

## Product Information Note

## Terminal Manager: Solution for Managing Your Entire Terminal Operation



Server software is the “heart” of a Terminal Automation System (TAS). Its efficiency, reliability and versatility are vital. The success of terminal operations depends on how this “heart” is designed and deployed to meet key business objectives, such as safety, security, regulatory compliance, low cost, customer satisfaction, stock reconciliation, “tank-to-head-office” integration, etc.

Here’s a sneak preview of Honeywell Enraf’s Terminal Manager, which is innovatively designed to meet the specific requirements of bulk terminals. This solution assimilates decades of integrated safety and security solutions, DCS automation experience, and leading terminal products, such as Honeywell Enraf’s tank gauging, Mini-Pak additive, blending, proving, and more. Global Experience. Locally Applied.

Honeywell Enraf’s Terminal Manager is a state-of-the-art, web-based solution used for facilitating, monitoring and controlling the distribution of products in a bulk terminal. The application monitors and controls all critical processes to ensure smooth and safe terminal operation. Each module is designed with the finest engineering for deployment in the most challenging business environments



Aerial view of MAIN Terminal, Amsterdam, powered by Terminal Manager

#### Benefits to Downstream Distribution Terminals

**High Level of Safety and Security at Terminals:** The primary concern of any liquid bulk or distribution terminal is maintaining a high level of safety, security, inventory, personnel, and trouble-free operations. The Terminal Manager incorporates the latest local and international environmental rules and regulations. Checkpoints like product availability, tank status, line up, equipment condition, etc, are verified before the fuel pump and valve can be switched on. The Emergency Shutdown system ensures a quick shutdown in an emergency during the loading process.

The Terminal Manager also monitors all terminal safety measures, such as the grounding of a carrier, arm placement, and overspill protection, which helps maximize safety. Its capability to regulate the entry, exit, and loading bay access (proximity cards / touch key / RFID / Biometric / PIN) with built-in validations ensures tighter terminal security.

**Maximized Accountability and Optimized Inventory:** Terminal Manager captures real-time data of liquid that is being loaded and that which is in stock. Enhanced real-time monitoring capabilities reduce the frequency of spill and fuel pilferage occurrences. Automatic permissive inputs stop the loading

process before an incident can occur. Notification of upcoming events gives operating personnel time to react and avoid incidents. Robust reconciliation and handy reports help with analysis and reporting.

**Increased Flexibility:** Terminal Manager is built on industry standard Microsoft® Windows technology and seamlessly integrated with Honeywell Experion® PKS. This leverages all DCS and SCADA capabilities with powerful graphics, alarms, SOE, journals, trends, history, etc. The power of optimization can be attained through standard integration with advanced applications such as Historians and Key Performance Index Manager, Safety Manager, Security Surveillance Manager, Digital Video Manager, etc.

**Enhanced Product Handling:** Designed to handle multi-company ownership and 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.

**Enhanced Productivity and Better Manpower Utilization:** Terminal Manager improves terminal 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. This solution also helps simplify the running of 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 types of carriers (i.e., trucks, trailers, ships, rail cars, barges, pipelines), shipments (by product, order, contract, compartment, etc), and planning (i.e., advanced planning, real-time planning, etc).

### Order Management and Shipment Planning

Terminal Manager can process either planned or unplanned orders. Orders can be received or synchronized from an Enterprise Resource Planning (ERP) system, such as SAP/JD Edwards/Oracle, to save manual effort in data re-entry. Orders can also be entered or updated manually. The status on the order list shows each order status, such as “not scheduled,” “partially scheduled” or “fully scheduled.” Shipments can also be created, updated or deleted automatically from ERP systems. When a vehicle arrives at the terminal, it is checked in by Terminal Manager only if it has a valid shipment for that date. The shipment status such as “ready,” “checked in” or “loading” is shown on the shipment page.

### Automation of Work Flows in the Terminal

Users can employ Terminal Manager to automate workflows, improving productivity as well as the safety and security of the terminal. To automate workflow 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 and execution of these orders through shipments (along with stringent validations at each stage).

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

**Entry/Exit Validations:** The entry and exit of carriers and their drivers in a terminal are closely monitored through various authorization checks that are carried out based on secure data in the Terminal Manager. Identification devices like PINs, access cards, RFID, and biometric sensors are deployed to perform driver/vehicle/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 the user to configure End of Day or End of Shift timings. This is the timeframe within which carriers are allowed to enter the terminal. Beyond these time frames, entry to the terminal is barred. All management reports, including receipt, dispatch, and reconciliation, are also generated at this time.

**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. Each drop of liquid is accounted for with an audit trail.

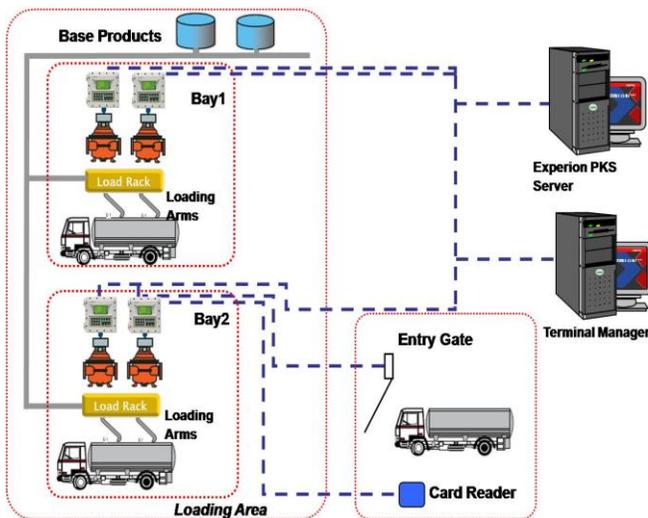
**Weighing Operations:** Terminal Manager provides seamless integration — weigh bridges through Experion and industry standard logics are built into the system. It supports all weight-based products handled through weigh bridge or mass flow meters.

**Data Acquisition and Alarms:** With Terminal Manager, user can collect display and provide alarms on various process parameters, such as loading, device communications, access violations, tank farm, product movements, pumps, MOVs,

overrides, fire control, electrics, cathodic protection, equipment condition, etc. The collected data helps with history, identifying trends, analysis, and training.

### Authentication of Driver and Carrier

The carrier and its driver information, part of Terminal Manager 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 done at various points, including entry, reporting office, weighbridge, loading bay, check-in counter, and the exit gate.



### Hot Redundancy

Terminal Manager supports hot redundant configuration. The primary and redundant servers are real-time synchronized, and automatic takeover by the redundant server is ensured if the primary fails. This guarantees that no data is lost. It also supports multi-box architecture for enhanced reliability.

### Role-based Security

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

### Interface to Automatic Tank Gauging System

Terminal Manager interfaces with the automatic tank gauging system in the distribution terminal, thus capturing all tank-related parameters. This enables users to easily monitor and manage their tank farm and produce reconciliation reports.

### Extensibility / Customization

The Terminal Manager's extensibility feature allows workflow to be customized to suit specific needs. This feature makes the daily operation of the terminal easier for the customer while allowing for maintenance of Terminal Manager as it contains options that only 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. But it also allows for the creation of additional screens and new attributes and logic to match individual customer needs. User interfaces may be added or deleted by creating new screens or hiding existing screens.

**Workflow:** Work flows in Terminal Manager can be customized according to the operational requirement.

**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.

### Notifications and Audit Trail

Terminal Manager's notification and audit trail feature records all changes or actions done on the software. If changes are made, it sends out appropriate notifications to all users. This feature is critical as it helps limit the need for trouble-shooting if any incident out of the ordinary occurs in the distribution terminal.

### Accurate and Prompt Reporting

Accurate and well-presented reports enable vital decision-making. Reports can be exported to various formats, such as Adobe™ Acrobat and Excel™. Reports can be configured for automatic generation on a scheduled basis or sent to designated users.

Terminal Manager provides a variety of reports, such as:

- Product receipt and reconciliation report
- Load slip (also called FAN)
- BOL (bill of lading) load ticket
- Load details and summary (sorted by bay, product, customer or stock-owner)

- Product stock reconciliation reports (hourly online or on demand)
- Weigh bridge report on tare and net weight, including LPG trucks
- Vehicle movement report (guard house)
- Average loading, waiting duration report (segregated for each load type)
- Monthly and other MIS reports
- Alarm journal, safety interlocks, trips
- Audit trail
- Proving reports

### Localization of Terminal Manager

Terminal Manager can be customized for the country in which it is installed. Terminal Manager Customization, designed to suit a country's language and culture, is a feature that ensures easy adaptation of the software to any downstream distribution terminal.

### Quality Assurance

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

### Support Commitments

Another hallmark of Honeywell is our worldclass after-sales support organization, with a three-tier structure allowing for efficient and quick responses to users' service requests.

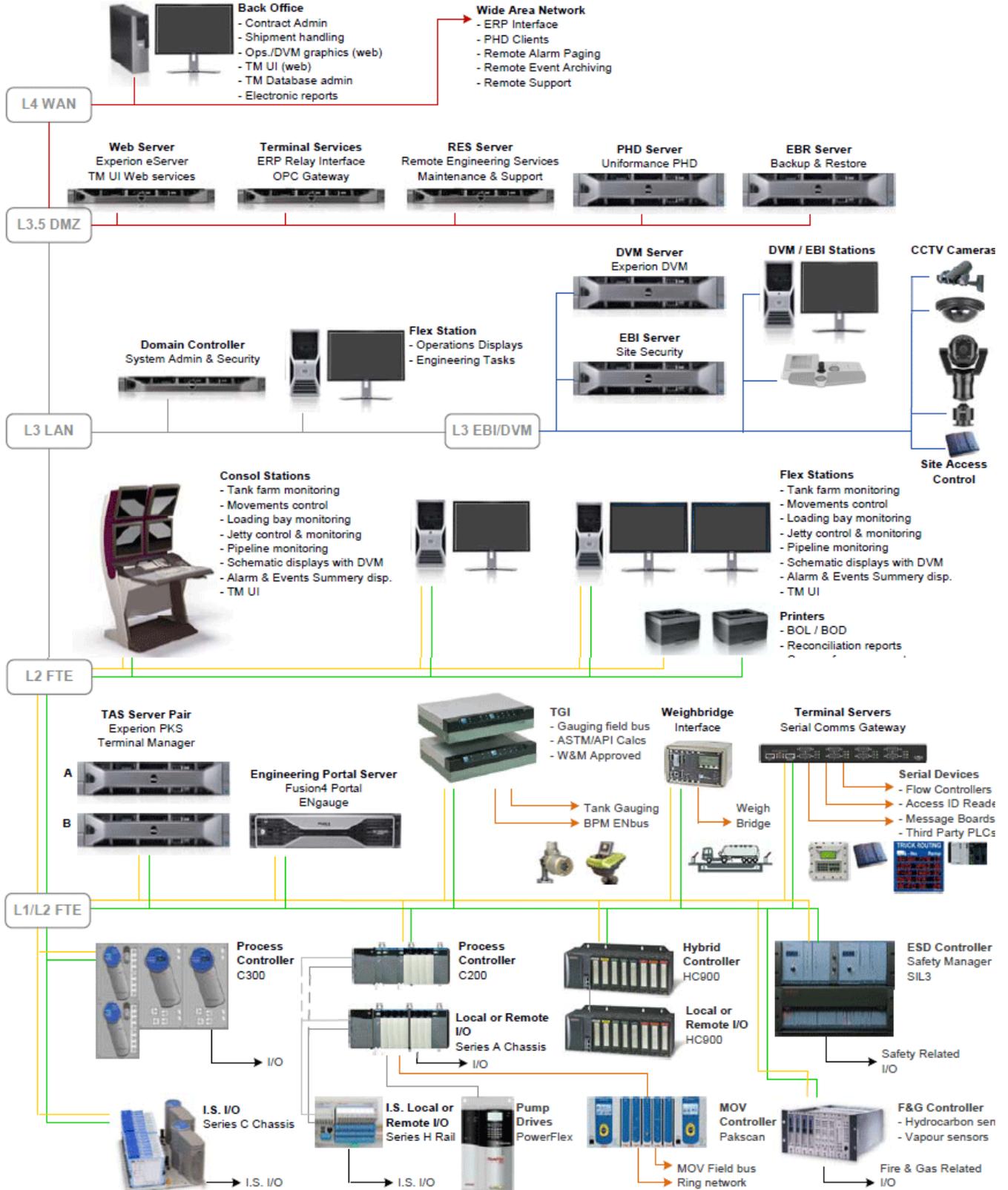
Honeywell offers the following support services for our terminal solutions:

- 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
- Refresh training programs and test bed maintenance



### 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 terminals.



**For More Information**

To learn more about Honeywell Enraf's Terminal Manager Contact your Honeywell Enraf account manager or visit [www.honeywellenraf.com](http://www.honeywellenraf.com)

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**Honeywell Enraf**

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