SPARTAN CONTROLS

Automation | Valves | Measurement | Process Control

TRUCKVUE™ SOFTWARE TMS SERVER PLATFORM

Enhanced system to meet your truck unloading needs

CANADA'S BEST MANAGED COMPANIES
Platinum member

TMS SERVER

Overview

The TMS Server software monitors loading and off-loading of multiple truck transfer transfer points at conventional and heavy oil batteries, gas plants, pipeline terminals, waste management and agricultural facilities.

It is designed to be used for a wide range of fluids including emulsions (heavy and light), condensates, refined petroleum products, NGLs, LPGS, water, municipal (wastewater, fats, grease) and chemicals (ammonia and methanol).

Software/Hardware Platform

- Utilizes a combination of instruments to accurately meter the product transfers to provide a complete oil emulsion truck loading and off-loading measurement solution
- Accurately measures mass, density and volumes using the Micro Motion® Coriolis flow meter
- Incorporates patented density compensation with the Drexelbrook® water cut monitor or Low Cut Phase Dynamics microwave water cut analyzer to provide accurate water cut determination – useful for improving water cut resolution for pipeline specifications over the 0-5% water cut ranges
- Seamlessly integrates truck scales to fully automate and manage solid waste transfers

In addition, the Phase Dynamics full cut microwave water cut analyzer may be used in conjunction with a patented Net Oil Calculation for the 0-100% water cut calculation.

AutoComp Software

The TMS Server employs an expert rule-based group of proprietary Spartan Controls software routines called AutoComp. The AutoComp feature provides automated real-time oil and water density determination. The densities are determined and maintained without operator intervention.

This significantly reduces the number of lab analyses required and greatly improves the performance of the density-inferred NOC water cut calculations.

Technology

Developed using the latest Microsoft .NET software framework, TMS Server utilizes a flexible software architecture that supports a fully integrated solution ranging from a stand-alone kiosk to an enterprise-ready solution for any corporate network.

Features

- Accurate accounting of products received/delivered (including oil, density, watercut, volumes)
- User-friendly interface screens
- Customizable solution to meet specific requirements
- Various ticket output options (including printed, e-mail, QR code)

- Scaleable (supports 1-14 risers)
- Interface to plant control systems through Delta V, PLC, and other plant RTU/DCS
- Data can be imported and exported remotely through CSV/XML files
- Supports integration to various production accounting and field data capture systems

The system is scalable to meet your application requirements from a stand-alone system to a full enterprise solution.

Do you require the transfer system to run automatically at a remote site and don't require any network connectivity? Use our stand-alone system – tested and sent straight out of the box and onto your site. Should your future needs change, easily scale up to a larger distributed system – all on the same software platform.

DL8000 Preset Controller
Temperature Transmitter
3-Way Divert Valve
DeltaV (DCS) Host
Optional Inlet ESD Valve
Optional PC Interface
Optional Ground Permissive
Coriolis Mass Flow Meter
Drexelbrook Water Cut Monitor
Optional Phase Dynamics Water Analyzer (Heavy Oil)

Perhaps you have a local network and you want to retrieve your data remotely, monitor and administer the system, and keep on top of your data without standing in front of the panel. Use the client/server architecture and have the power delivered to your desktop remotely.

To match the best-in-class Micro Motion Coriolis flow meter, TMS Server runs on the latest industrial fanless PC technology. With the touch screen interface, data entry is a snap and printed tickets are always at hand with its integrated strip printer. Rather go paperless? Copies of all tickets are stored electronically and can be automatically emailed from the system. Do you need flexible integration, server redundancy, fail-over recovery and access to the panel from anywhere – period? Then our Enterprise solution will meet your needs and can be customized to meet your exact company requirements.
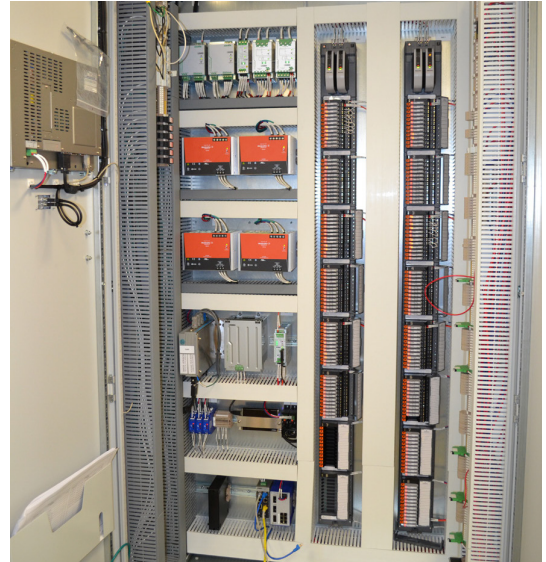
Device Options

- Ground Permissive Input
- Inlet ESD and Divert Valves*
- Warning Beacons and Horns
- Product Tank Levels
- Pressure/Temperature Transmitters

- Truck Weigh Scales
- Air Eliminators
- Back Pressure Control Valves
- LACT Metering
- UPS Power Supplies

Three-way divert valves allow for the routing of products to appropriate tanks and provides significant savings with the reduction of liquid processing costs.

Multiple touchscreens/printers

- Client/server architecture
- Remote monitoring and administration
- Distributed and customized databases
- Multiple servers with automated fail-over

Data Entry

With the touch screen keyboard always at your fingertips, the TMS user interface is easy to use and allows the trucker to quickly log in, find their well and get on with the job of transferring product.

Truckers don't like typing? Have entries pre-populated with the scheduling feature.

- Customizable data entry displays
- Easy to read and use text boxes
- Convenient list box filtering
- Detailed online help
- Voice and pen enabled
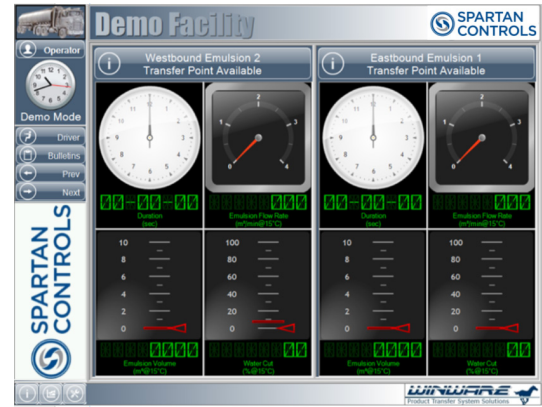
Before a transfer begins, TMS Server can complete a detailed riser validation to ensure the transfer is properly setup and can be performed.*

- Check plant permission and riser ESD alarms
- Confirm tank levels
- Sequence valves
- Validate TMS hardware and software status
- Ensure proper grounding
- Confirm device communications
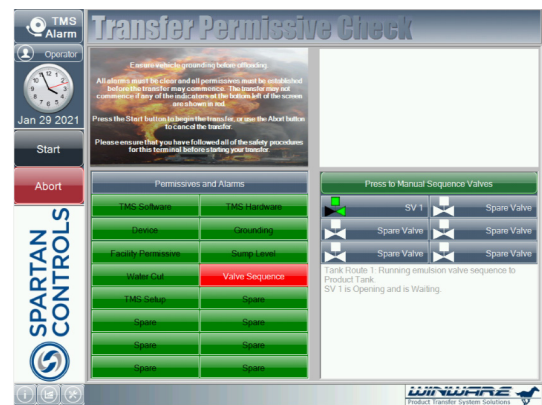
* During a transfer, any required alarm condition, including high tank and water cut levels, can be configured to alert the driver with a beacon or horn actuation. TMS records unauthorized transfers and can alert your operations personnel.

After a transfer, data is safely recorded in the TMS internal database and optionally in your corporate database. Detailed transfer scan files are also stored for each ticket. Daily maintenance ensures that this data is always backed up.

Need something to provide the trucker after their visit? Print out a configurable strip ticket to the TMS strip printer or customize a full page ticket and send it to a networked printer.*

* All full page tickets are recorded as a PDF file and may be sent via email to any number of recipients.

Diagnostics

Use the embedded Operator interface or connect remotely to TMS Server using TMS Client and easily monitor the panel.

- View real-time device measurements
- Monitor device communications
- Graph real-time and historical data
- Control field devices remotely
- Calibrate and prove flow meters
- Audit changes in device configuration
- View and print historical transactions
- Perform flow meter verification
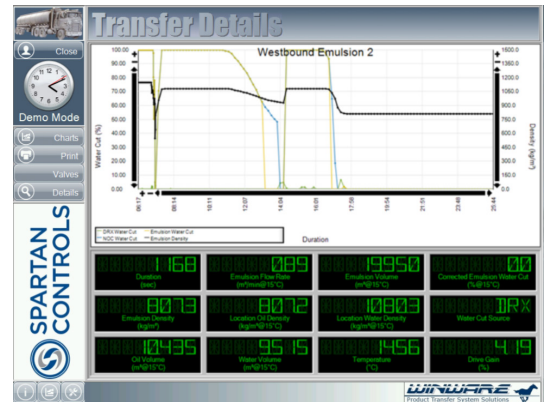
Every detail about the transfer is recorded on a second by second basis, so if any measurement comes into question, quickly recall historical data for any ticket. From hard copy reprints to detailed data analysis – everything is available at the touch of a finger.

- Reprint transfer tickets
- Generate production day reports
- Review transfers graphically
- Re-run transfers in real-time
- Analyze transfer details
- View details in Microsoft Excel or use the offline or embedded TMS Toolkit.

For TruckVue™, the transfer measurement result is paramount. Accurate measurements from the best-in-class devices, industry compliant corrections and calculations, robust reporting, and a detailed audit trail are integral parts of the TMS Server software. Making sure every transfer is recorded accurately and the data is maintained safely is our priority.

Why reprocess sales oil and tie up your treater? And how much inventory do you have on hand?
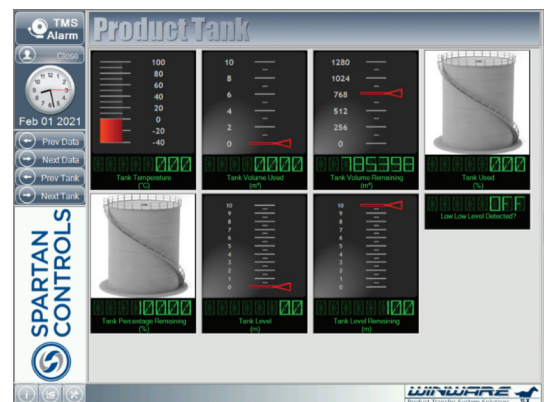
TMS Server software provides automated product routing and tank level monitoring. Extend your TruckVue™ installation to get a good view of your terminal.

Maintenance

The transfer system is only as good as the data it receives. User profiles, truck and trailer information, companies, carriers, locations and system configuration can easily be imported and exported from TMS Server.

Use Microsoft Excel to supply your data in a customizable format, or connect to your defined database and use your own tools to load up the system. If you wish to add and change configuration right at the panel, try the embedded configurator. Or try it offline with TMS Toolkit's Facility and Operation Configurators.
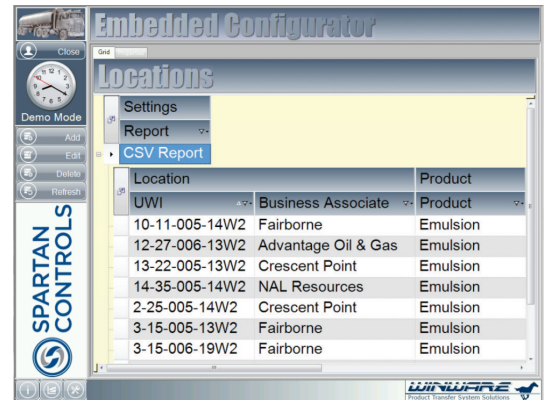
When did the meter factor change? Was the production day report generated manually yesterday? Has the configuration on an end device been changed recently? Find out the answers to all these questions using the TMS Event Browser.

- Selectable date range
- View event and alarms
- View configuration changes
- View field device/meter prove audits
- View system and communication logs
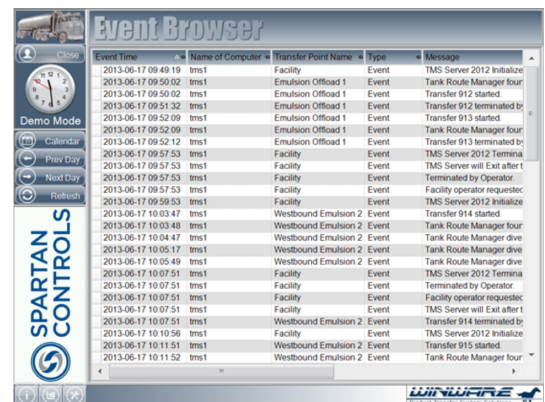
The TMS File Browser allows easy access to files when the TMS is configured to operate without a network connection. Transfer database and scan files, logs, production day reports, well and system configuration, as well as software updates using the TMS USB memory stick interface.

- Use TMS File Browser or Windows Explorer
- Copy, delete and move files easily
- Email files
- Send files to FTP sites
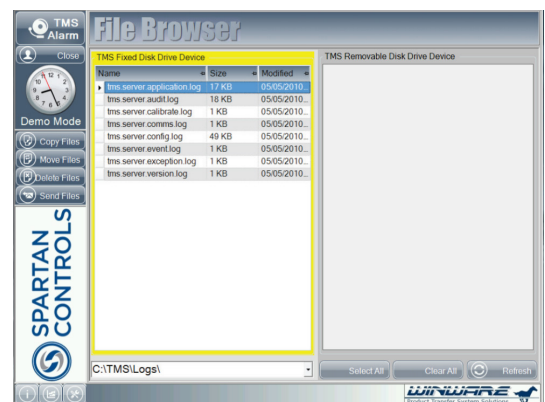
Benefits

Measurement Matters

Measurement error is often not considered when selecting devices. Consider the effect of ±1% error given $50/bbl oil and a 30m^3 truck.

1 truck = 189 barrels / 1% error = $94.50/truck
10 trucks per day for a year of 24/7 operation = potential loss of $344,925 each year

Measurement Accuracy

Typical measurement accuracy achieved with the measurement devices coupled with the TMS Server software:

Water Cut (0-5%)	± 0.1 % typical
Water Cut (5-100%)	± 1.0 % typical
Density	0.2 kg/m^3
Mass	± 0.1 %
Gross Volume	± 0.1 %

With online calculations for water cut and AutoComp™ there is no requirement to sample and spin cuts on a continuous basis.

- Significant financial savings
- Reduced maintenance
- Automated meter verification
- Improved water cut accuracy
- Provide product tank routing
- Ideal for unknown products
- Permit unattended operation

- Improve trucker satisfaction
- Improve terminal efficiency
- Eliminate hard copy data entry
- Ensure all tickets are complete
- Field data capture system integration
- Trucker and safety certificate validation
- Administer TMS remotely

Regulatory Compliance

The RailVue™, TruckVue™ and FloBoss systems are fully compliant with API Manual of Petroleum Measurement Standards, Chapters 5.6, 11, 12, 21.2, as well as AER Directive 017.

Alberta Energy Regulator
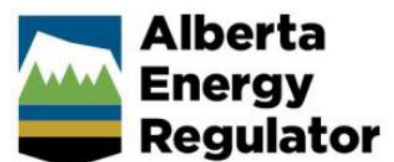
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