



GRACE TECHNOLOGIES

ZERO HARM. ZERO DOWNTIME.

**Product Use Cases, Personas,
and Messaging**





At Grace Technologies, we empower industrial teams to work safer, smarter, and more productively. Our comprehensive solutions include panel interface connectors for safe external panel access, permanent electrical safety devices to enhance Lockout/Tagout compliance, predictive maintenance and condition monitoring technology, wearable voltage detectors that proactively protect workers, and energy harvesting solutions for continuous remote monitoring. Combining innovative design, UL-listed reliability, and industry-leading expertise, we help facilities worldwide reduce risk, eliminate downtime, and accelerate productivity.



Overview, Applications, Market Strategy & Sales Enablement

GracePorts® externalize communication ports (PLCs, ICPs, VFDs) outside of electrical panels, improving safety and efficiency.

- Maintains UL ratings of cabinets while preventing electrical hazard exposure.
- Easy mounting on panel doors or sides for convenient access.
- Highly customizable: unique cables, logos, text, and specific configurations.
- Standard lead time: 2-3 days for tailored solutions.



GracePort® Products



Standard GracePort®



GracePort®+



H-Series



Type 1



SAFER

- Reduce electrical exposure risks in ICPs.
- Incorporates thru-door technology for safer routine procedures.
- Complies with OSHA and NFPA 70E safety standards.
- Transforms control panel interactions into a safer process.



SMARTER

- Precision-crafted at our Davenport, IA facility.
- Quick processing and shipping within a 2-3 day timeframe.
- Offers complete customization, setting GracePort® apart in the market.
- Provides tailored solutions for unique applications.



MORE PRODUCTIVE

- Enhances productivity by enabling safe access to PLCs and devices without opening control panel doors.
- Simplifies and speeds up routine programming tasks.
- Streamlines the process for efficiency, combining safety with productivity in control panel interactions.

GracePort® Common Configuration Options

- All varieties of Ethernet
- Stainless Steel/Hazardous Area
- Network Taps
- SD Card Interface
- Custom text
- Multiple USB including 4 into 1 hub
- Serial / Parallel
- E5 Ethernet Switch hub
- Custom Company Logo Printing

Sales Pitch Questions

Q: How are you currently troubleshooting and programming your PLCs?

Q: Do you need to wait for facility electricians to lockout before opening enclosure door?

Q: Do your panels have sequestered disconnects?

Q: What safety regulations do you have to follow when opening a panel? Do you follow it/them?

Q: Do you require energized work permit to perform the task?

Q: What are the safety guidelines for third party contract employees at your work site?

Q: Are electricians required to be present during programming? What is the cost?

Q: What is your typical Hazard Rating Category (HRC) for control cabinets?

Q: Can you explain your electrical safety culture?

Target Market, Customer Profiles, & Competition

End Users

Our primary market includes large end users with stringent safety programs that restrict panel access without proper PPE. Many of these end users mandate the specification of GracePorts® in their projects or for any acquired electrical/automation equipment. Additionally, there is a significant market for retrofits among users seeking to enhance existing systems with our solutions.

System Integrators & OEMs

System Integrators and OEMs targeting safety-conscious end users form a key part of our clientele. They leverage GracePorts® to elevate their offerings, adding value and enhancing safety and convenience. OEMs also benefit from our solutions, utilizing them for environmental-rated external communication points on machinery for troubleshooting and programming. These integrators and OEMs are focused on optimizing field service efficiency and reducing incident rates, making GracePorts® an integral part of their strategy.

Contacts at End Users, System Integrators, & OEMs

- Automation Engineers
- Electrical and Instrumentation Engineer
- Maintenance Supervisors
- Controls Engineers
- EH&S Members
- Anyone frequently accessing or design PLC/drive cabinets

GracePort® Target Markets

- Aerospace
- Food & Beverage
- Metals & Mining
- Power Generation
- Solar & Wind
- Water & Wastewater Treatment
- Automotive
- Manufacturing & Assembly
- Oil & Gas
- Rubber & Tire
- Utilities

Notable Customers



Competition



GracePort® Panel Interface Connectors

GracePort® offers a variety of housing options to meet specific needs, featuring the UL Listed MagView™ and ThruView™ 360 as top choices:

- Variety of housings available including UL Type 1, 4, 4X, 12, stainless steel, extra large GracePort+ options, and hazardous location housings.
- MagView™ housing stands out with a patented magnetic seal for streamlined access to ICPs.
- ThruView™ 360 is the first circular housing from GracePort® and can be installed in less than 10 minutes.
- Safety-focused design allows technicians to access PLCs without opening the main panel door.
- Lockable housing for security, enhancing compliance with OSHA & NEC regulations.



Common Customer Goals

- Minimize/eliminating risk of exposure to electrical hazards
- Improve task productivity
- Enhanced safety for their personnel
- Data logging, interfacing, and programming
- Reduce the amount of PPE required

Common Customer Objections & Obstacles

Objections & Obstacles	Response
<i>"We just open the door and plug-in."</i>	"We hope you have an electrical safety program in place to keep your team safe. Note that 60% of all electrical injuries occur in low-voltage environments."
<i>"Nobody gets hurt doing this task."</i>	"We are glad to hear that no one has been hurt...so far. To ensure that no one gets hurt in the future, particularly an unqualified or under-qualified person, it is best to eliminate the risk of opening the panel."
<i>"We use a standard ethernet port outside the door."</i>	"If you need a single port, there are 22mm knockout options. GracePort® allows incredible customization to provide power such as a GFCI in addition to data ports."
<i>"I would have to put these everywhere."</i>	"Excellent, they are low-cost means to keep your workers safe by not needing to open the panel door. Compared to the cost of an electrical injury, GracePorts® are a bargain."
<i>"My guys know what they are doing."</i>	"Understood. Are you losing experienced guys to retirement or turnover? Are you confident that earlier career team members know what they are doing? Why take the risk vs. a low-cost panel interface connector?"
<i>Added cost to the BOM for OEMs & System Integrators</i>	The added cost is quite small compared to the benefit of accessing programming and other data ports your service techs will use during field service calls. They will appreciate the ability to access control systems without needing to open the panel door.

Common Applications

- Harsh contaminant environments
- PLC, Industrial Computers, VFDs
- Difficult to Access Panels
- Data logging with USBs
- Program updates with SD Card
- UL listed GFCI outlets for charging laptops
- Stainless steel (304/316) housings offer extra protection
- High Traffic Areas where open doors create hazards
- E5 Space Saving in Panels with Limited Space
- Power Delivery for USB-C powered tablets and smart devices
- Food/Pharma Security – lockable ports in a stainless-steel housing

GracePort®+ HMI Covers

The GracePort®+ is a durable HMI cover kit, designed for easy installation on enclosure exteriors and providing convenient access to HMI components. Its features include:

- Compatibility with standard HMI sizes: 10" x 8", 12" x 10", 14" x 12", 16" x 14", and 20" x 16".
- Protection against industrial contaminants like dust, dirt, oil, and water.
- UL Recognized for Types 1, 2, 3, 3R, 4, 4X, 12, & 13, and UV Rated for outdoor use, ensuring durability in various environments.
- Offers an effective solution for safeguarding HMIs in challenging industrial settings.



Common Customer Goals

- HMI protection from harsh industrial contaminants
- Restrict access to HMIs and other items with a padlock
- Protecting HMIs and other high-end components from UV rays

Common Customer Objections & Obstacles

Objections & Obstacles	Response
<i>Frequent opening and closing of the units.</i>	GracePort®+ has a rugged design that will withstand many years of opening and closing. It takes very little time to open/close the cover to protect your HMI and ingress to the panel.
<i>HMI carries the ratings for washdown</i>	A GracePort®+ will provide additional protection, for example from impact, and may provide better panel ingress protection.
<i>"We use screen protectors for HMIs."</i>	"Screen protectors offer some protection, but no water or dust ingress protection. If the environment is oily, they will need to be cleaned before use. They also will not protect your HMI from an impact. Also, GracePort®+ can offer the power and data ports of a normal GracePort will protect your HMI."
<i>No available space on the panel to accommodate an HMI cover.</i>	If it does not fit, this obstacle cannot be overcome.

Common Applications

- HMI and push button protection
- More connections than a typical GP can handle
- GracePort® components and power options
- Drive interface units
- Panel interface connectivity to PLC
- Configurable with PESDs®

Sales Pitch Questions

Q: What is the lead-time and cost of downtime when you experience a damaged HMI?

Q: How frequently are your HMIs getting damaged?

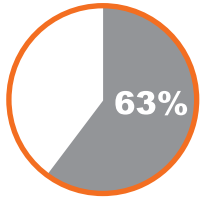
Q: Is it worth the expense and effort to repair or replace your HMI?

Q: Do you have any outdoor HMIs that are frequently getting affected by the sun?

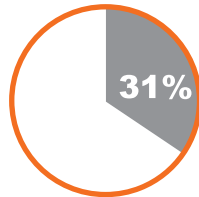


Permanent Electrical Safety Devices (PESDs), including voltage indicators and ChekVolt, are revolutionizing the efficiency and safety of Lockout/Tagout (LOTO) operations. Here's how they are making an impact:

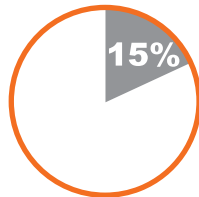
- Transform a typical 30-minute, two-person LOTO task into a 10-minute job for one individual.
- Align with OSHA's Office of Regulatory Analysis findings, indicating a significant return on safety investments.
- Enhance workplace safety and productivity, demonstrating substantial benefits in operational efficiency. In a survey of customers conducted by Grace, we found that:



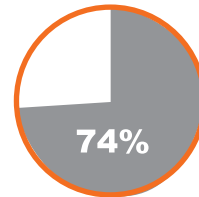
Users have identified failed or faulty isolators with PESDs



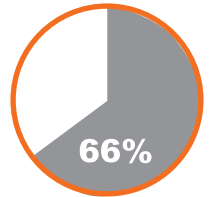
Users have fewer accidents with PESDs



Users have seen a reduction in near misses using PESDs



Users have seen an improvement in Electrical LOTO Tasks using PESDs



Users have seen an improvement in Mechanical LOTO Tasks using PESDs

GracePESDs® Products



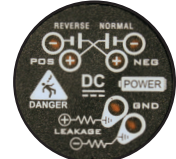
R-3W/R-3W-SR Voltage Indicator



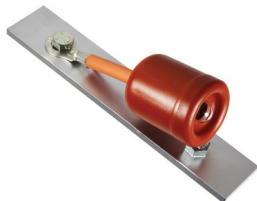
R-3W2 Voltage Indicator



R-3F2 Fiber Optic Voltage Indicator



R-3W DC



R-1VL003/R-1VH003 Medium Voltage Indicator



R-3K (no additional wiring when paired with Voltage Indicator)



Combination Units



Flex-Mount Voltage Indicator



R-3MT-1K-KIT*
Includes Dust Cap
and Label



R-3MT



R-5MT

Safe-Test Point™



ChekVolt®



Voltage Test Station (VTS)



SAFER

- Directly address OSHA's frequent citations for Control of Hazardous Energy or LOTO.
- Provide external voltage presence indicators, enabling safer LOTO procedures.
- Reduce risks associated with energy exposure during maintenance and servicing.
- Enhance overall safety compliance in workplace environments.



SMARTER

- Streamline LOTO tasks, converting what used to be lengthy, two-person operations into efficient, single-operator activities.
- Significantly reduces procedure times, boosting overall operational productivity.
- Enhancements in task management align with the needs of modern industrial environments.



MORE PRODUCTIVE

- Streamline LOTO tasks, converting what used to be lengthy, two-person operations into efficient, single-operator activities.
- Significantly reduces procedure times, boosting overall operational productivity.
- Enhancements in task management align with the needs of modern industrial environments.

Lockout/Tagout (LOTO) Applications

Mechanical LOTO (Voltage Presence Indication)	Voltage Indicators (R-3W2, R-3F2, R-3D2), ChekVolt®
Cost-Effective Mechanical LOTO	Voltage Portals (R-3K)
Enhanced Mechanical LOTO	Combination Units, ChekVolt®
Electrical LOTO (Absence of Voltage Testing)	Safe-Test Point (R-3MT, R-3MT-1K-KIT-*, R-5MT)
Enhanced Electrical LOTO (Absence of Voltage Testing)	Voltage Test Station (P-S11S21-M3RX), ChekVolt®

Common Applications

Mechanical & Electrical LOTO

- MCCs
- Circuit Breaker Panels
- Often accessed panels
- Control Cabinets
- Remote disconnects

Electrical LOTO

- Low Voltage Switchgear & transformers
- MCCs

Sales Pitch Questions

Q: Can you tell me about your current LOTO program?

Q: Do you have Arc Flash labels on your equipment with PPE requirements?

Q: Are your personnel trained on LOTO procedures?

Q: How do you assess the training level of your personnel?

Q: How often do you do Electrical LOTO at your facility? What is the frequency (Day/Week/Month)? Does your process make it difficult to open the panel?

Q: What level PPE is worn to open the panel?

Q: How long does it typically take to verify a de-energized state?

Target Market, Customer Profiles, & Competition

End Users

Ideal for those with active LOTO programs requiring verification of a de-energized state before panel access. Frequent LOTOs mean quicker returns on Voltage Indicators, typically suited for companies with over \$100 million revenue.

System Integrators

Targeting safety-focused end users or those aiming to differentiate their high value-added solutions with enhanced safety and convenience.

OEMs

Aimed at manufacturers of MCCs, drives, switchgear, etc., supplying to safety-conscious clients. The objective is to make PESDs a standard, lead-time-neutral option for large OEMs.

Prospective Contacts

- Electrical Engineers
- Safety Directors
- Maintenance Supervisors
- Automation Engineers
- Electricians/Foreman
- Power Distribution Engineer
- Health & Safety Engineers
- Maintenance Managers
- Machine Operators/technicians

GracePESDs® Target Markets

- Chemical Production
- Electrical OEMs
- Health Care
- Manufacturing
- Packaging
- Pharmaceuticals
- Telecom
- Water & Wastewater Treatment
- Data Centers
- Food & Beverage
- Laundry Care
- Material Handling/Warehouses
- Petrochemical
- Pulp & Paper
- Utilities Power Generation

Notable Customers



Competition



GracePESDs® Voltage Indicators (*Voltage Presence*)

Voltage indicator PESDs are essential tools for electrical safety, offering several key features:

- UL Listed and self-powered, ensuring reliability and safety.
- Equipped with flashing or non-flashing LED lights to visually indicate voltage presence.
- Connected to the load side of electrical feeders or disconnect switches, lighting up in the presence of hazardous voltage.
- The Flex-Mount indicator, featuring easy mounting on isolators or disconnects, provides 3-phase voltage indication with flexible mounting and wiring options, suitable for AC & DC applications.
- Helps meet OSHA's 29 CFR 1910.147 requirements for electrical safety.
- Supports task-qualified personnel in safely performing mechanical and electrical LOTO tasks.
- Aligns with NFPA 70E Article 120.6(4) for verifying the absence of stored electrical energy.



Common Customer Goals

- Verify voltage presence in Mechanical LOTO
- I don't want to wait for my qualified electrician when I am not working inside the electrical panel, motor termination or a disconnect switch
- Make it easy for operators to work on the mechanical LOTO task

Common Customer Objections & Obstacles

Objections & Obstacles	Response
<i>Do they meet OSHA standards for LOTO?</i>	Voltage indicators can be used with a "bump test" for mechanical LOTO purposes.
<i>Are they NFPA 70E approved?</i>	OSHA and NFPA do not approve devices.
<i>"What if the device leads are disconnected inside the panel from the source?"</i>	Response: "If the device leads are disconnected inside the panel, the voltage indicator LEDs will not illuminate during a "bump" or live-dead-live test. The device leads are not load-carrying and so are extremely unlikely to become disconnected from inside the panel if installed following Grace's instructions. Grace has provided millions of PESDs to end users in 60+ countries and we do not hear about leads becoming disconnected. The probability of a disconnection during the exact timing of the live-dead-live test is miniscule."
<i>I use pilot lamps instead which are very cheap.</i>	It is understood pilot lights are very cheap. They only indicate that power is present. Grace Voltage Indicators provide much more information including whether power is present in each phase, leaks to ground, and more.
<i>"I don't want to bring 480 V/600 V to the door."</i>	Response: "GracePESDs® have very high impedance and while voltage is brought to the door, there is very little current. Our Safe Test Points are touch safe. If your company policy will simply not allow voltage to the door, we have fiber optic versions of the voltage indicators that do not bring voltage to the door."

Specific Applications

- AC/DC Applications
- Conveyor feed disconnects/sections
- Line-side/Load-side indication on MCC buckets
- Disconnect switches
- Control Cabinets

GracePESDs® Voltage Portals (Voltage Presence)

Voltage portal PESDs® are designed for safe and efficient voltage presence checking:

- Enable task-qualified personnel to safely verify voltage presence from outside grounded electrical enclosures.
- Connected to the load side of electrical disconnects for direct voltage indication.
- Mountable on electrical cabinet doors or flanges via a 1/2" or 30mm punch hole.
- Feature customizable procedure labels for clear, standardized testing processes.
- Allow the use of CAT III/CAT IV rated Non-Contact Voltage Detector (NCVD) Pen during mechanical LOTO procedures, enhancing both safety and efficiency.



Common Customer Goals

- Display voltage isolation for Mechanical LOTO
- Make it easy for operators to work on the mechanical LOTO task
- Limits incident energy exposure

Common Customer Objections & Obstacles

Objections & Obstacles	Response
<i>We don't trust NCVD pens, our techs don't carry them, and our staff is not trained on the use of them.</i>	"If you do not trust the pens, techs do not carry pens, etc. – use our ChekVolt® and your tech's voltmeter."
<i>"I trust my switch, why do I need to add a light to it?"</i>	"It is unfortunately common for blades to not fully disconnect and energy to remain present. The lights can provide a positive indication of voltage presence but are not to be used as an indicator of voltage absence."

Specific Applications

- Corrosive environments
- Cost-sensitive applications
- Enhanced Mechanical LOTO

GracePESDs® Combination Units (Voltage Presence)

GracePESDs® combination units are designed to enhance electrical safety and efficiency:

- Combine voltage portals and indicators with customizable labeling and optional GracePort® housings.
- Offer voltage indicators in both flashing and solid-on versions for monitoring AC/DC voltage.
- Suitable for Class I Division 2 and Class I environments.
- Voltage portals allow safe voltage detection through panel doors using a NCVD pen.
- Feature non-conductive, encapsulated test points for safer, more convenient voltage testing.

Common Customer Goals

- Mechanical LOTO procedures to verify presence of voltage
- Safer method of performing tri-test/bump test
- Limits incident energy exposure

Common Customer Objections & Obstacles

- *This won't work on my DC system*
- *Why should I use Voltage Portals ONLY on grounded metallic enclosures?*



Specific Applications

- Grounded electrical systems

Safe-Test Point™ (Voltage Absence)

Safe-Test Point™ PESDs are designed for efficient and safe live-dead-live testing:

- Allows qualified electrical workers to conduct voltage tests safely from outside an enclosure.
- Can be mounted on any enclosure with options for line side, load side, or both.
- High impedance device supporting closed-door testing with four or five test point
- Enables AC/DC voltage measurements phase to phase or phase to ground and neutral.
- Uses insulated meter probes for safe insertion into test points.
- Available in high-voltage versions up to 3000 VDC (3kV) and 2000 VDC (2kV) to application needs.
- 3kV Safe-Test Point™ includes a built-in 10:1 voltage divider, allowing the use of multimeters rated up to 1000 VDC for testing up to 3000 VDC.
- 2kV Safe-Test Point™ does not include a voltage divider, requiring a high-voltage multimeter rated up to 2000 VDC.



Common Customer Goals

- Electrical LOTO
- Testing each phase conductor Phase to Phase and Phase to Ground
- Verifying the Absence of Voltage
- Ability to use a voltmeter/multimeter

Common Customers Objections & Obstacles

Objections & Obstacles	Response
Are these UL Listed?	GracePESDs® all go through rigorous UL testing and are UL-recognized. We are working to update our files so they are UL-listed in the future.
Does it meet Exception No.1 in NFPA Article 120.6 (7)?	AVTs are held to a higher standard with continuity checks before and after as pushing a button does not follow the same NFPA 120.6 work steps, which is why NFPA 70E had to create an exception for AVTs.
"I don't want to bring 480 V/600 V to the door."	"GracePESDs® have very high impedance and while voltage is brought to the door, there is very little current. Our Saf-Test Points™ are touch safe. If your company policy will simply not allow voltage to the door, we have fiber optic versions of the voltage indicators that do not bring voltage to the door."
How does it impact my current electrical safety program?	Using Safe-Test Points™ augments your current electrical safety program by through elimination of the need to open the panel to test for the absence of voltage – part of the risk control hierarchy.
Do I need to retrain my employees?	The process for testing for the absence of voltage through the door will be familiar to qualified personnel. Phase-to-phase and phase-to-ground.
"Can I add them to my cabinet?"	Safe-Test Points™ are UL registered and can be retrofitted to a cabinet by a UL508A shop or depending on your company's protocols."

Specific Applications

- Disconnect Switches
- VFDs
- Low voltage switchgear
- Energized equipment that is frequently accessed
- Motor Control Center Buckets
- Equipment with high incident energy
- Main power distribution panels

ChekVolt® & Voltage Test Station (Voltage Presence & Voltage Absence)

The ChekVolt® and Voltage Test Station (VTS) are advanced PESDs for enhanced electrical safety:

- ChekVolt® is a compact, 30mm knockout device with LED voltage indications and test points.
- High-voltage ChekVolt® 3kV extends testing capabilities up to 3000 VDC, featuring a built-in 10:1 voltage divider for safe use with standard multimeters rated up to 1000 VDC.
- ChekVolt® 2kV is designed for applications up to 2000 VDC without a voltage divider, requiring a high-voltage multimeter rated up to 2000 VDC for safe testing.
- VTS combines the R-3W series voltage indicator with Safe-Test Point™ in a durable housing.
- Both UL Listed, they allow external checks for voltage presence and absence of voltage tests at the point of work.
- Can be wired directly to the work point for visual checks and AC/DC voltage measurements.
- Require installation by a qualified worker for regulatory compliance and safety.



Common Customer Goals

- Combination of Indicator and Safe-Test Point™ for enhanced Mechanical/Electrical LOTO
- Restricted access to qualified personnel only
- Additional ratings of UL Type 4/4X
- Line and/or Load Side applications
- Safely testing Phase to Phase and Phase to Ground

Common Customer Objections & Obstacles

Objections & Obstacles	Response
"I would have to cut into my panel to install this."	"There are options to use two 30mm knockouts vs. cutting. Combo Units starting with "H" offer this feature. Alternatively, with the new ChekVolt® a single 30mm knockout can be used to provide the same functionality as a voltage test station."
How does it comply with OSHA and NFPA 70E? Objection: "Are these approved by OSHA and NFPA 70E?"	"OSHA and NFPA do not approve devices. Voltage indicators can be used with a "bump test" for mechanical LOTO purposes. Our Safe-Test Points™ and ChekVolt® can be used with a UL 1436 rated voltmeter to meet NFPA 70E 120.6 Process for Establishing an Electrically Safe Work Condition (i.e. testing for the absence of voltage for electrical LOTO)."
Does it meet Exception No.1 in NFPA Article 120.6 (7)?	AVTs are held to a higher standard with continuity checks before and after as pushing a button does not follow the same NFPA 120.6 work steps, which is why NFPA 70E had to create an exception for AVTs.

<i>"I don't want to bring 480 V/600 V to the door."</i>	"GracePESDs have very high impedance and while voltage is brought to the door, there is very little current. Our Safe-Test Points™ are touch safe. If your company policy will simply not allow voltage to the door, we have fiber optic versions of the voltage indicators that do not bring voltage to the door."
<i>"How does it impact my current electrical safety program?"</i>	"Using Safe-Test Points™ augments your current electrical safety program by through elimination of the need to open the panel to test for the absence of voltage – part of the risk control hierarchy."
<i>Do I need to re-train my employees?</i>	The process for testing for the absence of voltage through the door will be familiar to qualified personnel. Phase-to-phase and phase-to-ground.

Specific Applications

- Automation Panels
- Motor Control Centers (mains and selected buckets)
- High Incident Energy Areas
- VFDs
- Standalone Disconnect Switches
- High Power Control Panels
- Low voltage switchgear
- Power Disconnects

Unplanned downtime and routine inspections cost industries billions each year—not to mention the risks they pose to maintenance teams. GraceSense™ helps you take control with a scalable, wireless Machine Health Monitoring Solution that improves performance, reduces downtime, and enhances safety.

- **Reduce Risk & Downtime:** Avoid the hidden costs of reactive maintenance, which is responsible for up to 70% of workplace injuries and billions in lost productivity.
- **Real-Time Monitoring, Always On:** Wireless vibration and temperature sensors continuously monitor asset health and detect anomalies—no manual checks required.
- **Clear, Actionable Insights:** Defect classification and trend analysis help prioritize maintenance tasks before problems escalate.
- **Proactive Maintenance Alerts:** Receive SMS and email notifications so your team knows when to act—and why—before a failure occurs.
- **Flexible Data Integration:** Seamlessly connect to your existing PLC, SCADA, or CMMS system or manage everything in our browser-based Maintenance Hub.



GraceSense™ Products & Services

Machine Health Monitoring Solutions



Wireless Vibration & Temperature Sensors



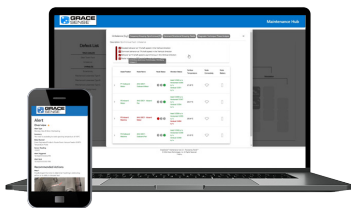
Wireless I/O Portals



**Gateway Options
(CloudGate™, ControlGate™,
ComboGate™)**



Hot Spot Monitor



Maintenance Hub



White Glove Service Offerings



SAFER

- Reduces hands-on troubleshooting.
- Minimizes exposure to hazardous conditions.
- Enables controlled, scheduled maintenance.



SMARTER

- Delivers real-time data and trends.
- Helps teams focus on what matters most.
- Supports faster, more informed decisions.



MORE PRODUCTIVE

- Cuts unplanned downtime.
- Speeds up maintenance response.
- Frees resources for higher-value work.

Common Applications

- Low and Medium voltage switchgear
- Industrial Control Systems
- Motors and Pumps
- MCCs
- Rotating Equipment

Sales Pitch Questions

- Q:** How do you know when your asset will fail?
- Q:** Do you have spares on inventory to perform maintenance?
- Q:** Which assets keep you up at night?
- Q:** What is your maintenance strategy?
- Q:** Where are your most problematic areas?
- Q:** When is your next planned maintenance on your equipment?
- Q:** Do you have a vibration program?
- Q:** Do you know how much it costs for each inspection location?
- Q:** Do you have vibration testing equipment in house?
- Q:** How often you do these mechanical inspections?
- Q:** Does your facility use SCADA/DCS systems for plant-wide integration?
- Q:** Do you have any measurement for downtime at your facility?

Target Market, Customer Profiles, & Competition

End Users

- Reliability Engineers
- Facility operations personnel
- Maintenance Managers
- Facility Directors

System Integrators & OEMs

Our product lines are primarily aimed at End Users, with System Integrators (SIs) involved mainly for integration tasks, unless they seek solutions for their clients. We offer the option for hardware and cloud services to be branded for Original Equipment Manufacturers (OEMs). These OEMs cater to a diverse range of equipment, requiring varied sensing solutions, including fans, compressors, air handling units, hydraulic systems, and more, to meet their specific needs.

GraceSense™ Target Markets

- Heavy Manufacturing Industries
- Automotive Plants
- Power Generation Plants
- Oil & Gas
- Data Centers
- Hospitals
- Food & Beverage
- Paper Mills
- Steel Mills
- Paper & Pulp
- Mobile equipment (generators, compressors, substations)
- Water & Wastewater Treatment
- Telecom
- Pharmaceuticals

Notable Customers



Competition



Grace Product Benefits vs. Competition

What sets the GraceSense™ apart is its ability to deliver hourly insights on rotating equipment using wireless, battery-powered sensors—providing near real-time visibility without the complexity of traditional systems. While many IIoT solutions rely on quarterly or monthly data snapshots, GraceSense™ continuously monitors asset health, identifies likely defects, and enables early, informed maintenance decisions. With built-in defect classification and seamless integration into PLC, SCADA, and CMMS platforms, GraceSense™ gives maintenance teams the clarity and confidence to act before failures occur.

GraceSense™ Machine Health Monitoring Solution

The GraceSense™ Machine Health Monitoring Solution includes four key components:

- Vibration & Temperature Sensors: Wireless, battery-powered sensors with edge processing and ZigBee communication for continuously monitoring rotating equipment.
- Wireless I/O Portals & Gateways: Scalable, configurable hardware options for integrating third-party sensors and routing data to local control systems or the cloud.
- Maintenance Hub: A browser-based platform that visualizes trends, alerts, and real-time asset health insights—available in cloud or on-premise configurations.
- Alerts & Integration: Delivers SMS/email alerts with recommended actions and integrates with systems like CMMS, SCADA, or DCS via native tools and open API.



Common Customer Goals

- Reduce unplanned downtime from unexpected equipment failures
- Gain real-time visibility into asset condition and trends
- Lower maintenance costs with optimized scheduling
- Move from reactive to proactive maintenance strategies

Common Customer Objections & Obstacles

Objections & Obstacles	Response
<i>Shortage of skills</i>	This is exactly why your customer should implement the GraceSense™ IIoT system. With our new Defect Classification system, you gain a 24x7 virtual vibration tech to make sense of vibration data. Foreman XAI can provide further guidance if your maintenance team still has questions.
<i>Security</i>	Grace will work with you and your customer to meet IT/OT security requirements. The solution can be on-premises if cloud connectivity is a concern, or the cloud can be air-gapped from the control system network. Data diodes or security appliances can provide an additional layer of security.
<i>Integrations</i>	GraceSense™ IIoT supports communication to control systems and HMIs via Modbus TCP and EtherNet/IP. There is an Add-On Profile for easy integration to Rockwell Automation RSLogix 5000. An open API is available for integration enterprise applications such as computerized maintenance management systems (CMMS) as well as for cloud-to-cloud integration of Maintenance Hub.
<i>Budgetary Constraints/Lack of Need/Justifying ROI with management</i>	Work to determine the cost and frequency of downtime to build ROI. Use nice-round numbers. For example, when an eCommerce conveyor goes down it may cost the company tens of thousands dollars. Avoiding run-to-failure can reduce unplanned maintenance, a leading cause of workplace injuries. Grace will support your sales team and specialist to provide a customer success program to ensure success and help document ROI to enable system expansion.

Specific Applications

- Electric Motors/Pumps and Rotating Machinery
- Pumps
- Hoists
- Conveyor Systems
- Generators
- HVAC Systems
- Drives

GraceSense™ Vibration & Temperature Sensors

Designed to monitor the health of rotating equipment, these wireless sensors deliver real-time data to help maintenance teams detect issues early and prevent costly downtime.

- Monitor vibration and temperature to identify early signs of failure
- Built-in edge processing for local data analysis and reduced noise
- Communicates via low-power ZigBee (IEEE 802.15.4) for reliable performance
- 3–5-year replaceable battery with multiple industrial mounting options
- Fast, non-invasive installation—ideal for scalable deployment



GraceSense™ Wireless I/O Portal

This flexible device connects third-party wired sensors to the GraceSense™ system, expanding your monitoring capabilities with a configurable, rugged solution.

- Supports analog and digital inputs including 0–10V, 4–20mA, and RS485
- Customizable architecture with a range of transducer and power options
- Durable, IP65-rated enclosure for harsh industrial environments
- Easily integrates into existing systems for broader asset visibility
- Ideal for capturing additional sensor data without complex rewiring



GraceSense™ Gateways - CloudGate™, ControlGate™, and ComboGate™

GraceSense™ gateways securely route sensor data to your plant's control system or the cloud, enabling seamless monitoring across any environment. Available in three models to match your connectivity needs:

- CloudGate™ connects to the Maintenance Hub via Wi-Fi or LTE
- ControlGate™ integrates with PLCs and SCADA systems via EtherNet/IP™ or Modbus TCP/IP
- ComboGate™ supports both cloud and control system integration
- Industrial-grade enclosures (IP65/NEMA 4X) with flexible mounting options
- Compatible with 120V or 240V AC power; includes rugged antenna and cable gland
- Integrates natively with Rockwell Automation via Studio 5000 Add-On Profile
- Fast installation with included wiring instructions for power and Ethernet



GraceSense™ Hot Spot Monitor (HSM)

The Hot Spot Monitor enables safe, continuous temperature monitoring of electrical systems, helping prevent costly equipment failures and unplanned shutdowns.

- Continuously tracks up to 18 temperature points via fiber-optic sensors
- Ideal for Electrical Preventive Maintenance (EPM) programs and NFPA 70E compliance
- Reduces arc flash risk by enabling closed-door thermal monitoring
- Communicates via EtherNet/IP™ or Modbus TCP/IP for plant-wide integration
- Enhances reliability and worker safety while supporting predictive maintenance strategies



Common Customer Goals

- Preventing unplanned downtime due to unexpected failures
- Real-time data analytics visualization and trend over time
- Reduce hazard exposure to their personnel
- Enhance equipment longevity
- Productivity cost savings achieved through optimized maintenance scheduling
- Proactive maintenance as opposed to reactive maintenance
- Comply with regulatory codes such as OSHA and NFPA 70E

Common Customer Objections & Obstacles

Objections & Obstacles	Response
<i>Periodic use of IR thermography through windows.</i>	Arc flash conditions can occur anytime and periodic testing through an IR window may miss a window of opportunity to prevent an arc flash. Use of a continuous temperature monitoring system also keeps workers from entering the arc flash boundaries and putting on the necessary PPE.
<i>"I can't shut my equipment down just to install these sensors."</i>	"Understood. Installation can be scheduled during normal maintenance periods. The fiber optic sensors can be installed at that time and the Panel Mount Node can be installed at a later time."

Specific Applications

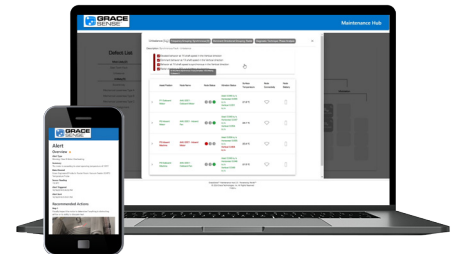
- Low and Medium Switchgear
- Emergency Backup Power Generators
- Power Transformers
- MCCs
- Large Power Plants



GraceSense™ Maintenance Hub

The Maintenance Hub is a key interface for GraceSense™ Predictive Maintenance System, offering comprehensive asset monitoring and configuration:

- Translates sensor data into intuitive dashboards, trends, and health summaries
- Sends SMS and email alerts with clear remediation steps and asset-specific visuals
- Enables real-time monitoring, alert setup, and reporting from any browser
- Configures nodes and gateways directly within the platform
- Integrates with CMMS, SCADA, and DCS via open API
- Available in cloud or on-premise formats to meet IT and security requirements



GraceSense™ Defect Classification

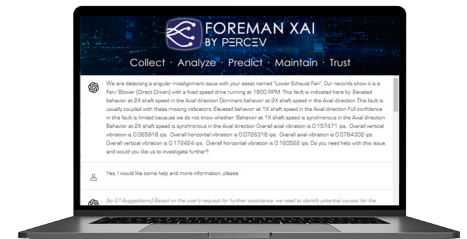
GraceSense™ Defect Classification turns raw vibration and temperature data into actionable maintenance intelligence—no vibration analyst required.

- Automatically analyzes frequency, amplitude, and phase data from sensors
- Identifies up to 19 defect types, including misalignment, looseness, and bearing wear
- Delivers clear fault descriptions via Maintenance Hub or API
- Helps teams prioritize repairs and avoid unnecessary maintenance
- Works with cloud alerts or CMMS integration to streamline workflows and decision-making



Foreman XAI

- Foreman XAI is a digital assistant that helps simplify vibration analysis by providing on-demand, expert-level guidance to your team—anytime, anywhere.
- Offers step-by-step support for interpreting sensor data and resolving faults
- Delivers chat-based advice on repair actions, maintenance planning, and issue diagnosis
- Allows teams to upload manuals and documentation for smarter, faster troubleshooting
- Available 24/7 to support technicians during urgent or complex maintenance events
- Helps reduce downtime by eliminating guesswork during failure investigations



Service Offerings

- Grace Technologies delivers expert service and integration support to ensure you get the most from your GraceSense™ Machine Health Monitoring Solution.
- Field Application Engineers assist with setup, configuration, and on-site commissioning
- Includes white-glove onboarding, Maintenance Hub configuration, and training for your team
- Offers flexible support—on-site, remote, or hybrid—to match your operational needs
- Ongoing reviews help optimize system performance and ensure actionable, high-quality data
- Empowers maintenance teams to make confident, data-driven decisions



Proxxi by Grace is a wearable voltage detection system that helps protect workers from unexpected electrical hazards. Designed to alert in real time through vibration, light, and sound, the Proxxi Band adds a critical last layer of defense—especially in complex or changing environments. Backed by a robust data dashboard, Proxxi also equips safety teams with visibility into usage, exposure trends, and near-miss insights.

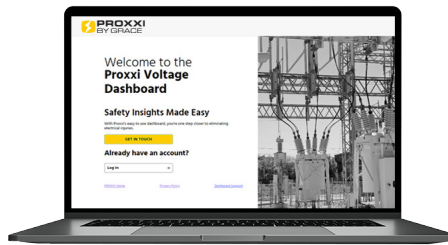
- Wearable voltage detection wristband for energized equipment
- Real-time alerts with customizable detection settings
- Dashboard access with usage data and compliance tracking
- Rechargeable, rugged, IP68-rated device with mobile app integration



Proxxi Products



Proxxi Band



Proxxi Dashboard



SAFER

- Real-time alerts prevent accidental contact with live equipment
- Adds a final line of defense when LOTO and procedures fall short
- IP68-rated and designed for harsh industrial environments



SMARTER

- Dashboard insights reveal near-misses and high-risk behavior
- Supports compliance, targeted training, and continuous improvement
- Workers can customize settings for different voltage tasks



MORE PRODUCTIVE

- Reduces downtime from incident investigations
- Improves worker confidence around energized gear
- Enables faster training and safer onboarding for new employees

Common Applications

- Opening presumed de-energized panels
- Entering medium voltage switchgear
- Maintenance and cleaning of substations
- IR scans and racking circuit breakers
- Working near undocumented or aging infrastructure
- Use during planned outages or LOTO procedures

Sales Pitch Questions

Q: How do you track when your workers are exposed to energized equipment?

Q: Have you had any electrical near-misses that went unreported?

Q: Do your teams ever work on gear that's supposed to be de-energized?

Q: What's your current approach to electrical hazard awareness beyond PPE and LOTO?

Q: Could you benefit from visibility into which tasks or areas pose the highest risk?

Target Market, Customer Profile, & Competition

End Users

- EHS Managers and Safety Officers
- Field service and maintenance teams
- Electrical contractors
- Utility workers and technicians
- Workers in hazardous or complex electrical environments

System Integrators & OEMs

System integrators and OEMs can use Proxxi to improve customer safety programs, differentiate offerings, and reduce liability. Proxxi's data dashboard and configurable alerts integrate easily with site safety protocols, adding measurable value and strengthening client trust. The dashboard also supports enterprise-wide reporting and compliance tracking, making it ideal for integrators supporting large or regulated organizations.

Proxxi Target Markets

- Utilities & Power Generation
- Telecommunications
- Electrical Contracting
- Data Centers
- Manufacturing
- Oil & Gas
- Renewables
- OEMs and Testing Labs

Notable Customers



Proxxi vs. Competition

Unlike other voltage detectors that lack data tracking, have limited customization, or can't detect low voltages, Proxxi delivers a fully integrated safety solution:

- Only Proxxi can detect low-voltage environments (480V at 30+ cm)
- Wrist-worn, rugged design vs. helmet-based competitors
- Real-time alerts + dashboard + mobile app
- Fully customizable detection levels per user/task
- Designed for daily wear and works across 110V to 500kV AC

Proxxi Band

The Proxxi Band is a rugged, rechargeable, wrist-worn voltage detector that alerts workers with vibration, sound, and light when they approach energized equipment.

- Detects voltage from 110V–500kV
- Customizable alert thresholds for different environments
- Real-time data sent to mobile app and Proxxi Dashboard
- 30+ hour battery life per charge
- IP68-rated for water/dust resistance
- Compatible with Bluetooth (5.0, 4.2), micro USB charging
- Certified: CE, CSA, FCC, ICC



Common Customer Goals

- Prevent electrical injuries and near misses
- Track worker exposure and usage patterns
- Identify high-risk areas or behaviors
- Strengthen compliance and safety culture
- Support training and onboarding of new technicians

Common Customer Objections & Obstacles

Objections & Obstacles	Response
<i>"We already use LOTO and PPE."</i>	Proxxi adds a final alert layer when those controls fail or are bypassed.
<i>"Our teams don't want more gear to wear."</i>	The wristband is lightweight, rugged, and designed for everyday use.
<i>"How do I know it's working?"</i>	The band provides visible, audible, and haptic feedback when detecting voltage. A quick self-check mode confirms it's active, even without the dashboard or mobile app.
<i>"We haven't had an incident yet."</i>	Near misses often go unreported—Proxxi identifies risks before they escalate.
<i>"Does it detect all voltages?"</i>	Yes, from 110V up to 500kV; fully customizable to your voltage environment.

Specific Applications

- Troubleshooting presumed de-energized equipment
- Working on panels with unclear documentation
- Multiple crews working during an outage
- Control cabinet access and IR scans
- Electrical testing labs with variable voltages
- Worker safety reinforcement in compliance-heavy sectors

Proxxi Pilot Program

Get Started for \$5,000 — Part No. W-PRX-PLT6

- Includes: 6 Proxxi wristbands, white-glove onboarding, and dashboard access
- "Love It or Return It" Guarantee: Return within 30 days for a full \$2,500 hardware refund (setup and service fees not included)
- Try Before You Roll Out: Run a 3–4 week pilot to validate fit, safety impact, and compliance value
- Full Support Included: Weekly check-ins, onboarding training, and a final insights review with recommendations



*Return for full hardware refund (\$2,500); does not include setup and service fees.

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Special Pricing Agreement (SPA):	RSM in the territory (<i>for RSM's see the following pages</i>)

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