



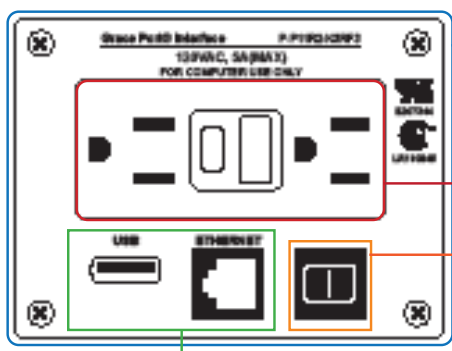
GracePort® Panel Interface Connectors offer safe, external access to industrial control panels, enabling maintenance and programming activities without the need to open the panel.

Customer Problems and GracePort® Solutions

- **Reduced Electrical Hazards:** Opening panel doors increases exposure to electrical dangers like shock hazard and arc flash; GracePort® eliminates this need, enhancing safety by externalizing connections.
- **Streamlined External Connections:** Direct access to PLCs, VFDs, and data collectors is often hindered by internal setups; GracePort® simplifies this by bringing connections outside, boosting productivity and safety.
- **Enhanced Enclosure Safety:** The risk of electrical hazards from servicing equipment inside panels is high; GracePort® reduces these risks by allowing maintenance and programming from outside, keeping doors closed.
- **Continuous Environmental Shielding:** Sensitive components like circuit boards are vulnerable when exposed to environmental contaminants; GracePort® protects these by maintaining a closed enclosure during connectivity and maintenance tasks.

Features and Benefits

- All GracePort® with housings are UL Listed allowing integration with existing UL-certified equipment.
- Over 20,000+ unique configurations created and shipped in 2-3 business days.
- A wide variety of components including USB, RJ45, USB-C, domestic and international outlets with flexible mounting options.
- Faceplates are customizable with special text and customer logos.
- UL Type 1, 2, 3, 3X, 3R, 3RX, 4, 4X, 5, 12, 12K, 13.
- Stainless steel housing options available, type #316.
- The MagView™ and ThruView™ 360 housings are IP69K rated ensuring complete protection against high-pressure water.



Housing Size & UL Rating

Several housing types are available to meet your needs. The size of your housing depends on several variables including the kinds of components you choose, the power option you want and, in some cases, the UL rating you need.

Power Option / Circuit Breaker

Many power options for international and domestic use are available and are represented by a one, two, or three letter code. Because circuit breakers offer the ability to limit what devices can be run through the GracePort®, we offer different amperages as well.

Components

There are various connectors available and are represented by a two to three digit code found in between the first two dashes of our GracePort® part number layout. Multiple connectors in a GracePort® are listed alpha-numerically and multiples of the same component are followed by # and the quantity.

Customers and Industry Successes

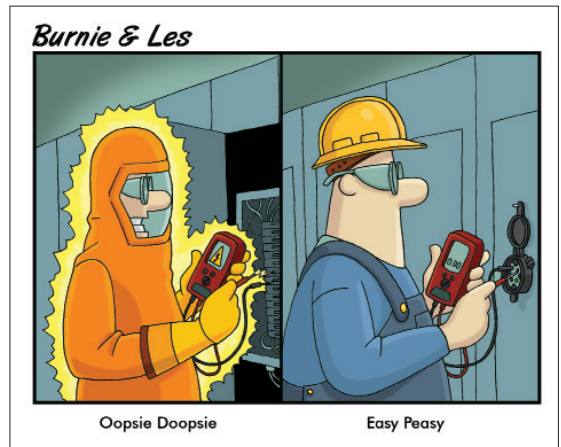
Common Theme (automation, control systems, and industrial engineering)

- Customers likely specialize in providing solutions for industrial automation, control systems design, electrical engineering, manufacturing automation, process automation, and related services.
- GracePorts cater to a wide range of industries including manufacturing, automotive, food and beverage, packaging, energy, aerospace, and more.
- The trend in these industries is a growing reliance on automation and control systems to improve efficiency, productivity, quality, and safety in manufacturing and industrial processes.

Lead Sources	Approximate Project Value	Days to Win
Distributor Partnership, Inbound, Tradeshow, Joint Calls	\$10,000	Up to 150 Days

GracePorts® vs Other Panel Interface Connectors

Company	Offering	Product Line Weaknesses	UL Listed	IP Rating	How To Win
Panduit	Data Access Port	• Fewer data and power options • 3 - 4 weeks for customization, likely a minimum order quantity • Round housings only	Yes	IP65/ IP66	• Fast delivery of any combination • No minimum for customization, including customer info. on the label
Mencom (Automation Direct)	Panel Interface Connector	• Longer customization lead-time • No round housings	Yes	IP65	• Fast delivery of any combination • No minimum for customization, including customer info. on the label
Murrelektronik	Modlink	• Longer customization lead-time • No round housings	Yes	IP65	• Fast delivery of any combination • No minimum for customization, including customer info. on the label
Phoenix Contact	HEAVYPORT	• UL listing not specified • Lead-times and MOQ for customization • No round housings	No	IP65	• Fast delivery of any combination • No minimum for customization, including customer info. on the label
Weidmuller	FrontCom Vario FrontCom Micro	• UL listing not specified • Longer lead times than Grace and likely larger MOQs for customization • No round housings	No	IP65	• Fast delivery of any combination • No minimum for customization, including customer info. on the label



Customer Problem

Performing LOTO safely requires the answer to one question; is there voltage? Lockout/Tagout (LOTO) is a time-consuming procedure with a potentially high margin of human error that can result in arc flash and shock hazards resulting in injuries, fatalities, downtime, and OSHA citations/fines.

Grace PESDs Solution

Permanent Electrical Safety Devices (PESDs) provide a safer and more productive answer to this question by minimizing hazardous exposure, human error, and reducing procedure time by 35-40 minutes. Our devices allow voltage measurement and/or indication outside the enclosure while the door remains closed. PESDs include voltage presence LED indication and absence of voltage voltmeter test points.

Features & Benefits

Voltage Indicators

PESDs that visually represent presence of voltage with flashing or non-flashing redundant LED lights.

- Voltage Range: 40-1000 AC & 30-1000 DC
- Medium voltage option with voltage range of 2KV to 43KV
- No batteries needed: line voltage powered
- High surge immunity; Cat III/IV rated
- Various mounting options; Flex-Mount available in 4 or 5 wire configuration
- CE, UL Listed, Type 4X, 12, 13

Safe-Test Point™

Allows electrically qualified personnel to perform absence of voltage test through closed doors for electrical LOTO and minimizes the risk of arc flash and shock hazard.

- Voltage range: 0-1000 AC/DC
- IP2X & UL 600 V touch safe
- CE and cUL Listed



Features & Benefits

ChekVolt®

Voltage presence indication and absence of voltage testing.

- Meet the Standard with NO Exceptions: The ChekVolt® mitigates arc flash/shock exposure hazards and enhances compliance to NFPA 70E (certified to UL 61010).
- Installed through a single 30mm knockout, this touch-safe PESD features voltmeter compatible test points for absence of voltage testing and redundant LED voltage presence indication rated up to 1000 VAC/VDC.
- PESD users report LOTO procedure time reductions of 35-40 minutes. ChekVolt® pays for itself after 2-3 LOTO procedures from time savings alone.

Voltage Test Station

Combines our Safe-Test Point™ with a voltage indicator within an environmentally protected housing.

- Lockable, clear housing
- Electrical and Mechanical LOTO applications
- Allow for higher UL environments
- UL Types 1, 3R, 4, 4X, 12 housings and customizable faceplates available with logos and special text

Customers and Applications

Who Are The Customers?

- Any customer with an active Electrical Safety Program within their facility.

Why Do They Buy?

- Enhanced compliance with local, national, and international safety standards such as OSHA & NFPA 70E
- Improved productivity while performing routine LOTO procedures (up to 75% decrease in procedure time!)
- Increased safety while performing LOTO by providing visual representation of energy presence and providing a safer means of testing for absence of voltage through high impedance protected test points with panel doors closed

What Are Their Applications?

- Directly installed onto equipment where mechanical and electrical LOTO procedures are performed.
- Countless applications exist where users may be concerned about whether voltage is unknowingly present, or absence of voltage testing poses a risk. PESDs are installed on all sorts of equipment.
- Examples include: MCCs, disconnect switches, switchgear, control cabinets, circuit breaker panels, etc.





How Customers Benefit from PESDs

Customers who have incorporated PESDs into their Electrical Safety Programs have seen up to a 75% decrease in procedure times. In addition, PESDs improve their safety, compliance, and productivity.



What makes PESDs different than other Electrical Safety Devices

PESDs, like the Safe-Test Point™, comply with NFPA 70E 120.5(7) as an alternative method to test for absence of voltage using a properly rated portable test instrument (voltmeter). Other devices on the market, such as Absence of Voltage Testers (AVTs), provide a different method of testing and fall under Exception No. 1 of the Energy Control Procedure.

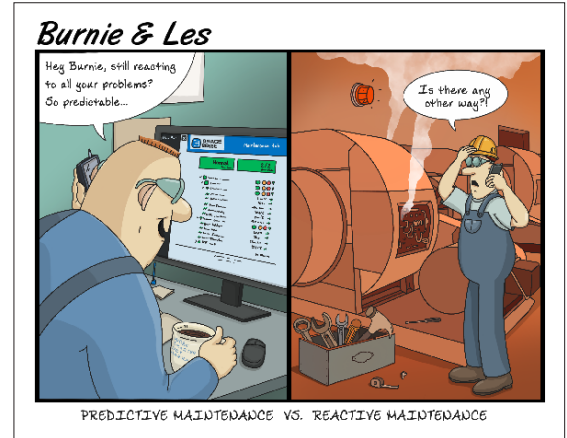


Questions? *Scan the QR Code to the left to visit our website.*

Part numbers and pricing varies based on configurations. Scan the QR Code to the left to order product literature.

Contact a Grace Sales Representative or go to www.pesd.com to learn more!

Email: Sales@GraceTechnologies.com or Call: 563.386.9596 / 800.280.9517



Customer Problem

Reactive maintenance and over-maintenance are both very costly. Reactive maintenance scenarios often lack required parts and are at a higher risk of personnel becoming injured (70% of injuries occur during reactive maintenance). Downtime is significantly increased when maintenance is unplanned, and personnel cannot make repairs safely or efficiently.

GraceSense™ Solution

Data provides information for better maintenance plans. IIoT and Hot Spot Monitor devices monitor critical assets to provide alert capabilities when equipment degradation is detected. IIoT devices include vibration and temperature monitoring for motors, pumps, fans, and rotating equipment while the Hot Spot Monitor can be installed to monitor switchgear and MCC temperatures on bolted connection points.



Features & Benefits

Field Mount Vibration and Temperature Nodes

- Replaceable long-life battery (5+ years)
- Zigbee compatible wireless connectivity
- IP67, UL Type 4 and 4X
- Stud, plate, fin, and magnetic mounts available
- Wireless range: 30m radius line-of-sight

Panel Mount Node

- Easy-to-install K size GracePort® housing
- Replaceable long-life battery (5+ year life), 24VDC
- Zigbee, LTE & WiFi wireless connectivity
- Completely customizable transducer options
- IP65, UL Type 4, 4X, 12, & 13

Features & Benefits	
Hot Spot Monitor	Maintenance Hub User Interface
 A non-conductive temperature monitoring and alarming device that identifies potential hot spots and enables users to predict potential failures in equipment. • Hot Spot Monitor Features & Benefits • Continuous monitoring • Monitor up to 18 pts per unit • No calibration required • Temperature range: -20°C to 120°C • Communication: Modbus RTU, Modbus TCP/IP, Ethernet IP • UL Recognized	Web application providing real-time asset status using dashboards, plot trends, and analytics. • Hosted either in the cloud or on a local server • Displays system information, generates reports, and issues alerts • SMS and email alerts contain actionable step-by-step remediation instructions • Open API lets you share data and alerts with existing systems (i.e. CMMS, SCADA, DCS).

Customers and Applications	
Who Are The Customers?	Why Do They Buy?
 • Customers looking to improve their maintenance plans with an affordable solution that provides convenient access and alerts capabilities to asset health.	• To replace or enhance their current maintenance program with augmentations that provide a substantial ROI by preventing unplanned downtime.
What Are Their Applications?	
• Vibration & Temperature Nodes can be affixed to motors, pumps, fans, conveyor systems, etc.	• The Hot Spot Monitor can be installed wherever critical failure points in the form of bolted connections exist; most commonly within a switchgear.

Customer Benefits	
 The Predictive Maintenance System will elevate a customer’s current maintenance program to one with better insights, maintenance strategies, and improved safety. Ask your customers about their current program. Are they operating on a preventative or reactive maintenance plan? Are they concerned about lack of preparedness and unplanned downtime? Do they know that most injuries occur during reactive maintenance scenarios?	



GraceSense vs. other Predictive Maintenance Solution

The Predictive Maintenance System benefits from being an all-in-one integration. We work directly with customers to get their Predictive Maintenance System up and running and include all the necessary. GraceSense also benefits from being a completely wireless system, but also includes the feature of Ethernet/IP™ connectivity.

The Hot Spot Monitor replaces routine thermography inspections with the benefit of continuous, remote monitoring of critical hot spots that can often go undetected during thermography inspections. Alerts personnel to temperature anomalies that can occur at any time, while thermography inspections are typically performed on a quarterly basis.



Questions?

Part numbers and pricing varies based on configurations. Scan the QR Code to the left to order product literature.

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