-Level

Data

232, 422, 485	DC-3Mbps
232 In V	+/- 25V max, 2V min
232 Out	V +/- 5V @ 3Kohm, 1.6V Sens
422, 485 In	V -7V to 12V, 0.2V diff min
GPI/GPO	Normally Open, Form 1 SPST

Analog Audio

S/N	> 90db
Frequency Response	< +/-0.1db
(20Hz - 20kHz)	
Distortion	< 0.05%
Max I/O Level	+24 dBu
Impedance In (bal)	> 10k Ohms +
Impedance Out (bal)	< 50 Ohms

Digital Audio

Input/Output	Balanced, AES3/AES3id
I/O Impedance	110 Ohm/75 Ohm (DIP Sw) +/-20%, 0.1MHz-6.0MHz
Min/Max Input	2-7 Vpp into 110 Ohms
Rise/Fall Time	5-30ns for 10 Ohm
Jitter	< 20ns

Electro-Optical

Operating Wavelengths	DFB 1271-1591nm
TX Laser Output Power	-2 - 0dBm
Receiver Sensitivity	-20 dBm
Fiber Compatibility	Single Mode
Optical Connector	ST, LC, SC
Distance Limit	20km

Power Rating

Video Card Max Power	2.12W
Ethernet Card	1.97W
SYNC Card	2.5W
Data Card	0.6W
Audio Card	1.3W

Mechanical, Environmental

VB-2 Overall Dimensions (LxWxH)	7.25” x 2.875” x 1.75”
VB-6 Overall Dimensions (LxWxH)	7.25” x 5.75” x 1.75”
Video Connectors	BNC
SYNC and TIMECODE	BNC
Audio Connector	MDR26-F
Data Connector	HD15-F
Ethernet	Dual Port RJ45
Temperature Range	-25° to +55°C
Humidity Range	0 to 95% RH Non-Condensing
Power Input	2.5mm Jack Center pin
Power Rating, Normal	50w Max @ 14 VDC
Power Requirement	< 10w @5-24 VDCwww
Weight	1.5 Pounds