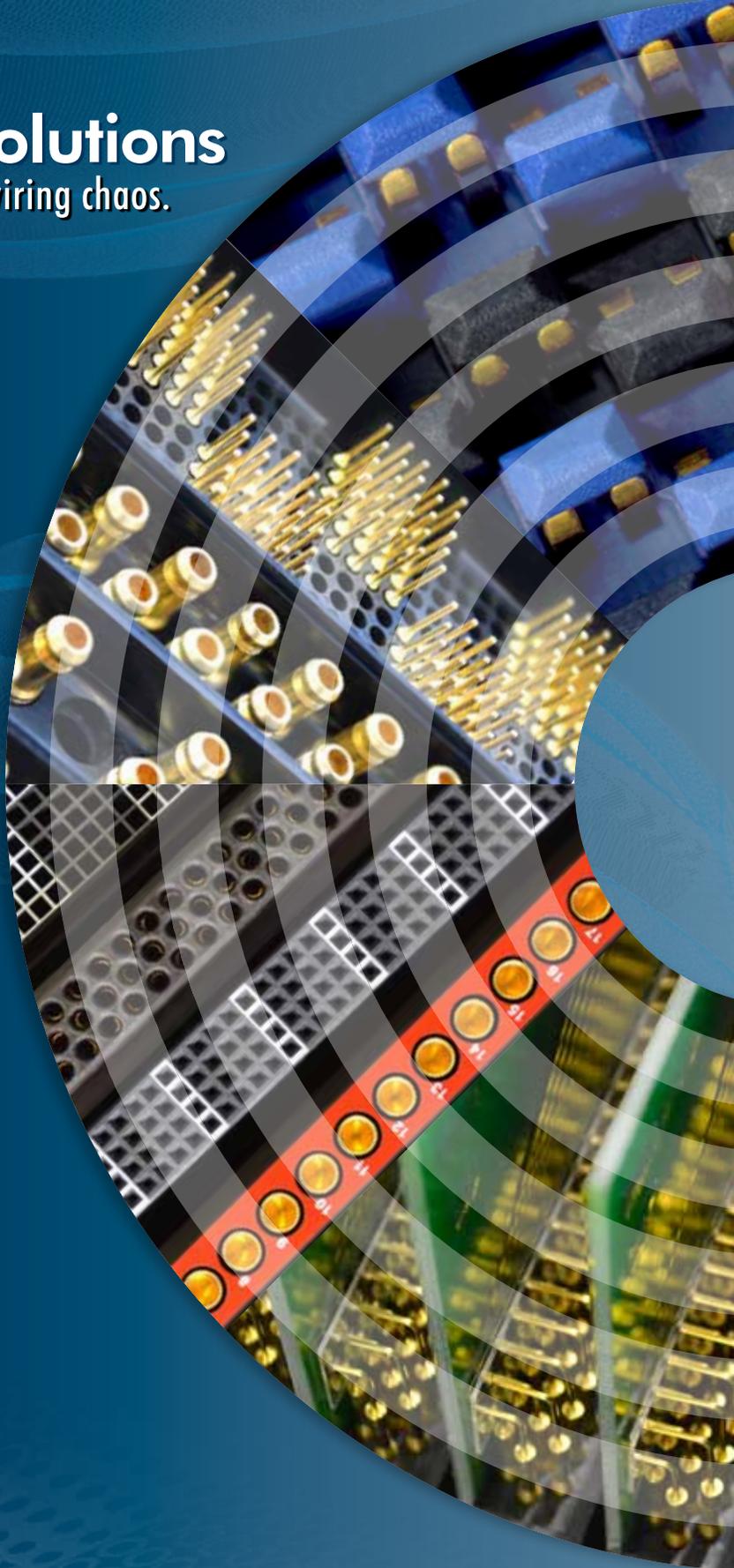


TEST & MEASUREMENT

Mass InterConnect Solutions

...creating order out of wiring chaos.



PRODUCT BROCHURE



Why VPC?

VPC offers over 50 years of unparalleled experience and expertise in the field of Mass InterConnect solutions. Our commitment to uncompromising quality, continuous improvement and exceptional value means you can rest assured our products receive the rigorous and expedient testing you demand.

Used by test and measurement professionals in the fields of defense, aerospace, automotive, medical and more, VPC provides the critical connection between the tester and the unit under test (UUT). By using a Receiver on the tester side and mating it with an Interchangeable Test Adapter (ITA), our modular and scalable solutions allow multiple types of I/O to be easily mated at one time, simplifying the test process.

Aerospace



Automotive



Medical



Defense



Telecommunications

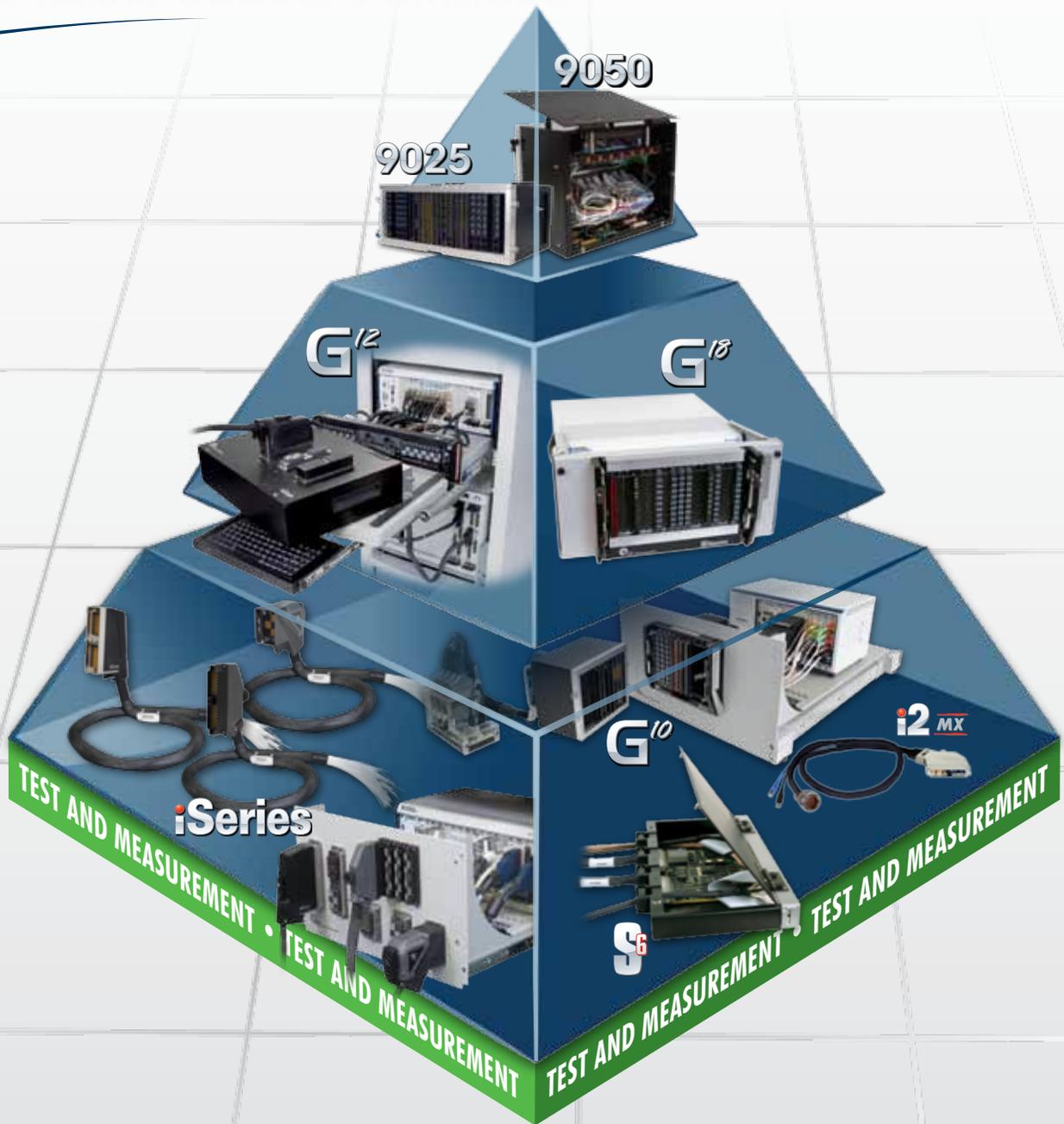
- Protect and extend the life of expensive test equipment
- Increase throughput by quickly and easily adapting tester to multiple units under test (UUTs)
- Both standard and customized solutions to meet your specific needs
- A dedicated team of engineers to help you design and meet your system requirements
- Simplified cable and patchcord management
- Wiring configuration for virtually any type of test and measurement instrumentation

Mass InterConnect Solutions

...creating order out of wiring chaos

...creating order out of wiring chaos

MASS INTERCONNECT SOLUTIONS



What do we offer?

VPC offers solutions to fit any test and measurement application you may need. From low I/O solutions such as the iSeries (i1, i2 and iCon) to high I/O products such as our 9025 and 9050, we can configure a solution to fit your requirements, while extending the life of your test equipment.

Virginia Panel Corporation, through its people, is committed to

UNCOMPROMISED QUALITY



CONTINUOUS IMPROVEMENT

EXCEPTIONAL VALUE

VPC is committed to uncompromising quality, continuous improvement and exceptional value. We are an ISO 9001:2008 certified business, reinforcing VPC's dedication to operating a Quality Management System. VPC manufacturing and engineering personnel undergo in-house training programs, including blueprint reading, GD&T, crimping, assembly, etc.



ISO 9001:2008 FM 91006

VPC is an IPC member in good standing. All wiring assemblers are trained to comply with soldering and inspection per IPC J-STD-001. VPC complies with IPC/WHMA-A-620 with in-house certified IPC trainers and all assemblers having IPC-620A application specialist certification. VPC is capable of producing to all IPC classes (Classes 1, 2 and 3) depending on the customer's requirements.



Member

The VPC Quality Assurance (QA) Lab conducts tests for point-to-point continuity, shorts and insulation resistance to ensure the final product meets both your and VPC's high quality standards. The QA Lab's automated equipment uses our flagship tester, the Cable Test MPT-5000. In addition, VPC's network analyzer tests the electrical response of RF cables to a specified frequency range.



Visit www.vpc.com/compliance for more information.

Dedicated to provide solutions across multiple standards



Wiring Capabilities

VPC's Wire+ Advantage provides engineered, finished and quality tested cable assemblies. This enables easier system configuration, promoting integration of your Mass InterConnect system with virtually any type of test and measurement instrumentation. Whether you need discrete-wired cable assemblies, innovative PCB adapter cards, wired adapters, or our wired enclosures, VPC has a solution for your InterConnect needs. Wire+ offers convenient "plug and play" capability for rapid configuration of your system.

VPC's state of the art wire-strippers, crimpers and cutters speed production. Our combination stripper and crimper enables consistent, efficient and reliable terminations. Automated quality machinery reduces test and validation time while ensuring you receive a quality product.



Visit vpc.com/wire



Online Configurators

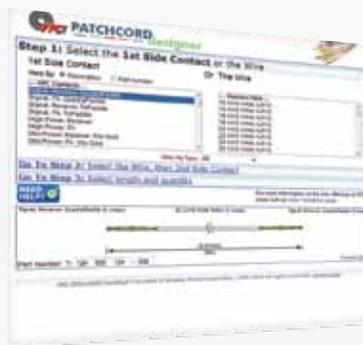
VPC's online configuration tools enable you to design and configure your complete test and measurement solution. Choose from designing patchcords, configuring cable assemblies, PCB adapters, or a complete Mass InterConnect solution. We have made it easy to find the right part numbers you will need to make your connections.

Visit vpc.com/configurators



InterConnect Designer

vpc.com/interconnectdesigner



PATCHCORD designer

vpc.com/patchcorddesigner



Wire+ Configurator

vpc.com/wire_plus/configurator

Applications

VPC continuously develops new products to meet the needs of the test and measurement industry. We take great pride in offering reliable, economic solutions to organize your connections in modular and scalable configurations that can adapt to your changing test requirements. Visit vpc.com/Applications

Robins Air Force Base • iCon and 9050 • Defense

Test engineers at Robins Air Force Base have used Virginia Panel Corporation's **9050 VXI** with an L-shaped enclosure and **iCon** secondary connector in the Versatile Depot Automatic Test Station—Digital Analog version 2 (VDATS DA-2). In this application, the **iCon** connector is used to automatically test avionics circuit cards for the F15 fighter APG-63 system.

The **9050 VXI** receiver and ITA form the backbone of the tester. With a common I/O pin map, any number of groups can develop ITAs and Test Program Sets to utilize the VDATS tester, simplifying testing and procurement. VPC's L-shaped enclosure design is ideal for testing circuit cards allowing the card to be mounted on a horizontal surface to prevent damage.

The test engineers chose VPC's **iCon** connector due to its extreme versatility; the connector offers a wide range of pin configuration and termination types. **iCon's** low insertion force and simple, secure locking mechanism makes it one of the simplest connectors for technicians to install and remove. The project team also found VPC's support beneficial. During manufacturing, the project schedule began to slip. The project group turned to VPC to pre-wire their **iCon**, which enabled them to get back on schedule.

www.robins.af.mil



iCon with Extended ITA Handle • Environmental

A company developing environmental chamber testing fixtures for a cell phone manufacturer worked with VPC to develop a revolutionary environmental test fixture. Using the **iCon's** innovative engagement mechanism, the developers built a fixture that is 18" (500mm) long. It can test up to five cell phones simultaneously and can withstand temperatures from -40° C to 70° C, as well as humidity.

Bloomy Controls • G12 Solution • Commercial

Bloomy Controls' Universal Test System (UTS) is a modular platform for mixed-signal functional testing utilized across a wide range of industries including electronics, semiconductor, alternative energy and medical devices. The system architecture leverages standard Bloomy Controls designs, COTS hardware such as the National Instruments PXI platform, a Mass InterConnect, customized test fixtures (ITAs) and software. Additional system features and options include system self-test capabilities, data management, custom reporting, system calibration and validation. The UTS provides the capability of testing products throughout their life cycle, from research and design, to validation and verification, to manufacturing.

Bloomy Controls chose to standardize on VPC's **G12** Mass InterConnect due to its connection reliability, flexibility to connect various PXI cards and its ruggedized frame. The **G12** supports a high density mix of I/O including power, digital, analog and coaxial signals. This allows Bloomy Controls to rapidly configure systems to meet the customer's test requirements. The **G12** is capable of accommodating multiple ITAs, which creates inherent system flexibility, making the UTS ideal for testing multiple products on one platform.

www.bloomy.com



NOFFZ • iCon • Automotive

The NOFFZ UTP 9065 is used for parallel inline testing of up to 28 different automotive Emergency Call modules simultaneously in a climate chamber. This requires equipment that is modular, mobile and scalable. The UTP 9065 uses VPC's **iCon** connector, making it possible to conduct various performance, communications and functional tests with the easy engage/disengage mechanism. This allows operators to replace device testers for a new test series with minimal time loss.

The standard version of the UTP 9065 includes a server, a touch panel control unit and 10 test cells for inline testing. It can also be upgraded as a completely automated inline tester system. Future enhancements include the incorporation of VPC's **VTAC** High Speed inserts.

NOFFZ ComputerTechnik GmbH, headquartered in Germany, has focused on fast and flexible solutions for automated test systems for over 20 years. As a leading supplier of automotive communication technologies, including complex internet connections, navigation systems, assist services and the legally required Emergency Call (eCall), NOFFZ requires sophisticated and rugged testing equipment.

www.noffz.com

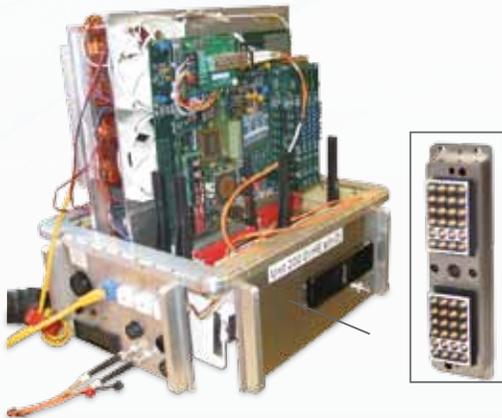


Applications

Department of Astronomy at The Ohio State University • iCon • Commercial

The Multi-Object Double Spectrographs (MODS) group at The Ohio State University's Department of Astronomy integrated VPC's **iCon** into MODS1, the spectrograph for the left Gregorian focal station of the world's largest optical telescope, the Large Binocular Telescope (LBT). **iCon** had to be operational in the telescope dome environment, in temperatures from -28°C to 28°C plus humidity.

The LBT is comprised of two 27.5 foot wide mirrors built into a single mount. The mirrors operate in conjunction with two identical Multi-Object Double Spectrographs, or MODS. Scientists use the LBT and MODS to analyze the distance, physical conditions and chemical makeup of the most distant stars and galaxies.



Because of the extreme environmental conditions, including elevation and high wind speeds, as well as the need for very low EMF noise operation, off-the-shelf electrical components were not an option. **iCon** has exceeded the engineers' requirements, including surpassing the specifications for the spectrograph's signal-to-noise ratio.

www.astronomy.ohio-state.edu/MODS/index.html

Hiller Measurements • iCon, G6, 9025 • Automotive

VPC's **iCon**, **G6**, and **9025** interfaces allow Hiller's high-end automobile customers to create custom, configurable test systems with off-the-shelf components and standard test interfaces. These benefits reduce time and costs, while providing the expected quality and reliability of high-end automobile manufacturers.

Headquartered in Austin, Texas, Hiller Measurements is a family-owned company that designs testing systems for the automotive industry. With over 60 years of test system design expertise, the partners of Hiller Measurements have designed systems used by several premium automobile manufacturers. Hiller Measurements has also designed test systems for satellite communications, avionics, radar systems, and medical devices.

www.hillhermeas.com



CableTest • iCon • Aerospace

The CableTest Systems MPT Wiring Analyzer is used for testing complex electrical interconnect sub-systems manufactured by a major Airbus supplier on the A350 XWB program. The MPT tester uses a combination of standard rack mount instruments and CableTest high voltage/high current sources and switching, all connected with VPC's **iCon** connector. The MPT system and VPC's interface support voltages from mV range to 4000VDC, and from nA range to 7A.

The standard VPC **iCon** connector allows test operators to use common interface cables and test set-up for continuity, dielectric, and functional tests on the various interconnect systems (harnesses, motherboards, black boxes). By standardizing with the **iCon**, CableTest was able to create a high-quality, configurable test system that could be shared at multiple sites.

CableTest Systems Inc, has designed and manufactured electrical interconnect test equipment for more than 20 years. Its world-class ATE solutions are used globally by industry leaders including Bombardier, Boeing, Goodrich, Honeywell, Lockheed Martin, Moog, Parker, and Virginia Panel Corporation.

www.cabletest.com



Aeroflex • i2 Micro iCon • Defense

Aeroflex Incorporated utilized VPC's **i2 Micro iCon** in a contract with the U.S. Marine Corps to supply Ground Radio Maintenance Automatic Test Systems (GRMATS). The Aeroflex 7200 Configurable Automated Test Set (CATS) provides flexible and scalable test instrumentation in a complete radio test system.

Aeroflex engineers chose VPC's **i2 Micro iCon** as the 7200 CATS connector interface to the units under test (UUTs) due to its ability to meet the .08" profile requirement, 168 signal pin high-density with PCB connection capability and tested reliability.

Per the announced U.S. Marine contract, the test platform will be adopted for testing new digital and legacy radio systems. In addition to testing software-defined radios and modules, the portable 7200 CATS platform can test radar, avionics and other devices in a dramatically reduced footprint with the **i2** connector.

Aeroflex, a Cobham Company, is a global provider of test and measurement equipment used by companies in the space, avionics, defense, commercial and medical markets.

www.cobham.com



Features & benefits of using Mass InterConnect

90 Series Receiver and Receiver Modules: A rugged InterConnect mechanism to connect to test instrumentation. Mates to the ITA frame and modules. vpc.com/modules

90 Series ITA and ITA Modules: Mates to the Receiver and houses the modules, PCB adapters, cable assemblies and patchcords for connection to the UUT. vpc.com/modules

iSeries Receiver Cable Assemblies: iSeries Receivers connect to Standard/90 Series modules in the 90 Series ITA. vpc.com/iSeries

iSeries Receiver Connectors: Mount to either an ITA enclosure or rack panel for secondary or primary test connections. vpc.com/iSeries

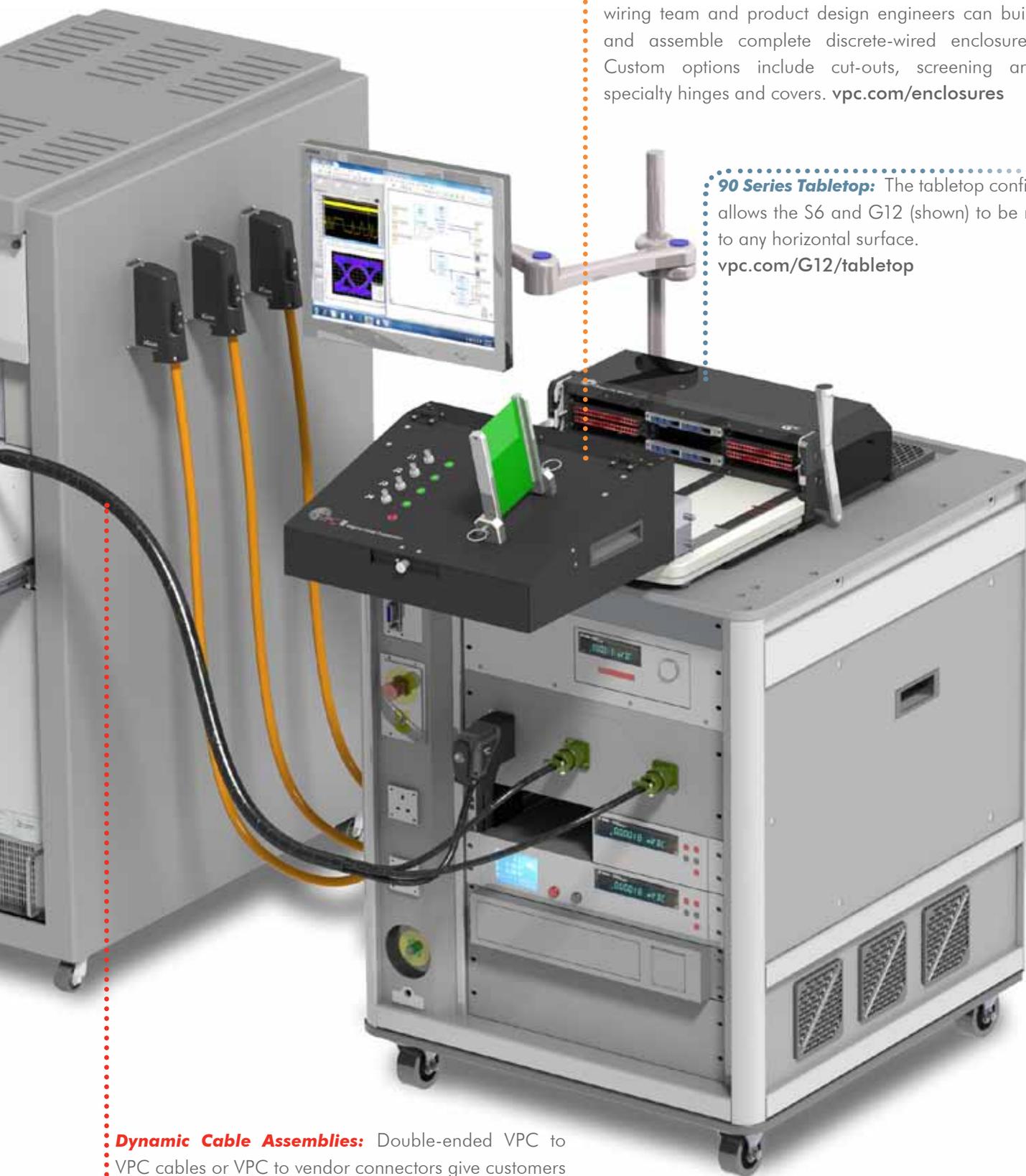
iSeries Interchangeable Test Adapter (ITA) Connectors: Connect to the iSeries Receiver connectors. ITA cable assemblies house wiring within the connector to protect and provide strain relief. vpc.com/iSeries



Mounting Options: VPC provides three types of mounting options to allow for easy access to test instrumentation: Fixed mounting, Vertical Hinged Mounting Frame, and Slide configuration. vpc.com/mounting

Unit Under Test (UUT): Connect directly to your UUT using secondary VPC connectors or direct connections with custom designed enclosures. vpc.com/cables

Instrument Card Solutions: Using our Wire+ Configurator find over 3000 pre-engineered cable assemblies and InterConnect adapters supporting hundreds of PXI, LXI and VXI instrument cards. vpc.com/wire_plus/configurator



Standard and Custom ITA Enclosures: Our in-house wiring team and product design engineers can build and assemble complete discrete-wired enclosures. Custom options include cut-outs, screening and specialty hinges and covers. vpc.com/enclosures

90 Series Tabletop: The tabletop configuration allows the S6 and G12 (shown) to be mounted to any horizontal surface. vpc.com/G12/tabletop

Dynamic Cable Assemblies: Double-ended VPC to VPC cables or VPC to vendor connectors give customers a full range of cable solutions. vpc.com/cables



► i2 MICRO iCon SOLUTION

www.vpc.com/solutions/i2/



► FEATURES

- » 168 signal points available with QuadraPaddle™ Technology
- » Hybrid option offers 120 signal points and 12 micro coaxial/micro power pins
- » 30° cable exit for vertical stackability
- » 0.8" footprint for horizontal stackability



The i2 is a slim-line, low I/O connector with capabilities for discrete-wiring, horizontal and right-angle PCB mounting. Because of its 0.8" profile, high-density with PCB connection capability and tested reliability, the i2 is the connector interface for a major U.S. Military platform testing new digital and legacy radio systems, radar, avionics and other devices.



► i2 MX SOLUTION

www.vpc.com/solutions/i2mx/



► FEATURES

- » Multiple modular inserts allow maximum flexibility
- » EMI-shielding option ensures performance and signal integrity
- » Unique cable exit provides maximum cable bundle capacity
- » Removable, all metal ITA backshell



The i2 MX offers a configurable solution with multiple I/O inserts and optional Electromagnetic Interference (EMI) shielding in a slim 0.8" footprint. With multiple modular inserts to choose from, i2 MX gives you the flexibility to engineer the ideal connector to meet your test application needs.



► i1 SOLUTION

www.vpc.com/solutions/i1/

► FEATURES

- » Hybrid modules available for additional I/O options
- » Removable backshell and engaging mechanism for easy wire access
- » PCB-mountable
- » Quick connect 180° half-turn engagement handle
- » Engineered for at least 10,000 cycles



The i1 accepts all standard iCon modules, offering a variety of I/O options, including the High Power 150 Amp contact. Its small size enables both vertical and horizontal stackability. The i1 connector was chosen by a major automated test company to quickly and easily changeover automated mixed-signal functional tests for assemblies in electronics manufacturing environments.



► **iCon SOLUTION**
www.vpc.com/solutions/iCon/



► **FEATURES**

- » Up to 320 signal contacts with QuadraPaddle™
- » Available with EMI protection
- » Multiple I/O modules
- » Spring-locking tabs ensure even engagement
- » Engineered for at least 10,000 cycles



The iCon is a PCB-compatible rack and pin connector designed specifically for the test and measurement industry. Multiple aviation manufacturing leaders test complex electrical interconnect sub-systems using the iCon interface due to its ability to allow test operators to use common interface cables and quick test set-up. The iCon also allows high-end automobile manufacturers to create custom, configurable test systems with off-the-shelf components and standard test interfaces.

G⁶ & G¹⁰



► G6 & G10 SOLUTIONS

www.vpc.com/solutions/G6/ www.vpc.com/solutions/G10/



► FEATURES

- » Cable mount ITA includes slide-off EMI-shielded cover
- » Engage up to 1,440 signal contacts with the G6 and 2,400 with the G10
- » Precise signal integrity with the QuadraTrack™ engagement system
- » Reliable connectivity beyond 20,000 cycles



The G6 and G10 support a wide range of I/O and provide versatile, high-density interconnect solutions. Both can accommodate either a discrete wired connection or PCB, in one system. The quick engage/disengage mechanism of the G6 and the G10 allow rapid test changeover by automotive manufacturers testing Engine Control Units (ECUs) such as audio, navigation systems, airbags and lock-key.



► S6 SKEETER™ SOLUTION

www.vpc.com/solutions/S6/



► FEATURES

- » Up to 1,400 points in only 1U of rack space
- » Tabletop, slide, or rack mount versions available
- » Supports signal, power, coaxial, pneumatic, thermocouple, twinaxial and fiber optic contacts
- » Reliable connectivity beyond 20,000 cycles



The S6 low-profile solution supports up to 1,440 contact points in a minimal 1U of rack space. The robust and reliable S6 provides repeatable test capabilities for small and intermediate size test applications.

G12x



► G12 & G12x SOLUTIONS

www.vpc.com/solutions/G12/ www.vpc.com/solutions/G12x/

► FEATURES

- » Precision engagement of over 2,800 contacts in a 3U height in the G12
- » Precision engagement of over 4,300 contacts in a 5U height in the G12x
- » Easy glide docking for fixture guidance
- » Reliable connectivity beyond 20,000 cycles

The G12 offers I/O options to meet virtually any connectivity requirement and is available in both slide and tabletop configurations. It is ideal for commercial, contract manufacturing, automotive and other high-volume testing environments.



► G18 SOLUTION

www.vpc.com/solutions/G18/

► FEATURES

- » Ideal solution for 18 slot PXI chassis
- » Engage up to 4,320 contacts in one motion
- » Slide mount option supports up to 180lbs
- » QuadraTrack™ engaging mechanism ensures precise signal integrity



The G18 is a high-density InterConnect capable of supporting a wide variety of I/O options in various configurations. The G18 enables the reliable and repeatable transfer of digital, analog and radiofrequency signals for systems testing automotive antenna amplifiers for several German manufacturers using an LXI platform.

G²⁰



► PULL-THRU SOLUTIONS

www.vpc.com/PullThru/

► FEATURES

- » 0.8" centers correspond with PXI system slot requirements
- » Accepts all standard 90 Series and i2 modules
- » Enables pull through removal of connector modules and instrumentation
- » Multiple configurations and I/O options



The industry standard for pull-thru systems since 2004, VPC's line of pull-thru solutions allow a variety of module configurations, enabling integration of multiple I/O options with room to expand. From the 20 module G20 to the double-tiered G40x, VPC offers pull-thru solutions for every application need.

9025 TR



► 9025 & 9025TR SOLUTIONS

www.vpc.com/solutions/9025/ www.vpc.com/solutions/9025TR/

► FEATURES

- » Updated receiver with 30% reduced handle force and lighter weight
- » 9025TR features a handle which can be installed on either the right or left side of the receiver
- » Precise signal integrity maintained by QuadraTrack™
- » Engineered for over 20,000 cycles



The 9025 is ideal for rack/slide mounting applications or Vertical Hinged Mounting Frames. Designed with room for expansion and rapid changeover. The 9025 is the main interface for high speed test and measurement systems involving radio frequency and microwave applications.

9050



► 9050 & 9075 SOLUTIONS

www.vpc.com/solutions/9050/ www.vpc.com/solutions/9075/



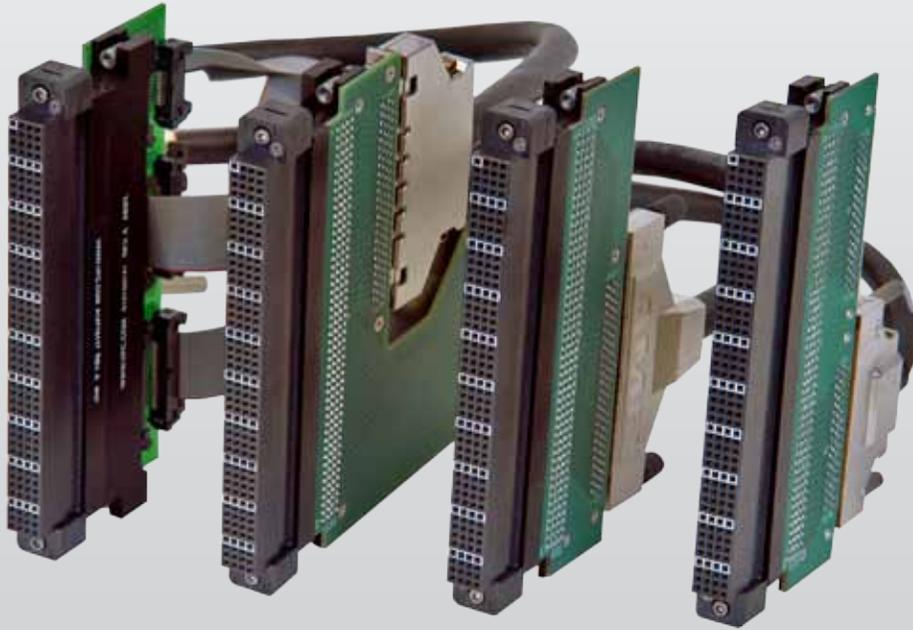
► FEATURES

- » Intermixable connector modules for custom interfaces
- » Platform configuration supports up to 180 lb.
- » VXI Plug and Play Kit offers easy access to adapters and instrumentation
- » Reliable connectivity beyond 20,000 cycles



The rack mountable 9050 and 9075 receivers are designed to accept their own and 9025 ITAs to support advanced Mass InterConnect requirements and a wide range of I/Os. It is widely used by the U.S. Military to test electronic, electromechanical, electro-optical equipment assemblies and circuit cards for weapons systems, radar systems and communications gear.

Innovative PCB Solutions



► PCB SOLUTIONS

www.vpc.com/PCB/

► FEATURES

- » Ideal for PXI applications
- » Available in configurations that incorporate common PXI connectors
- » Available in QuadraPaddle™ and TriPaddle
- » Consolidate connections for rapid integration



VPC offers several PCB adapter solutions supporting our 90 Series and iSeries product lines. Choose from right angle or direct wire to board mounting. Wire to board connections use twin female QuadraPaddle™ contacts to connect directly to male headers on a PCB. Right angle solderless compliant headers enable connection to PCB adapters or virtually any custom PCB.

Modules, Contacts & Patchcords

VPC offers a wide selection of intermixable modules and contacts, allowing you to create the InterConnect solution specific to your testing needs and the ability to modify as requirements change.

Each module is designed to allow maximum I/O without compromising the contact life cycle. Each contact is engineered to withstand frequent changeover, with many rated up to 20,000 cycles.

VPC can also configure and assemble customized patchcords with pre-terminated contacts, a cost-effective and time-saving alternative to meet your wiring specifications.

Visit www.vpc.com/contacts to see full product offerings.



High Speed



- 12.5+ Gbps per differential pair
- 50 μ " gold-plated and self-aligned contacts
- i2 MX will accommodate 22 VTAC HSD inserts
- VTAC precision-welded inserts reduce resistance and increase signal integrity with a seamless transition from wire to connector

Signal



QuadraPaddle™



TriPaddle

- QuadraPaddle™ compact size allows for high density
- QuadraPaddle™ – 5 Amp operating current
TriPaddle – 7-10 Amp operating current
- Plug and play simplicity
- Long lasting – over 20,000 cycle life

Power



Micro Power



Mini Power



High Power

- Mini Power rated to 65 Amps with 8 AWG wire
- High-density Micro Power rated to 21 Amps
- High Power contact rated to 150 Amps
- Over 10,000 cycle life

Coaxial



Micro Coax



Mini Coax



26 GHz Coax

- Micro Coax rated to 3 GHz using RG316 or RG178 and a maximum of 10.5 GHz using RG316 Double Shielded
- Robust Mini Coax designed for minimal crosstalk with 50 and 75 Ohm impedance
- 26 GHz coaxial contact uses TFlex 402 wire and offers the best density for higher frequency requirements

Fiber & Pneumatic



Fiber Optic



Pneumatic

- Polymer Optical Fiber (POF) supports low speed, short distance applications
- Mini Multimode Fiber supports higher speed fiber optic needs
- Mini Pneumatic contacts fit into iCon Mini Power and Mini Coaxial modules



ISO 9001:2008 FM 91006

“Virginia Panel Corporation, through its people, is committed to continuous improvement, uncompromising quality, and exceptional value.”

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