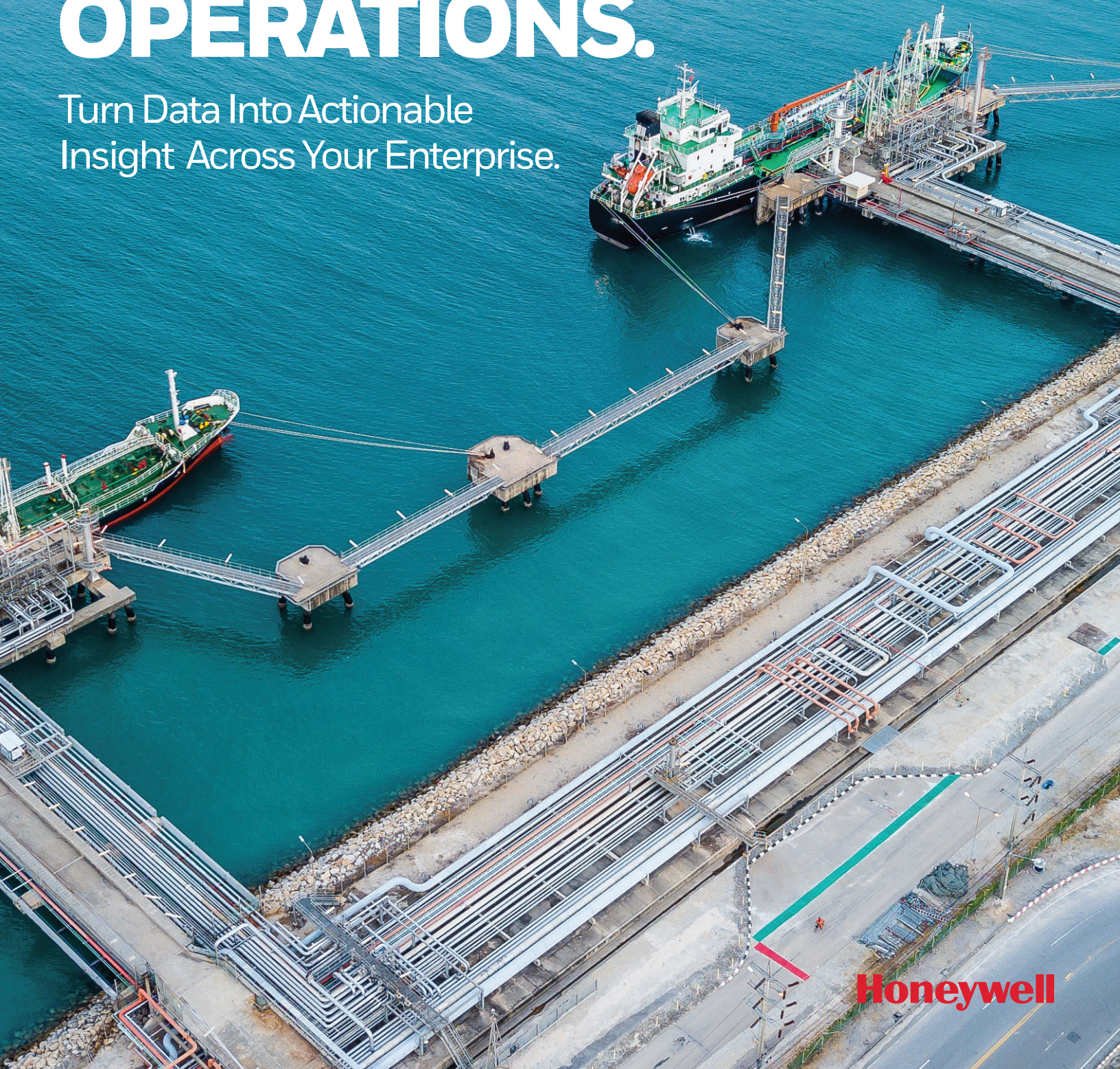


TERMINAL MANAGER. SIMPLIFYING YOUR OPERATIONS.

Turn Data Into Actionable
Insight Across Your Enterprise.



Honeywell



**A PROVEN TECHNOLOGY
FOR TERMINAL OPERATIONS**

Terminal Manager builds on the advanced features and powerful tools field proven in terminals across the globe. It helps you build a safer, more effective, flexible and productive terminal operation.

STATE-OF-THE-ART TERMINAL MANAGEMENT.

Honeywell's Terminal Manager is the innovative, Cloud-enabled answer to the specific requirements for controlling, monitoring and optimizing distribution in bulk terminals. Tightly integrating with the Experion PKS platform, it builds on Honeywell's decades of experience in DCS automation, integrated safety and security, and leading terminal technology and devices, including tank gauging, additive, blending and proving solutions.

Improved Safety and Security

Maintaining high levels of safety and security for the site, inventory and personnel is the first requirement for any liquid, bulk or distribution terminal. Terminal Manager provides the highest standards of safety and meets the requirements of the latest local and international environmental standards and regulations.

Terminal Manager ensures product availability, tank status, line up and equipment states are all verified before fuel pumps and valves can be switched on. The Emergency Shutdown system, meanwhile, provides fast, reliable and safe shutdowns in emergencies during the loading process.

Terminal Manager also continually monitors all terminal safety measures, including carrier groundings, arm placement, and overspill protection to achieve the highest possible levels of safety.

With additional features for regulating entry, exit, and loading bay access

(compatible with proximity cards, RFID, TWIC, biometric and PIN systems), as well as built-in validations, Terminal Manager also ensures tighter terminal security, keeping your people and site safe.

Optimized Inventory

Terminal Manager provides real-time visibility of liquid being loaded and in stock to reduce the frequency of spills and fuel pilferage. Automatic permissive inputs stop the loading process before an incident can occur, and upcoming event notifications give operators time to react and avoid incidents. Robust reconciliation and handy reports help with analysis and reporting.

Terminal Manager offers the most advanced and flexible features for stock management, including co-mingling, and product exchange and product transfer agreements, as well as folio-based reconciliation. Combined with a sophisticated enterprise-wide resource-planning system, its modules help you make faster, better business decisions.

Increased Flexibility

It uses Honeywell Experion as its backbone for all DCS and SCADA functionality such as alarms and events reporting, trends, history, and HMI. It gives greater flexibility to connect to 3rd party systems or sub-systems like tank gauging, safety, surveillance, and access control.

For additional functionality, Terminal Manager can be extended further with a comprehensive range of related Honeywell solutions, becoming a one stop shop for all your terminal needs.

Enhanced Product Handling

Designed to handle multi-company ownership and provide better product management through smart product allocations and reconciliation, Terminal Manager handles all types of product movements. It ensures correct authorization, recording, monitoring, and movement control, as well as receipts and dispatches for road, rail, marine and pipeline transportation. It makes product handling easy, safe and secure – however it happens.

Enhanced Productivity and Manpower Utilization

Terminal Manager improves productivity by automating most transactions and collecting and storing all terminal status and activity information. With events and alarms safely stored in Experion, important data is never lost. End of day (EOD), end of shift (EOS) processing capabilities simplify running the terminal, while variations in terminal operations around the globe are handled with ease.



TERMINAL MANAGER

Honeywell's Terminal Manager provides unrivalled visibility of all critical processes to ensure smooth and safe terminal operation. Each module is designed and engineered by experts in the field for deployment in the most challenging business and operational environments.



Terminal Manager supports all modes of transport, including truck, ship, rail and pipeline. It supports orders and contracts, and shipment planning based on the compartment and product for the order/contract.

With important key performance indicator reports available as standard, terminals can keep tabs on operations' turnaround time, operating efficiency and other metrics, and quickly identify bottlenecks that need attention.

Finally, automatic email and SMS updates mean terminal shareholders, end customers and carrier companies are informed of consignment status almost in real time, helping quickly resolve supply chain management issues and improve productivity.



Marine loading operation, powered by Terminal Manager

Order Management and Shipment Planning

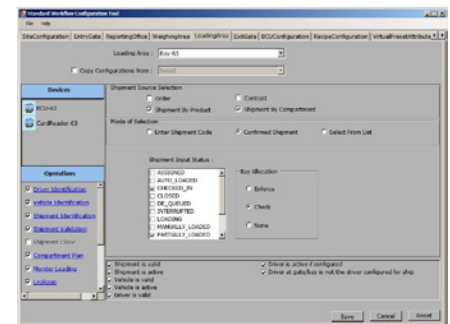
Terminal Manager can process both planned and unplanned orders, received or synchronized from enterprise resource planning (ERP) systems, such as SAP, JD Edwards, Oracle or MEGA. It eliminates laborious manual data re-entry, while still allowing orders to be entered or updated manually if required.

Order list shows the status of each order – “not scheduled,” “partially scheduled” or “fully scheduled.” Shipments can also be created, updated or deleted automatically from ERP systems. Vehicles arriving at the terminal are only checked in by Terminal Manager if they have a valid shipment for that date. Shipment status – “ready,” “checked in” or “loading” – is also displayed on the shipment page.

Terminal Manager also supports integrating with DCH systems like TABS/TDS for Credit Checks, Product Allocations for the customer.

Terminal Workflow Automation

With automated workflows, Terminal Manager users can improve productivity, safety and security. Simply configure workflows in the system to enable creation of open orders, scheduled open orders and contracts, as well as their execution through shipments with stringent validations at each stage. Workflow automation is available for all modes of transport including road, rail, marine and pipeline.



Terminal Manager's easy-to-use Workflow Configuration Tool



Driver Waiting and Parking

Terminal Manager supports large screen displays in drivers' waiting halls and parking areas. Clearly showing bay information and appointments, it simplifies traffic regulation and ensures smooth operations.

Entry/Exit Validations

Carrier and driver entry are closely monitored through authorization checks based on secure data in Terminal Manager. It supports identification devices such as PINs, access cards, RFID and biometric sensors to perform driver, vehicle and shipment authentication and permission. Authentication can be completed at multiple locations: on entry, at the reporting office, weigh bridge, loading bay, check-in counter, and exit gate. Traffic lamps, barrier gates, and large displays can also be used to regulate access.

Loading Bay Operations

Loading bay/berth operations can be manned, unmanned, fully automatic or semi-automatic operations. Trans-loading is supported where loading direct from rail to truck, and marine to truck. Terminal Manager supports it all. And every drop of liquid is accounted for with a comprehensive audit trail.

Weighing Operations

Terminal Manager provides seamless integration with weigh bridges through Experion and industry standard checks built into the system. The application supports all weight-based products handled through weigh bridge or mass flow meters.

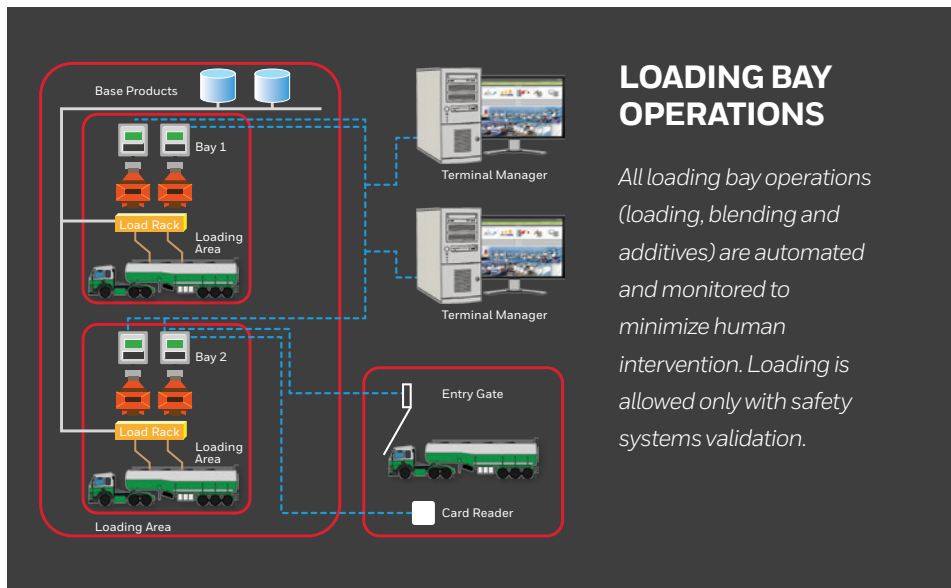
Data Acquisition and Alarms

Users can collect, display and provide alarms on various process parameters, including loading, device communications, access violations, tank farm, product movements, pumps, MOVs, overrides, fire control, electronics, cathodic protection and equipment condition. Collected data enriches history to identify trends, enhance analysis, and focus training.

Configuring EOD, EOS and Holidays

Securing the terminal from unauthorized entry outside business hours, including during public holidays and weekends, the system can be configured up to a year in advance to prevent access at specified times.

EOD and EOS reports can be configured to be automatically scheduled for delivery to respective stakeholders by email.



Automatic Tank Gauging System Interface

Terminal Manager interfaces with the automatic tank gauging system in the distribution terminal, to capture all tank-related parameters. This enables users to easily monitor and manage their tank farm and produce reconciliation of receipts and dispatches for internal users and customers.

Hot Redundancy

Terminal Manager supports hot redundant configuration. The primary and backup servers are synchronized in real-time, and automatic takeover by the redundant server is ensured if the primary fails. This guarantees that no data is lost.

Role-based Security

Windows-based authorization procedure is incorporated to restrict system access based on the user role. It also supports, company-wide policy preferences for password criteria, including strength and periodic password change requirements.

Users are granted access according to their roles and needs. Roles created in Terminal Manager can be operational, supervisory or administrative.

Notifications and Audit Trail

The notification and audit trail feature records all changes or actions

undertaken in the software. Appropriate notifications of changes are sent to relevant users to improve troubleshooting of unusual incidents and enhance safety.

Extensibility and Customization

Successful terminal projects require the ability to tailor software to meet the business' precise requirements. The level of flexibility the terminal automation software provides in this respect makes or breaks the system.

Terminal Manager includes an Attribute Configuration tool based on a structured code change mechanism. This software extensibility solution allows structured migration/upgrades of the system, and provides a well-documented API for the customers to follow.

User Interface and Business Logic

A standard set of user interfaces and built-in business logic enables effective terminal management. Additional screens and new attributes and logic can be added to match individual customer needs. User interfaces may be easily added or deleted by creating new screens or hiding existing screens.

Configurable Workflow

Terminal Manager comes with a configurable workflow as a standard product feature. The workflow includes several configurable options to enable project engineers (not just software engineers) to tailor a workflow solution to the operational requirements of the site. Irrespective of the number of locations, make and model of batch

controllers, transaction planning options, or mode of transport, the configurable workflow offers a solution to meet the needs of every TAS deployment under consideration.

Flexible Database

The database provides flexibility to address stored procedures and variations in terminal conditions. Standard practices are followed with strong structure and archive/backup mechanisms. Database mirroring technology used for redundancy ensures complete integrity of TAS data. The application also offers a tool to load and view the archived information from the archived database backup and to run corresponding reports. The feature lets terminals view past operating data and generate reports as required for compliance purposes.

Accurate and Prompt Reporting

Accurate and well-presented reports improve decision-making. Reports can be exported in various formats, such as Adobe™ Acrobat and Excel™, and can be automatically generated according to a schedule and sent to designated users. For compliance needs and future reference they can also be safely saved and stored.

A Wide Variety of Reports:

- Product receipt and reconciliation
- Load slips (FAN)
- Bills of lading
- Load details and summaries sorted by bay, product, customer or stock-owner
- Product stock reconciliation reports (hourly online or on demand)
- Weighbridge reports on tare and net weight, including LPG trucks
- Vehicle movement reports (guard house)
- Average loading, waiting duration reports (segregated for each load type)
- Monthly and other MIS reports
- Alarm journal, safety interlocks and trips
- Audit trails
- Proving reports.



Tanker trucks - one of the many modes supported by Terminal Manager.

ALL THE POWER OF TERMINAL MANAGER. ALL THE BENEFITS OF THE CLOUD.

Proven Technology

Honeywell has now combined the field-proven tools and features of our traditional Terminal Manager software with cloud-based distribution to deliver an even more effective, efficient solution.

Moving to the Cloud

Our experienced engineers will help you configure and set up your Cloud-based solution ensuring minimal disruption to the operation.

For existing Terminal Manager users, upgrading to the Cloud requires just a few simple steps. There is no need for expensive hardware or infrastructure changes, thanks to Terminal Manager's advanced configuration tool.

This easily allows different workflow configurations to be selected through its interface for simple and quick configuration of master data in the terminal encompassing products, bays, loading area, meters, tanks, vehicles, marine vessels, wagons, pipelines, drivers, trailers, customers, suppliers, users, roles and shareholders. It also automates terminal workflows for all modes of transport, improving productivity and throughput, enabling smooth and efficient processes.

Infinite Scalability

With a Cloud solution, scaling a terminal network is easier and less costly. Eliminate the time, custom engineering, FAT, SAT, handover and ongoing maintenance and support required for a physical expansion. With Terminal Manager you can quickly and easily adjust operations to market conditions.

Protected and Secure

Fast, secure and highly reliable, Honeywell's proprietary technology offers a cloud-first, data-first and analytics-rich platform. Superior cryptographic techniques protect data stored, in use and during transmission to meet or surpass the most stringent data security standards.

A Single Platform for all Your Connected Devices

Terminal Manager integrates batch controllers, access control devices and other offerings to provide a complete Cloud-based terminal automation solution:

- Manage critical issues and complexity handling multiple products
- Meet regulatory requirements
- Improve safety and productivity.

Reduce IT Infrastructure Costs

Create homogenous, connected terminal networks and banish terminal silos forever. Helping you standardize and simplify IT infrastructures, our connected solution dramatically reduces IT maintenance and results in personnel cost savings.

Remote Monitoring and Diagnostics

Make the best use of human resources through remote monitoring and diagnostics, and centralizing management of terminal sites. Never worry about not having the right technicians available to respond to local problems as they arise. Eliminate the delay and downtime that reduce your bottom line.

A Consistent Approach

Consolidating their terminal infrastructure in the Cloud, users simplify their IT architecture, reduce training costs, easily and cost effectively upgrade and standardize management practices.

With a homogenized terminal network, you can measure KPIs and benchmark across operations. Multi-terminal dashboards provide total visibility of operations across terminals for the first time for faster, more agile decision making, supporting enterprise-level operations.



Enterprise Level Multisite Operations

Terminal Manager addresses challenges faced by terminal operators by helping them make timely and informed enterprise-wide decisions. It is designed to provide a single, real-time view of all terminal operations. Reflecting Honeywell's extensive experience and end-to-end offerings for the midstream sector, the enterprise node enables companies to:

- Manage the bi-directional flow of information (enterprise to terminal and terminal to enterprise) to gain unprecedented insight into terminal management and operations
- Combine the operations of multiple terminals and apply consistent and standard practices across them
- Measure how each terminal is performing relative to each other, for example, identifying which terminals have spare capacity

Terminal Manager's enterprise capability supports both traditional and Cloud deployment options to aggregate the transactions from each individual terminal, and updates ERP/SAP business systems for further billing and invoicing needs. So, customers need not invest in separate ERP/SAP system interfaces at each individual terminal level, thus saving cost and effort to maintain multiple interfaces. Our solution comes with a rich set of KPIs through dashboards and analytics to help operators make timely and informed decisions from the centralized office or local terminal,

For More Information

To learn more about Honeywell's Terminal Manager, contact your Honeywell account manager or visit www.honeywellprocess.com/terminals.

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allowing business operations and processes to be optimized across the terminals. This maintains the highest levels of accuracy by reducing manual/human errors.

Localization

Terminal Manager can be customized for the country in which it is installed for easy integration to any downstream distribution terminal, according to the country's language and culture.

Quality Assurance

This product is developed at a CMMI Level 5 certified organization, the highest recognition possible for an organization's software and systems engineering processes. It establishes the company as a quality provider of systems engineering, software engineering, and IT services.

Virtual Deployment

Terminal Manager is also qualified for deployment in a virtual environment, using the Experion Virtualization platform. Virtual deployment reduces hardware investment and platform requirements, as well as cutting the total cost of ownership. Deployed in a virtual environment,

Terminal Manager offers all the features and functionality of a physical deployment while reducing investment in the hardware infrastructure.

Support Commitments

World-class after-sales support is a Honeywell hallmark. Our three-tiered structure ensures efficient and quick responses to users' service requests.

Wide Range of Support Services:

- Telephone and e-mail support
- Remote diagnosis and trouble-shooting
- Software enhancements
- On-site field support for trouble-shooting
- Routine and preventive maintenance
- Spare parts management
- Database, configuration backup, software version management and site documentation maintenance
- System upgrades and technology refresh programs
- Refresher training programs and test bed maintenance.

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BR-20-18-ENG | 04/20
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THE
FUTURE
IS
WHAT
WE
MAKE IT

Honeywell