![Telecast Fiber Systems, Inc. logo]

Viper II - V2Frame User Manual

Quick Start Guide

The Viper II frame is designed for "plug and play" use. The *Power Bus System* allows for the convenient placement of modules in any orientation that suits the user.

The frame ships ready-to-use. Simply insert your PS5000 Power Supply Unit and the optional PS5010 Battery back-up unit, if provided. The rear of the PS5000 features a *Power Entry Module* that must be set for your local AC power. A convenient window on the module shows the voltage input setting, either 115 or 230 VAC. If adjustment is necessary, see the Power Supply section on page 3. Note that the frame can accommodate additional PS5000's or PS5010's to ensure uninterrupted power to your system. The PS5000 ships with a North American type power cord. You may need to replace this with the appropriate IEC cord to accommodate your local power outlets.

Once the power supplies have been properly configured and inserted into the rack frame, AC mains power can be supplied and additional modules can then be inserted. Modules can be hot-swapped at any time without fear of damage. Care should be taken when inserting modules to ensure that they go in straight since improper insertion can result in damage to the internal backplane power connectors, explained further on page 2.

Specifications

Mechanical

Dimensions (WxLxD)	5.25" x 17.25" x 11"
Weights -Frame	9 lbs.
PS5000	5 lbs.
PS5010	3 lbs.

16 card slots, Max. of 14 modules plus PS5000

Electrical

Input Voltage Range	100 to 240 VAC
Output Voltage Range	10 to 18 VDC
Power Consumption (per module)	3 watts
Power Consumption (Max)	50 watts

Environmental

Temperature Range	-25° to +55°C
Humidity Range	0 to 95% RH, Noncond.

Viper II Rack

General

The Viper II rack Frame (V2) is a 19" 3 RU card cage designed to house the entire line of Telecast Viper II modules. Each frame has 16 slots that can be used to accommodate both single and double-slot modules and power supplies. Assuming two slots for the main PS5000 power module, the user is left with 14 slots for functionality modules with the option of adding multiple PS5000 or PS5010 Battery Back-Up power modules for further insurance against power outages.

The V2 frames uses a power bus system using the "Future-Bus 24-pin header" giving the user flexibility in the placement of modules in the frame. The pinout for the Future-Bus connector is shown at right.

The frame features a hinged front security bar that is used to secure the modules. The bar is locked down using the two spring-screws located on each side of the hinged panel.

Unpacking

To ensure that no damage occurs to the V2 frame during shipment, it is packed and shipped without modules inserted. Care should be taken when removing it from its packing materials. Inspect the unit closely for loose screws, smooth hinge operation, missing nylon card guides and/or cosmetic damage. Any problems should be reported to Telecast immediately.

To return an item for repair, call Telecast at 508-754-4858 to obtain a return material authorization (RMA).

Note that the frames undergo an alignment procedure during assembly and testing. Any movement of the backplane will result in the possibility of damaged pins in the power connectors. Do not make adjustments to the position of the backplane panel!

Rack ears are included with the frame and are shipped attached.

Caution should be taken to ensure that the hinged security bar is up and in the locked position when modules are not being installed. Failure to do so may result in modules falling out of the frame if it were to be inadvertently tilted or moved.

The Future-Bus Connector

DC power is supplied to the frame via a 24-pin "Future-Bus" connector. When looking into the frame, the pin-outs are as indicated in the picture to the right. The top two rows of 4 pins are 0V Ground. The middle two rows are for 10-18VDC OUT and the last two rows are reserved for future expansion of the Viper II system.
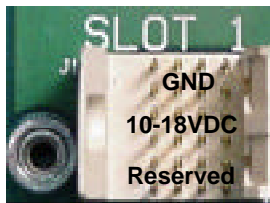
CAUTION: Care should be taken when inserting and removing modules as these pins are of a very fine pitch and can easily be bent. If pins do become bent, contact Telecast for an RMA number as it is not recommended that the user attempt a repair as failure to properly align the backplane will result in additional bent pins.

Installing Modules

The installation and removal of modules is a very straight-forward process but, as mentioned above, care should be taken to ensure that no damage occurs as a result of an improperly inserted module.

Each frame is equiped with nylon card guides for each of the 16 slots. In cases where the module is two spaces in width, only the left-side guide is used.

Carefully align the module in the top and bottom guides and slowly insert it. As the rear end of the module nears the rear of the frame, it will hit a riser-plate that serves to lift the module so that the power connectors will properly come together and seat. You will "feel" this plate as you insert the module and as you continue to insert it you will "feel" the female power connector on the module make smooth contact with the male power plug in the frame. Any

attempts to 'slam' the module into the frame is likely to result in bent pins.

Converting "Throw-Down" Modules

Any of the Telecast Viper II "throw-down" modules can easily be converted to fit in a Viper II frame. A Rack Mount Kit (RMK) is all that is required to make such a conversion. As the picture below illustrates, the kit includes a metal spline with ST barrel, a short ST-ST jumper cable and the frame faceplate with a ribbon cable to transfer LED indicator information from the module to the new faceplate.

Installation involves removing the back cover from the throw-down module. It is secured with three machine screws. Once the rear plate is removed, the module simply installs onto the new spline with the same three screws.

If you are converting a digital module, care should be taken to ensure that the EMI gasketing remains in position as the backplates are exchanged. Failure to do so may increase the probability of RF/EMI leakage from the module. Care should also be taken in connecting the ribbon cable and in the routing of the fiber jumper. A pinched or too-tightly-coiled jumper could impede optical performance.

When making this conversion, be sure keep the old back-plate in a safe place for future re-conversion back into the throw-down configuration.

Relevant Part Numbers

V2Frame-1	3 RU Viper II Cage
PS5000	Power Supply
PS5010	Battery back Up
RMK-XXXX	Rack Mount Conversion Kit. Contact Telecast for Specific Model Numbers
BP5001	One-wide Filler Panel
BP5002	Two-Wide Filler Panel
11000-054	Throw-Down Back Plate
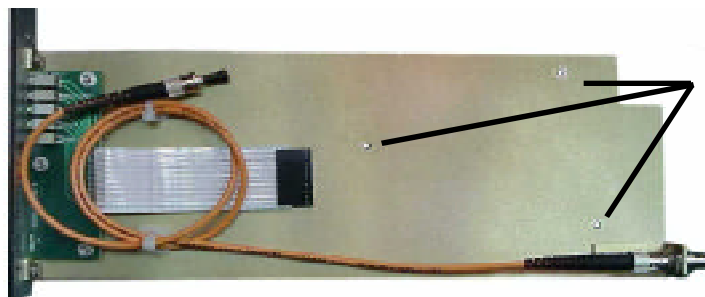
Note the three holes used in securing the module to the spline and the ST fiber jumper and ribbon cable that must be attached.
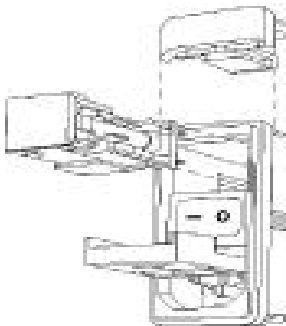
Power

General

The PS5000 serves as the primary power supply for the Viper II frame. It is a double-wide module that can be positioned anywhere amongst the 16 slots of the frame. Input power requirements are 100-240VAC. A full frame will draw no more than 750mA.

The PS5000 and the PS5010 are inserted into the frame in the same way as any other Viper II module however, due to the extra weight of these modules, extra care should be taken to ensure that they are aligned properly.

Operation of the 115/230 VAC Power Entry Module

The PS5000 features an AC Power Entry Module that allows the user to set up the unit to work within their local power requirements. AC line voltage is supplied to the rear of the module with a standard IEC/NEMA type power cord. A window on the Power Entry Module reflects the current VAC setting of either 115 or 230V. Verify that the voltages on the units are set properly before operating the system. If the input voltage must be changed, use the following procedure:

1. Use a small, flat-blade screwdriver in the notch at the top of the module to gently pry open the module cover and expose the fuse block. The cover is hinged at the bottom and will open easily.
2. Gently pop out the fuse block.
3. Turn the block over and replace it back into the module.
4. Close the module cover.

The new input voltage value will be reflected in the voltage value window.

The same procedure is followed for fuse replacement. Be careful to use ONLY 1Amp SLO-BLO fuses, 5 x 20mm.

Operation

Once the module is configured to your local power, it is ready for use. There are power switches on both the Power Entry Module (PEM) and on the faceplate of the module. If the PEM power switch is not in the on position, the faceplate switch will not function.

With the main switch "on" the faceplate switches now becomes operational. When the faceplate switch is in the "on" position, the LED's will indicate the condition of both the PS and the Power Bus of the frame:

For the **PS OK** LED, green indicates that it is receiving AC line voltage and that input voltage is within acceptable parameters.

The **PS ACTIVE** LED will turn green to indicate that the PS is generating DC voltage and sending it to the power bus.

The **BUS** LED monitors the voltage on the power bus and will turn green to indicate that 12-18VDC is present.

If any of the LEDs are red, then a fault condition exists. Make sure that the power entry module is set correctly. If so, then check the backplane for bent pins. If there are no obvious problems, contact Telecast for an RMA number.

If the **BUS** LED turns orange, indicating a DC output between 10-12 VDC, then you have either:
1. low input voltage
2. A power bus short or
3. A faulty functionality module that is drawing too much power.

Troubleshoot this by first verifying proper input voltage. Then check to ensure that there are no bent pins on the backplane. If the fault persists, remove other functionality modules, one by one, to try to isolate the excess power draw to a single module.

If a functionality module is found to be the source of the problem, contact Telecast for an RMA number.

The PS5010 Battery Back-Up

When inserted into the frame, the PS5010 will supply up to 30 minutes of back-up DC power in the event of a power failure. This is accomplished through the use of two banks of Ni-Cad batteries. All rules concerning Ni-cads and "charge memory" apply. If you find that your PS5010 is no longer holding a sufficient charge, call Telecast for an RMA number.

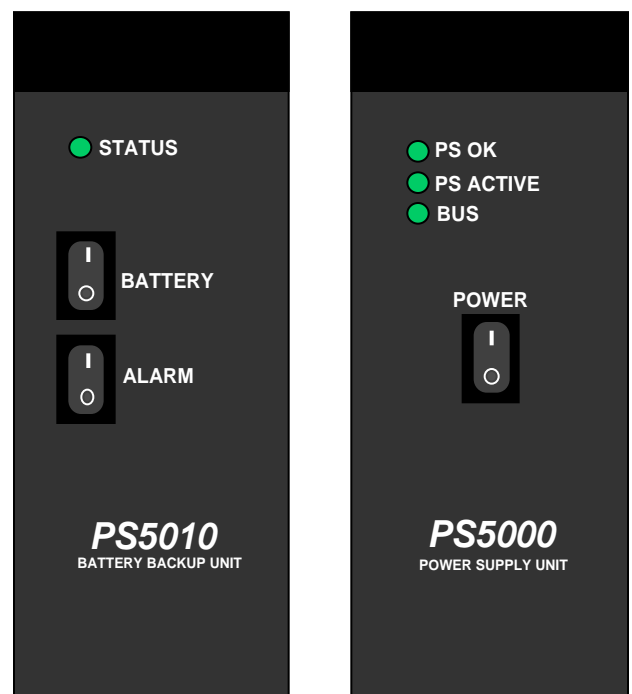The PS5010 unit has two switches:

BATTERY — Turns the unit on and off

ALARM — When in OFF position, this defeats the alarm that would sound to indicate an interruption of mains power.

There is a single LED on the faceplate indicating the **STATUS** of the unit:
RED — Discharging
GREEN — Charging

Note that if the **BATTERY** switch is left in the ON position but the PS5000 is turned OFF, the PS5010 will discharge until dead. The **STATUS** LED will be RED to indicate this discharge condition. Whenever powering down the frame, be sure to switch both the PS5000 and the PS5010 to the OFF position.

STATUS

BATTERY

ALARM

PS5010
BATTERY BACKUP UNIT

PS OK
PS ACTIVE
BUS

POWER

PS5000
POWER SUPPLY UNIT

WDM's

Wavelength Division Multiplexers

General

A WDM (Wavelength Division Multiplexer) is, in essence, a prism. Whereas a prism divides light into all of its component colors, a WDM is a passive device that is "tuned" to specific optical wavelengths. For the purposes of our systems, it gives us the ability to put two different optical wavelengths onto a single optical fiber. As the figure ot the right illustrates, by putting a 1310nm source into the first leg (low side) of the WDM and a 1550nm source into the third leg (high side) of the WDM a combined optical signal is available on the second leg (IN/OUT). This combined signal can then travel down the optical fiber into another WDM on the recieve end of the system where the signals are seperated and sent to their respective TX or RX modules. All telecast WDM's operate in the same way, ie. leg 1 is for the lower wavelength, leg 2 is for input/output and leg 3 is for the higher wavelength. WDM's are also available for multimode 850/1300nm applications.

The Viper II system supports WDM's for both singlemode and multimode operation.

The primary reason for using WDM devices is to reduce the number of fibers required for your system. Since WDM's combine two module sets onto one optical fiber, your fiber count is cut in half.

Operation

When possible, there are a few conventions that should be observed when using WDM's in Telecast systems.

1. Try to WDM a TX with an RX
2. Try to WDM different types of signals (5122 with a 5259)

Sometimes this is just not possible so in cases where like signals are used in the same direction, the user should be aware that there is a slight chance of crosstalk between the two signals. This condition is rare.

Telecast analog modules such as the 5122 require the use of HIGH ISOLATION WDM's to further prevent crosstalk. When using WDM's with these modules on singlemode fiber, the MWD5135-SA is highly recommended.
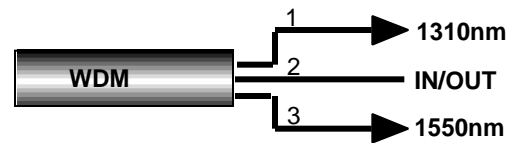
Hook Up Procedure

All Telecast V2 WDM modules ship as single units. For most applications, you will need to order two WDM's per link. Each WDM ships with singlemode or multimode ST patch cords for making the connections with the functional TX or RX modules.

The wavelength of each functionality module is indicated on the side-panel decal. Choices are 850, 1300 and 1550nm. RX units will be either 850 or 1300/1550. For convenience, place the WDM module into the V2 frame between the two modules being combined. This will facilitate easy identification and troubleshooting, if necessary.

Once the modules are in position in the V2 frame, you can commence making the connections. Note that the WDM is a passive device, and you can not damage it by making an error in connecting it. **Caution:** remember NOT to look directly into connected patch cables as the may be connected to an operating laser emitter. Eye damage could result!

Simply attach the LOW wavelength device to ST #1, the HIGH wavelength device to ST #3 and the outgoing fiber to ST #2. LED indications on the respective modules will aid you in verifying these connections once the frames are powered ON.

Troubleshooting

If you are certain that your connections are correct but the unit is not working, optical power can be verified by using and optical power meter (Telecast # PMTR-ST-3W) to verify the presence of an optical signal at both the TX module and at the output (leg 2) of the WDM. If the unit is not passing any optical power, contact Telecast for an RMA number.

Relevant Part Numbers

MWD813-M   Multimode 62.5/125µ WDM Coupler with ST's. 850/1300nm

MWD5135-M   Multimode 50/125µ WDM coupler with ST's. 1300/1550nm

MWD5135-SD   Singlemode 8/125µ WDM coupler with ST's. 1300/1550nm - Medium Isolation

MWD5135-SA   Singlemode 8/125µ WDM coupler with ST's. 1300/1550nm - High Isolation

FIBER TYPE:		
☐ 62.5	MULTI-MODE	
☐ 50	MULTI-MODE	
☐ 8	SINGLE-MODE HI ISOLATION	
☐ 8	SINGLEMODE LO ISOLATION	

1300
1300/1550
1550

Telecast
Fiber Systems, Inc.

MWD5135
1300/1550 WDM   *MADE IN USA*

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