



Terminal Manager
Managing your Operations
Global Experience. Locally Applied.



Server software is the heart of a Terminal Automation System (TAS). Its efficiency, reliability and versatility are vital. The success of the terminal operation depends on how well it is designed and deployed to meet key business objectives around safety, security, regulatory compliance, costs, customer satisfaction, stock reconciliation, and tank-to-head-office integration.

Honeywell Enraf's Terminal Manager is innovatively designed to meet the specific requirements of bulk terminals. It is built on decades of experience in developing integrated safety and security solutions, DCS automation, and leading terminal products, such as Honeywell Enraf's tank gauging, as well as additive, blending and proving solutions.

State-of-the-Art Management

Honeywell Enraf's Terminal Manager is a state-of-the-art, web-based solution for facilitating, monitoring and controlling the distribution of products in a bulk terminal. It monitors and controls all critical processes to ensure smooth and safe terminal operation, with each module expertly designed and engineered for deployment in the most challenging business environments.

Downstream Distribution Terminal Benefits

Improved Safety and Security

Maintaining high levels of safety and security for inventory, personnel and the site is the primary concern of any liquid, bulk or distribution terminal. Terminal Manager does so while meeting the latest local and international environmental rules and regulations. Conditions such as product availability, tank status, line up and equipment states are all verified before the fuel pump and valve can be switched on.

The Emergency Shutdown system, meanwhile, ensures a quick shutdown in an emergency during the loading process. Terminal Manager also monitors all terminal safety measures, such as the grounding of carriers, arm placement, and overspill protection, to achieve the highest possible levels of safety. Features for regulating entry, exit, and loading bay access (compatible with proximity cards, RFID, biometric and PIN systems) and built-in validations ensure tighter terminal security.



The Terminal Manager Homepage

Maximum Accountability and Optimized Inventory

Terminal Manager captures real-time data on liquid being loaded and in stock. Enhanced real-time monitoring capabilities reduce the frequency of spills and fuel pilferage. Automatic permissive inputs stop the loading process before an incident can occur, while notification of upcoming events gives operating personnel time to react and avoid incidents. Robust reconciliation and handy reports help with analysis and reporting.

With the introduction of stock management concepts such as co-mingling, product exchange agreements and product transfer agreements, as well as folio-based reconciliation, Terminal Manager offers users a truly world-class product to handle the Inventory needs of the terminal. These modules enable business decisions to be made quickly further to a sophisticated Enterprise wide resource-planning system.

Increased Flexibility

Terminal Manager is built on industry standard Microsoft® Windows technology and seamlessly integrates with Honeywell Experion® PKS. This leverages all DCS and SCADA capabilities with powerful graphics, alarms, SOE, journals, trends and history. Optimization is achieved through standard integration with advanced applications such as historians, Key Performance Index Manager, Safety Manager, Security Surveillance Manager, Digital Video Manager, etc. With the introduction of the "Virtual Preset" feature, Terminal Manager Application offers a truly integrated platform for monitoring as well as controlling the terminal automation needs from a single DCS platform. For large and complex workflows that would require expensive BCU firmware customization, Virtual Preset provides a cost effective, efficient alternative. This functionality is available for all four modes of transport supported by Terminal Manager: surface, rail, marine and pipeline.



View of Conoco Phillips-Humber Refinery, UK - rail loading operation, powered by Terminal Manager

Enhanced Product Handling

Designed to handle multi-company ownership and provide better product management through smart product allocations and reconciliation methods, Terminal Manager can handle all types of product movements in the terminal and ensure authorization, recording, monitoring, and movement control. The application is also equipped to handle receipts and dispatches for different modes of transport – surface, rail, marine and pipeline – making different types of product handling easy, safe and secure.

Enhanced Productivity and Manpower Utilization

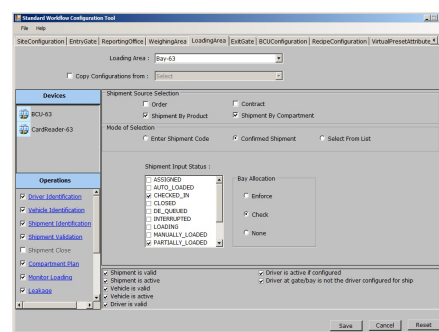
Terminal Manager improves productivity by automating most transactions and collecting and storing all terminal status and activity information. Important data is never missed, with events and alarms stored in Experion. The solution also helps simplify running the terminal through its end of day (EOD), end of shift (EOS) and end of month (EOM) processing capabilities. It is designed to handle variations of terminal operations around the globe, such as carriers type (i.e., trucks, trailers, ships, rail cars, barges and pipelines), shipments (by product, order, contract, compartment, etc), and planning (including advanced planning and real-time planning).

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

Email and SMS features mean terminal shareholders, end customers and carrier companies can be updated on consignment status in almost real time, helping quickly resolve any supply chain management issues and improve productivity.

Order Management and Shipment Planning

Terminal Manager can process both planned and unplanned orders. Orders can be received or synchronized from an enterprise resource planning (ERP) system, such as SAP, JD Edwards, Oracle or MEGA, to eliminate laborious manual data re-entry, although orders can also be entered or updated manually if necessary. The 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. The shipment status – “ready,” “checked in” or “loading” – is also shown, on the shipment page.



Workflow Configuration Tool User Interface – Terminal Manager



View of Equadorlog, Brazil - marine loading operation, powered by Terminal Manager

Automation of Work Flows in the Terminal

Users can employ Terminal Manager to automate workflows, improving productivity as well as terminal safety and security. To automate workflows primarily among various customers, products, tanks, and users must be configured into the system. This enables the creation of open orders, scheduled open orders and contracts, as well as execution of these orders through shipments (along with stringent validations at each stage). Workflow automation is available for other modes of transport apart from surface, such as marine and rail, as well.

Driver Waiting and Parking

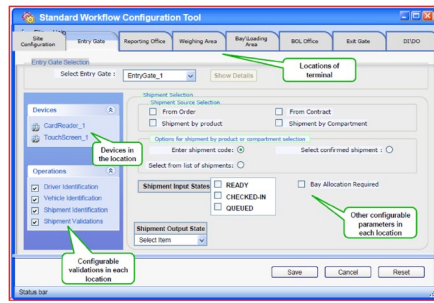
Terminal Manager supports large screen monitors at drivers' waiting hall and parking areas to display bay information and appointments. This regulates traffic and ensures smooth operations.

Entry/Exit Validations

Entry and exit of carriers and their drivers in a terminal are closely monitored through various authorization checks based on secure data in Terminal Manager. Identification devices such as PINs, access cards, RFID and biometric sensors perform driver, vehicle and shipment authentication and permission. Traffic lamps, barrier gates, and large displays are also used to regulate access.

Configuring EOD, EOS and Holidays

Terminal Manager allows users to configure EOD and EOS timings, setting the timeframe within which carriers are allowed to enter the terminal. Outside these times, entry is barred. All management reports, including receipt, dispatch and reconciliation, are also generated during this configuration.



Workflow Configuration Tool – Standard Terminal Manager

Loading Bay Operations

All loading bay operations (i.e., loading, blending, additive) are automated and monitored to minimize human intervention. Loading is allowed only after safety systems are validated. Batch control units (BCU) are used to initiate loading processes. Multiple loading arms (top/ bottom) may be utilized to process an order for a particular carrier.

Besides shipment planning, Terminal Manager also manages bay allocation and queuing. Every drop of liquid is accounted for with an audit trail.

Weighing Operations

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

Data Acquisition and Alarms

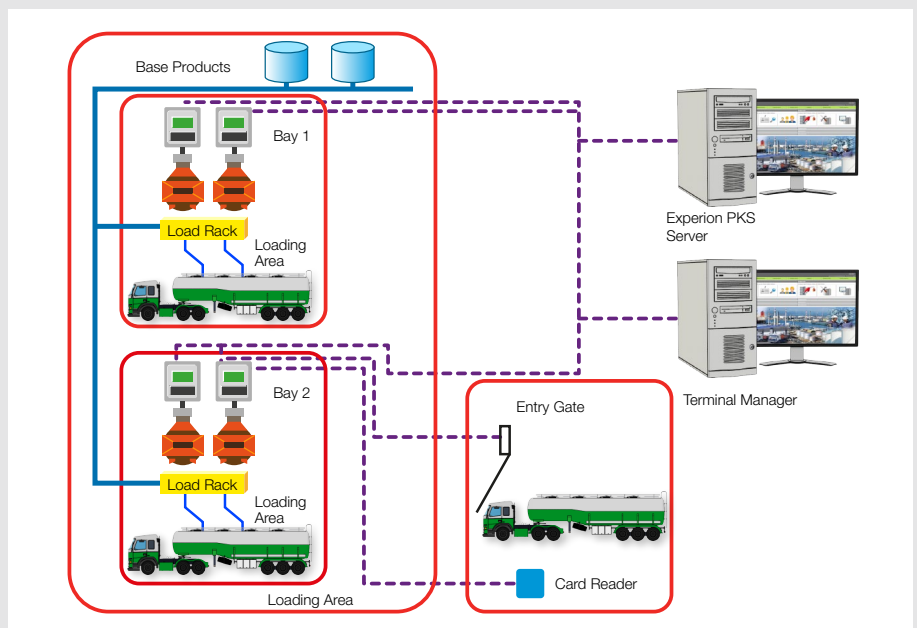
With Terminal Manager, user can collect, display and provide alarms on various process parameters, including loading, device communications, access violations, tank farm, product movements, pumps, MOVs, overrides, fire control, electrics, cathodic protection and equipment condition. Collected data helps with history, identifying trends, analysis, and focuses for training.

Driver and Carrier Authentication

Carrier and its driver information, included as part of Terminal Manager's master data, helps authenticate driver and carrier entry and access. This information is sent to plant personnel by the customer or their carrier partner. Authentication is completed at various points, including on entry, and at the reporting office, weighbridge, loading bay, check-in counter, and exit gate.

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Pictorial representation of Terminal Manager solution deployment - surface transport mode



Vehicle type supported by Terminal Manager

Wide variety of reports

- Product receipt and reconciliation reports
- Load slips (also called FAN)
- BOL (bill of lading)
- Load details and summaries (sorted by bay, product, customer or stock-owner)
- Product stock reconciliation reports (hourly online or on demand)
- Weigh bridge 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

Hot Redundancy

Terminal Manager supports hot redundant configuration. The primary and redundant 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. Terminal Manager also supports multi-box architecture for enhanced reliability.

Role-based Security

Terminal Manager incorporates a Windows-based authorization procedure to restrict system access based on the user role. A user is granted access according to his or her role and need. Roles created in Terminal Manager are Operational, Supervisory and Administrative

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 reports.

Extensibility and Customization

The Terminal Manager's extensibility feature allows users to customize workflows to suit specific needs. The feature makes the daily operation of the terminal easier for the customer while simplifying Terminal Manager maintenance by including only options the customer needs.

Extensibility is applicable at the user interface, workflow, business logic, and database levels.

Honeywell's structured approach of extending the base software allows the site system to migrate to a newer version of Terminal Manager software with limited disruption to terminal operations. It also makes maintenance and trouble-shooting easier.

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 added or deleted by creating new screens or hiding existing screens.

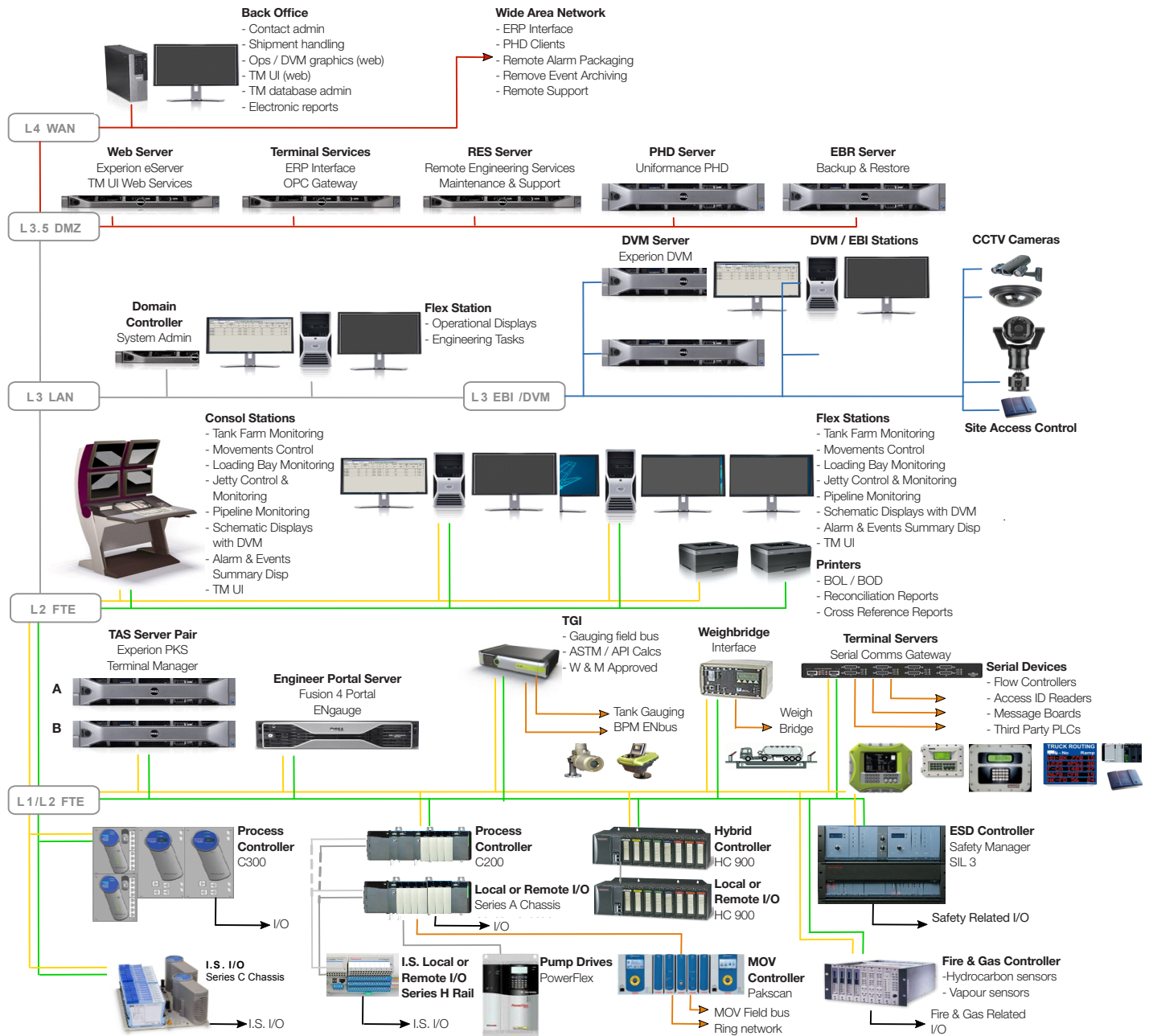
Configurable Workflow

Terminal Manager comes with a configurable workflow as a standard product feature. The workflow includes a host of configurable options to enable project engineers not just software engineers) to truly "engineer" a workflow solution according to the operational requirements of the site. Irrespective of the number of locations, make and model of batch controllers, transaction planning options, mode of transport & so on, the configurable workflow offers a solution to meet the needs of every TAS deployment under consideration

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.

Terminal Manager Typical System Architecture Diagram



System Architecture

Terminal Manager's application uses the Supervisory Control and Data Acquisition (SCADA) functionality of Experion and offers a fully integrated solution for monitoring and order processing of product distribution. The alarms and alerts feature of Experion is also leveraged to ensure safer operation of the terminal.

Notifications and Audit Trail

Terminal Manager's notification and audit trail feature records all changes or actions undertaken on the software. Appropriate notifications of changes sent to all users improves trouble-shooting for unusual incidents occurring in the distribution terminal.

Accurate and Prompt Reporting

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

Localization

Terminal Manager can be customized for the country in which it is installed. The customization feature ensures easy adaptation of the software 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 of an organization's software and systems engineering processes. It establishes the company as a quality provider of systems engineering, software engineering, and IT services

Platform Flexibility

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 same features and functionality as a physical deployment while reducing effectively investment on Hardware infrastructure.

Support Commitments

World class after-sales support is a hallmark of Honeywell. 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 patches and 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

For More Information

To learn more about Honeywell Enraf's Terminal Manager Contact your Honeywell Enraf account manager or visit www.honeywellenraf.com

Americas

Honeywell Enraf Americas, Inc.
2000 Northfield Ct.
Roswell, GA 30076
USA
Phone: +1 770 475 1900
Email: enraf-us@honeywell.com

Europe, Middle East and Africa

Honeywell Enraf
Delftechpark 39
2628 XJ Delft
The Netherlands
Phone: +31 (0)15 2701 100
Email: enraf-nl@honeywell.com

Asia Pacific

Honeywell Pte Ltd.
17 Changi Business Park Central 1
Singapore 486073
Phone: +65 6355 2828
Email: enraf-sg@honeywell.com

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