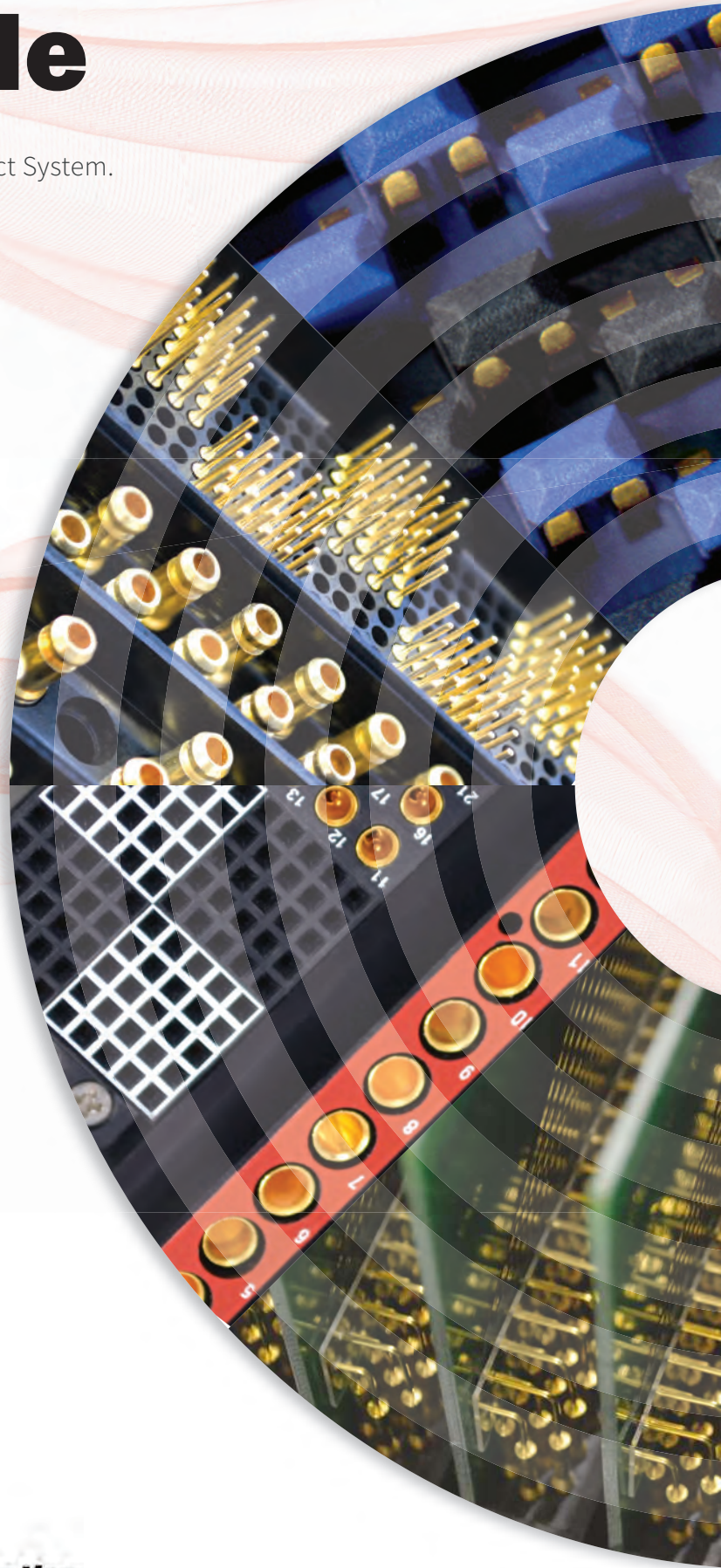


Design Guide

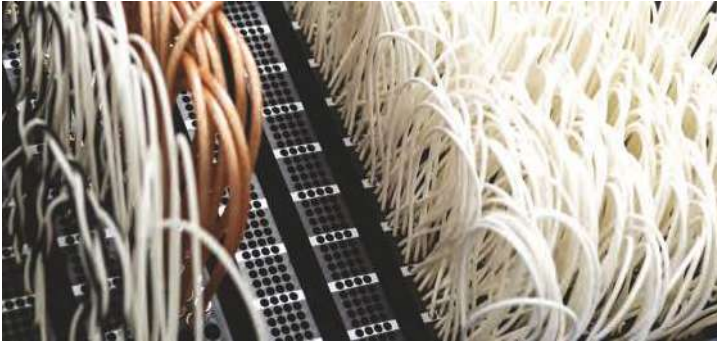
...Steps for Designing an Interconnect System.



How to Configure a Test System

The following steps are an overview of the design process for building a test system using VPC products and parts. VPC provides a full staff of knowledgeable engineers available to assist during every stage of the design process. To reach a Field Application Engineer, choose “Contact Us” from our website at vpc.com.

Step 1. Determine I/O Requirements



1. Number of signal points
2. Number of power points
3. Number of coaxial points
4. Number of other contacts
5. Total modules and wired adapters

Determining the signal, power and coaxial points needed will also determine the quantity and types of modules required. When using cable assemblies, the required modules are already determined.

(See *Module Loading Guide* on page 4.)

Step 2. Choose a Receiver

1. Determine the receiver size by evaluating the rack height, depth and number of modules needed. Be sure to consider room for expansion. VPC recommends 20% of module positions remain open for future growth.
2. Choose a mounting style by evaluating accessibility and portability needs. (See *Receiver and Chassis Mounting* on page 5)

Step 3. Choose Receiver Accessories

1. Receiver Mounting Panel
2. Vertical Hinge Mounting Frame (VHMF)
3. Plug and Play Mounting Plate
4. Receiver Protective Cover
5. Slide Kit
6. Chassis Mount Kit

(See *Receiver and Chassis Mounting* on page 5)

(See *Cable Management* on page 6)



Step 4. Choose an ITA

Choose an Interchangeable Test Adapter (ITA) based on the size of the receiver chosen in Step 2.



Step 5. Choose ITA Modules and Contacts



- 1. The ITA modules are the mating modules for the receiver modules selected in Step 1.
- 2. The ITA contacts mate to the receiver contacts and are dictated by the system's I/O requirements.

Step 6. Choose ITA Accessories

- 1. ITA Protective Covers
- 2. ITA Patchcords
- 3. ITA Enclosure

See *Wire+ Options* on page 9.

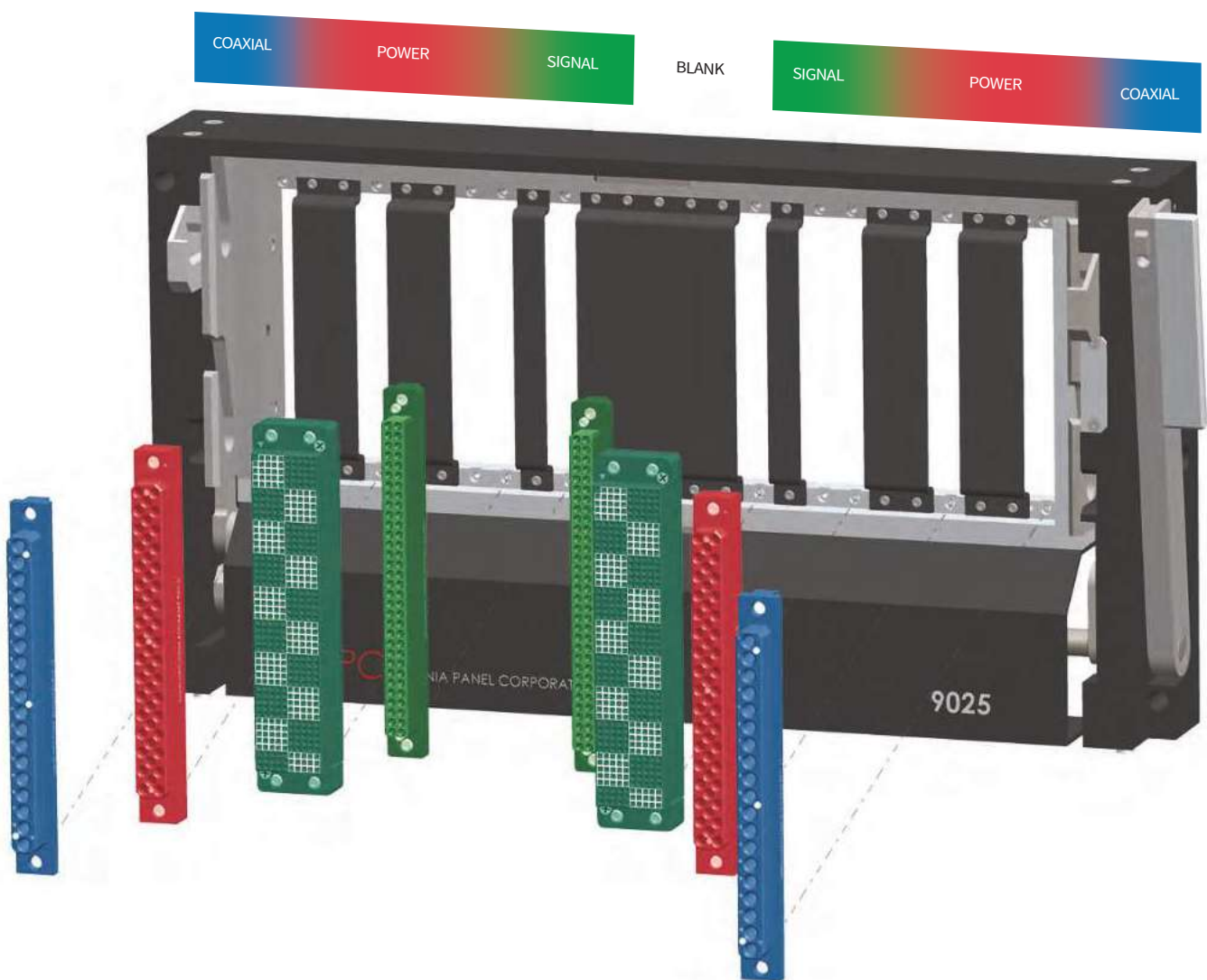


Module Loading Guidance

To achieve maximum electrical engagement of contacts and ultimate performance of the VPC interface, it is recommended to load modules with coaxial and power contacts to the outside of the receiver and ITA frames and modules loaded with signal contacts to the center.

VPC also recommends allowing room for expansion, by leaving 20% of module space in the receiver and ITA open for future growth.

When configuring a large-scale system, consult VPC for assistance in determining loading force for maximum performance.



*Modules colors are for illustrative purposes only and do not represent actual product colors or appearance.

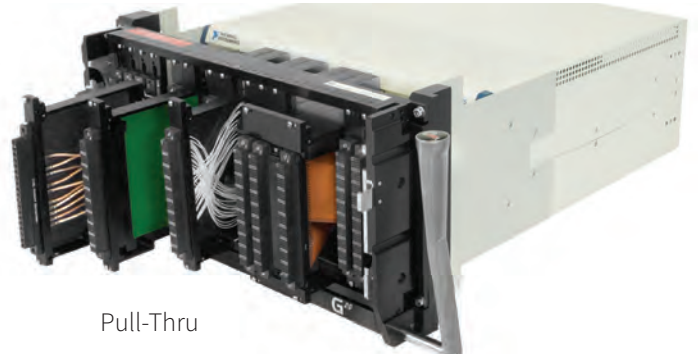
Receiver and Chassis Mounting

VPC offers several mounting options for receivers. Review the features and benefits below for recommendations on which mounting option may work best.

	Slide Mount	Pull-Thru	Rack/Direct Panel Mount	Vertical Hinge Mount	Table Top
Easy access to instrumentation and cables	✓	✓		✓	✓
Short wire lengths	✓	✓	✓		
Chassis and/or instrumentation mounting on different plane than receiver			✓	✓	✓
Must be rack mounted	✓	✓	✓	✓	
Need to secure cables in place with no movement	✓	✓	✓		✓



Slide Mount



Pull-Thru



Vertical Hinge Mount



Rack Mount



Table Top Mount

Cable Management

VPC test solutions are designed to accommodate a variety of ATE chassis sizes and configurations including PXI, SCXI, GPIB, LXI, PCI, VXI and AXIe applications. These solutions are available in multiple wired configurations including Rack/ Direct Panel Mount, Slide Mount, Pull Thru and Vertical Hinged Mount. Regardless of the type of configuration, cable routing and strain relief are important to consider when managing cabling.

For more detailed cable management information, contact VPC via the “Contact Us” page on our website to discuss cable management with a Field Application Engineer.



Strain Relief

With any configuration type, strain relief is critical in developing a reliable and consistent system. VPC offers several strain relief options.

Module Strain Relief The most common method is to attach strain relief plates directly to modules (Figure 1). Wire or cable bundles are secured to the plates attached to each module. Cables are secured to the plates with wire ties which prevents force from exerting on cables.

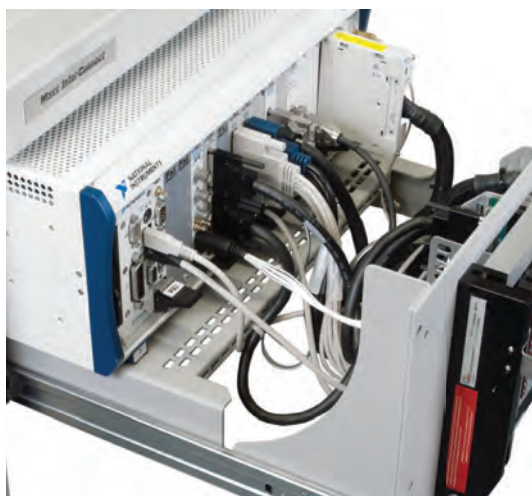


Figure 2

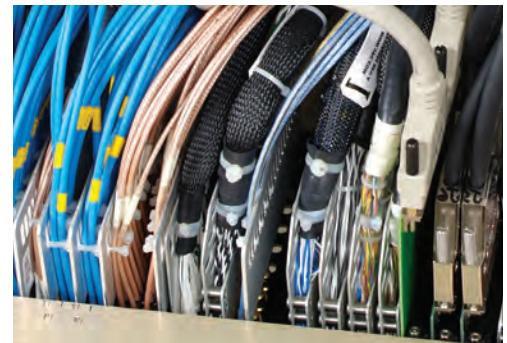


Figure 1

Without strain relief this force would transfer directly to the contact termination which could cause damage and loss of signal integrity.

Cable Tie Down Bar

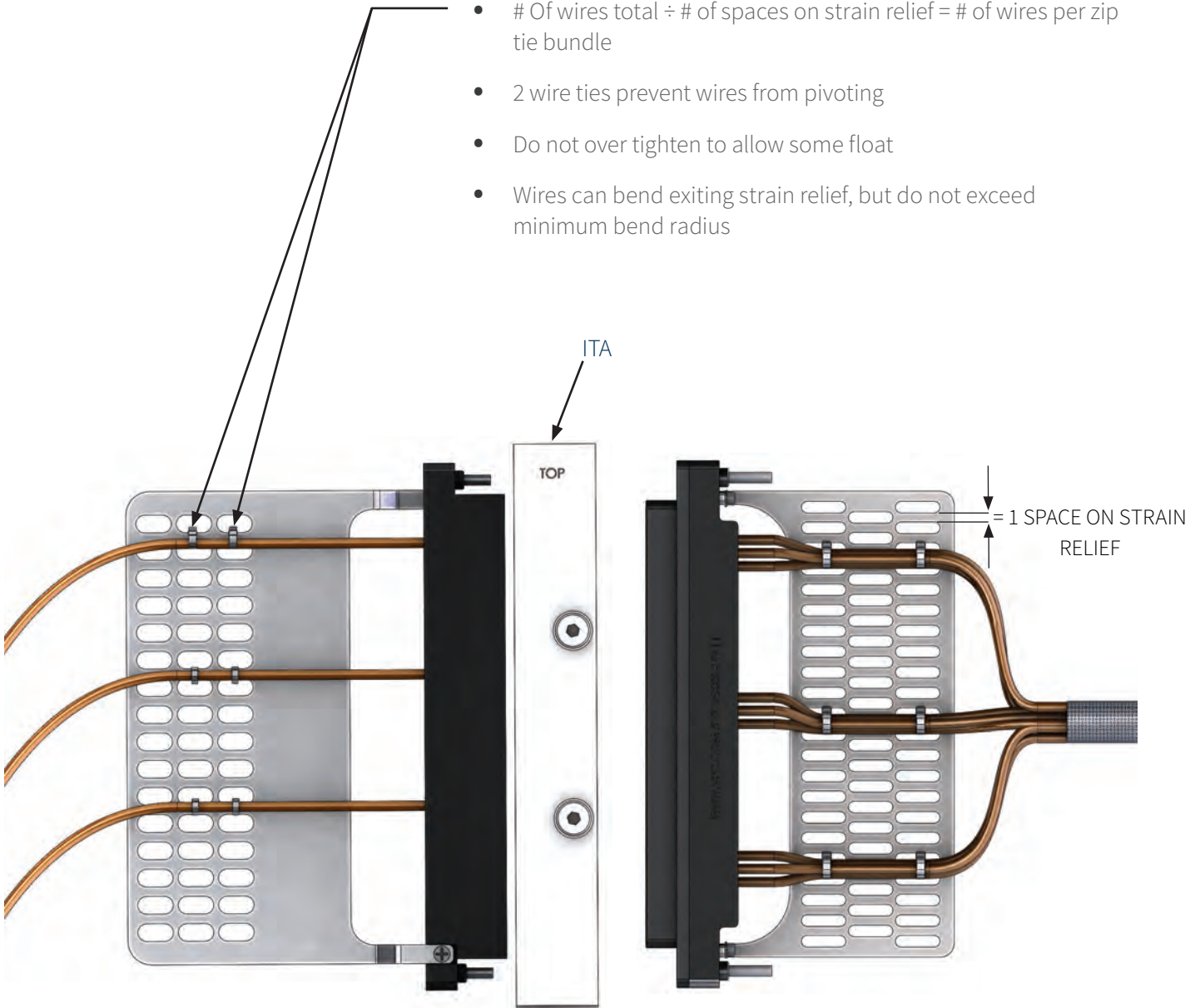
A second method involves use of cable tie-down bars on the receiver side. These bars are included with the G18 Vertical Hinged Mounting Frame and are designed into the instrument bracket or cable tray kits used with slide-mount receivers (Figure 2).

When slide mounting a receiver, cables connecting to the receiver are secured to the strain relief on the instrument bracket. This prevents the cables from being damaged when the slides are extended.

Cable Management (cont'd)

Sample Strain Relief

- A wire row is grouped with adjacent wire rows to form a zip tie bundle. The zip tie bundle is then zip-tied straight to a strain relief space directly in line with the plugged holes, where the wires exit the connector. Use the equation below to determine the amount of wires per zip tie allowed.
- $\# \text{ Of wires total } \div \# \text{ of spaces on strain relief} = \# \text{ of wires per zip tie bundle}$
- 2 wire ties prevent wires from pivoting
- Do not over tighten to allow some float
- Wires can bend exiting strain relief, but do not exceed minimum bend radius



Cable Management (cont'd)

Measuring and Routing Cables

Direct Panel Mount

Direct Panel Mount systems enable the instrument chassis to be placed directly behind the VPC receiver. When using this method, keep a space of 8-10" from the front of the chassis to prevent tight bends in cables. To determine proper cable length required, measure the distance from the front face of the instrument to the module location in the receiver, allowing for bends in the cable for proper cable routing.

Slide Mount

When slide mounting a receiver, if the instrument chassis will be placed on an instrument bracket, recommended cable lengths are 20". This length may vary if the chassis is being wired to a receiver module on the opposite side of the tester (Figure 3).

If the cables used to connect the instrument to the receiver are located somewhere other than the instrument bracket, they must be long enough to allow the slides to extend fully without putting tension on the cables (Figure 3). To determine the appropriate cable length, measure the vertical distance from the receiver to the instrument, then measure the distance from the front of the rack to the receiver with the slides fully extended, taking any bends and special routing into consideration.

Vertical Hinged Mounting Frames (VHMF)

Vertical Hinged Mounting Frames (VHMF) enable the instrument chassis to be placed directly behind the VHMF. When using a VHMF, keep a space of 8-10" from the front of the chassis to prevent tight bends in the cables when the VHMF is closed. To determine the proper cable length required, measure the distance from the front face of the instrument to the module location in the receiver with the VHMF in the 'open' position (Figure 4), allowing for bends in the cable and allowing extra length in the cable to prevent tight bends when the VHMF is closed.

Figure 3. Slide Mount Configuration Routing

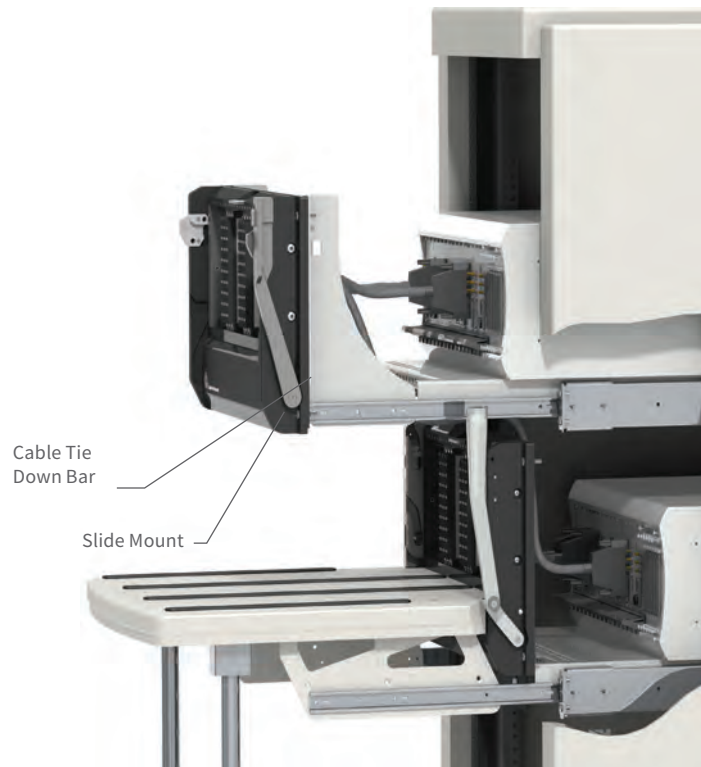
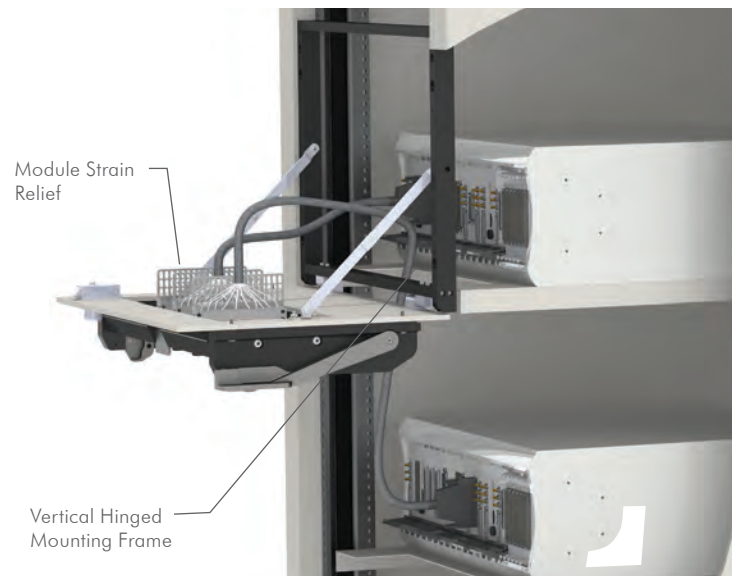


Figure 4. Vertical Hinged Mounting Frame Configuration



Wire+ Options

VPC provides in-house engineered, finished and quality tested cable assemblies, patchcords and value-added services and solutions. When choosing a VPC Wire+ solution, the following pull thru, PCB and wired options are available.

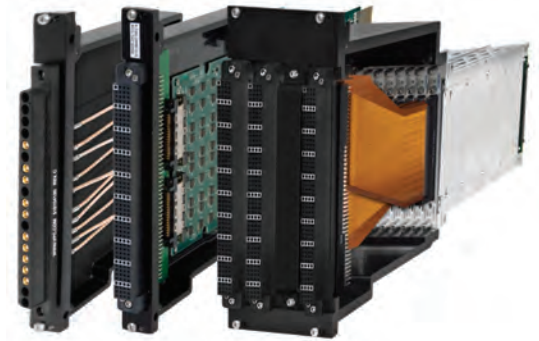
PCB Adapter

VPC PCB adapters offer flexibility in a lower cost solution. VPC PCB adapters are available in both TriPaddle and QuadraPaddle formats. They incorporate double-ended COTS cables with reduced wiring for ease of integration. VPC offers a wide variety of common PXI connectors such as ribbon cable, VHDCI, SCSI and more. PCB adapters are also available in VPC iSeries formats for low I/O applications (i2 Micro iCon shown on right).



Pull Thru

Pull thru solutions are available for systems in which a pull thru receiver is being used. Visit vpc.com for the full range of pull thru solutions that VPC offers.



Wired

The VPC Wire+ Advantage provides in-house engineered, finished and quality tested cable assemblies and patchcords. These can be used as part of your complete test solution and connect directly to test instrumentation. Using wire allows for flexibility in a test system and contacts are individually replaceable. I/O can be modified by adding, removing or relocating patchcords. Custom cables can also be engineered to combine multiple instruments into one receiver module.

TriPaddle

Signal connection for higher *amperage* needs. TriPaddle is rated up to 10 Amps.

QuadraPaddle

Signal connection for higher *density* needs. QuadraPaddle is rated up to 5 Amps.





CONTACT US FOR A QUOTE TODAY

VPC has technically trained and educated Field Application Engineers in the following locations:

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- Hungary
- United States
- China

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