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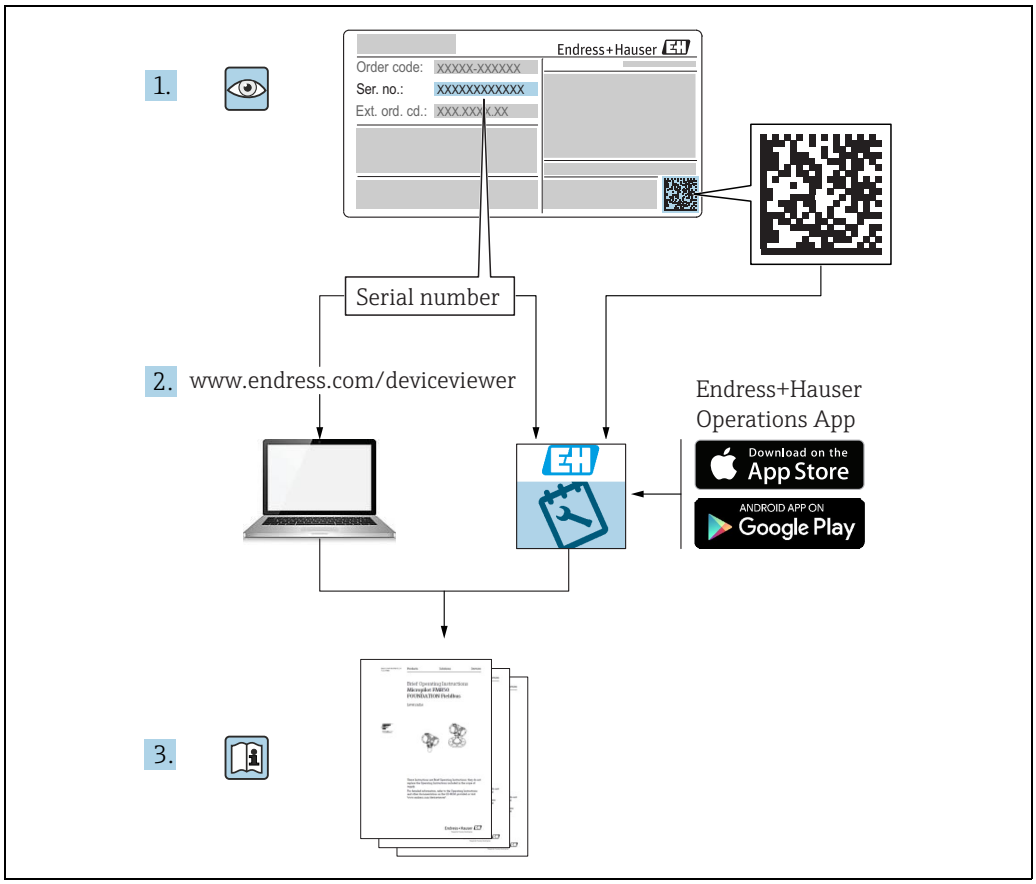
Valid as of software version:
18.3.3

Operating Instructions
Terminalvision NXS85
Terminal Management Software
Operation Guide

Endress+Hauser
People for Process Automation



Make sure the document is stored in a safe place such that it is always available when working on or with the device.
To avoid danger to individuals or the facility, read the "Basic safety instructions" section carefully, as well as all other safety instructions in the document that are specific to working procedures.
The manufacturer reserves the right to modify technical data without prior notice. Your Endress+Hauser distributor will supply you with current information and updates to these Instructions.

Change history

Document version	Valid for SW version	Changes to the previous version
BA01584G_03.19	18.2.5	Features implemented: ▪ Seal enforcement
BA01584G_04.20	18.3.1	Features implemented: ▪ Manually create transactions ▪ Merge transactions
BA01584G_05.22	18.3.2	Sections added: ▪ Reporting ▪ Appendix
BA01584G_06.24	18.3.3	Sections added: ▪ Added support for facilitated loading – Configuration options for manual transactions added – Additional filters on Transaction History screen

Table of Contents

1 About this document

1.1 Symbols

1.1.1 Safety symbols

Symbol	Meaning
 A0011189-EN	**DANGER!** This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.
 A0011190-EN	**WARNING!** This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in serious or fatal injury.
 A0011191-EN	**CAUTION!** This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.
 A0011192-EN	**NOTICE!** This symbol contains information on procedures and other facts which do not result in personal injury.

1.1.2 Electrical symbols

Symbol	Meaning
 A0011197	**Direct current** A terminal to which DC voltage is applied or through which direct current flows.
A0011198	**Alternating current** A terminal to which alternating voltage is applied or through which alternating current flows.
 A0011200	**Ground connection** A grounded terminal which, as far as the operator is concerned, is grounded via a grounding system.
 A0011199	**Protective ground connection** A terminal which must be connected to ground prior to establishing any other connections.

1.1.3 Symbols for certain types of information

Symbol	Meaning
 A0011193	**Tip** Indicates additional information.
 A0011195	**Reference to page** Refers to the corresponding page number.
1., 2., 3...	Series of steps
 A0018373	Result of a sequence of actions

1.1.4 Symbols in graphics

Symbol	Meaning
1, 2, 3...	Item numbers
1., 2., 3....	Series of steps
A, **B**, **C**...	Views
 A0011187	**Hazardous area** Indicates a hazardous area.
 A0011188	**Indicates a non-hazardous location** Safe area (non-hazardous area)

1.2 Documentation

For an overview of the scope of the associated Technical Documentation, refer to the following:
- Device Viewer: Enter the serial number from the nameplate
www.endress.com/deviceviewer
- Endress+Hauser Operations App: Enter the serial number from the nameplate or scan the matrix code on the nameplate

1.3 Registered trademarks

Microsoft®, Windows® and Internet Explorer®
Registered trademarks of the Microsoft Corporation

Modbus™
Modbus is a registered trademark of Schneider Electric USA, Inc.

Java®
Registered trademark of Sun Microsystems, Inc.

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Registered trademark of the Mozilla Foundation

Android® and Google Play® are registered trademarks of Google Inc.

iPhone® and iPad® are trademarks of Apple® Inc., registered in the U.S. and other countries.

2 Basic safety instructions

2.1 Requirements for the personnel

The personnel for installation, commissioning, diagnostics and maintenance must fulfill the following requirements:

- Trained, qualified specialists must have a relevant qualification for this specific function and task.
- Are authorized by the plant owner/operator.
- Are familiar with federal/national regulations.
- Before starting work, read and understand the instructions in the manual and supplementary documentation as well as the certificates (depending on the application).
- Follow instructions and comply with basic conditions.

The operating personnel must fulfill the following requirements:

- Are instructed and authorized according to the requirements of the task by the facility's owner-operator.
- Follow the instructions in this manual.

2.2 Intended use

2.2.1 Application

Terminalvision is a terminal management and loading monitoring software designed to meet the requirements of depots and terminals. Interfacing to most vendor devices used for access control, batch controllers, flow computers, and weighbridges, Terminalvision provides a secure and controlled loading and off-loading procedure for all movement types. Terminalvision also enables site control and overview, allowing operators to access details of all gantries, loading arms, vehicles, drivers, and products in use on site.

Terminalvision can be provided as a simple standalone station for small depots, or be configured on larger sites as a full Client/Server system where multiple operator stations are required. Printers can be distributed throughout the system, for example placed within the terminal control room and control rooms for internal reporting, as well as at the exit gate for the automatic printing of BOLs.

2.3 IT security

A warranty on our part can only be provided if the software application is installed and used as specified in the operating manual. The software application contains safety mechanisms to protect it against inadvertent changes to the software settings.
IT security measures that are in accordance with the operator's safety and security standards and designed to additionally protect the software application and the transfer of data must be implemented by the operator.

3 Identification

3.1 Product identification

The following options are available for identification of the software:

- Nameplate specifications
- Order code with breakdown of the software features on the delivery note
- Enter serial numbers from nameplates in *W@M Device Viewer:* www.endress.com/deviceviewer - All information about the software is displayed.

3.2 Nameplate

The information that is required by law and is relevant to the device is shown on the nameplate, e.g.:

- Manufacturer identification
- Product Name
- Order code
- Extended order code
- Serial number
- Barcode
- CE mark

3.3 Manufacturer address

Endress+Hauser SE+Co. KG
Hauptstraße 1
79689 Maulburg, Germany

Place of manufacture: See nameplate.

3.4 Order code and device version

To find out the version of your software, enter the order code indicated on the nameplate in the search screen at the following address: www.products.endress.com/order-ident

4 Introduction

Terminalvision is an easy to use intuitive application that can be configured for many different scenarios.
This manual is intended as a guide only.
For site specific guidance please consult your supplier for further information or assistance.
This introduction defines some of basic terms used in the following documentation.

4.1 Batches, Transactions and Loads

Terminalvision is based around the logging of data from loading computers located on loading bays. A loading bay can consist of one or more loading arms, with the loading Computer(s) monitoring the flow of product on those arms.
When a quantity of a product is dispensed from an arm at a loading bay, a batch record is produced in Terminalvision. The data recorded for a batch depend on the capabilities of the load computer and how it is configured, but typically the quantity, the grade of product, the source of the product and a reference to the vessel the product was dispensed into are the minimum set of values.
When a truck is loaded there must be at least one batch, but where a vehicle comprises several compartments, there will usually be one batch for each compartment. These batches are grouped together into a transaction. Your site's configuration determines what data is recorded for a transaction, but information such as the date and time it occurred, the identities of the driver and vehicle and the name of the loading bay are typically recorded.
A truck may collect product for multiple orders, for instance if the truck is to perform a round of deliveries to different customers. If each customer's order is separate, then the loading operation may result in a transaction for each. The transactions are grouped together as part of a load, which is the unit of work that occurs on single visit to the site for a vehicle.
Terminalvision can also be used for non-Truck loading applications, such as monitoring product flow on a pipeline into/out of tanks. In this case the pipeline can be considered as a Loading Bay with one Arm. Similarly, the software can be used to receive product.

4.2 Arms, Bays, ACUs, and Yard Locations

The hardware and infrastructure used for the loading operation broadly fall into some categories.

At the top level is the site. A site is where the loading operations that are to be managed by Terminalvision occur and where all the infrastructure is situated. On a small site where there is no management of the vehicles within it; the site is realised as having a single yard location.

If there are controls over the passage of vehicles through the site, each section where a vehicle or driver is identified on entry and exit is a Yard Location. For example, if trucks arrive at the site and are directed to a waiting area until they are called to a loading bay, the waiting area is one Yard Location and the loading bay another. Each Yard Location must be equipped with an ACU (Access Control Unit) so the system can know when a vehicle is in a given location, and, as the name suggests, control access to that location.

The ACUs provide a means for drivers to identify themselves or their vehicle to the system, either by means of a PIN, a security card or other identity system. Many load computers incorporate the features of an ACU into their design and can be used as such. Indeed Loading Bays are actually just special cases of Yard Locations, they just happen to be places where vehicles are filled with products.

Loading bays, as previously mentioned, are Yard Locations; and therefore each must have an ACU, but in addition they have loading arms. The identity of the driver and vehicle is established through the ACU and following from that access to the loading bay arms is granted or denied. There are special cases of loading bays, called Island Loading Bays, where

a truck may park at either side of the loading skid. In this case there are ACUs controlling access to each side of the island, but the loading arms are shared by both sides.

4.3 Products and Customers

Within Terminalvision, legal entities using the site are called **Customers**. **Customers** can have a number of roles in the system and many of the roles are not mutually exclusive.

The site **Owner** is the organisation that runs the site. They don't have to own the products on the site, they own the tanks and pipework.

Suppliers own product on the site and supply it to their **Customers**.

The **Carrier** is the company that owns the vehicle that transports the products and the **Customer** is the entity that will receive the product.

Example:
A bus company, A, needs 30,000 litres of diesel for its operation, which they order from fuel distributor, B. The fuel distributor owns fuel on a depot run by tank storage company, C, and has a contract with haulage company D to transport fuel to its customers. So, B sends an order to D to collect diesel from the depot and transport it to the bus company, and also sends an authorisation to C for the haulage company to take 30,000 litres of diesel to A.

In the above example:
- A – Customer
- B – Supplier
- C – Owner
- D – Carrier

Products are similarly complicated because the product that is sold to the customer may be named differently by the site owner and the supplier, or may be dispensed as a different product by inline blending additives during the loading process. Products can assume 3 roles: Base Product, Terminal Product and Supplier Product.

If we dispense with the idea that the 3 are actually physically different and just represent what the customers choose to name the product for now; what is stored in the tanks is known by its **Base Product** name, when it is dispensed it is known by its **Terminal Product** name and the name printed on the BOL is the **Supplier Product**. Taking petrol as an example, the tank normally contains raw motor spirit, the Base Product. A fuel additive is blended during the loading process to make the motor spirit into Unleaded Petrol, the Terminal Product. The customer may sell that on their forecourt as 'Super Green Unleaded', the Supplier Product.

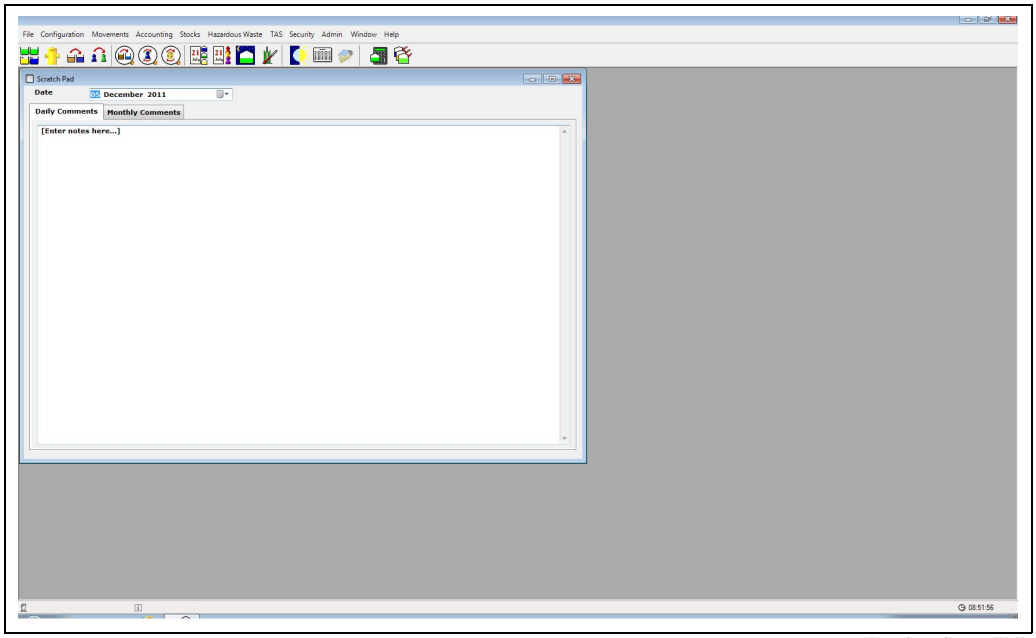
Support for blending varies across the loading computers supported by Terminalvision. Specific information can be obtained within the Application Notes.

5 System Operation

This manual assumes that Terminalvision has been installed and configured correctly. If it has not, please refer to the Installation and Configuration manuals for further information.
The examples in this manual have been biased toward the Contrec series of devices. For information on the operation of other vendor devices please ask your supplier for the relevant manuals.
Before a vehicle and driver can carry out a transaction their details must be entered into the system so that they can be authenticated.
Furthermore a valid order must exist which the driver and vehicle are authorised to use.

5.1 Launching the application

Double click the shortcut on the desktop or select the Terminalvision application from the start menu.
The splash screen will be displayed for a few seconds followed by the screen shown in figure below.



Terminalvision_Operation_EN_001

This is the **Home Page** for Terminalvision and is also the route to all features of the application.
A **Menu** bar and **Tool** bar are provided for quick access to all the main features of the system.

5.2 TAS Orders

The TAS Order is the representation of an instruction to carry out an order at the site. Depending on the way your site works, an order might only instruct the system that anyone knowing a particular order number can come and collect as much of certain products as they want, or it might name a specific driver, vehicle, and the precise quantity of product to load into the compartments.
The more data you enter into the order, the more control you have over the loading operation.
It should be noted that generally systems requiring a greater degree of control usually have an automated method of creating orders in the system as the administrative burden is considerable.

5.2.1 Order Controls – Carrier

When defining an order it is optional whether to name the carrier. If the carrier is named, then a vehicle and driver affiliated with this carrier (or flagged as a site vehicle/driver) must identify themselves at the ACU to collect the order. If no carrier is named then any driver and vehicle can collect the order.

5.2.2 Order Controls – Driver

It is possible to go further and name the driver who will come to collect the order for the carrier. If the driver is to be specified the carrier must also be specified as well.

5.2.3 Order Controls – Vehicle

In a similar fashion to the driver, a specific vehicle can be specified. The vehicle must be one affiliated to the named carrier, or be a site tractor unit.

5.2.4 Trailers

One or more trailers can be specified in addition to the vehicle. Trailers are not authenticated at the ACU, but are used to supply details of the compartments which are available in addition to any in the main vehicle.

5.2.5 Automation – Kiosk

To lessen the administration of terminal staff entering orders, a kiosk can added to the system so that drivers can enter their order details. The kiosk is a touchscreen terminal with a simple UI which can be used without much training. The orders entered at the kiosk need to be checked and authorised by an operator before they can be loaded.

5.2.6 Automation – Integration

The principle of this method of automation is to create orders based on data entered through a corporate ERP system or other Sales Order Processing system. Terminalvision has an API which can be used to link such systems.

5.2.7 Loading Bay Modes and Operational Practices

A loading bay is conceptually a place on the site that can dispense products to an identifiable entity. It therefore needs to be equipped with an **ACU** to be used to identify the drivers and vehicles using it and a **Preset** to dispense the product.

Some load computers are capable of running in an autonomous way, in which case it is possible to use Terminalvision as a simple transaction logger. This is referred to as **Standalone Mode**. In this mode the load computer cannot refer to data residing in the Terminalvision databases, the identities of drivers and vehicles must be downloaded to the load computers, additional checks for driver and vehicle lock outs, and order validity are missed.

It is more usual to run with the load computers in one of the **Gantry Controller** modes: **Slave** or **Gantry**. Here the load computer refers to data in the databases to validate orders, drivers and vehicles. In this mode live monitoring of the loading process, the use of scheduled orders, checks to prevent overfilling, and lock out facilities are possible. Many load computers have features which allow drivers and vehicles to be identified in which case the load computer can serve as both the loading bay's **ACU** and **Preset**. **Slave** mode is used for load computers that have another device on the skid performing the role of **ACU**. Reasons for this might be that the **Preset** is incapable of performing the function of an **ACU** or that another device has been provided for this purpose.

5.2.8 Work Flows

Terminalvision is flexible and attempts to cover many different work practices. One of the most fundamental separations of work practices that the developers have encountered is whether the order number is entered at the loading bay or not. Part of the ACU configuration contains a simple option to "Enter Order", which alters the way a site works profoundly.

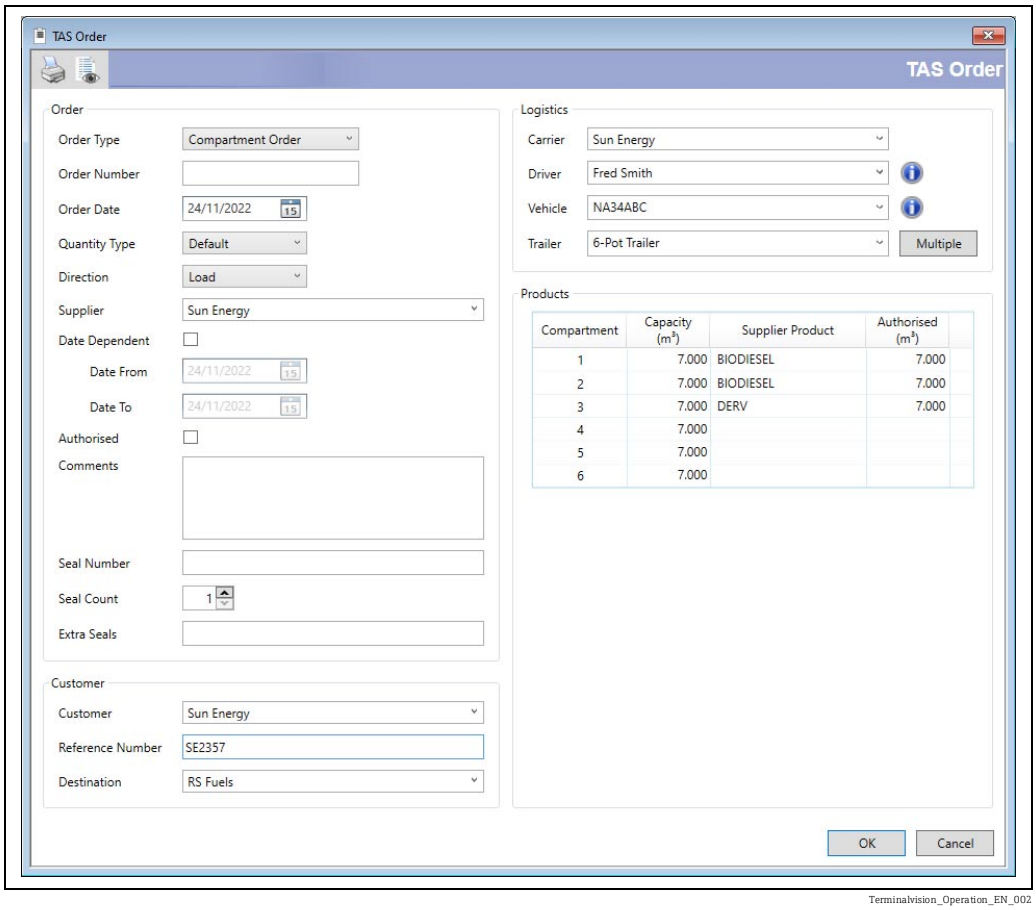
If a driver enters an order number at the loading bay, it presumes that the order is in the system for the driver to collect. The work flow preceding the driver getting to the loading bay therefore needs to ensure that the order is created and authorised. A failure to get the order in place means that the driver will not be permitted to load.

If the driver does not enter an order number at the loading bay there are 2 ways to operate. The transaction created there can be used to create an order, or an attempt can be made to match the transaction to a pre-existing order. When creating an order, defaults are applied to the order details – so if there are variations in the orders created this way it is best to set the system to **Manually Commit Transactions** so that operators can set them.

When matching an order some system settings alter the way matches are made. **Find Order Before Loading** ensures that a match is made before loading commences, this means that if a matching order exists it is used otherwise the order is automatically created. If **Only Load If Order Found** is set, then the ability to auto-create orders is disabled and a failure to find a matching order will result in the loading operation being disabled.

5.3 Creating Orders

When the work flow requires a pre-created order before any loading can take place it is necessary to have a valid order configured in the system.
Select the **TAS** → **New TAS Order** menu. The window shown in figure below will be loaded.

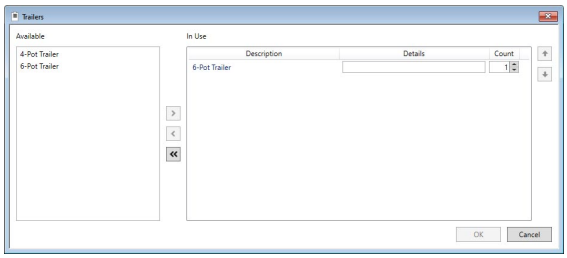


Terminalvision_Operation_EN_002

Enter the following fields:

Field	Type	Description
Order Type	Select from list	Select Compartment Order, Pre-Order, Open Order from the list. ▪ A **Compartment Order** is specific to a particular vehicle/ trailer combination. When the vehicle is selected or the trailers configured, the compartment details for the vehicle and trailer(s) will be displayed. ▪ A **Pre-Order** allows you to specify a list of Products with specific quantities which can be taken at any time. The order is completed when the specified Product Quantities have been taken. ▪ An **Open Order** allows you to specify a list of Products which can be taken at any time. The Open Order allows you to take an unlimited quantity of each Product.
Order Number	Up to 20 digits	A unique numeric representing the order. This can be up to 20 decimal digits long.
Order Date	Select from calendar	The date on which the order was entered.
Quantity Type	Select from list	Determines what parameter is used for all quantities, these can be: ▪ **Gross Volume** ▪ **Net Volume** ▪ **Weight** If left as Default than the parameter from the System Settings will be used. This field determines what units are displayed in the Products section on the order entry screen. For instance if set to Weight, then quantities will be displayed as kg, tonnes etc.
Direction	Select from list	Set this to either **Load** or **Receipt**. For the order to be used for a transaction, the loading bay direction must match this order direction.
Supplier	Select from list, or start typing to filter list	The owner of the product. The specified company will have this quantity debited from their account.
Date Dependent	Tick or untick	Tick to indicate that this order is only valid between the specified dates. If left unticked, the dates do not apply.
Date From	Select from calendar	If Date Dependent is ticked, this is the date the order is valid from.
Date To	Select from calendar	If Date Dependent is ticked, this is the date the order is valid to.
Authorised	Tick or untick	Tick to authorise the order. If the order is not authorised it cannot be used. Ensure an order is Authorised during configuration.
Comments	Up to 100 alphanumeric characters	Free format comments describing the order.
Seal Number	Up to 16 alphanumeric characters	The seal number for the order. If Order Seal Enforcement is set to **Never** in the system settings, this field will not be displayed. If Order Seal Enforcement is set to **Required** in the system settings, this field **must be entered**.
Seal Count	2 digits	The number of seals for the order. If Order Seal Enforcement is set to **Never** in the system settings, this field will not be displayed. If Order Seal Enforcement is set to **Required** in the system settings, this **field must be a number** between 1 and 20 (inclusive).
Extra Seals	Up to 250 alphanumeric characters	The extra seals for this order. If Order Seal Enforcement is set to **Never** in the system settings, this field will not be displayed.

Field	Type	Description
Customer	Select from list, or start typing to filter list	The owner of the product. The specified company will have this quantity debited from their account.
Reference Number	Up to 12 alphanumeric characters	Number used sometimes as a reference for other systems (e.g. ERP Systems or other financial systems) where the Order might be coming from.
Destination	Select from list, or start typing to filter list	The name of the destination of the product.
Carrier	Select from list, or start typing to filter list	The name of the Company operating as the Carrier or leave blank to allow any carrier to use this order. This field sets the allowed drivers and vehicles that may be selected.
Driver	Select from list, or start typing to filter list	Select the driver for the order, or leave blank if any driver can use this order. If no driver is selected and a carrier has been configured, then any driver using this order would have to belong to that carrier or be a site driver.
Vehicle	Select from list, or start typing to filter list	Select the vehicle for the order, or leave blank if any vehicle can use this order. If no vehicle is selected and a carrier has been configured, then any vehicle using this order would have to belong to that carrier or be a site tractor unit. If no trailers are configured then this field **must** be selected for a Compartment Order type.

Field	Type	Description
Trailer	Select from list, or start typing to filter list	Select the trailer for the order, or leave blank if the vehicle will not be hauling any trailers. When a vehicle with a default trailer is selected, the trailer will automatically be selected. To change the trailer, select another trailer from the list. To remove the trailer, select the blank entry from the list. Only trailers that are compatible with the selected vehicle will be available. If no vehicle is configured then this field **must** be selected for a Compartment Order type. If multiple trailers are required, or additional details need to be added for a trail, click on the **Multiple** button. The following screen will be displayed:  Terminalvision_Operation_Order-Trailers The list of available trailers contains all the trailers that are compatible with the selected vehicle (if any) on the main order screen and any trailers that are already being used. To add new trailer(s) to the order, select the required trailer(s) from the list of available trailers and click the **Add** (›) button. The trailer(s) will be added to the end of the list of trailers **In Use**. To remove trailer(s) from the order, select the required trailer(s) from the list of trailers **In Use** and click the **Remove** (‹) button. To clear the list of trailers being used, click the **Remove All** («) button. All trailers will be removed from the list of trailers **In Use**. To move trailer(s) towards the front of the consist, select the required trailer(s) and click the **Move Forward** button (↑). The selected trailers will be moved up the list of trailers **In Use**. To move trailer(s) towards the back of the consist, selected the required trailer(s) and click the **Move Backwards** button (↓). The selected trailers will be moved down the list of trailers **In Use**. Additional details for a trailer can be entered in the **Details** column. This is particularly useful if the trailer is a generalised trailer and details of a specific trailer (such as the trailer number) are required for this order. Trailers can be included multiple times in the list of trailers for the order. This can be done by adding them as individual entries, or by changing the number of times they are included consecutively by changing the number in the Count column
Compartment Details	–	If a Compartment Order is specified, the individual Compartment details must be provided.

For a **Compartment Order** the **Product** and **Quantity** must also be specified for each Compartment that is to be loaded.
For a **Pre-Order** the **Product** and **Quantity** must be specified for each order line.
For an **Open Order** the **Product** must be specified for each order line.

When all fields have been entered, click **OK** to save the order.

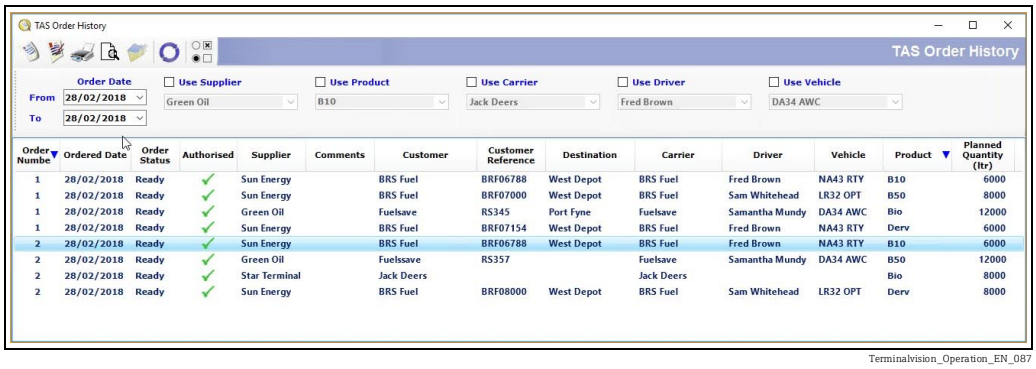
The order will be available for use once it has been authorised, and, if made **Date Dependent**, once the date criteria are met. To see the status of any configured orders you can use the order history screen discussed in the following section.
The order details may be printed or previewed via the tool bar options.
Repeat the above process for further orders.

The order number has to be unique.

The order has to be Authorised before it can be used.

5.4 Order History

All orders entered into the system are saved to the orders database. The status of an order can be viewed through the order history screen.
Select the **TAS** → **Order History** menu option. The window shown in figure below will appear.



Terminalvision_Operation_EN_087

By default a full list of all the orders will be displayed. The list can be filtered by various criteria described as follows:

Field	Task
Date From and Date To	Enter the start and end date. Only the orders between and including these dates will be displayed.
Supplier	Tick the **Use Supplier** box and enter a Supplier from the drop down list. Only the orders from the selected Supplier will be displayed.
Product	Tick the **Use Product** box and enter a Product from the drop down list. Only the orders for the selected Product will be displayed.
Carrier	Tick the **Use Carrier** box and enter a Carrier from the drop down list. Only the orders for the selected Carrier will be displayed.
Driver	Tick the **Use Driver** box and enter a Driver from the drop down list. Only the orders for the selected Driver will be displayed.
Vehicle	Tick the **Use Vehicle** box and enter a Vehicle from the drop down list. Only the orders for the selected Vehicle will be displayed.
Trailer	Tick the **Use Trailer** box and enter a Trailer from the drop down list. Only the orders for the selected Trailer will be displayed.

Quick access to other features is also provided through the tool bar described as follows:

Field	Task
New Order	Click to create a **New Order**. See section above for description on how to create new orders.
Edit Order	Click to **Edit** an existing order. If the order has not commenced most fields may be edited. If the order has commenced nothing may be edited.
Print	Click to **Print** the order details.

Field	Task
Preview	Click to **Preview** the order details
Refresh	Click to force a **Refresh** of the window.
Options	Click to customize which columns are displayed on this window.

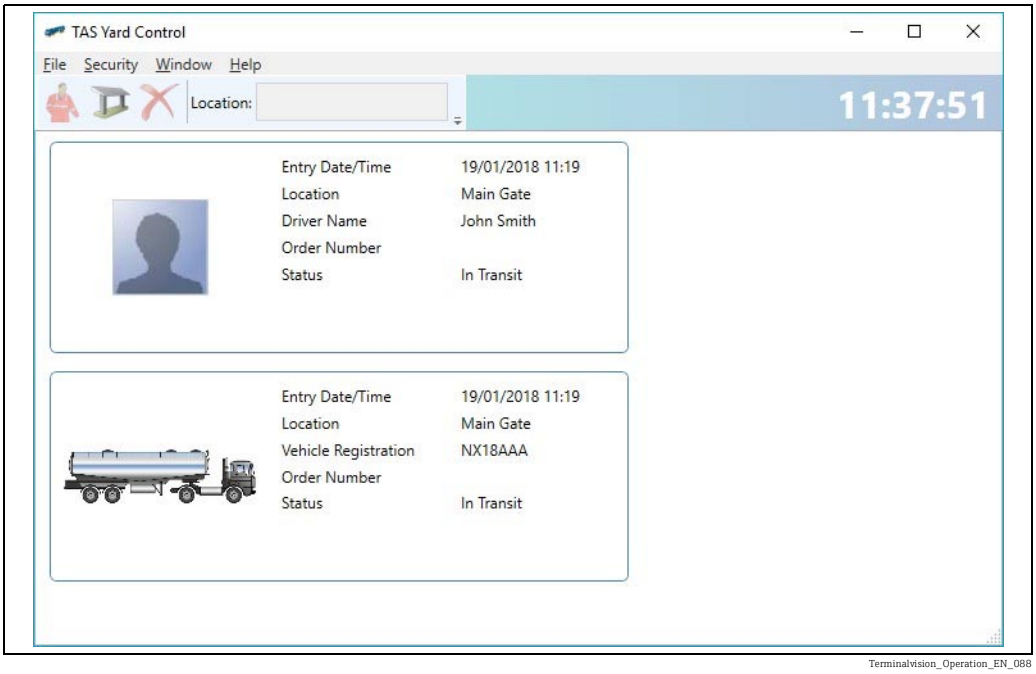
5.4.1 Order Management

For general order management the **Order History** module provides the best features. From one screen it is possible to create, edit and monitor orders.
The data fields are updated automatically by the system.
When a new order is created it automatically appears in the list unless there are any filters applied that do not match the order.

When an order is commenced you will see the status change from Ready to Loading, Started or Completed depending on the status.
- **Loading** means that a vehicle is currently loading product against that order.
- **Started** means that the order has been commenced but there is no vehicle currently loading against that order.
- **Completed** means that the order has been closed as all of the quantities specified have been taken or it has been manually closed by a user.

5.5 Viewing Vehicles/Drivers On Site

The Yard Overview screen should reflect all those drivers and vehicles that are currently on site.
Select the **TAS** → **TAS Yard Control** → **All** menu. The window shown in figure below will be displayed:



Terminalvision_Operation_EN_088

Whenever drivers and vehicles enter or leave a location in the site the **Yard Overview** screen is dynamically updated.
In this window you can see the details of each driver and vehicle on site. In addition you can see the status of each vehicle. It is possible to filter the entries by a specific area of the site by using the **Location** filter on the toolbar.
The amount of information displayed in the **Yard Overview** screen depends on the information provided during the configuration phase. If there is insufficient information

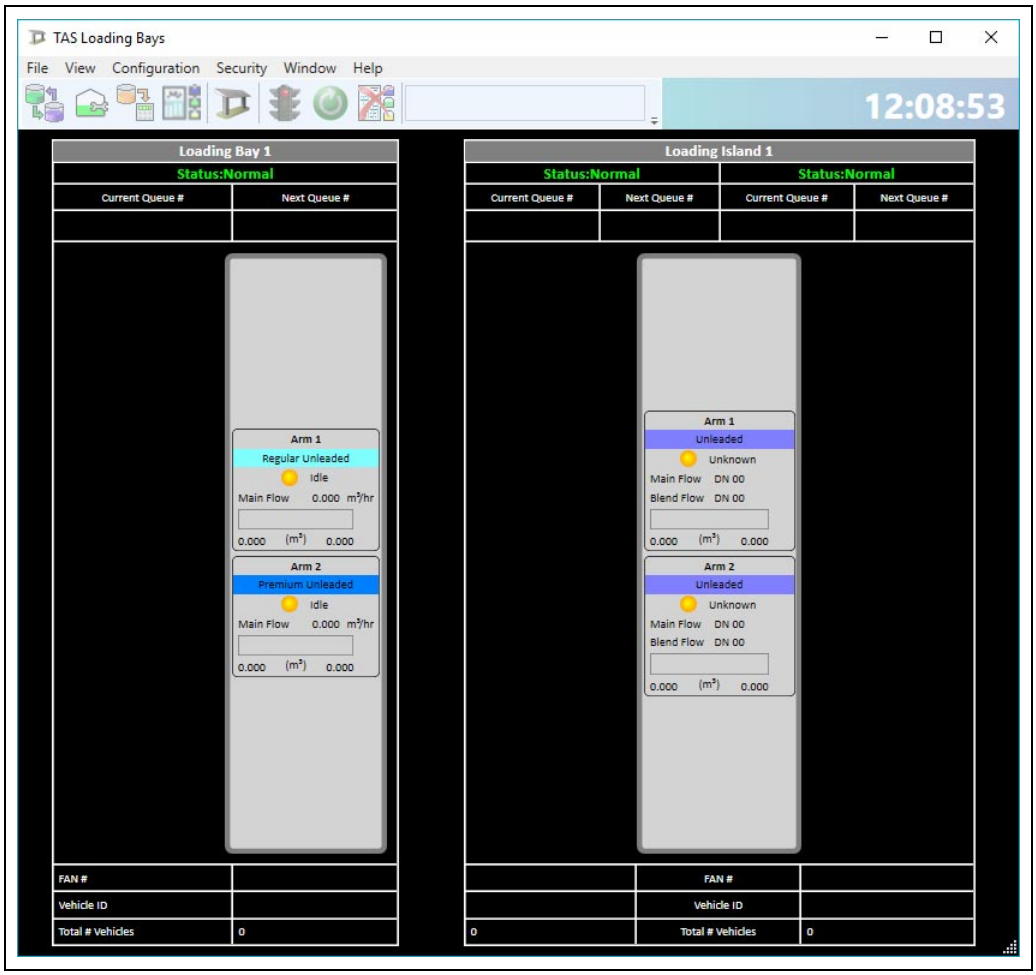
further details can be added by using the edit function of the driver and vehicle data entry screens.

A small toolbar provides buttons for the following:

Button	Description
 Terminalvision_Operation_EN_089	To edit the details of the selected driver.
 Terminalvision_Operation_EN_090	To edit the details of the selected vehicle. Note that this button replaces the edit driver button when a vehicle entry is selected.
 Terminalvision_Operation_EN_091	To view the loading bay details screen. If the selected driver or vehicle is at a loading bay, the details of that loading bay are selected.
 Terminalvision_Operation_EN_092	To manually remove an entry from Yard Control.

5.6 Viewing the Loading Bay/Island Status

Select the **TAS** → **TAS Yard Overview** menu option. The window shown in figure below will be loaded.

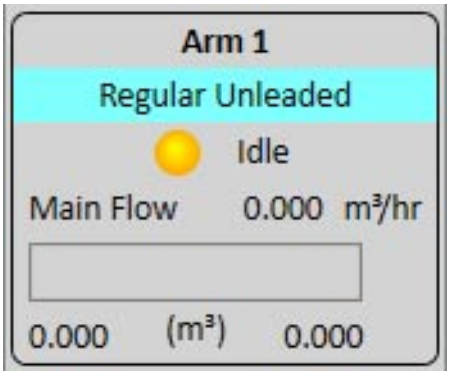


Terminalvision_Operation_EN_093

The example in the figure above shows that there is one loading bay (Loading Bay 1) and one loading island (Loading Island 1) (consisting of both a left loading bay and right loading bay). Both the loading bay and the loading island have two arms. There are no trucks currently loading.

The Loading Bay/Island information displayed is:
- **Loading Bay/Island Name**
- **Current/Next Queue Numbers**: These fields will only have meaningful values if the optional **Queuing Module** is being used.
- **Vehicle/Arm Details**
- **Fill Advisory Number**: This field will only have a meaningful value if Fill Advisories are being used.
- **Vehicle ID**: The registration number of the vehicle present at the loading bay.
- **Total Number of Vehicles**: The total number of vehicles that have been serviced at the loading bay today.

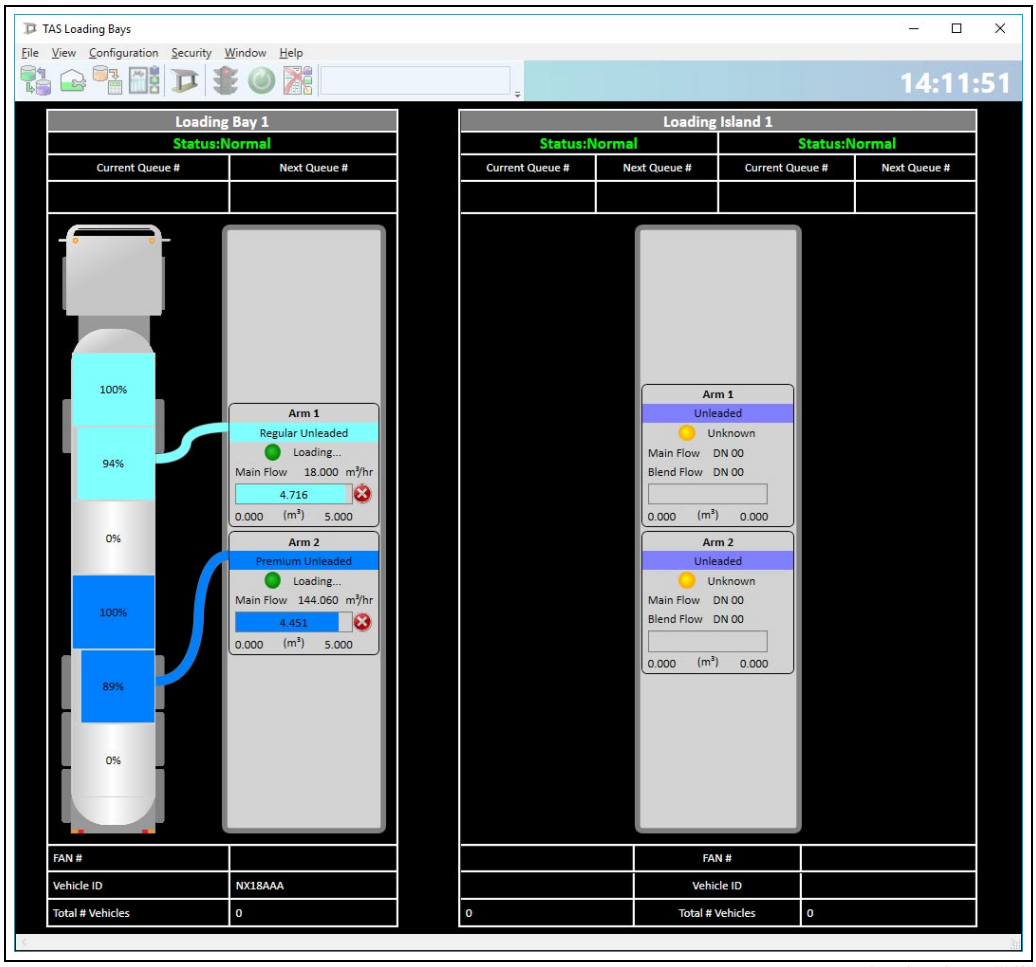
Various information about each arm is displayed in a panel on the loading bay/island.



Terminalvision_Operation_EN_094

The arm information displayed is:
- **Arm Name**
- **Product**: Whilst the arm is idle the product details reflect the product in the tank that the arm is connected to. During loading the product details will reflect the supplier product being dispensed.
- **Permissives Status and Arm Status**
- **Main Flow**
- **Blend Flow**: Only visible for arms where blending is available.
- **Batch Progress/Terminate Batch**: The terminate batch button is only displayed when a batch is in progress.
- **Batch Start Quantity/Units/Preset Quantity**

If there is a truck present on a loading bay the window would look something like the figure below.



Terminalvision_Operation_EN_095

If no Loading Bays or Islands are displayed it is likely that the system has not been completely configured. See the Configuration manual for further instructions.

A small toolbar provides buttons for the following:

Button	Description
 Terminalvision_Operation_EN_096	To change the Tank that an arm is connected to.
 Terminalvision_Operation_EN_097	To edit the Volume Correction data (density etc.) for an arm.
 Terminalvision_Operation_EN_098	To download density/temperature to a loading computer.
 Terminalvision_Operation_EN_099	To upload transactions from a loading bay that is running in standalone mode.
 Terminalvision_Operation_EN_100	To view the detail status of a Loading Bay.

Button	Description
 Terminalvision_Operation_EN_101	To set a loading bay Out of Service.
 Terminalvision_Operation_EN_102	To set a loading bay In Service.
 Terminalvision_Operation_EN_103	To carry out a Manager Reset (reset Alarm etc.).
 Terminalvision_Operation_EN_104	To carry out a Terminate Transaction command.

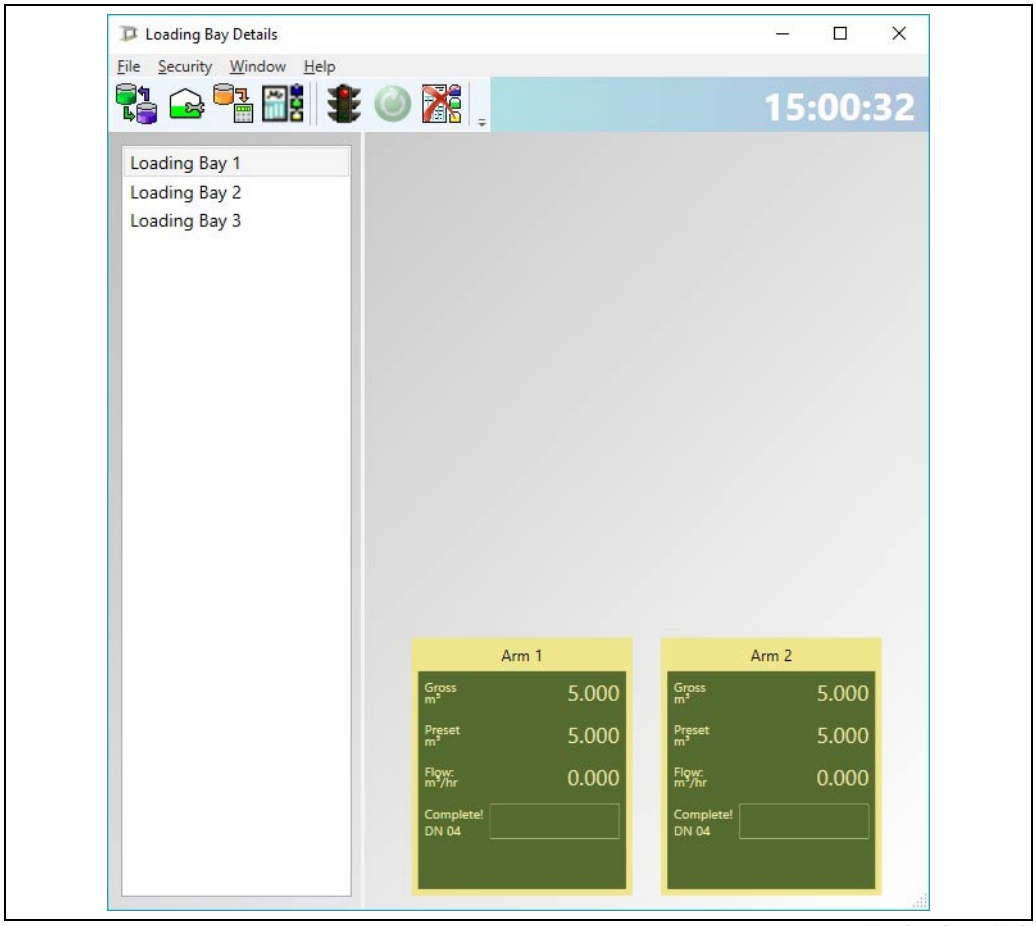
For adding, editing and removing loading bays please refer to the Configuration manual.

It is possible to change the loading bays/islands that are displayed by a number of criteria using the filter on the toolbar:

- **Quick View**
  - **Select Loading Bays**: Allows specific loading bays to be shown.
  - **Show All**: Shows all loading bays/islands.
  - **Hide All**: Hides all loading bays/islands.
- **Static Groups**: Allows a pre-defined group of loading bays/islands to be shown.
- **Product Groups**: Only loading bays/islands which are able to dispense the selected product will be displayed.
- **Dynamic Groups**
  - **Static Loading Bays**: Only loading bays which are not currently loading/receiving will be displayed.
  - **Moving Loading Bays**: Only loading bays which are currently loading/receiving will be displayed.
  - **Loading Loading Bays**: Only loading bays which are currently loading will be displayed.
  - **Receipt Loading Bays**: Only loading bays which are currently receiving will be displayed.
  - **In Service**: Only loading bays which are currently in service will be displayed.
  - **Out of Service**: Only loading bays which are currently out of service will be displayed.

5.6.1 Loading Bay Details

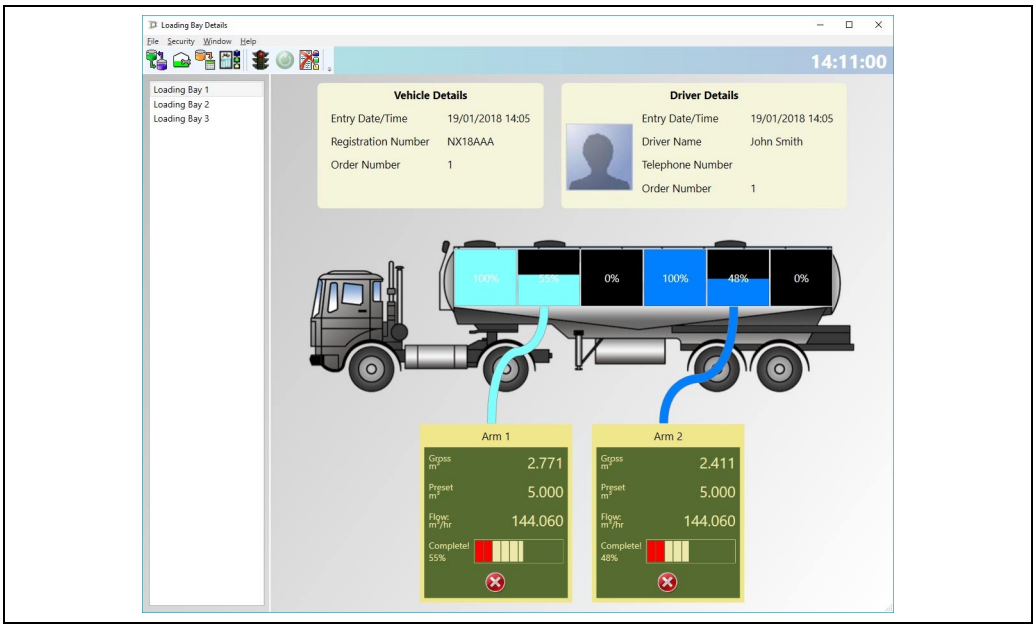
To view the details of a Loading Bay during loading click the **Loading Bay Details** button. The window shown in figure below will be displayed.



Terminalvision_Operation_EN_105

This shows the current status of the loading computers on the Loading Bay. In this case there is no loading taking place.

If there was a truck on the Loading Bay and loading had commenced, the window would look something like the figure below.



Terminalvision_Operation_EN_106

Each of the arms loading product into the vehicle is shown by a connection from the loading computer to the correct compartment on the vehicle.
The vehicle and driver details are also shown.
The data from the loading computer and the filling of the compartment are updated live. The numeric data and the level in the compartment will change as the load progresses.
The amount of information displayed on this screen will depend on the information that is entered on the Loading Bay.
For instance, in order to show the compartments and the connecting pipe, the vehicle must be identified on the loading bay (via PIN, swipe card etc.) and a compartment number selected by the driver.
Also for loading bays that have load computers configured in Standalone mode then no compartments or pipes will be shown.
If the loading bay is configured for a non-truck type (such as pipeline, tank etc.) then an appropriate picture will be displayed instead of a truck.

5.6.2 Terminate Transaction

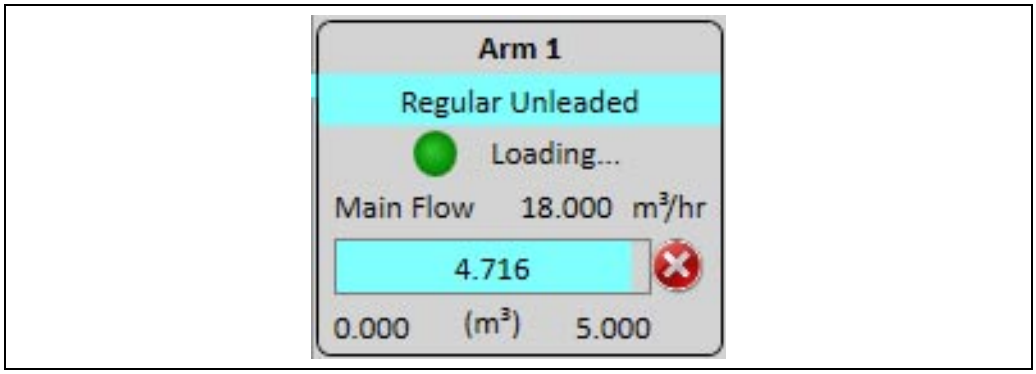
To send a Terminate Transaction to a loading computer, click the **Terminate Transaction** button. A screen will be displayed asking for a confirmation that the command is to be carried out. Click **Yes** to send the command to the loading computer.
The outcome of sending this command depends on the loading computer and its configuration but normally includes the following:

- If loading is occurring on one or more arms they will be stopped but the transaction will not be closed
- If no loading is occurring then the transaction will be closed and the BOL printed (if configured)
- If the option **Terminate Command Sets Manager Reset** is set in the System Settings then a **User Stopped Load** alarm will also be generated and a **Manager Reset** will be required before any loading can occur on the loading bay

For most load computers, this command can be used to abort a transaction if problems occur. For Vega II devices used to monitor pipeline movements, this command must be sent to complete a transaction and reset the totals in the Vega meter.

5.6.3 Stop Batch

When a batch is in operation (i.e. the arm is transferring product) a red dot with an X will be displayed in the Yard Overview and Loading Bay Details screens (see figure below).

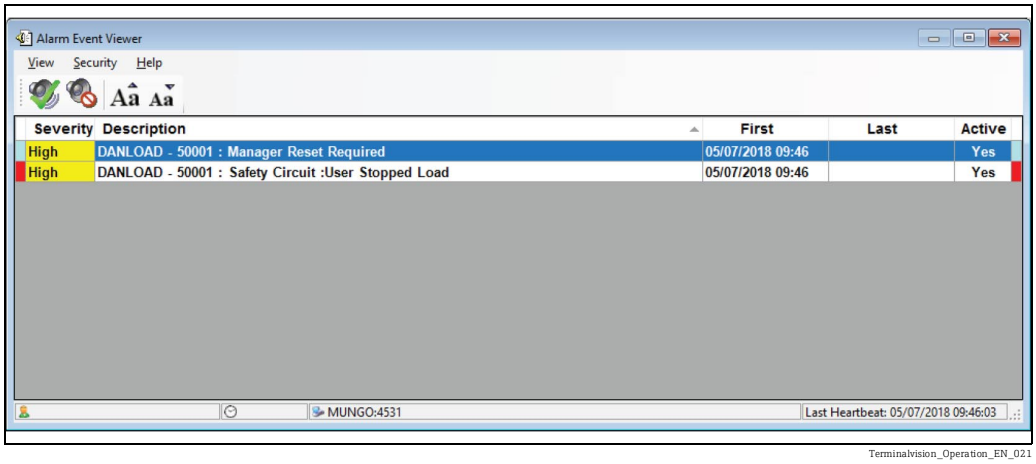


Terminalvision_Operation_EN_107

To send a Stop Transaction to a loading computer, click on this button. A screen will be displayed asking for a confirmation that the command is to be carried out. Click **Yes** to send the command to the loading computer.
The outcome of sending this command depends on the loading computer and its configuration. For most load computers this will result in the batch being stopped and a **User Stopped Load** alarm being generated, which will require a **Manager Reset** before loading can be restarted on that arm.
For Contrec 1010 devices, this command can be used to abort a batch if problems occur.

5.6.4 Manager Reset

If an alarm occurs in a Loading Computer it will be displayed in the **Alarm Event Viewer** (see figure below).

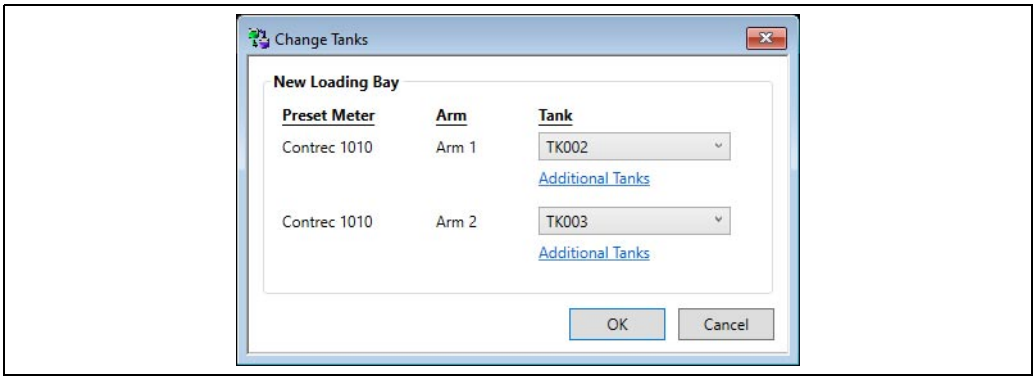


Terminalvision_Operation_EN_021

For most loading computers (Contrec 1010, Vega II, Danload 8000, etc.) a Manager Reset alarm will also be displayed. This indicates that a Manager Reset command has to be sent to the load computer to clear the alarm and allow loading to continue.
To send a Manager Reset to the loading computer click the **Manager Reset** button. A screen will be displayed asking for a confirmation that the reset is to be carried out. Click **Yes** to send the command to the loading computer.

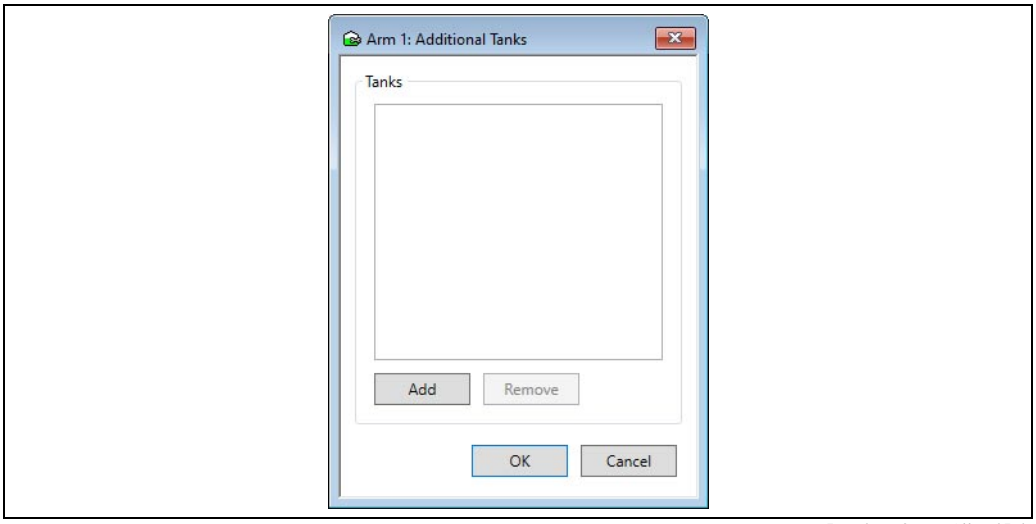
5.6.5 Changing the Tank connected to an Arm

The Tank that a Loading Bay Arm is connected to is normally set when the Loading Bay is configured. However for certain configurations (such as a loading computer on a Pipeline) the tank may be required to be changed regularly.
To carry out a quick change of Tank for an arm, select the **Loading Bay** in the **Loading Bay Overview** screen then click on the **Change Tanks** button. The window shown in figure below will be displayed.



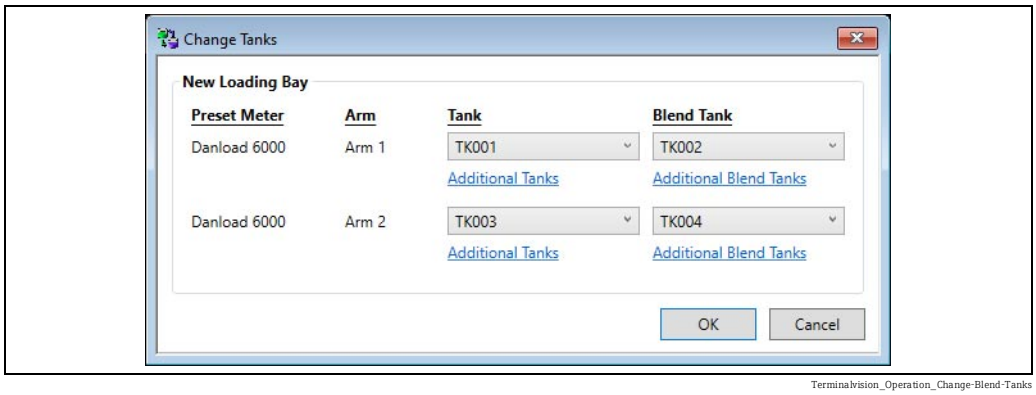
Terminalvision_Operation_Change-Tanks

Select the new tank, then click **OK**.
To change the additional tanks on an arm, click the **Additional Tanks** link for that arm. The additional tanks screen will be displayed:



Terminalvision_Operation_Additional-Tanks

If the loading computer supports the functionality, the Density and other product data will be automatically downloaded to it. Loading computers which support this function include the Contrec 1010 and Vega II devices.
If the load computer(s) on a loading bay support blending, there will be two tanks displayed per arm. The first **Tank** containing the main line product and the **Blend Tank** containing the blend line product as shown in figure below.

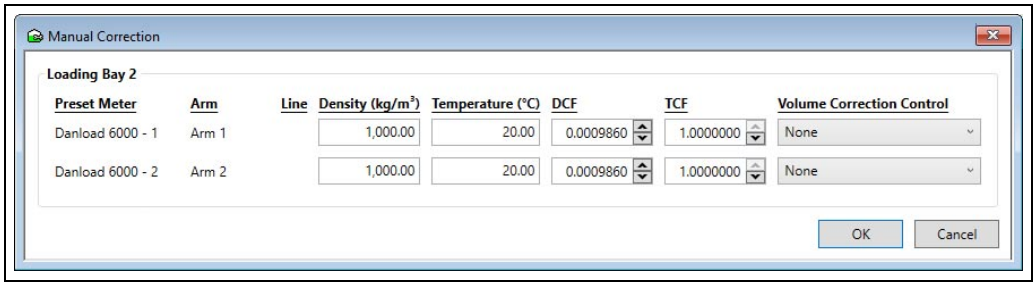


Terminalvision_Operation_Change-Blend-Tanks

If no blending is required for the site, leave the **Blend Tank** field blank.

5.6.6 Editing the Volume Correction data for an Arm

To edit the volume correction parameters for an arm, click on the tool bar option in the **Loading Bay Overview** or **Details** screens.
This screen (figure below) is only available if the loading bay has been configured with the **Manual Correction** field ticked in Loading Bay Config.
That is NOT using the correction parameters from the Tank connected to the arm (for instance if the loading bay is used to receive product from ships).



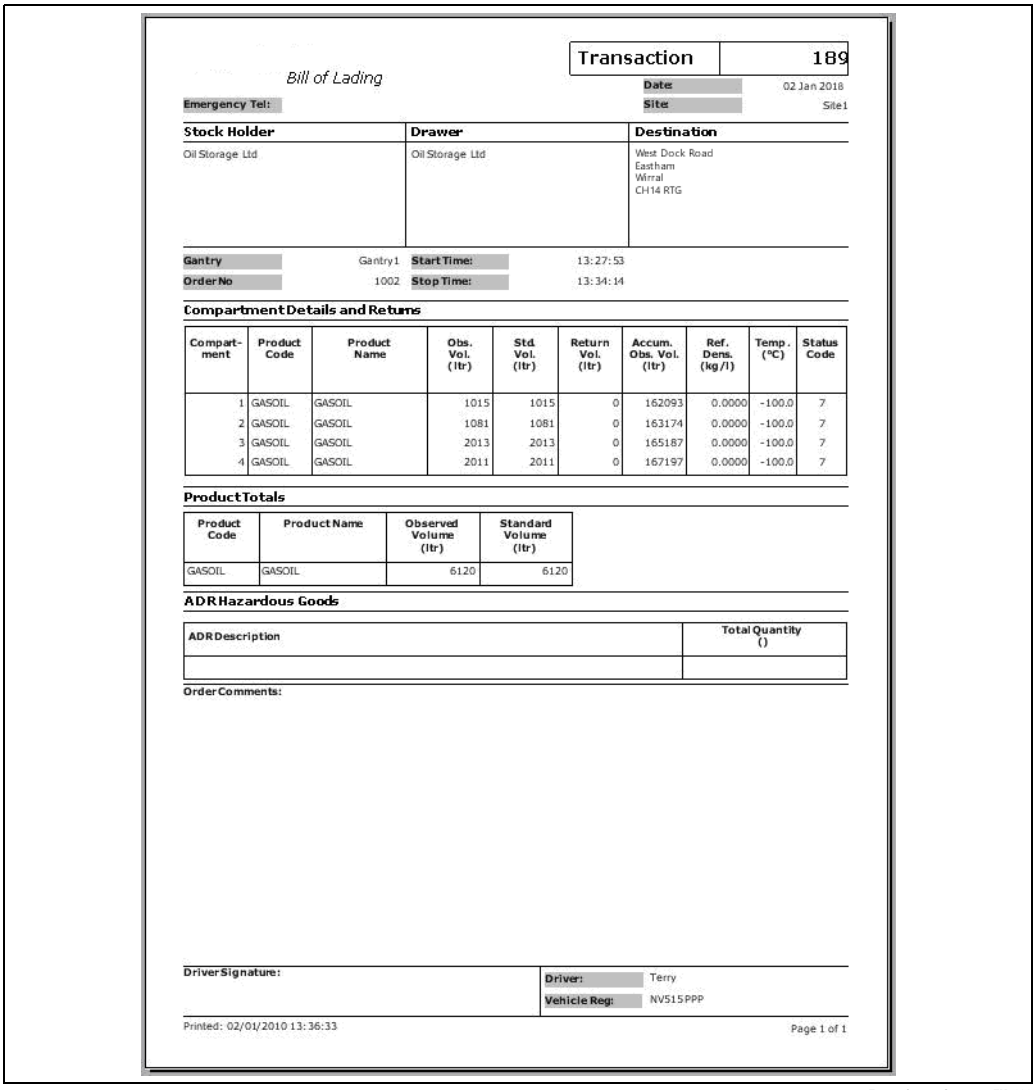
Terminalvision_Operation_EN_110

This screen (see figure above) allows parameters to be entered, such as:
- **Volume Correction Method** (API table)
- **Density**
- **Temperature**

These parameters are separate from those stored for the tank connected to the arm.

5.6.7 Printing a BOL

The Bill of Lading, referred to as a BOL, is often customised to specific site requirements. The default BOL is pictured in figure below.



Bill of Lading

Transaction	189
Date:	02 Jan 2018
Site:	Site1

Emergency Tel:

Stock Holder	Drawer	Destination
Oil Storage Ltd	Oil Storage Ltd	West Dock Road Eastham Wirral CH14 RTG

Gantry	Gantry1	Start Time:	13:27:53
Order No	1002	Stop Time:	13:34:14

Compartment Details and Returns

Compart-ment	Product Code	Product Name	Obs. Vol. (ltr)	Std. Vol. (ltr)	Return Vol. (ltr)	Accum. Obs. Vol. (ltr)	Ref. Dens. (kg/l)	Temp. (°C)	Status Code
1	GASOIL	GASOIL	1015	1015	0	162093	0.0000	-100.0	7
2	GASOIL	GASOIL	1081	1081	0	163174	0.0000	-100.0	7
3	GASOIL	GASOIL	2013	2013	0	165187	0.0000	-100.0	7
4	GASOIL	GASOIL	2011	2011	0	167197	0.0000	-100.0	7

Product Totals

Product Code	Product Name	Observed Volume (ltr)	Standard Volume (ltr)
GASOIL	GASOIL	6120	6120

ADR Hazardous Goods

ADR Description	Total Quantity ()

Order Comments:

Driver Signature:

Driver:	Terry
Vehicle Reg:	NV515PPP

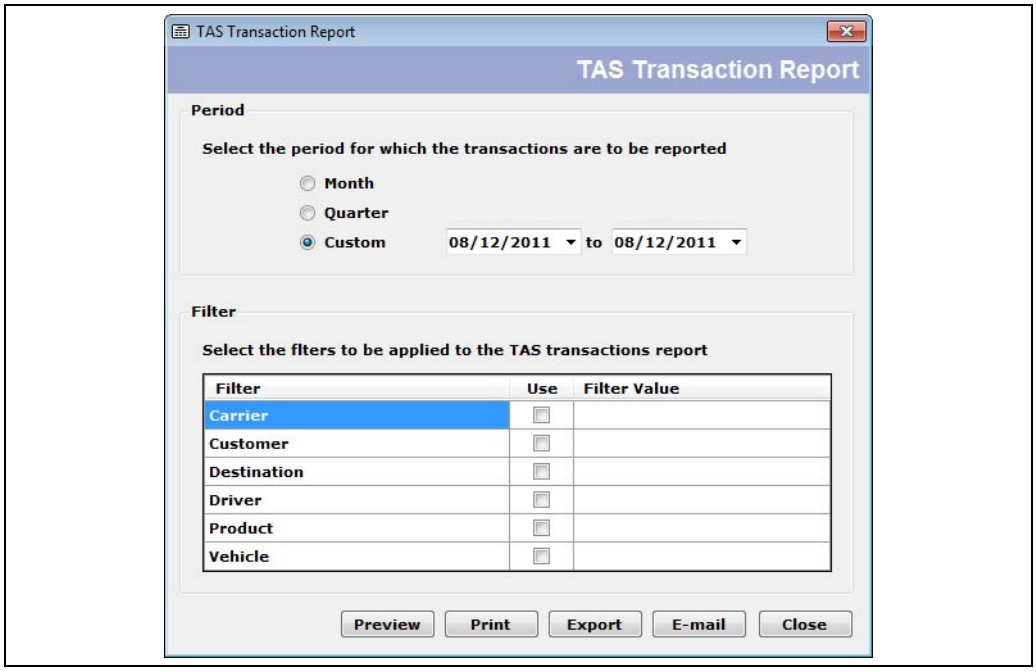
Printed: 02/01/2010 13:36:33 Page 1 of 1

Terminalvision_Operation_EN_111

The BOL can be configured to be printed automatically by the system whenever a driver completes a load. The BOL will be printed to the default printer set during the configuration of the system.
See the **Admin → System Settings** menu option for further details and which printers will be used to print the BOL.
In addition the BOLs can be printed on demand to the system default printer using the **TAS → TAS Transactions** menu options (→ 📄 36).

5.7 Transaction Reports

This feature allows the user to create a number of different reports by specifying different filter criteria for the report.
Select the **TAS** → **TAS Transaction Report** menu option. The window shown in figure below will be displayed.



Terminalvision_Operation_EN_030

Reports can be filtered by the following criteria:
- **Carrier**
- **Customer**
- **Destination**
- **Driver**
- **Product**
- **Vehicle**

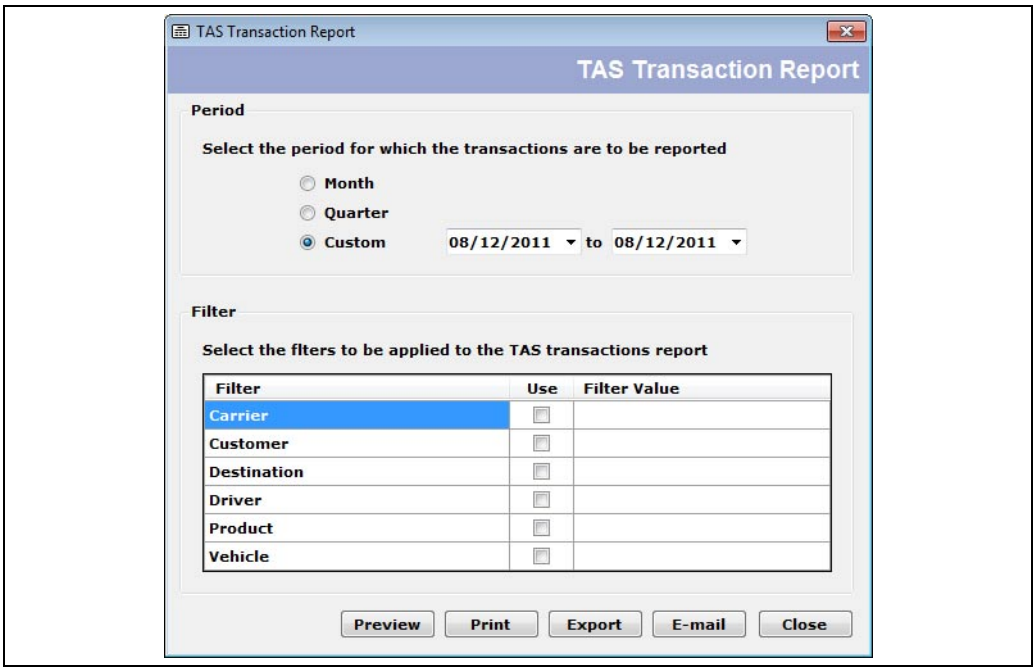
In addition the reports can be time bound either by **Month**, **Quarter**, or by a **Custom** start and end date.

5.7.1 Displaying all Transactions for a Specific Driver in the Current Month

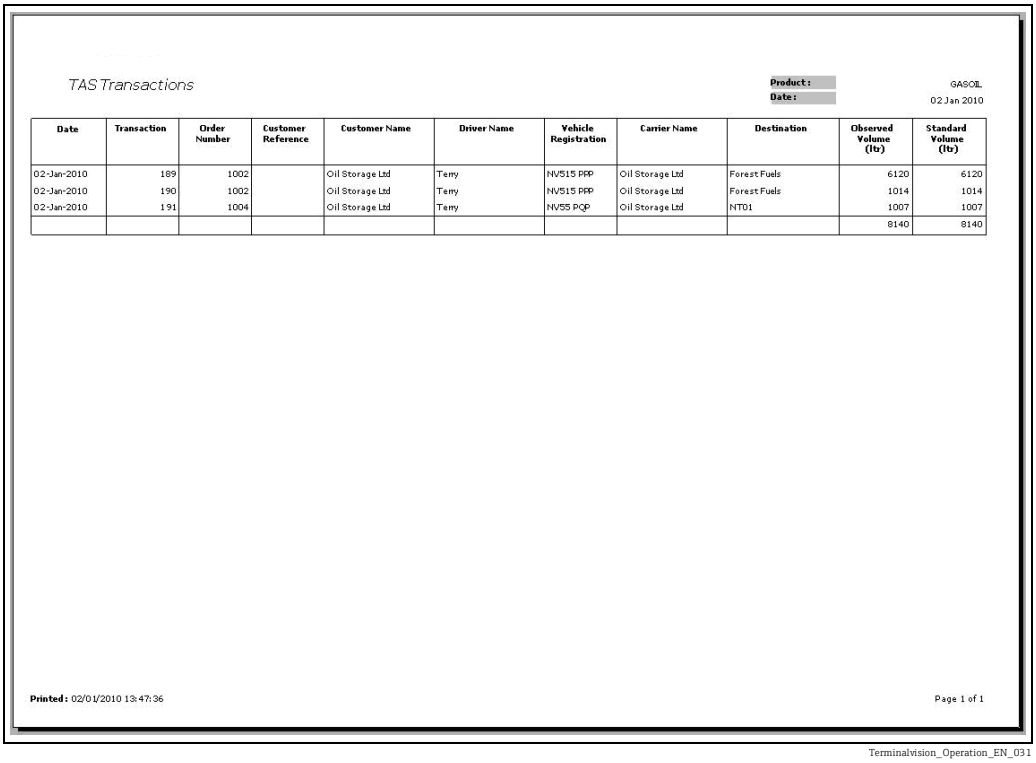
Select the Month for the period and choose a month from the drop down list.
Tick the **Use** box adjacent to the Driver filter and in the Filter Value field start to type the name of the driver. A selection of available matches will appear. Select the correct one from the drop down list or continue typing to refine the search. Alternatively click twice in the **Filter Value** field for a drop down list of all available drivers.

Click the **Preview** button to preview the report.
Click the **Print** button to print the report.
Click the **Export** button to export the data to an external file.
Click **Close** to close the window.

See figure below for an example of the report.



Terminalvision_Operation_EN_030



TAS Transactions

Product: GASOIL
Date: 02 Jan 2010

Date	Transaction	Order Number	Customer Reference	Customer Name	Driver Name	Vehicle Registration	Carrier Name	Destination	Observed Volume (ltr)	Standard Volume (ltr)
02-Jan-2010	189	1002		Oil Storage Ltd	Terry	NV515 PPP	Oil Storage Ltd	Forest Fuels	6120	6120
02-Jan-2010	190	1002		Oil Storage Ltd	Terry	NV515 PPP	Oil Storage Ltd	Forest Fuels	1014	1014
02-Jan-2010	191	1004		Oil Storage Ltd	Terry	NV55 PQP	Oil Storage Ltd	NT01	1007	1007
									8140	8140

Printed: 02/01/2010 13:47:36

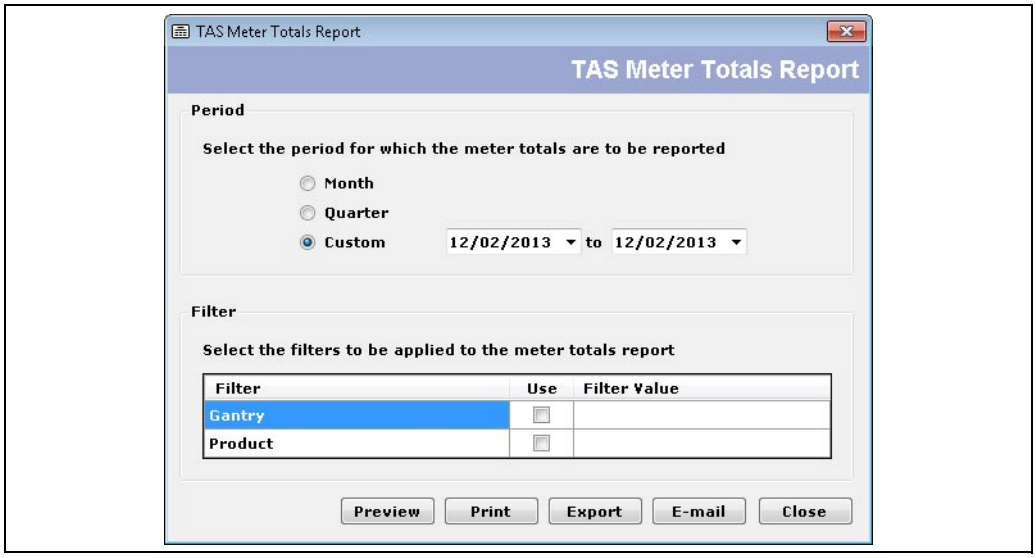
Page 1 of 1

Terminalvision_Operation_EN_031

Other reports can be printed by simply modifying the filter criteria.
Furthermore the data for a specific report can be exported to a file by clicking the **Export** button. The data could be loaded into a spreadsheet for analysis.

5.8 TAS Meter Totals Report

Load Computer Meter Totals are recorded following each transaction. A report can be generated to display these totals.
The Terminalvision system cannot know the meter total for a load computer arm until the first time a batch is run for that arm. Consequently since the meter totals are recorded following a transaction, only subsequent batches can be included in a report.
To generate a report select the **TAS → TAS Meter Totals Report** menu option. The window shown in figure below will be displayed.



Terminalvision_Operation_EN_032

Reports can be filtered by the following criteria:
- Loading Bay
- Product

In addition the reports can be time bound either by **Month**, **Quarter**, or by a **Custom** start and end date.

5.9 Site and Product Performance

Two monthly reports are provided to allow site management obtain data regarding the performance of loading operations at site.

5.9.1 Site Performance Report

The site performance report shows statistics of loading operations that have occurred on each day in the month. See figure below.

Site Performance

Date: 01 January 2018

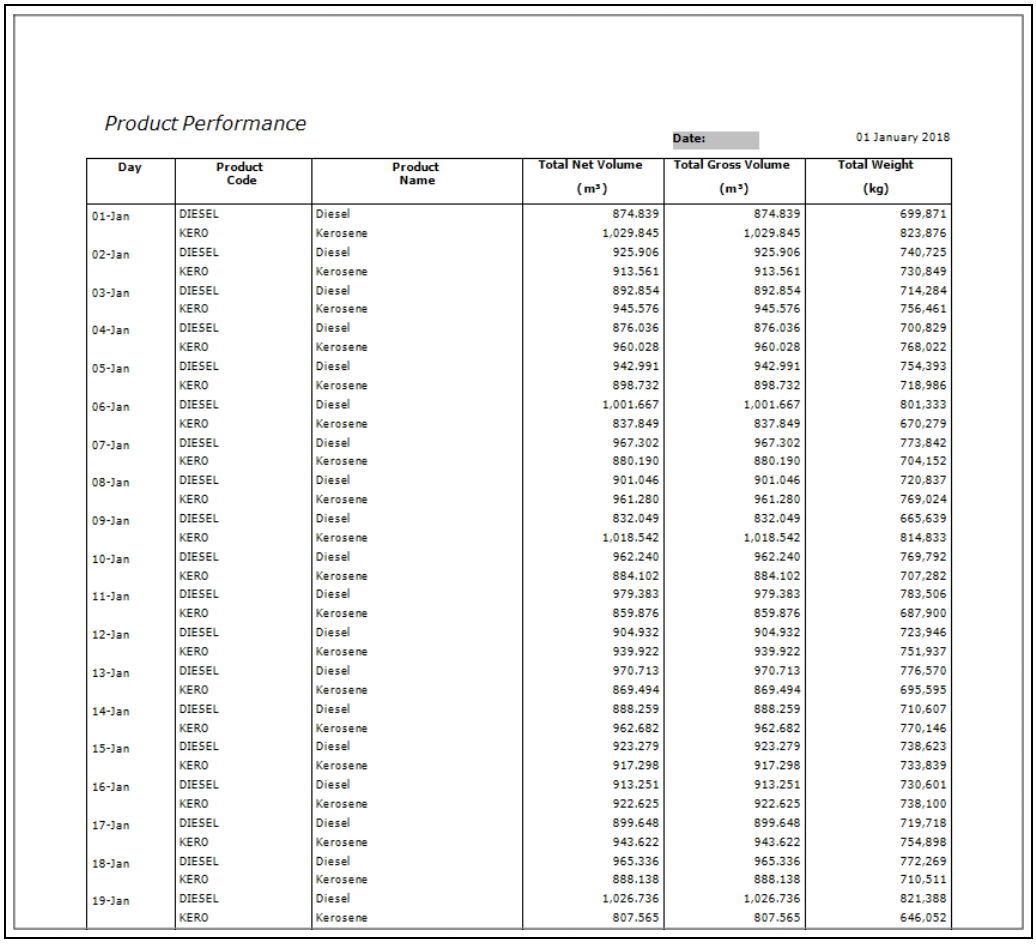
Day	Transactions	Loads	Net Total (m³)	Gross Total (m³)	Weight Total (kg)
01-Jan	103	16	1904.683	1904.683	1523747
02-Jan	100	16	1839.467	1839.467	1471574
03-Jan	100	16	1838.430	1838.430	1470744
04-Jan	100	15	1836.064	1836.064	1468851
05-Jan	100	16	1841.724	1841.724	1473379
06-Jan	100	16	1839.515	1839.515	1471612
07-Jan	100	16	1847.492	1847.492	1477994
08-Jan	100	16	1862.327	1862.327	1489861
09-Jan	100	16	1850.591	1850.591	1480473
10-Jan	100	16	1846.343	1846.343	1477074
11-Jan	100	16	1839.258	1839.258	1471406
12-Jan	100	16	1844.854	1844.854	1475883
13-Jan	100	16	1840.206	1840.206	1472165
14-Jan	100	16	1850.941	1850.941	1480753
15-Jan	100	16	1840.578	1840.578	1472462
16-Jan	100	16	1835.875	1835.875	1468700
17-Jan	100	16	1843.270	1843.270	1474616
18-Jan	100	16	1853.474	1853.474	1482779
19-Jan	100	16	1834.301	1834.301	1467441
20-Jan	100	16	1855.133	1855.133	1484107
21-Jan	100	16	1839.272	1839.272	1471417
22-Jan	100	16	1838.421	1838.421	1470737
23-Jan	100	16	1838.632	1838.632	1470905
24-Jan	100	16	1837.299	1837.299	1469839
25-Jan	100	16	1832.715	1832.715	1466172
26-Jan	100	16	1844.784	1844.784	1475827
27-Jan	100	16	1840.655	1840.655	1472524
28-Jan	100	16	1843.138	1843.138	1474510
29-Jan	100	16	1852.751	1852.751	1482200
30-Jan	100	16	1838.394	1838.394	1470715
31-Jan	100	16	1833.024	1833.024	1466420

Terminalvision_Operation_EN_112

Field	Description
Transactions	A raw count of the transactions that have occurred on a particular day. Note that a single vehicle loading may produce a number of transactions, for example if more than one order is being loaded.
Loads	Groups together transactions that occur at the same loading bay, with the same driver and vehicle, and on the same am or pm, then counts the number of these groups.
Net Total	The total net volume of products dispensed through the loading bays on that day.
Gross Total	The total gross volume of products dispensed through the loading bays on that day.
Weight Total	The total weight of products dispensed through the loading bays on that day.

5.9.2 Product Performance Report

To see a break down of the products loaded each day through all the loading bays at the site in a particular month use the **Product Performance Report** figure below.



Product Performance

Date: 01 January 2018

Day	Product Code	Product Name	Total Net Volume (m^3)	Total Gross Volume (m^3)	Total Weight (kg)
01-Jan	DIESEL	Diesel	874.839	874.839	699,871
	KERO	Kerosene	1,029.845	1,029.845	823,876
02-Jan	DIESEL	Diesel	925.906	925.906	740,725
	KERO	Kerosene	913.561	913.561	730,849
03-Jan	DIESEL	Diesel	892.854	892.854	714,284
	KERO	Kerosene	945.576	945.576	756,461
04-Jan	DIESEL	Diesel	876.036	876.036	700,829
	KERO	Kerosene	960.028	960.028	768,022
05-Jan	DIESEL	Diesel	942.991	942.991	754,393
	KERO	Kerosene	898.732	898.732	718,986
06-Jan	DIESEL	Diesel	1,001.667	1,001.667	801,333
	KERO	Kerosene	837.849	837.849	670,279
07-Jan	DIESEL	Diesel	967.302	967.302	773,842
	KERO	Kerosene	880.190	880.190	704,152
08-Jan	DIESEL	Diesel	901.046	901.046	720,837
	KERO	Kerosene	961.280	961.280	769,024
09-Jan	DIESEL	Diesel	832.049	832.049	665,639
	KERO	Kerosene	1,018.542	1,018.542	814,833
10-Jan	DIESEL	Diesel	962.240	962.240	769,792
	KERO	Kerosene	884.102	884.102	707,282
11-Jan	DIESEL	Diesel	979.383	979.383	783,506
	KERO	Kerosene	859.876	859.876	687,900
12-Jan	DIESEL	Diesel	904.932	904.932	723,946
	KERO	Kerosene	939.922	939.922	751,937
13-Jan	DIESEL	Diesel	970.713	970.713	776,570
	KERO	Kerosene	869.494	869.494	695,595
14-Jan	DIESEL	Diesel	888.259	888.259	710,607
	KERO	Kerosene	962.682	962.682	770,146
15-Jan	DIESEL	Diesel	923.279	923.279	738,623
	KERO	Kerosene	917.298	917.298	733,839
16-Jan	DIESEL	Diesel	913.251	913.251	730,601
	KERO	Kerosene	922.625	922.625	738,100
17-Jan	DIESEL	Diesel	899.648	899.648	719,718
	KERO	Kerosene	943.622	943.622	754,898
18-Jan	DIESEL	Diesel	965.336	965.336	772,269
	KERO	Kerosene	888.138	888.138	710,511
19-Jan	DIESEL	Diesel	1,026.736	1,026.736	821,388
	KERO	Kerosene	807.565	807.565	646,052

Terminalvision_Operation_EN_113

Field	Description
Total Net Volume	The total net volume of a particular product dispensed through the loading bays on that day.
Total Gross Volume	The total gross volume of a particular product dispensed through the loading bays that day.
Total Weight	The total amount of a product dispensed through all bays on a particular day, expressed as a weight.

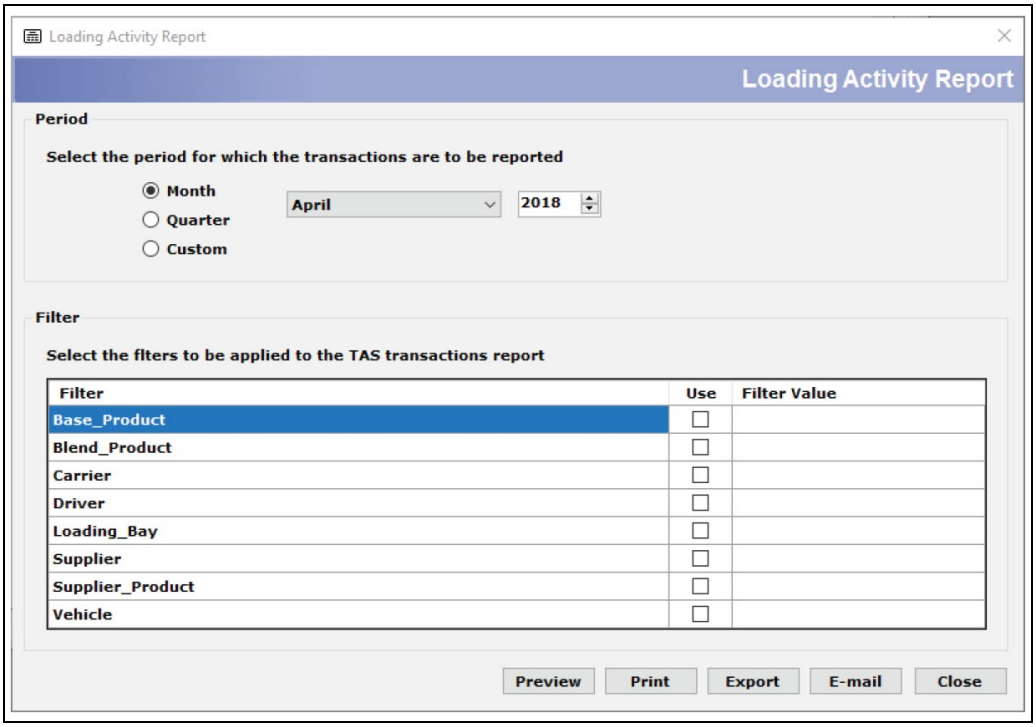
Loading Activity Report filter options

- **Base Product**
  Limits the report to showing batches that comprise a specific base product in the blend
- **Blend Product**
  Limits the report to showing batches that include a specific blend product in their recipe
- **Carrier**
  Shows transactions in which a specific carrier was involved
- **Driver**
  Shows a particular driver's transactions
- **Loading Bay**
  Shows transactions at a particular loading bay

- **Supplier**
  Shows transactions made for a specific supplier
- **Supplier Product**
  Shows batches in transactions filtered by the delivered product
- **Vehicle**
  Shows transactions where a particular vehicle was used

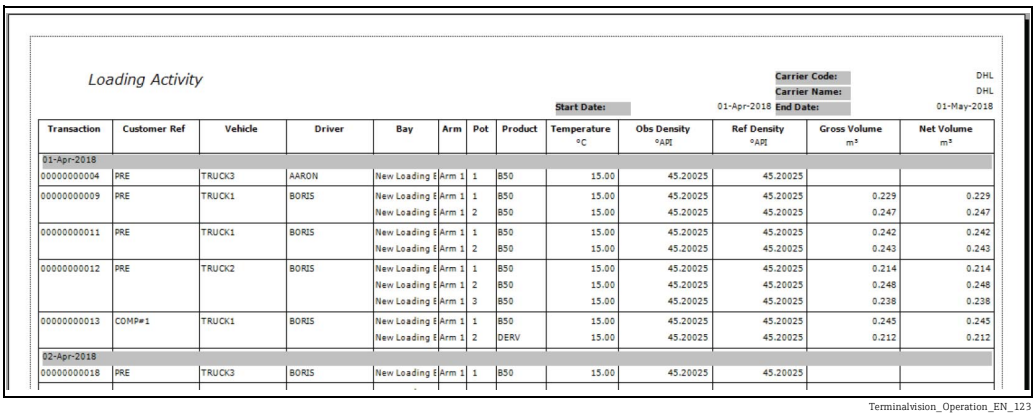
5.10 Loading Activity Report

This report shows the activities that occurred at the loading bays grouped by Carrier and Date. There are a range of filter options provided for the user, which are shown in the list Loading Activity Report filter options in addition to the options to select the time period for the report.



Terminalvision_Operation_EN_122

The report yielded from the filter is shown in the figure below, the field descriptions are in the respective list.



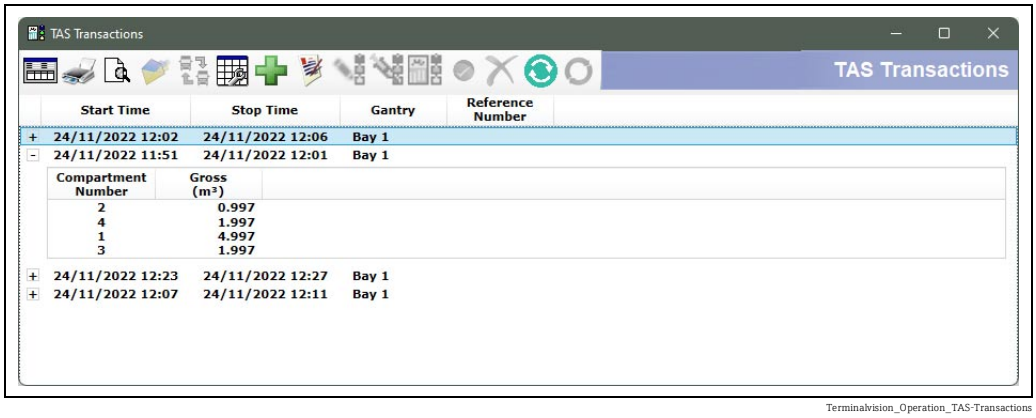
Terminalvision_Operation_EN_123

Field descriptions for loading activity report

- **Transaction**
  Unique identifier of the TAS transaction
- **Customer Ref**
  The customer order number associated with the transaction
- **Vehicle**
  Registration number of the vehicle used for the transaction
- **Driver**
  Name of the vehicle's driver
- **Bay**
  The loading bay at which the transaction occurred
- **Arm**
  The arm used for the batch
- **Pot**
  The number of the compartment the batch was loaded into
- **Product**
  The [Supplier] product dispensed through the arm
- **Temperature**
  Temperature recorded by loading meter
- **Obs Density**
  The density of the product observed/measured by the loading meter
- **Ref Density**
  The calculated density of the product at standard temperature and pressure
- **Gross Volume**
  The volume of product dispensed through the loading meter
- **Net Volume**
  The corrected volume of product dispensed at reference conditions

5.11 Viewing Loading Transactions

A full historical log of all transactions is maintained by the system. These transactions can be viewed using the system.
In addition BOLs can be re-printed for any transaction in the system.
All current active (not Committed) transactions and those that completed in the last three hours can be viewed from the **TAS → TAS Transactions** menu option. The window shown in figure below will be displayed.



Terminalvision_Operation_TAS-Transactions

Current transactions older than 30 days will be cleared from the **TAS Transactions** screen but can still be viewed from the **TAS Transaction History** screen.

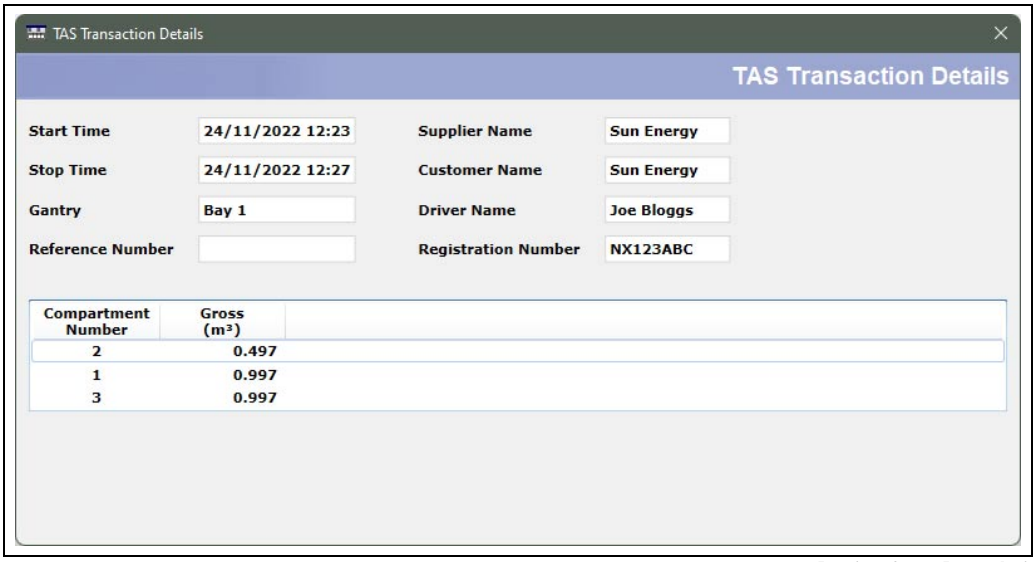
By default, the screen shows the following columns:
- **Start Time**
- **Stop Time**
- **Gantry**
- **Reference Number**

The details of transaction can also be expanded by clicking the '**+**' marker. This will show the compartment details for the transaction as shown in figure above.

By default, the screen shows the following compartment columns:
- **Compartment Number**
- **Gross Volume**

5.11.1 Transaction Details

To view details for a specific transaction, select it from the list of transactions and click the **Transaction Details** button . The following screen will be displayed:



Terminalvision_Operation_Transaction-Details

5.11.2 Print BOL

To print or reprint the BOL for a specific transaction, select it from the list of transactions and click the **Print** button .

5.11.3 Preview BOL

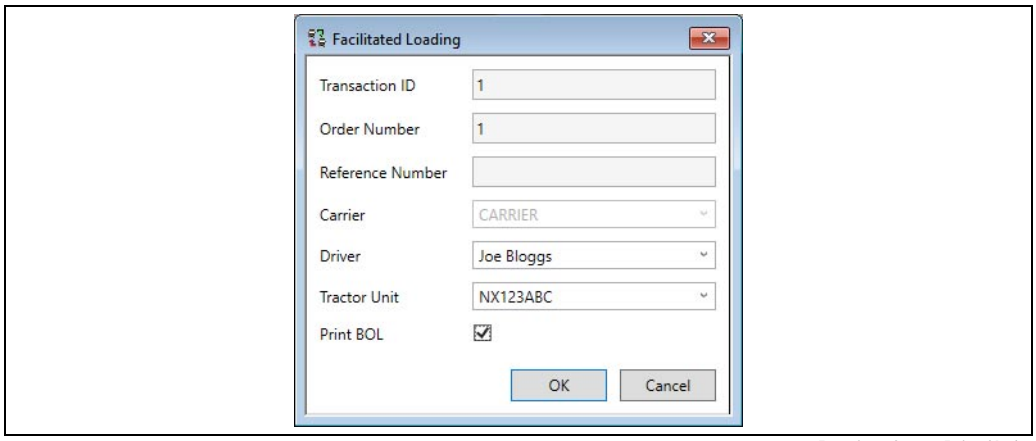
To preview the BOL report for a specific transaction, select it from the list of transactions and click the **Print Preview** button .

5.11.4 EMail BOL

To email the BOL report for a specific transaction, select it from the list of transactions and click the **Email** button .

5.11.5 Facilitated Loading

To amend the driver/vehicle on a specific transaction, select it from the list of transactions and click the **Facilitated Loading** button . The following screen will be displayed:



Terminalvision_Operation_Facilitated-Loading

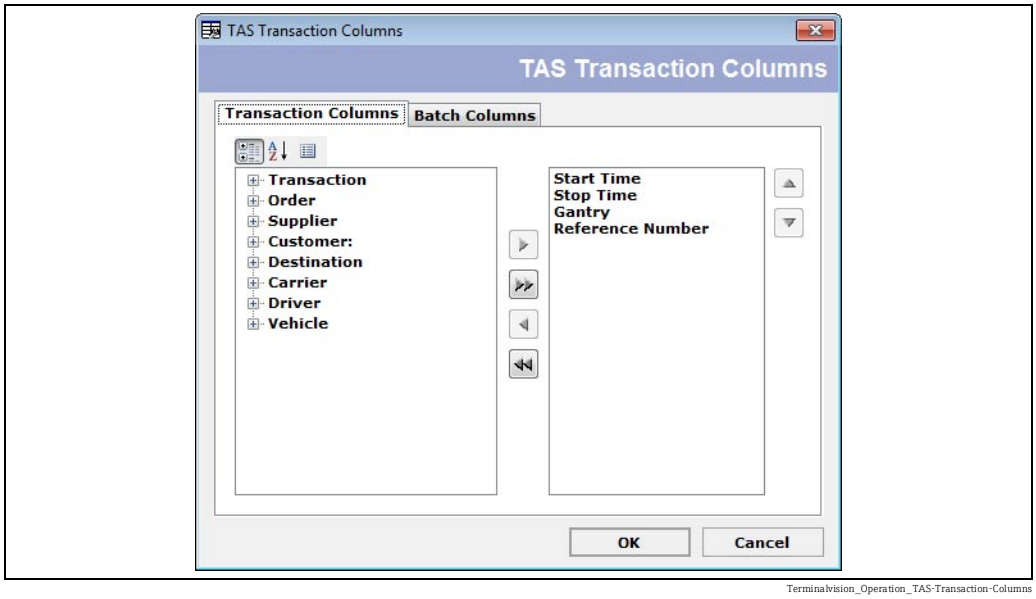
Facilitated loading is only available for transactions which originally had a site driver and/ or site tractor unit.

The following fields are displayed:

- **Transaction ID**
  Displays the ID of the transaction.
- **Order Number**
  Displays the order number for the transaction.
- **Reference Number**
  Displays the customer reference number of the order for the transaction.
- **Carrier**
  Displays the carrier for the order for the transaction.
- **Driver**
  Select the new driver for the transaction.
- **Tractor Unit**
  Select the new tractor unit for the transaction.
- **Print BOL**
  Indicates whether the BOL is to be printed when the changes to the transaction are saved.

5.11.6 Configure Columns

To changes the columns which are displayed for transactions and/or compartments, click the **Configure Columns** button on the toolbar. The window shown below will be displayed:



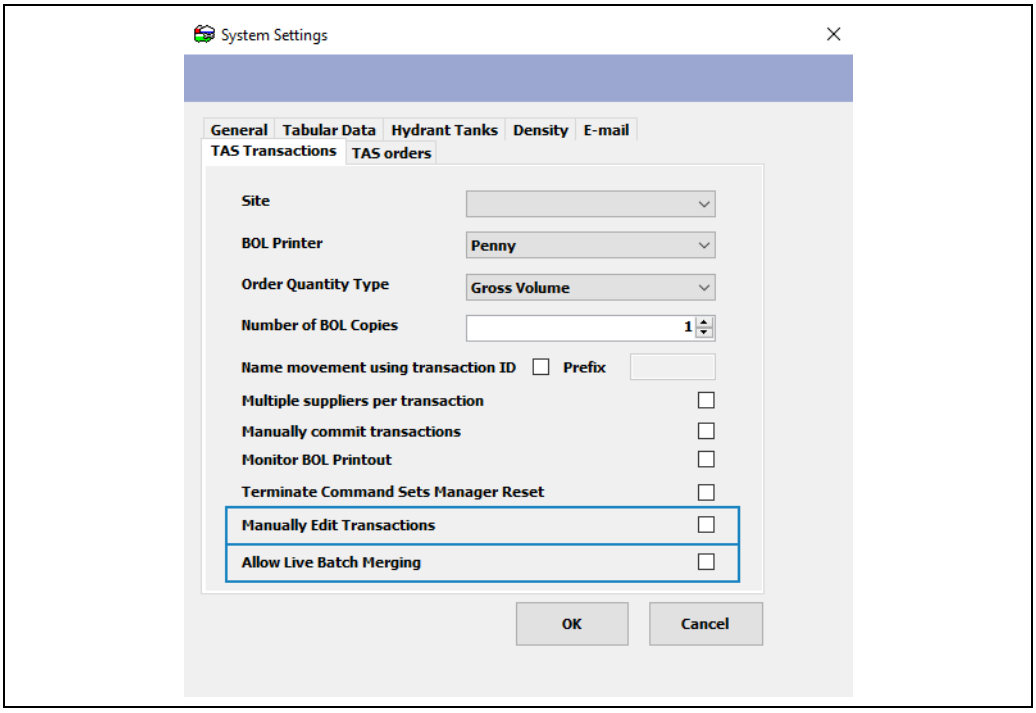
Terminalvision_Operation_TAS-Transaction-Columns

There are two tabs: **Transaction Columns** used for selecting data relating to the overall transactions, and **Batch Columns** used to select data relating to the individual batches within a transaction.

In this example the **Transaction Columns** tab is selected.
The items in the left hand list represent those that are not currently displayed.
The items in the right hand list represent those that are currently displayed.
Items can be transferred from one list to the other using the buttons provided in order to build a list of data that you would like to see on the **TAS Transactions** screen.
The same is possible in the **Batch Columns** tab.

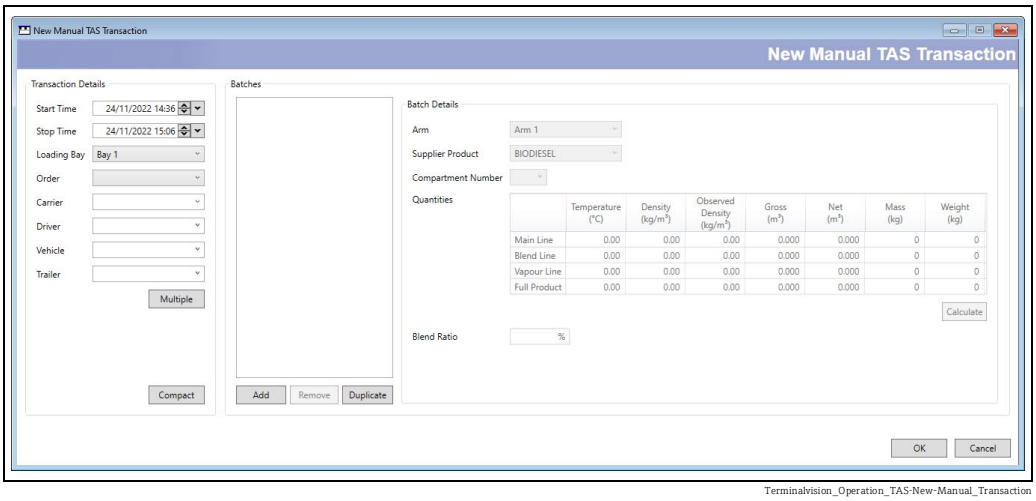
5.11.7 Add Manual Transaction

Manual transactions can only be created if the **Manually Edit Transactions** option is ticked in the system settings:



Terminalvision_Operation_TAS-System-Settings

To create a manual transaction, click the **Add Manual Transaction** button  .
The manual transaction screen will now open:

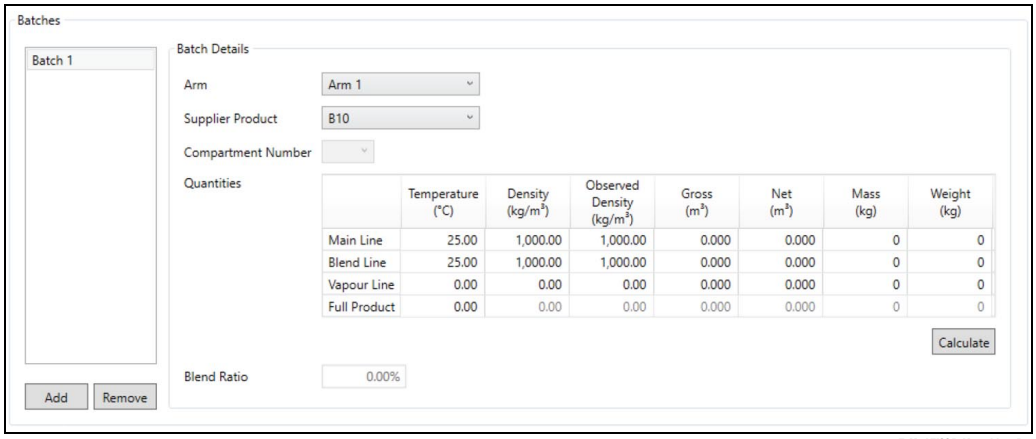


Terminalvision_Operation_TAS-New-Manual_Transaction

The following fields can be configured for the transaction:

- **Start Time**
  The date and time that the transaction started.
- **Stop Time**
  The date and time that the transaction completed.
- **Loading Bay**
  The loading bay at which the transaction took place.
- **Order**
  The order for the transaction. This is used to pick up order details, but does not amend the order in any way.
- **Carrier**
  The carrier for the transaction. This is not stored, it is simply used to filter the driver and vehicle lists to a manageable size where there are large numbers of drivers and/or vehicles configured in the system.
- **Driver**
  The driver for the transaction.
- **Vehicle**
  The vehicle for the transaction.
- **Trailer**
  The trailer for the transaction. For details of how to add multiple trailers → 17.

Batches can then be added to the transaction by clicking the **Add** button in the **Batches** section. This will cause a new, blank batch to be added → 40.



TeVi_NXS85_New_Man_Bat

Once a batch has been added to the transaction it is no longer possible to edit the loading bay, carrier or vehicle.

The following fields can be configured for each batch:

- **Arm**
  The arm the batch was supplied from. Only arms belonging to the selected loading bay are available.
- **Supplier Product**
  The supplier product used for the batch. There is no validation applied to this field.
- **Compartment Number**
  This is only available if a vehicle has been selected from the transaction. Only compartments for the selected vehicle are available.
- **Quantities**
  Quantities for the main line, blend line and vapour line can be entered along with values for temperature, density and observed density. Any fields that are set to zero can be calculated from the other values for that line by clicking the **Calculate** button.

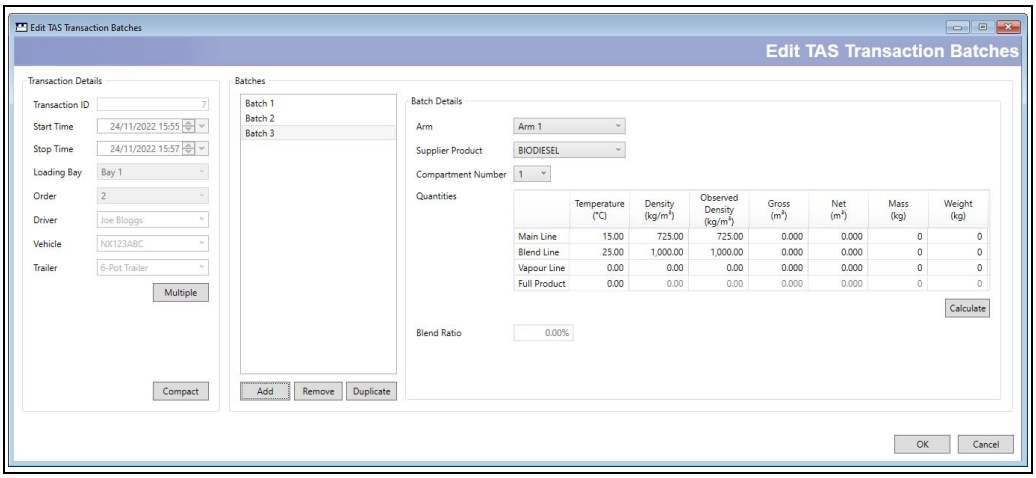
To delete a batch, select the batch from the list of batches and click the **Remove** button.

5.11.8 View Order

To view or edit the order for a transaction, select it from the list of transactions and click the **View Order** button , or press **F4**. The order details screen for the transaction order will be displayed → 14.

5.11.9 Manual Batches

It is possible to add and remove manual batches from an existing transaction. In order to do this, the **Manually Edit Transactions** option must be ticked in the system settings → 39.
To add or remove manual batches from a transaction, select the transaction to be amended on the **TAS transactions** screen and then click the **Edit Batches** button .
The **Edit TAS Transaction Batches** screen will now open:



Terminalvision_Operation_TAS-Edit-Trans-Batches

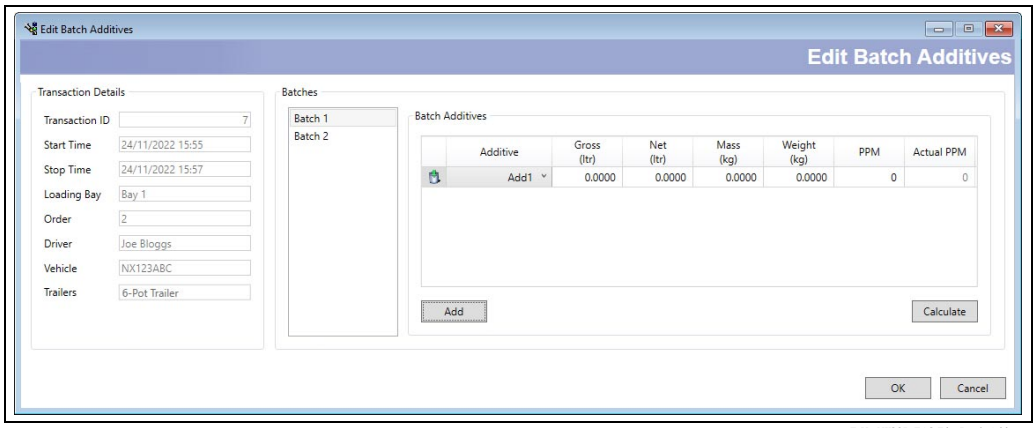
This is essentially the same as the manual transactions screen → 39. However, there are a couple of important differences:

It is not possible to change the transaction header details for transactions that have been automatically created from a load computer.

It is not possible to select batches that have been automatically created from a load computer. This means that they cannot be edited or deleted.

5.11.10 Edit Batch Additives

It is possible to edit the additives on the batches for an existing transaction. In order to do this, the **Manually Edit Transactions** option must be ticked in the system settings → 39.
To edit the additives on the batches for a transaction, select the transaction to be amended on the **TAS transactions** screen and then click the **Edit Batch Additives** button .
The **Edit Batch Additives** screen will now open:



TeVi_NXS85_TAS-Edit-Batch-Additives

To edit the additives for a batch, select the batch from the list of batches. To add a new additive to a batch click the **Add** button. Up to 6 additives are allowed. To remove an additive click on the trash can at the left-hand end of the row.

The following fields can be configured for each batch:

- **Additive**
  The additive for which quantities are being supplied.
- **Gross**
  The gross volume of this additive in the batch.
- **Net**
  The net volume of this additive in the batch.
- **Mass**
  The mass of this additive in the batch.
- **Weight**
  The weight of this additive in the batch.
- **PPM**
  The concentration of this additive in the batch.
- **Actual PPM**
  The actual concentration of this additive in the batch. This is calculated by entering the gross volume and then clicking the **Calculate** button.

5.11.11 Merging transactions

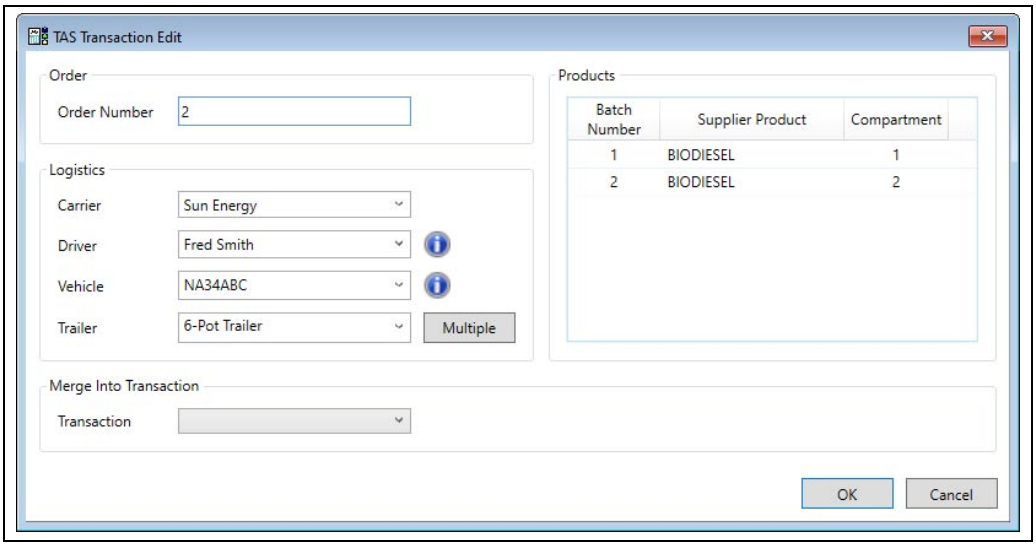
It is possible to merge certain transactions together.

The rules regarding which transactions can be merged are as follows:

- Source Transaction
  Must be manually uploaded.
- Target Transaction
  - Must not be committed.
  - Source transaction can not be merged into itself.
  - For the fields below, they must either match in the source **and** target or be blank in one **or** the other.
    - Order Number
    - Carrier Number
    - Driver Number
    - Vehicle Number

To merge transactions, select the transaction which is to be used as the merge source and then click the **Edit** button .

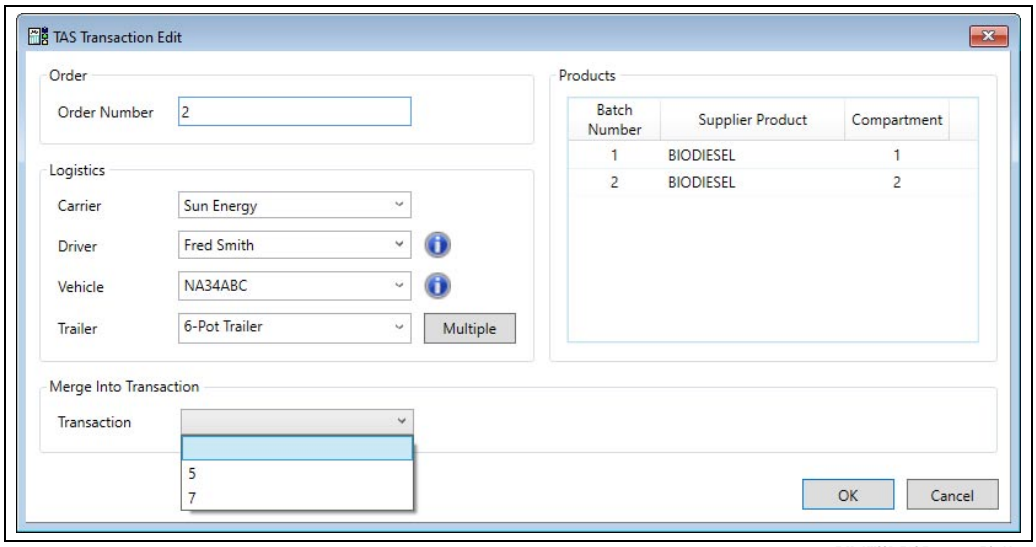
The transaction editing screen will now open:



Terminalvision_Operation_TAS-Transaction-Edit

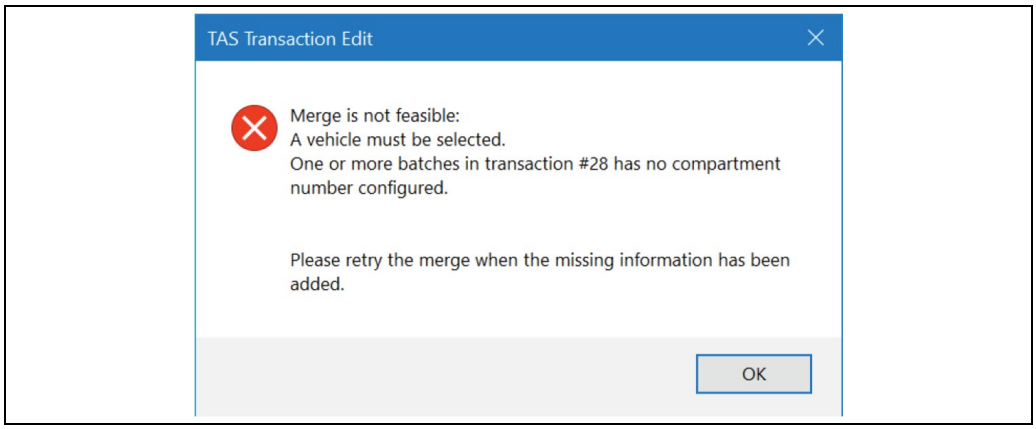
Note that by default the **Merge Into Transaction** select is blank by default. This means no merge will be attempted.

When the edit screen opens, all target transactions which satisfy the criteria given above for matching are listed in the **Merge Into Transaction** section drop-down box. The blank entry is to allow deselection of a target transaction.



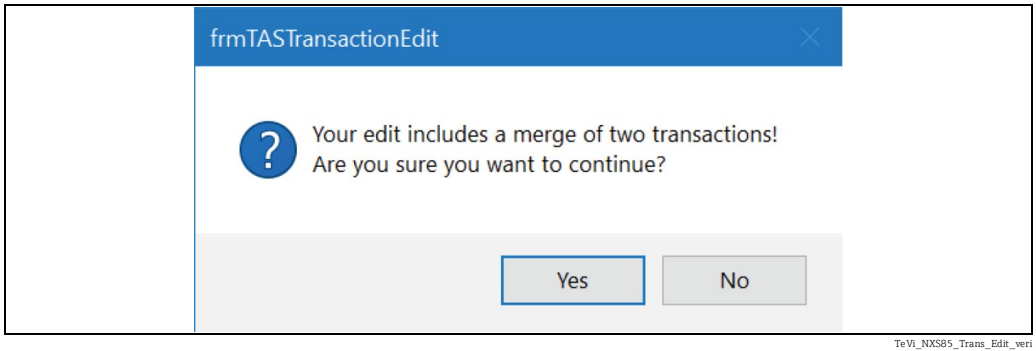
TeVi_NXS85_TAS-Transaction-Edit-Merge

The system checks that a merge is feasible before applying it. If there is an issue, the user is notified and the merge is aborted.



TeVi_NXS85_Trans_Edit_FeWarn

At this point the transactions must be changed to supply the missing information and the merge subsequently re-attempted.
At all times, if a merge target has been selected, the merge is confirmed by the user before it is attempted.



TeVi_NXS85_Trans_Edit_veri

5.11.12 Consequences of a merge

Transaction

The target transaction start time is set to the earliest of the source and target transaction start times.

The target transaction stop time is set to the latest of the source and target transaction stop times.

If the target transaction has data missing for Order Number, Driver or Vehicle but the source transaction has this data then it is copied into the target transaction.

The leak gross, mass, net and weight in the source transaction added to the corresponding target transaction figures.

The transaction is marked as **merged**.

Batches

For any batches in the source where vehicle compartment matches with those of a batch in the target, the following applies:

- Mass, net, returned quantity, gross and preset fields are added to the corresponding target transaction figures.
- Cumulative before and after fields in the target transaction are set to the corresponding minimum and maximum values respectively in the source and target transactions.
- Densities and temperatures in the target transaction are recalculated from the newly merged data.
- Additives are also merged in a similar way to batches with the PPM recalculated from the new values.
- The batch is marked as **merged**.

Where batches are merged from different arms the cumulative totals recorded for those batches are no longer guaranteed to reflect activity at the bay. This may affect the output from the **TAS Meter Totals Report**.

For any other batches in the source the details are simply copied to the target transaction.

For each source batch merged an additional item named **Merge Source Data** is added to the target batch. If multiple source batches are merged they are added to this field. The data in this field is of the form T1(B1), T2(B2), ... where T1 is the transaction ID and B1 is the batch number of the first source batch which was merged in. Subsequently merged batches will appear as, T2(B2), T3(B3), etc.

For any source batch that is merged into a target, the numeric values of the source batch are cleared to zero.

5.11.13 Commit Transaction

If a transaction is not committed (either because it is manually created or manually uploaded, or because the **Manually commit transactions** option is ticked in **System Settings**), then it is possible to commit the transaction from this screen.
To manually commit a transaction, select the transaction and then click the **Commit Transaction** button , or press the **F5** key.

5.11.14 Delete Transaction

If a transaction is not committed (either because it is manually created or manually uploaded, or because the **Manually commit transactions** option is ticked in **System Settings**), then it is possible to delete it.
To delete a transaction, select the transaction and then click the **Delete** button .

5.11.15 Refresh

The transaction screen can be set to automatically refresh to display the transactions as they are created or updated. However, this is sometimes undesirable (for example, if there are a large number of transactions the screen may become sluggish). This behaviour is controlled by the refresh button (or).

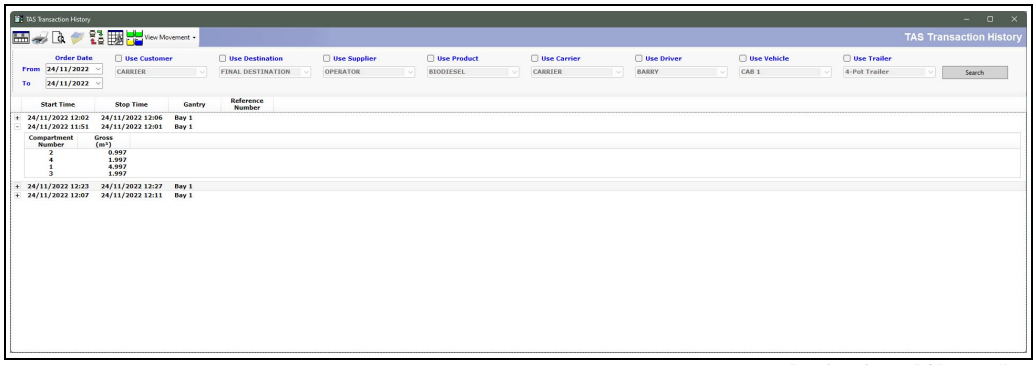
In this state refresh is enabled, click the button to disable auto refresh.

In this state refresh is disabled, click the button to enable auto refresh.

When the auto refresh functionality is disabled it is possible to refresh the list of transactions by clicking the **Refresh** button .

5.12 Viewing Historical Transactions

To view transactions that have occurred in the past, select the **TAS → TAS Transaction History** menu option. The window shown in figure below will be displayed:



Terminalvision_Operation_TAS-Transactions-History

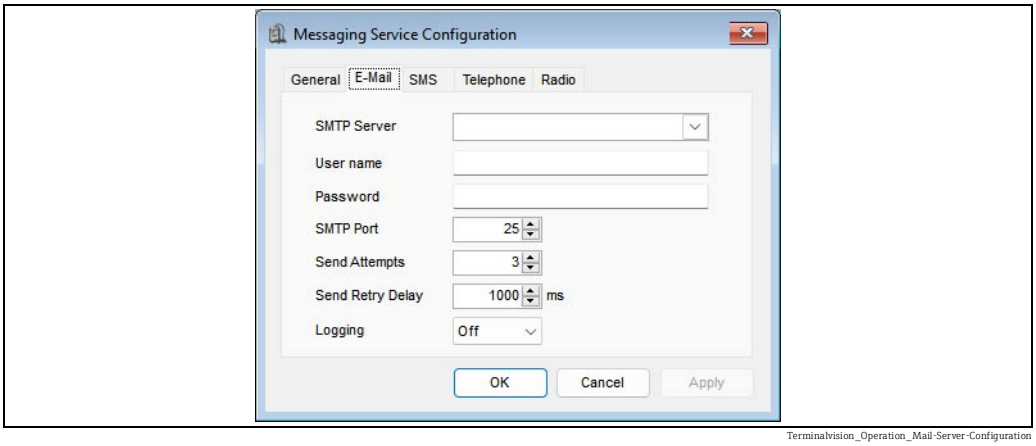
The display layout is the same as the live transaction screen described previously, with the added functionality that it displays all transactions that have occurred, based on user defined filters.

These include:
- Date
- Customer
- Destination
- Supplier
- Product
- Carrier
- Driver
- Vehicle
- Trailer

5.13 Electronic Delivery of Loading Reports

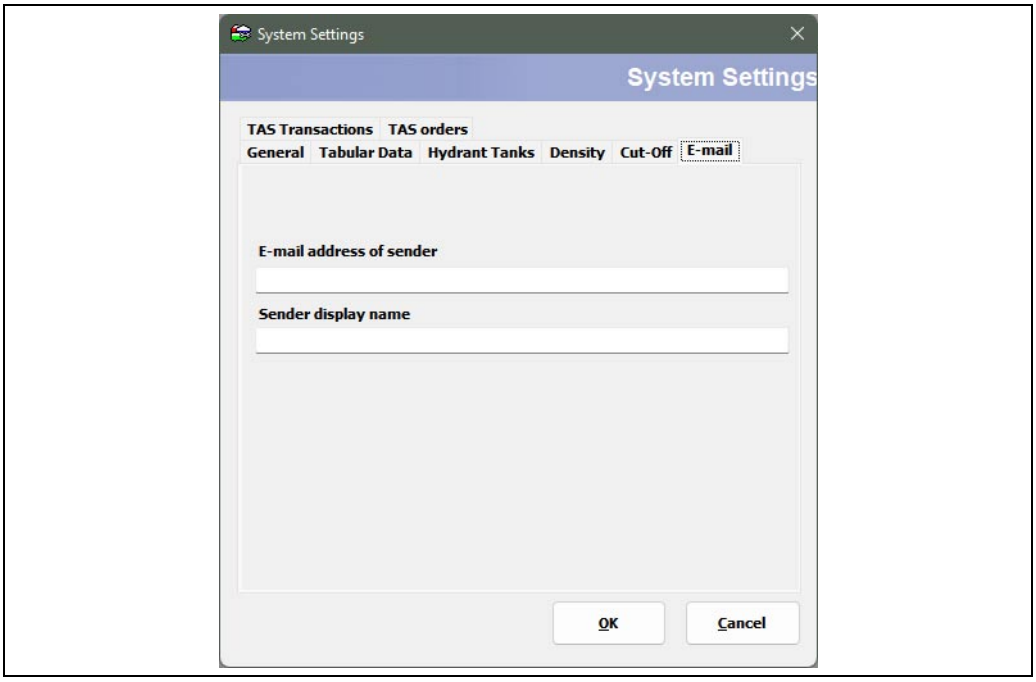
5.13.1 E-mail a Transaction Report

To e-mail reports it is necessary to configure a mail server in the messaging configuration:



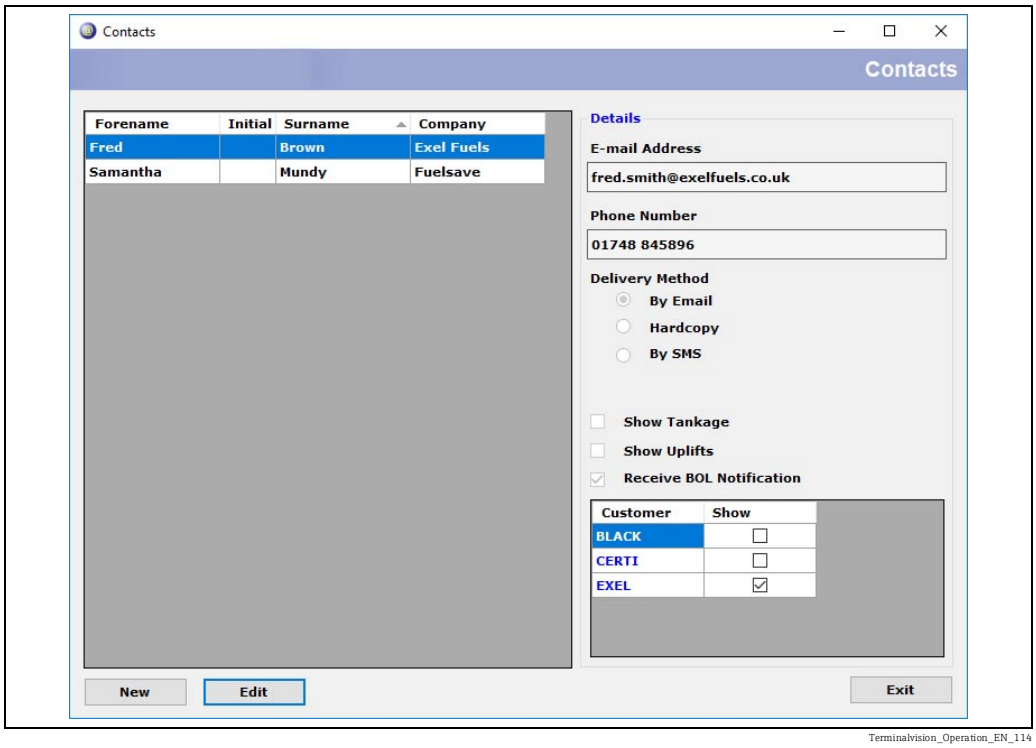
Terminalvision_Operation_Mail-Server-Configuration

It is also necessary to set up a sender e-mail account in the **Admin** → **System Settings** → **E-mail** tab as shown in figure below.



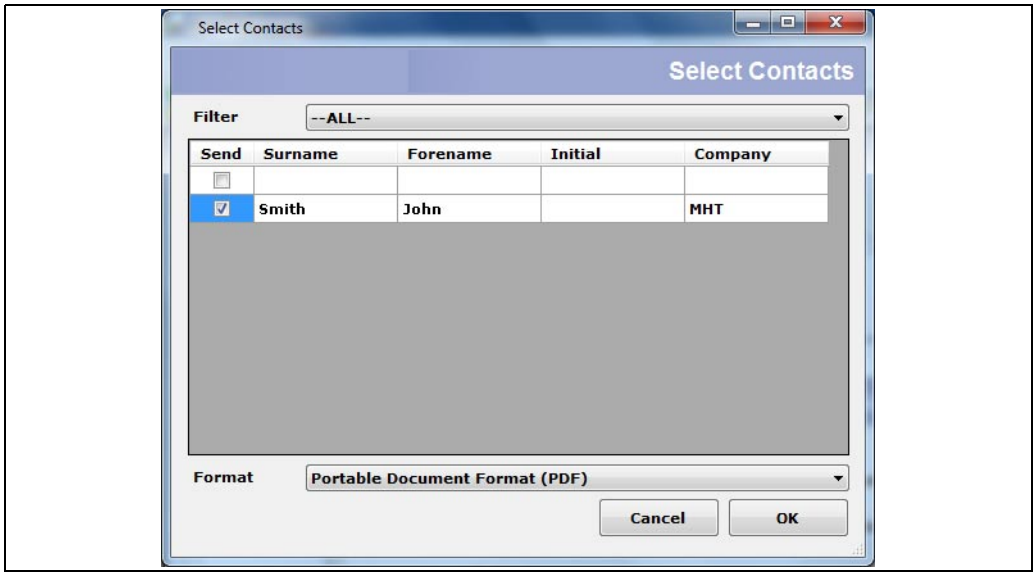
Terminalvision_Operation_E-Mail-Tab

There must also be a contact to send the report to.
This can be configured in **Configuration** → **Contacts**.



Terminalvision_Operation_EN_114

After filtering to the correct transaction (see Transaction Reports, → 30) – click on the **E-mail** button and the contact selection screen is displayed as shown in figure below.



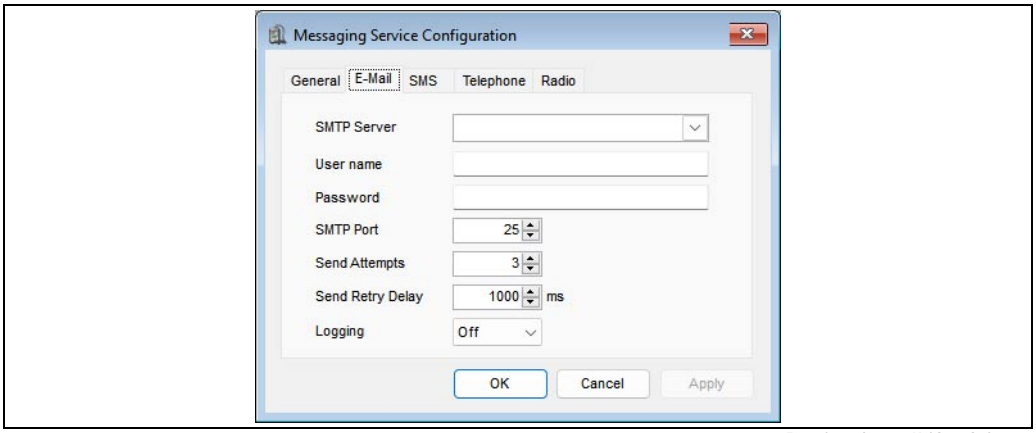
Terminalvision_Operation_EN_038

Select the correct contact and choose the format for the transaction to be sent.
Click on **OK** and the e-mail will be sent.

5.13.2 Automatically E-mail BOL Reports

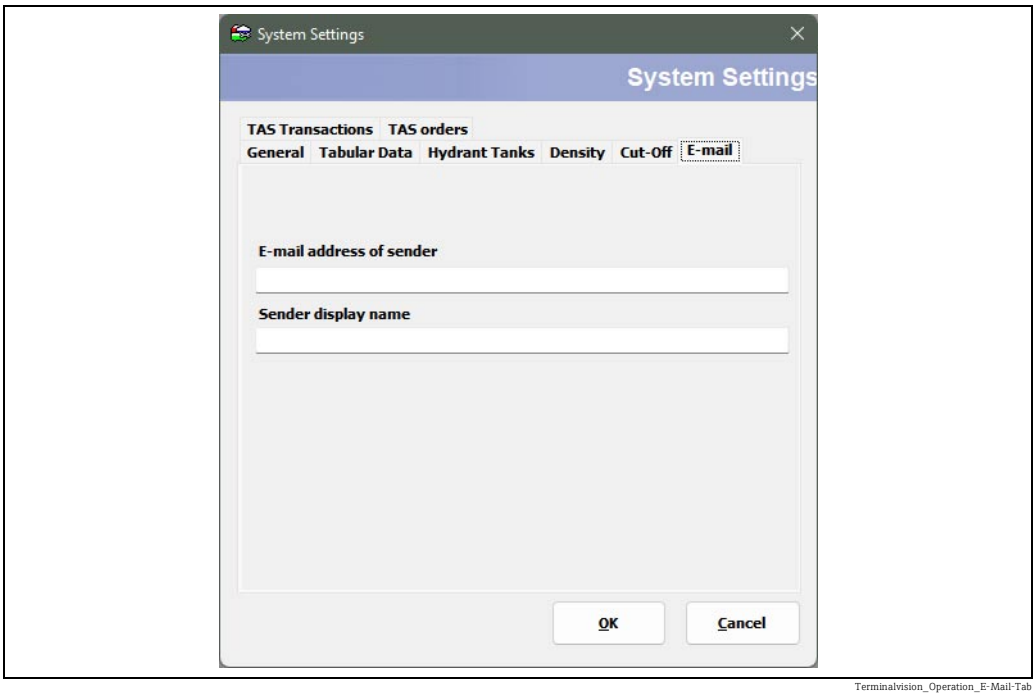
To automatically e-mail a BOL report the following steps must be taken:

1. Enter appropriate contact details in **Configuration** → **Contacts**. Ensure **By E-mail** is selected as the **Delivery Format** and **Receive BOL Notification** is checked.
2. Ensure that a mail server is set up as shown in figure below.



Terminalvision_Operation_Mail-Server-Configuration

3. Ensure an e-mail account is set up as shown in figure below.



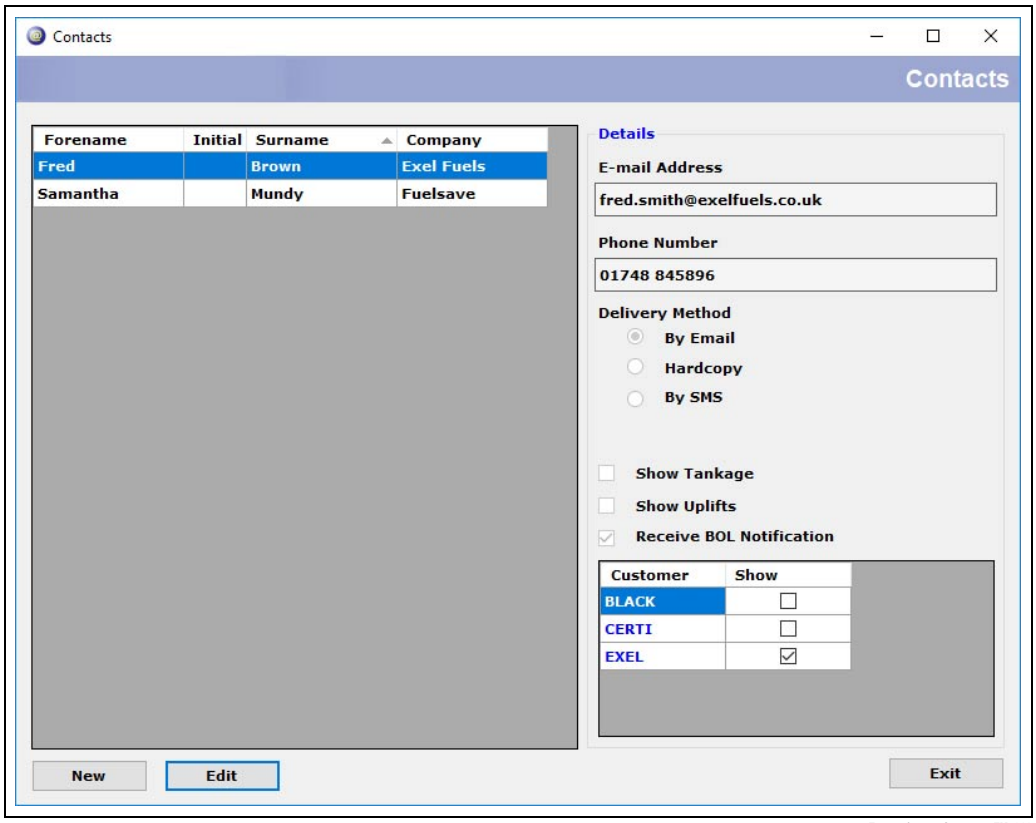
Terminalvision_Operation_E-Mail-Tab

4. Set **Print Report** to **Yes** and the **Default Report** to **Bill of Lading** in **TAS Loading Bays** → **Configuration** → **Configuration** → **Site** → **Bay** → **ACU Settings**.

Filtering rules for the SMTP server chosen will be observed and all formats may not be allowed on your e-mail system.

5.13.3 Configure SMS Recipients

To configure SMS recipients to receive notifications configured in the system, there must be a mobile telephone number in the **Phone Number** field on the contact details screen as shown in figure below (**Configuration** → **Contacts**).



6 Stock Management

The Terminalvision system provides many optional functions for stock management and reconciliation. These features are not provided as standard. If purchased they will be enabled through the license issued with the software.

The Stock Management functionality builds on the transaction processing system already described for truck loading operations by providing additional tools and features for controlling and monitoring the following:

- Receipts into Storage
- Opening, Closing Stocks over daily, monthly periods
- Reconciliation of transactions to Physical Stock
- Integration with Tank Inventory Management Systems
- Co-mingled storage
- Accounting Adjustments to cater for losses/gains
- Stock accounts for Customers

Each customer effectively has an account for each product stored on the site. The account keeps track of the customers stock holdings by crediting any receipts to the customer, debiting any withdrawals done by or on behalf of the customer and implementing any adjustments applied by the system or the system administrator.

At the start of each day a customer has an Opening Book Stock, and at the end of each day each Customer has a Closing Book Stock. This accounting is maintained by the following:

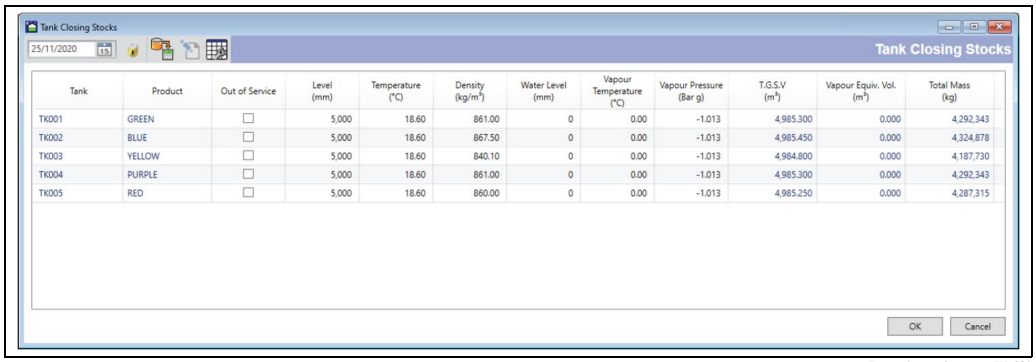
- ClosingStock = OpeningStock + Receipts - Withdrawals ± Adjustments
- The system keeps a set of records known as the "BookStock".
- Receipts and Withdrawals are represented in the stock management module as Movements. TAS Transactions that occur in the Terminal Automation application are separate entities. When a TAS transaction is completed, a Movement is created in the Stock Management module. The details of the Movement can be subsequently changed, but the transaction details cannot.
- At any time the Book Stock can be compared to the physical stock.

6.1 Physical Stock

This is the actual stock contained in the Tanks of the Site.
If the site has a Tank Inventory Management system compatible with the Terminalvision application, the physical stock data can be imported automatically.
If the site has no automatic tank gauging system the physical stock data can be maintained manually.

6.1.1 Entering the Starting Tank Physical Stocks

When the system is first configured there will be no physical stocks known by the system. These must be entered manually.
Select the **Stocks** → **Tank Closing Stocks** menu option. The window shown in figure below will be displayed.



Terminalvision_Operation_EN_039

The inventory columns displayed will depend upon the **System Settings** and whether the columns have been customised (see Appendix A).
Select the **Date**. The date selected should be the date prior to the day you wish to start managing the stock. The data provided will therefore represent the closing physical stock position for that day, which will automatically become the opening stocks for the following day.
Click the **Extract** button  . The system will read the details of the tanks from the database.

Enter the following data from each tank:
- **Product Level**
- **Water Level**
- **Temperature**
- **Density**

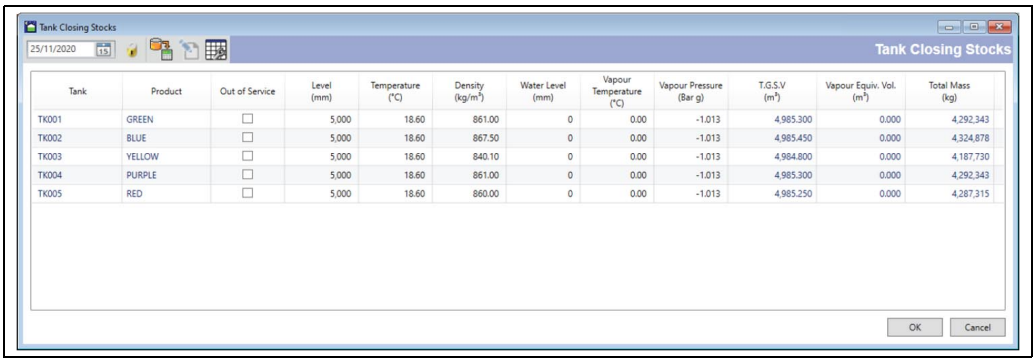
This could be from manual dips, or alternatively dips from automatic tank gauges. In addition, if **Include Vapour** is selected in the **System Settings** the following data should be entered from each tank:

- **Vapour Temperature**
- **Vapour Pressure**

The corresponding volumes will be calculated.
Click the **OK** button to save the data.

6.1.2 Entering the Daily Tank Physical Stocks

During normal day-to-day operation of the system it is necessary to maintain the daily tank physical stocks. These can be entered manually or automatically depending on whether a suitable tank gauging system exists. If data is entered automatically from a tank gauging system it can only be extracted for the current day. Earlier data must be entered manually. The procedure is exactly the same as entering Starting Tank Physical Stocks except that the date selected is the actual, not the preceding, day.
Select the **Stocks** → **Tank Closing Stocks** menu option. The window shown in figure below will be displayed.



Terminalvision_Operation_EN_039

The inventory columns displayed will depend upon the **System Settings** and whether the columns have been customised (see Appendix A).
Select the **Date** for which the closing physical stocks will be entered.
Click the **Extract** button. The system will read the details of the tanks from the database.

Enter the following data from each tank:
- **Product Level**
- **Water Level**
- **Temperature**
- **Density**

This could be from manual dips, or alternatively dips from automatic tank gauges. In addition, if **Include Vapour** is selected in the **System Settings** the following data should be entered from each tank:

- **Vapour Temperature**
- **Vapour Pressure**

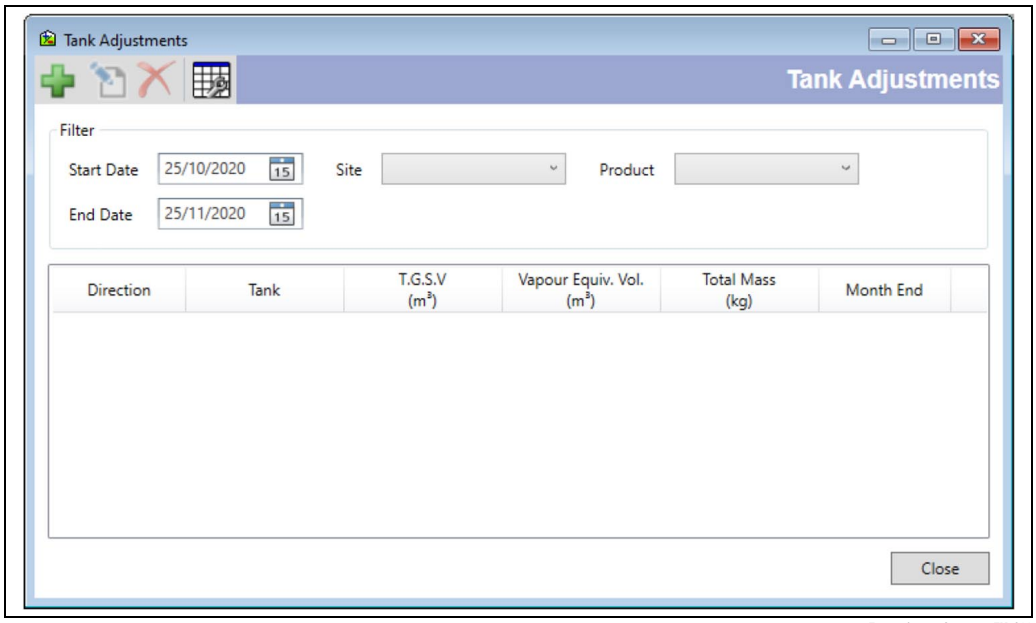
The corresponding volumes will be calculated.
Click the **OK** button to save the data.

6.2 Book Stock

The Book Stock is effectively a "paper" stock maintained by the system. After first installation it is necessary to specify the starting position for the Book Stock. Thereafter the system will maintain the Book Stock based upon all the transactions and adjustments that are applied.

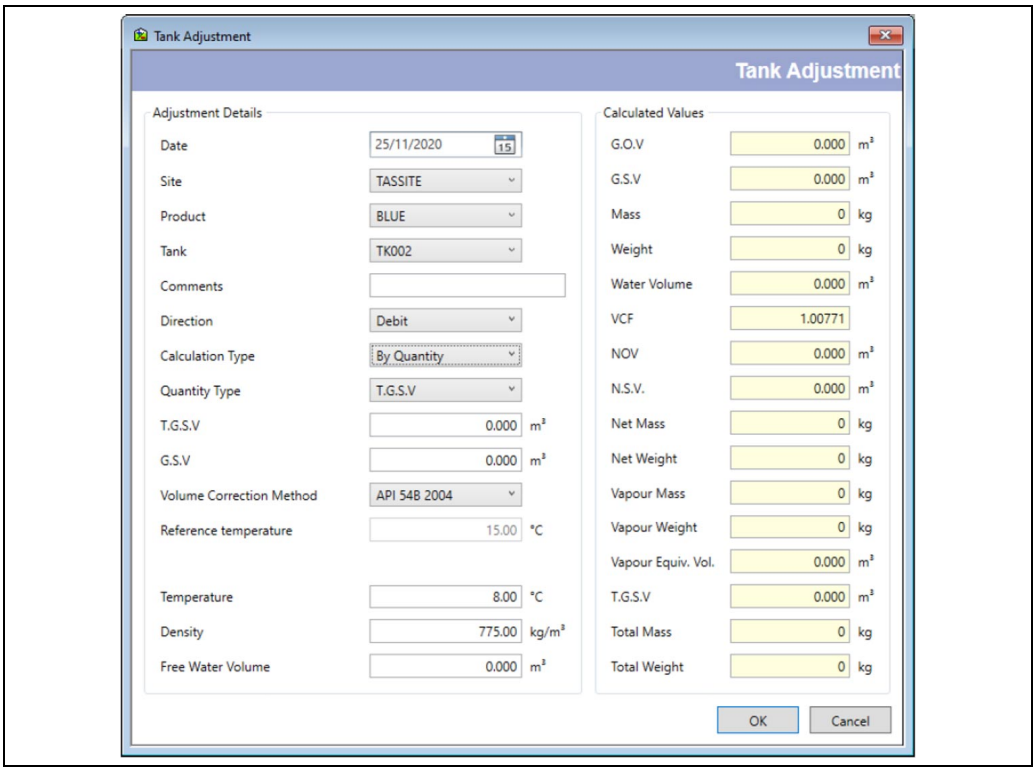
6.2.1 Entering the Starting Tank Book Stock

Select the **Accounting** → **Tank Adjustments** menu item. The window shown in figure below will be displayed.



Terminalvision_Operation_EN_041

The inventory columns displayed will depend upon the **System Settings** and whether the columns have been customised (see Appendix A).
Click the **Add** button, the window shown in figure below will be displayed.



Terminalvision_Operation_EN_115

Select the **Date**, **Site** and **Product**. As with **Starting Tank Physical Stocks**, the date should be the day before you wish to start **Book Stock** accounting.

Select the **Tank** from the drop down list.

Change the direction to **Credit**.

Enter the **Measured Quantity**. Note that if **Include Vapour** has been selected in **System Settings**, two quantities are required so that the vapour quantity can be calculated.

The **Volume Correction Method** and supporting configuration data are copied from the selected tank. These can be modified if required.

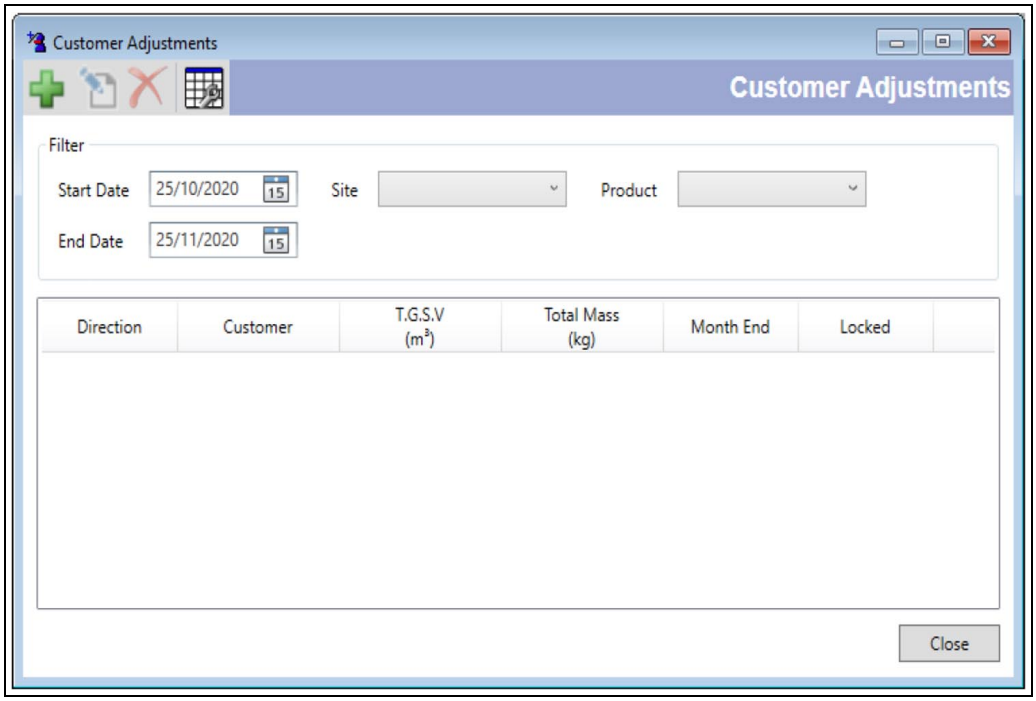
Enter the **Temperature**, **Density** and **Free Water Volume** contained in the selected Tank.

Click **OK** to save the changes.

Repeat this process for each **Site/Product/Tank.**

6.2.2 Allocating the Starting Stock to Customers

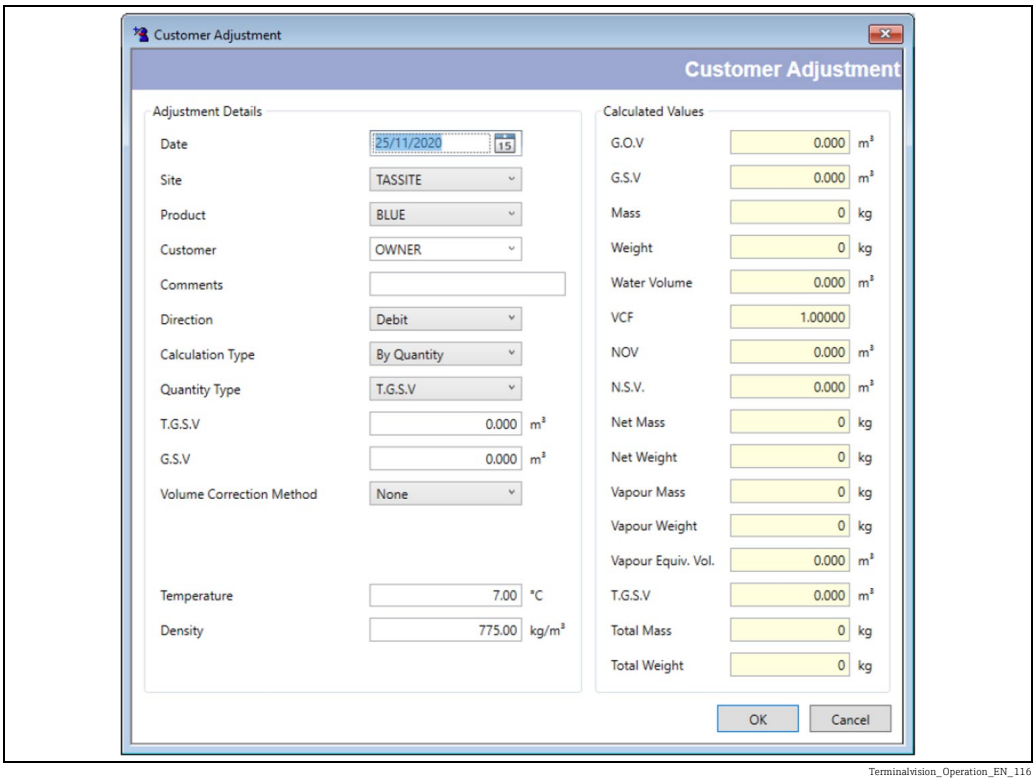
The previous section described how to enter the starting position for the Tank Book Stock. This stock belongs to one or more customers, therefore it is necessary to distribute this stock to the rightful owners. Thereafter the system will maintain each customer's account by applying the transactions and adjustments to each customer's account.
Select the **Accounting** → **Customer Adjustments** menu item. The window shown in figure below will be displayed.



Terminalvision_Operation_EN_043

The inventory columns displayed will depend upon the **System Settings** and whether the columns have been customised (see Appendix A).

Click the **Add** button so that you can credit each Customer's account with a volume of product. The window shown in figure below will be displayed.



Terminalvision_Operation_EN_116

Select the **Date**, **Site** and **Product**. The Date should be the day before you wish to start transactions.

Select the **Customer** to be credited from the drop down list.

Change the direction to **Credit**.

Enter the **Quantity**. Note that if **Include Vapour** has been selected in **System Settings**, two quantities are required so that the vapour quantity can be calculated.

The **Volume Correction Method** and supporting configuration data are copied from the selected product (if the product has characteristics defined). These can be modified if required.

Enter the **Temperature** and **Density**.

Click **OK** to save the changes.

Add further **Credit Adjustments** for each customer and product as required.

The total volume credited to customers should equal the Tank Stock position configured earlier.

6.3 Cut-off Procedure

A cut-off process should normally be run each day to calculate the Opening and Closing book stock positions for each customer.
Select the **Accounting** → **Cut-Off** menu or the **Cut-Off** tool bar button. The window shown in figure below will be loaded.

Terminalvision_Operation_EN_045

6.3.1 Running the Cut-Off for the First Time

Run the cut-off procedure with a start date one day prior to the day you wish to start managing stock from. The end date can be the following day or any day after that assuming data is available for the calculations.
This will calculate and save the closing stocks for the day prior to starting, and copy the closing stocks to the opening stocks for the start day.

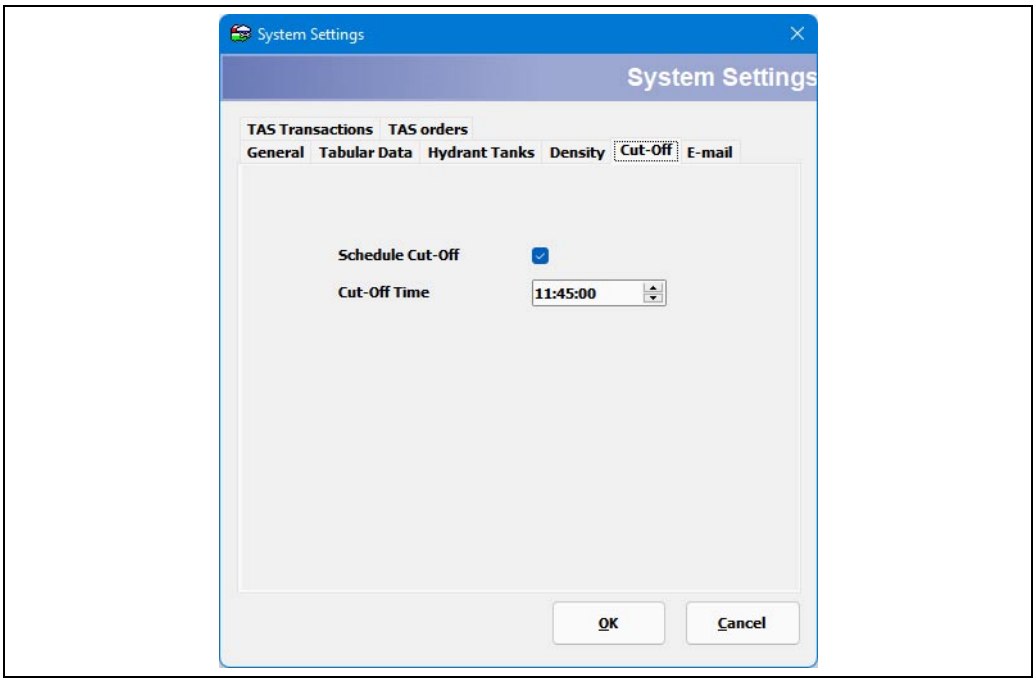
6.3.2 Running the Cut-Off at any other Time

After the first time the cut-off has been run correctly to obtain the starting position for first use of the system, it can be run anytime thereafter.
Select the Start and End Dates and click the **OK** button. This will consolidate all transactions from the Start date to the End Date calculating the opening and closing stocks for each day.

If any historical transactions are ever edited, it is essential the Cut-Off procedure is run from that date so that any changes can be applied from that day to the current.

6.3.3 Running the Cut-Off on a schedule

The cut-off procedure can also be run on a scheduled basis. This should not be done until the cut-off has been run manually at least once. The end date for a scheduled cut-off is the date that it is run. The start date for a scheduled cut-off is the later of the date the cut-off was last run, or the day before the end date. The scheduled cut-off is configured via the System Settings screen.
Select the **Admin** → **System Settings** menu. Then select the **Cut-Off** tab in the window that is displayed:



Terminalvision_Operation_Schedule-Cut-Off

To run the cut-off on a scheduled basis, ensure that the **Schedule Cut-Off** box is ticked. Then enter the time that the cut-off is to be run in the **Cut-Off Time** box.
Click the **OK** button to save the changes.

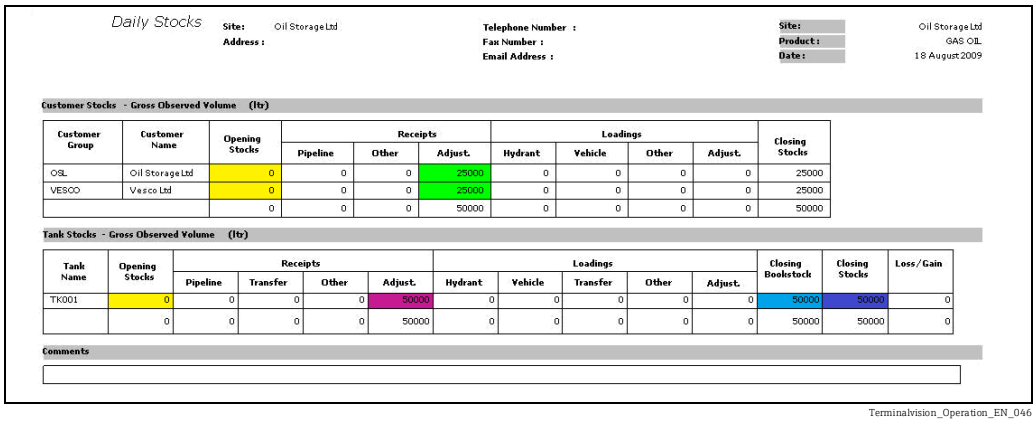
Limitations of scheduled Cut-Off

The system maintains a Last Update value which represents the last date a movement, adjustment or cut-off was recorded. The scheduled cut-off procedure will only record physical stocks if the difference between the Last Update and the time of the current cut-off procedure is less than or equal to 24 hours.
This is to prevent the over-writing of existing physical stocks in the event that a user has modified historic data. If such a modification has been made, the user must complete a cut-off procedure manually before the scheduled cut-off will operate correctly

6.4 Viewing the Starting Stock Position

It is now a good time to view the opening stock position to check that all data has been entered correctly.

1. Select the **Reports** button.
2. Select the **Date** to be the date prior to the starting day.
3. Select **Observed Daily Stock** Report.
4. Click **Preview**.
   A report similar to the figure below will be produced.



Daily Stocks

Site: Oil Storage Ltd
Address :

Telephone Number :
Fax Number :
Email Address :

Site: Oil Storage Ltd
Product : GAS OIL
Date : 18 August 2009

Customer Stocks - Gross Observed Volume (ltr)

Customer Group	Customer Name	Opening Stocks	Receipts			Loadings				Closing Stocks
			Pipeline	Other	Adjust.	Hydrant	Vehicle	Other	Adjust.	
OSL	Oil Storage Ltd	0	0	0	25000	0	0	0	0	25000
VESCO	Vesco Ltd	0	0	0	25000	0	0	0	0	25000
		0	0	0	50000	0	0	0	0	50000

Tank Stocks - Gross Observed Volume (ltr)

Tank Name	Opening Stocks	Receipts				Loadings					Closing Bookstock	Closing Stocks	Loss/Gain
		Pipeline	Transfer	Other	Adjust.	Hydrant	Vehicle	Transfer	Other	Adjust.			
TK001	0	0	0	0	50000	0	0	0	0	0	50000	50000	0
	0	0	0	0	50000	0	0	0	0	0	50000	50000	0

Comments

Terminalvision_Operation_EN_046

You can see:
- The opening stock position of zero (yellow).
- The adjustment made to the Tank (pink).
- The adjustment made for each Customer (green).
- The closing book stock (cyan).
- The closing physical stock (blue).

The closing book stock and closing physical stock are the same; hence the loss/gain is zero. Change the date to today and **Preview** the report again.

You can see:
- The opening stock is the closing stock from yesterday.
- There are no other receipts of loadings.
- The Closing Book Stock is the same as the Opening Stock.
- The closing physical stock is zero.
- The variance is equal to the opening stock (because no closing stock has been entered for the day).

The system can now be used to carry out the stock management function.

6.5 Movements

The principle use of the application is to record product movements on the sites. Movements are categorised by the direction the product is moving, off the site (a loading), to the site (a receipt) or within the site (a transfer).
Transfers are handled separately from other movements (→ 72) and have their own methods of data entry. Movements are all entered and edited using the **Movement Config** form.
A basic movement will consist of an actual quantity of product being moved to or from some tanks and an advised quantity of oil being moved in the same direction to or from some customer's account. In addition to these basic components there may be specified several other optional corrections:

Pipeline	Corrections due to changes in pipeline contents
Additives	Additional volume created by injecting additives into the product stream as it is moved
Miscellaneous	Any other corrections not related to pipelines or additives

Each movement component has its own form, accessed from the main movement form.

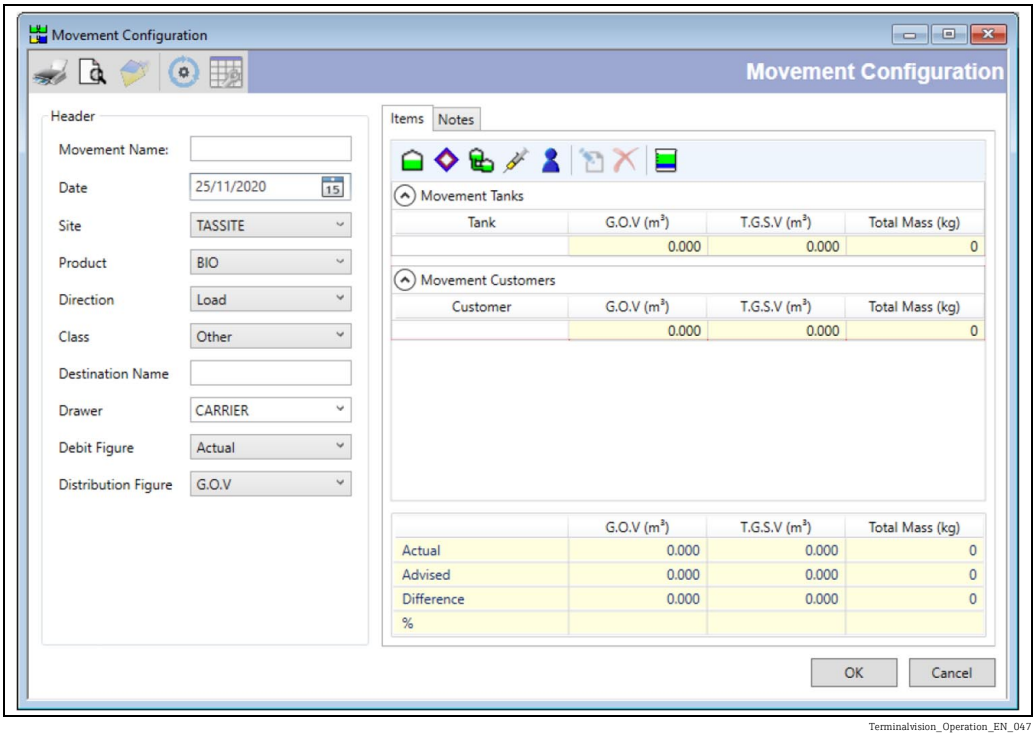
Component	Load Action	Receipt Action
Tanks	Component from which the actual figures are derived	Component from which the actual figures are derived
Customers	Component from which the advised figures are derived	Component from which the advised figures are derived
Miscellaneous	Component subtracts from actual figures	Component subtracts from actual figures
Pipelines	Component subtracts from actual figures	Component subtracts adds to actual figures
Additives	Component adds to actual figures	Component subtracts from actual figures

6.5.1 Direction

The direction of all the components is decided by setting the direction of the movements, for instance if a movement of 1000 m^3 is received into a tank and 10 m^3 of some additive is injected into the pipeline during the movement, the result is there would be an actual volume of 1010 m^3 seen in the tank. The additive component would be 10 m^3, which would be subtracted from the actual volume and compared to our ideal world example advised volume of 1000 m^3.
If the movement were run in the reverse direction, with the additive is being injected into the pipe as the product is passed out to a ship, the actual volume according to the tank gauging is 1000 m^3, and the advised volume reported by the ship would be 1010 m^3. As the direction of the movement is a load the additive component is instead added to the actual volume, when computing the movement's loss or gain.
As can be seen it is not necessary to enter negative values to symbolise a movement's direction, the calculations are determined by the movement direction.

6.5.2 Making a new Receipt/Load

Select the **Movement** → **New Movement** menu item (see figure below).



Terminalvision_Operation_EN_047

There is an optional field to enter a name for the movement. Below this select the date of the movement then use the drop down menus to select:
- **Site**
- **Product**
- **Direction**
  - Load
  - Receipt
- **Class**
  - Other
  - Ship
  - Pipeline
  - Road
  - Rail

Details of the Destination or Source also need to be added depending upon whether the movement is a load or receipt.

6.5.3 Tank Components

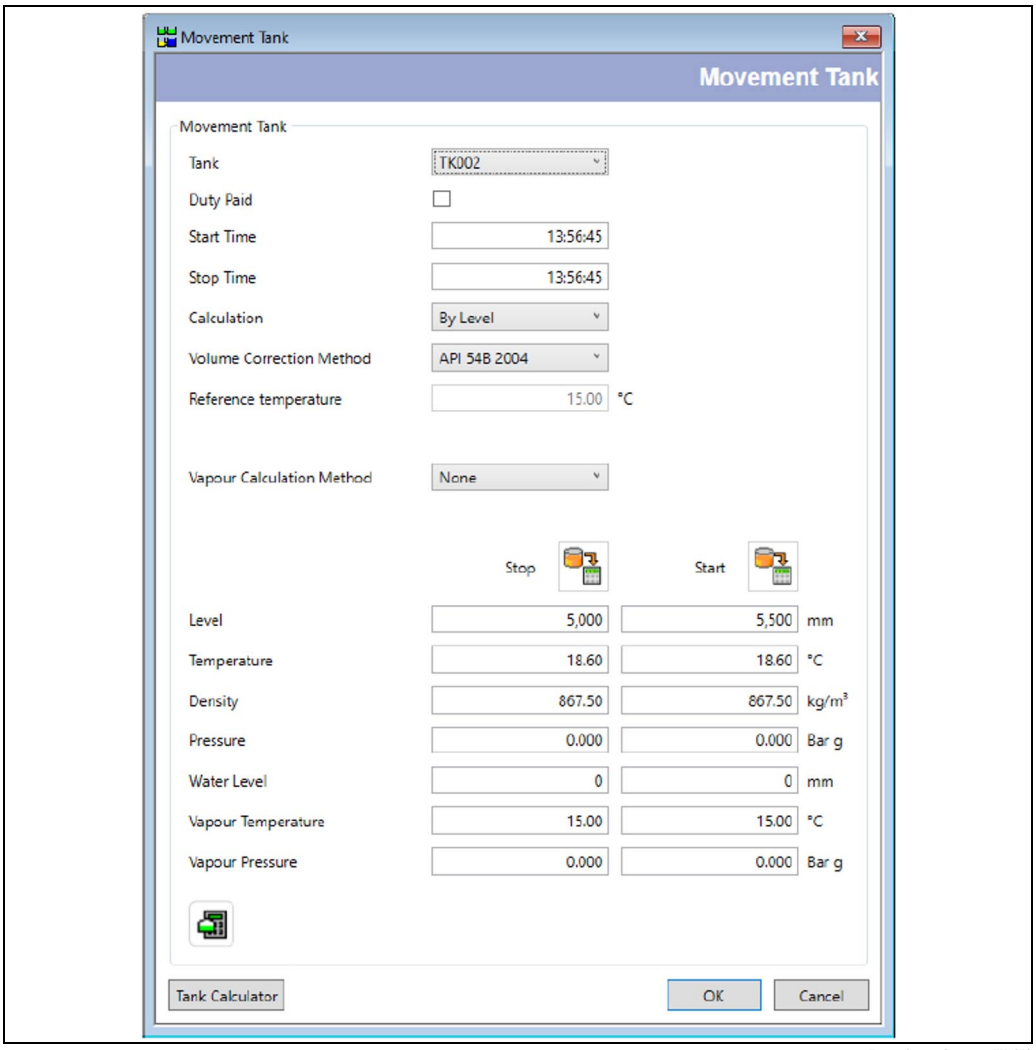
Select the **Add Movement Tank** icon from the tool bar. More than one tank can be added and each must be configured as below.
Enter the start and finish times if desired although these are manual entry fields and have no control over the movement.

Tank Components describe the changes to the product tankage that occur as part of a movement. You can define the quantity of product moved in one of three ways:
- By level
- By quantity
- By manual entry

The information available concerning the movement will largely determine the definition used.

By Level

To use this definition there must be two sets of tank readings available, one immediately prior to the movement starting and a second immediately after the movement completed. The sets of data must consist of readings of level, temperature, water level and density. In addition, if **Include Vapour** is set in the **System Settings**, the sets of data must also include vapour temperature and vapour pressure. If you have integrated Terminalvision with your Tank Gauging system you may click the **Get Current Data** button to retrieve the current tank status into both the starting and finish conditions on the form (see figure below).



Terminalvision_Operation_EN_050

Click **OK** to save the changes or **Cancel** to discard them.
The calculation of corrected and standard volumes is directed by your tank configuration settings, which if the tank is integrated to the tank gauging system, will in turn be determined by the way your tank gauging system is configured. To view these volumes, hover the mouse over the  icon. Therefore for the example in figure above the data in figure below will be displayed.

	Stop	Start	Difference	
TOV	5,000.000	5,500.000	500.000	m^3
Free Water Volume	0.000	0.000	0.000	m^3
VCF	0.9971	0.9971		
WCF	0.8664	0.8664		
G.O.V	5,000.000	5,500.000	500.000	m^3
G.S.V	4,985.450	5,483.995	498.545	m^3
T.G.S.V	4,985.450	5,483.995	498.545	m^3
Mass	4,324,878	4,757,366	432,488	kg
Total Mass	4,324,878	4,757,366	432,488	kg
NOV	5,000.000	5,500.000	500.000	m^3
N.S.V.	4,985.450	5,483.995	498.545	m^3
Net Mass	4,324,878	4,757,366	432,488	kg

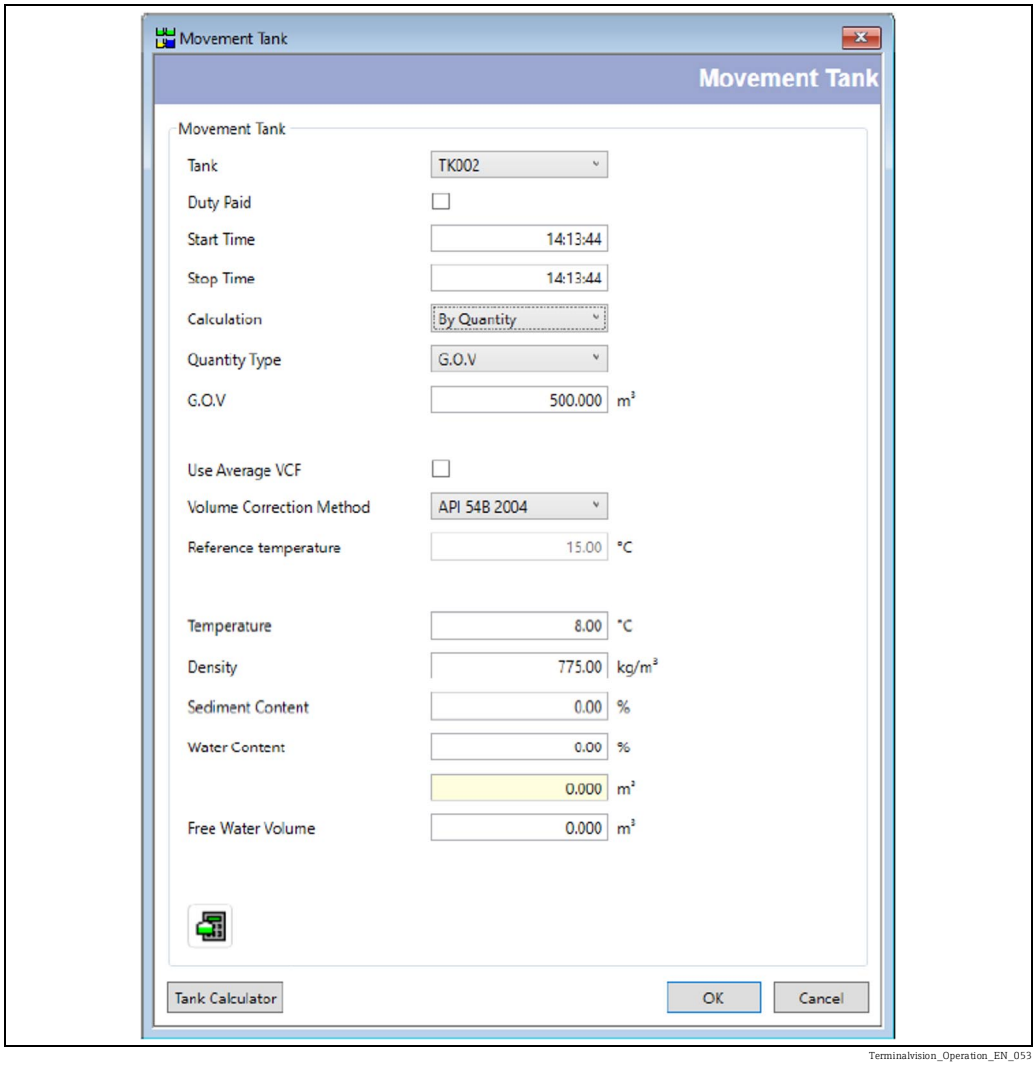
Terminalvision_Operation_EN_052

By Quantity

The definition of **Movement By Quantity** requires that one or two quantities are entered depending on **System Settings**:

Quantity Type	Use Mass	Include Vapour	Required Quantities
GOV	N/A	N/A	GOV
GSV	N/A	N/A	GSV
Mass	✔	N/A	Mass
Weight		N/A	Weight
TGSV	N/A	✔	TGSV and GSV
Total Mass	✔	✔	Total Mass and Mass
Total Weight		✔	Total Weight and Weight

In addition a temperature and density must be entered, or alternatively select **Use Average VCF** for the movement. In the example in the figure below an operational volume is being entered. A VCF is then calculated from the temperature and density, which is subsequently used to calculate the other inventory figures.



Terminalvision_Operation_EN_053

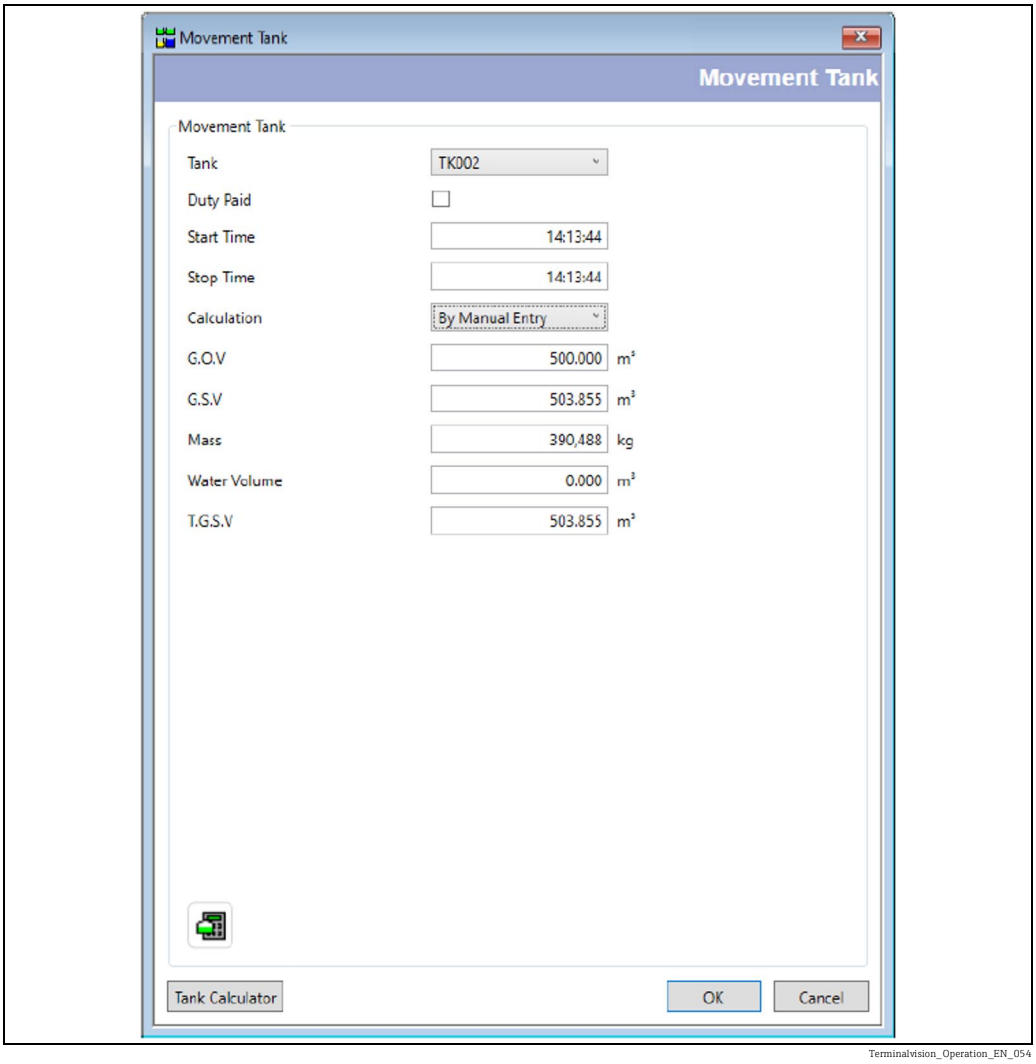
The calculation of the VCF is directed by your tank configuration settings, which may in turn be derived from the tank gauging system. If **Use Ave VCF** is selected then the temperature and density fields will become read-only and the temperature and density readings from your average data for the day will be used instead to calculate the VCF.

If you do not have a complete set of average temperature and density readings at the time the movement is entered, the end of day calculations will substitute the correct values at that time.

Sediment and water content may also be entered at this stage. The default values for sediment and water content for the volume of product is zero.
Click **OK** to save the changes or **Cancel** to discard them.

By Manual Entry

This definition contrasts with the other two in that data is entered independently of the tank configuration. It is therefore possible to enter totally unrelated values for the **GOV**, **GSV**, **TGSV**, **Mass/Weight** and **Water Volume** (see figure below).

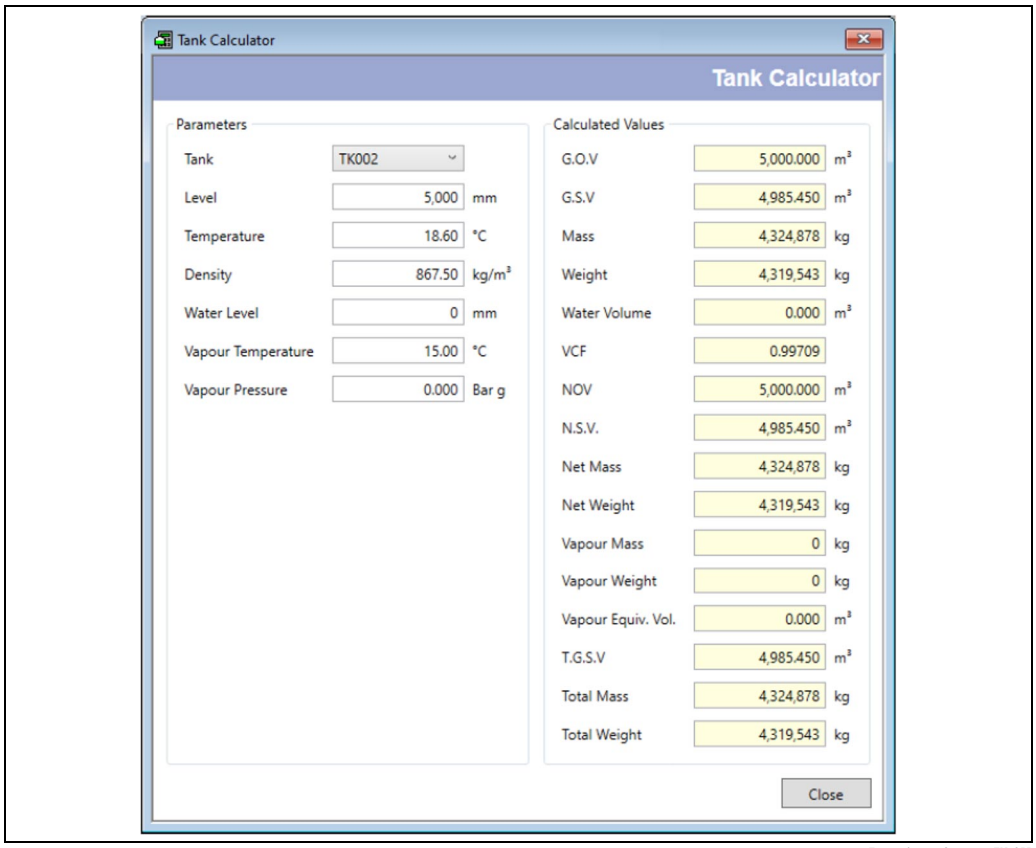


Terminalvision_Operation_EN_054

Click **OK** to save the changes or **Cancel** to discard them.

6.5.4 Tank Calculator

At the bottom of the form is the **Tank Calculator** button, which is provided as a convenience when entering data, clicking it opens a form which permits you to enter tank data values and see the effect on the various calculated fields (see figure below).



Terminalvision_Operation_EN_055

If **Include Vapour** is not selected in the **System Settings** then the vapour related fields will not be displayed.
The data displayed on this form is not stored anywhere and will be lost when the form is closed.

6.5.5 Miscellaneous Component

Select the **Add Movement Misc** icon from tool bar. More than one miscellaneous component can be added and each must be configured as below.

Miscellaneous Components describe any part of a movement not otherwise accounted for. You can define the quantity of product moved in one of two ways:
- By quantity
- By manual entry

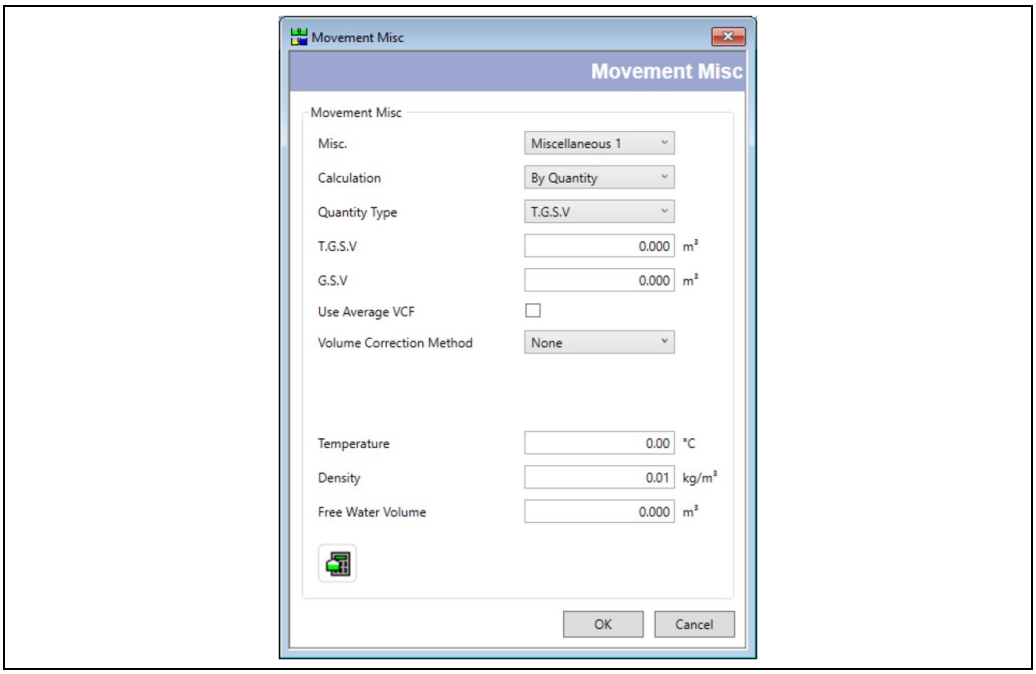
The information available concerning the movement will largely determine the definition used.

By Quantity

The definition of **Movement By Quantity** requires that one or two quantities are entered depending on **System Settings**:

Quantity Type	Use Mass	Include Vapour	Required Quantities
GOV	N/A	N/A	GOV
GSV	N/A	N/A	GSV
Mass	✔	N/A	Mass
Weight		N/A	Weight
TGSV	N/A	✔	TGSV and GSV
Total Mass	✔	✔	Total Mass and Mass
Total Weight		✔	Total Weight and Weight

In addition a temperature and density must be entered, or alternatively select **Use Average VCF** for the movement, see figure below.

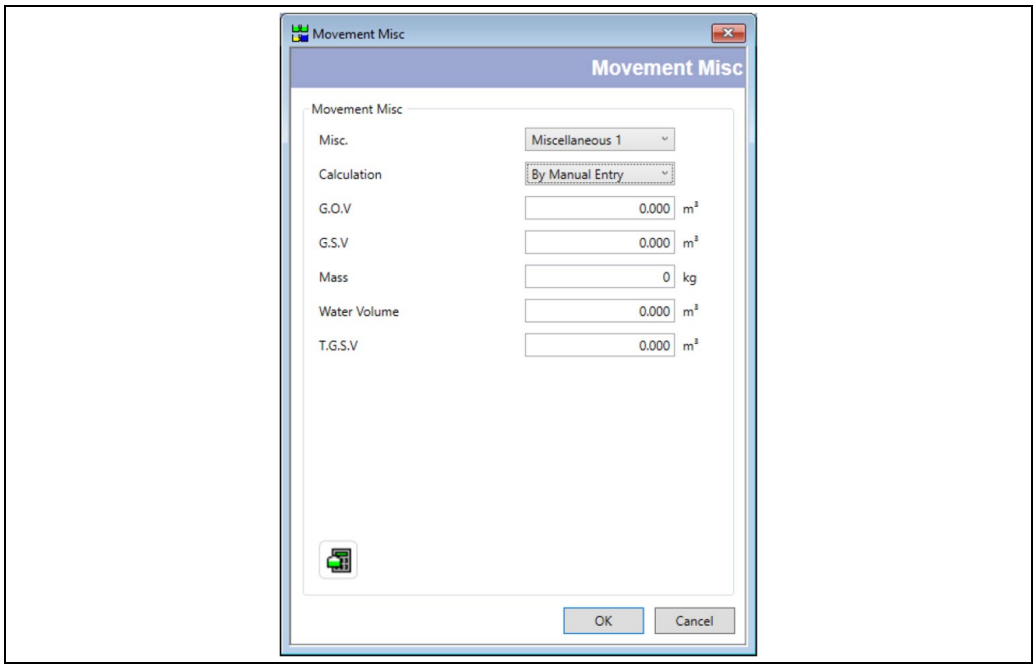


Terminalvision_Operation_EN_057

Sediment and water content may also be entered at this stage. The default values for sediment and water content for the volume of product is zero.
Click **OK** to save the changes or **Cancel** to discard them.

By Manual Entry

The manual entry definition requires that **GOV**, **GSV**, **Mass/Weight** and **TGSV** quantities are separately entered having been previously calculated by some other means. There are no checks to ensure that the values entered make sense (see figure below).

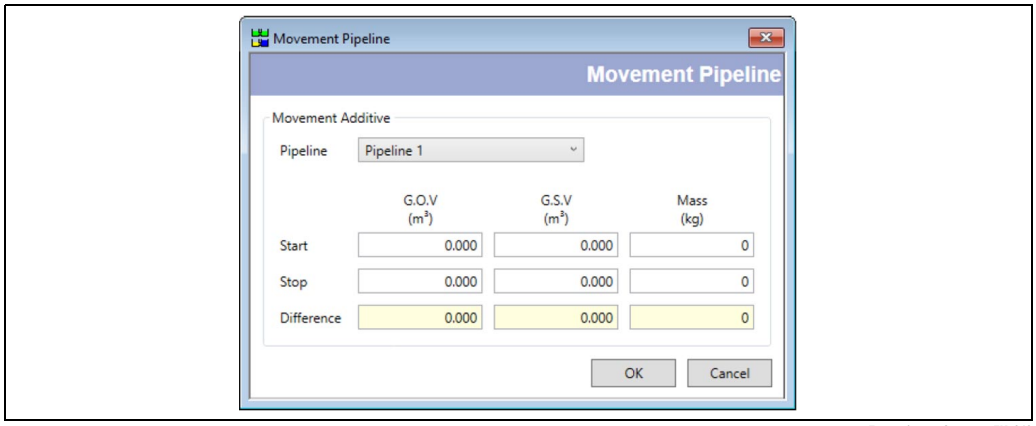


Terminalvision_Operation_EN_058

Click **OK** to save the changes or **Cancel** to discard them.

6.5.6 Pipeline Component

For Pipeline movements, the quantity of product left in or removed from the pipeline can be accounted for using the Pipeline component. For example if the pipeline was full at the start of the movement and empty at the end, the capacity of the pipeline needs to be added to the movement. Similarly product remaining in a previously empty pipeline can be deducted from the movement.
To add a Pipeline Component, click on the **Add Pipeline Movement** icon (see figure → 61).

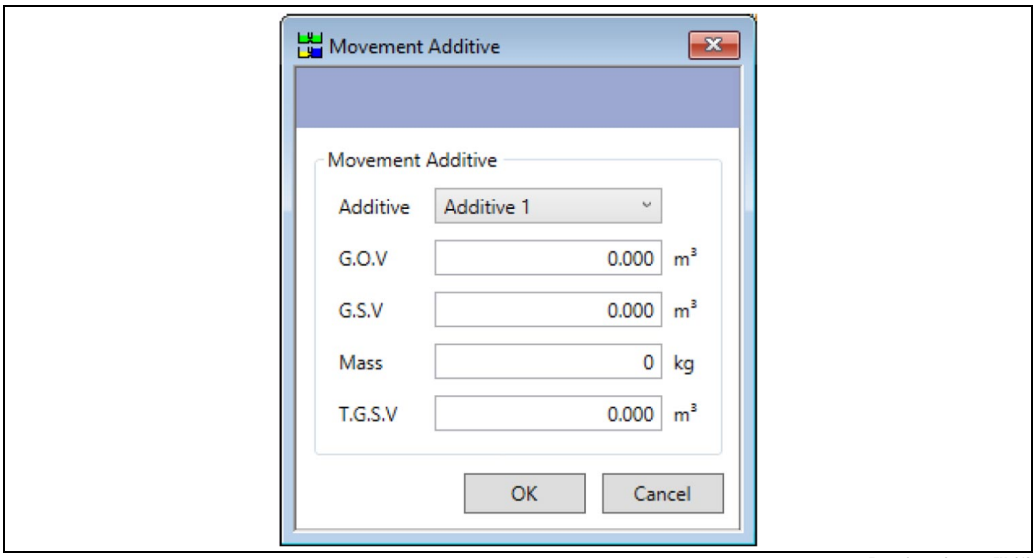


Terminalvision_Operation_EN_060

Since the temperature and therefore density of the product can differ in the pipeline from that of the tank, the GOV, GSV and Mass/Weight must be calculated separately and all three figures need to be manually entered.
It is necessary to manually enter the amount of product in the pipeline at the start and end of the movement. Any difference will be calculated and recorded on the movement transaction report.
Click **OK** to save the changes or **Cancel** to discard them.

6.5.7 Additive Components

The Movement Additive component is used to account for additional volume created by injecting additives into the product stream as it is moved.
Select the **Add Movement Additive** icon from the tool bar. More than one additive can be added and each must be configured as below (see figure below).
Select the **Additive** from the drop down menu and enter manual values for **GSV**, **GOV**, **Mass**/**Weight** and **TGSV**. The amount of additive injected will be shown as a difference in the movement summary.



Click **OK** to save the changes or **Cancel** to discard them.

6.5.8 Customer Components

Customer components describe the changes to the customer's stock holdings as a result of the movement occurring.
Select the **Add Movement Customer** icon from tool bar. More than one customer can be added. Each must be configured as below.

Customer components can be defined in one of two ways:
- By quantity
- By manual entry

The choice of definition will depend on the data available for the movement. The customer movements are added together to obtain the movement advised quantity. The quantities are "advised" because typically customers will tell you how much product they expect to have been received into or loaded from your tanks, normally using systems that are outside your control.

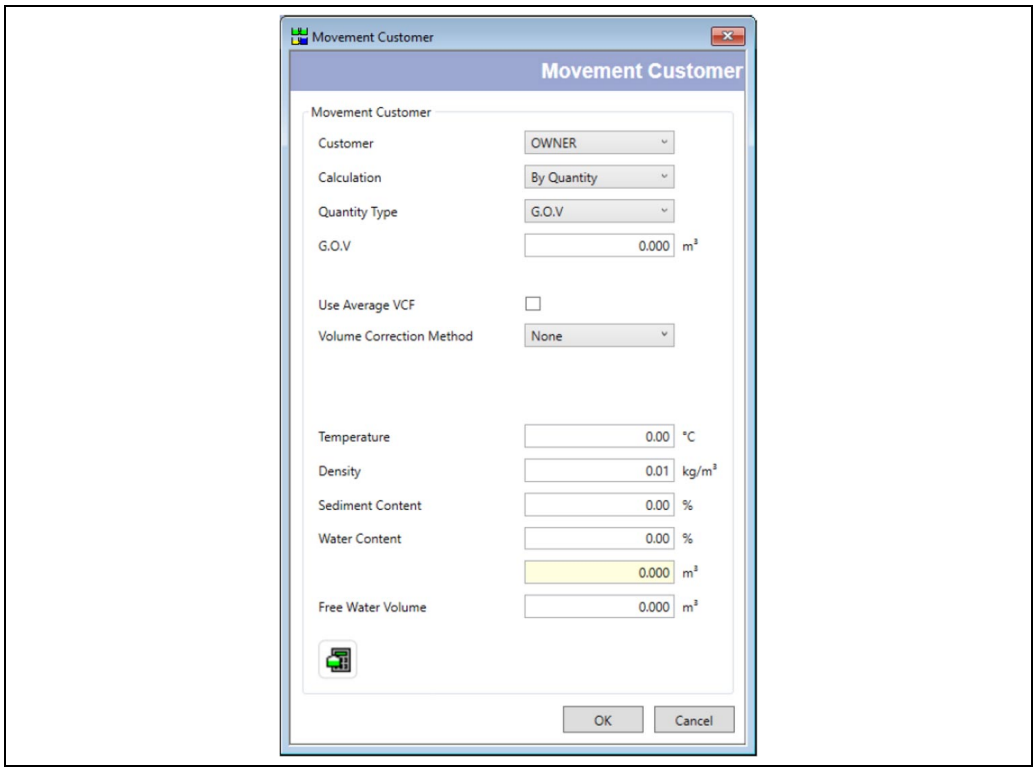
By Quantity

The definition of **Movement By Quantity** requires that one or two quantities are entered depending on **System Settings**:

Quantity Type	Use Mass	Include Vapour	Required Quantities
GOV	N/A	N/A	GOV
GSV	N/A	N/A	GSV
Mass	✔	N/A	Mass
Weight		N/A	Weight
TGSV	N/A	✔	TGSV and GSV

Quantity Type	Use Mass	Include Vapour	Required Quantities
Total Mass	✔	✔	Total Mass and Mass
Total Weight		✔	Total Weight and Weight

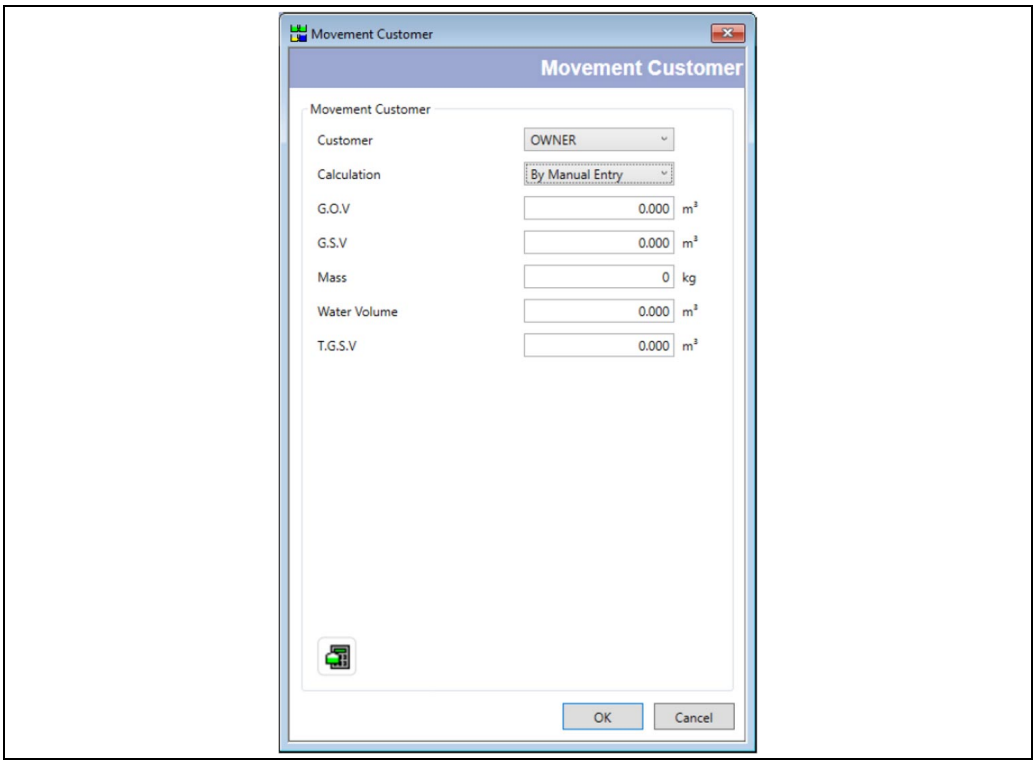
In addition a temperature and density must be entered, or alternatively select **Use Average VCF** for the movement, see figure below.



Sediment and **Water Content** may also be entered at this stage. The default values for sediment and water content for the volume of product is zero.
Click **OK** to save the changes or **Cancel** to discard them.

By Manual Entry

The manual entry definition requires that **GOV**, **GSV**, **Mass/Weight** and **TGSV** quantities are separately entered having been previously calculated by some other means. There are no checks to ensure that the values entered make sense (see figure below).



Enter the 4 values into their respective fields and the value for **Water Volume**.
Click **OK** to save the changes or **Cancel** to discard them.
Repeat the section Customer Components (→ 69) until all of the product received is allocated to all customers in the correct proportions.

6.5.9 Editing & Deleting Movement Components

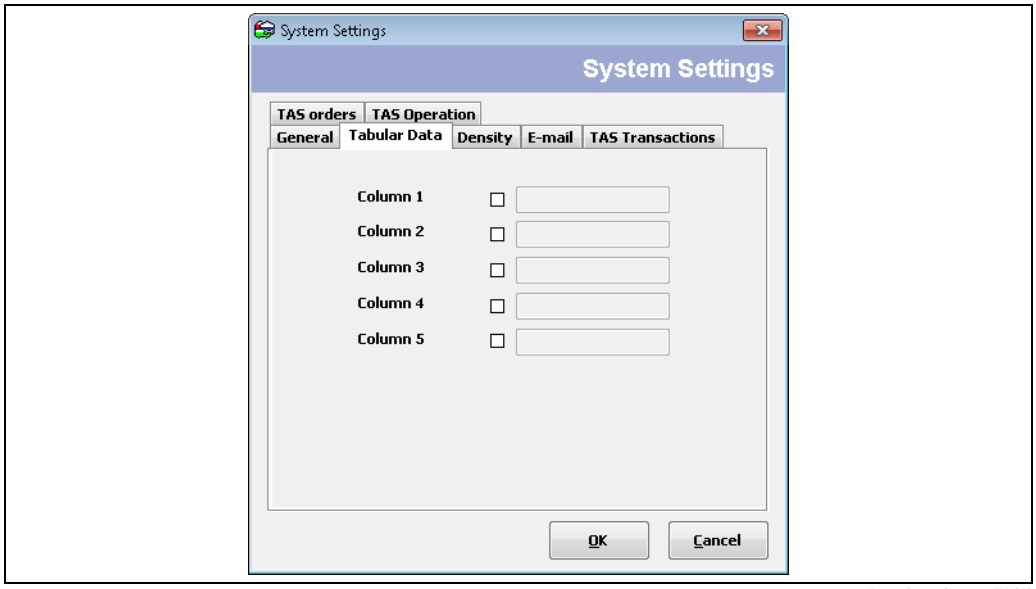
Movement components can be deleted or re-opened for editing. Select the required component to highlight it then click on the **Edit Movement** or **Delete Movement** icon on the tool bar.

6.5.10 Net Volumes

To switch between Gross (GOV, GSV), Net (NOV, NSV), and custom volume figures simply click the **Change Displayed Figures** icon in the toolbar and select the required type of figures from the menu.

6.5.11 Extended Movement Data

A small table of data (up to 5 columns) may be specified that can be stored with the movement. The data does not affect the movement calculations, but is printed on the movement certificate and is attached to each movement individually. The columns are defined once, globally for all movements via the **Admin** → **System Settings** → **Tabular Data** tab. The table can be found in the **Notes** tab of the Movements Configuration screen as shown in figure below.



Click **OK** to save the changes or **Cancel** to discard them.

6.6 Transfers

Transfers are a different type of Movement that records the movement of stock between tanks and customers. They are special because they consist of two tank or two customer movement components that have a no net effect on the overall stock holding of the site (i.e. one half of the transfer will credit one account and the other half will debit another account of a similar amount).

There are two types of transfer available in the system:
- Customer Transfers
- Tank Transfers

6.6.1 Customer Transfers

Customer transfers are used when stock ownership is transferred from one customer to another, on the same or on different sites. The transfer of product between customers and site utilises holding accounts to facilitate the transfer. You will be expected to transfer the quantity back at some point in order to keep the stock levels balanced.

Example
Company A and company B have agreed a price for some diesel fuel, and company B is to purchase 3000 m^3 from company A. The transaction will involve deducting 3000 m^3 from company A's account and crediting 3000 m^3 to company B's. The customer transfer you set up will contain two customer components to represent each half of the transaction.

To create a new customer transfer choose **Movements → New Customer Transfer...** from the main application menu. Existing customer transfers can be accessed from the Movement Customer Summary, along with the other movements.

6.6.2 Tank Transfers

Tank transfers are used when stock is moved from one tank to another within a site. When you move stock from a tank on one site to a tank on another site you should configure a pair of pipeline movements as the stock holding on both sites will be affected by this. Tank transfers also do not permit you to enter corrections for pipeline conditions, additives and miscellaneous items, if you require this functionality you will need to create a pair of movements manually.
To create a new tank transfer choose **Movements → New Tank Transfer...** from the main application menu. Existing tank transfers can be accessed from the Movement Tank Summary, along with the other movements.
It is also possible to create a new tank transfer by level. To do this, choose **Movements → New Tank Transfer by Level...** from the main application menu.
Multi tank transfers are used when stock is moved from a number of tanks within a site to another set of tanks on the same site. To create a new multi-tank transfer choose **Movements → New Multi-Tank Transfer...** from the main application menu. Existing multi-tank transfers can be accessed from the Movement Tank Summary, along with the other movements.

6.6.3 Customer Transfer Details

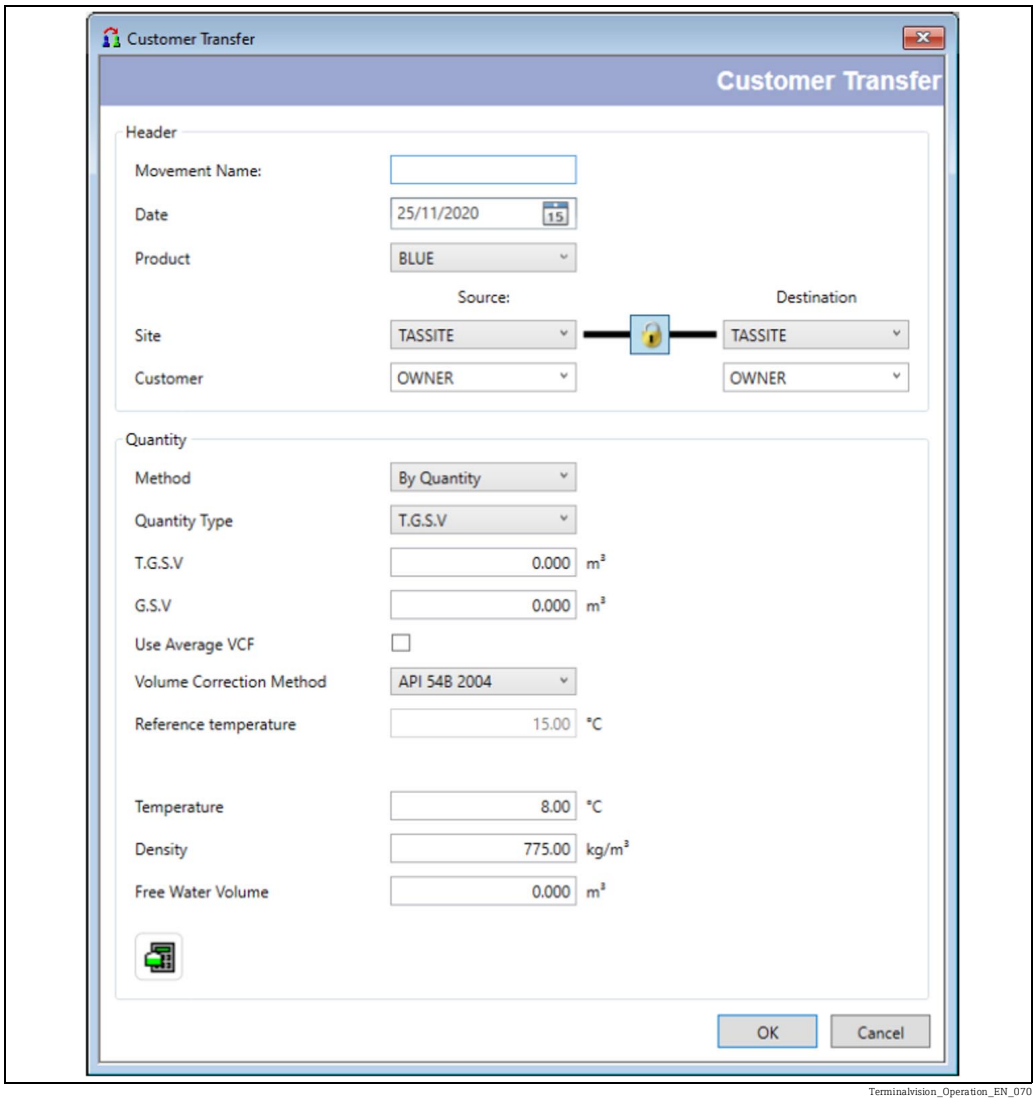
Customer transfers represent changes in ownership of some product.
Depending on the information you have available, you can choose to enter a temperature, a density and either a GOV, GSV or Mass/Weight. Alternatively you can manually enter the GOV or GSV and Mass/Weight from your own calculations.
The source and destination site, product and date of the transfer must also be specified along with the names of the customers involved.

By Quantity

The definition of **Movement By Quantity** requires that one or two quantities are entered depending on **System Settings**:

Quantity Type	Use Mass	Include Vapour	Required Quantities
GOV	N/A	N/A	GOV
GSV	N/A	N/A	GSV
Mass	✔	N/A	Mass
Weight		N/A	Weight
TGSV	N/A	✔	TGSV and GSV
Total Mass	✔	✔	Total Mass and Mass
Total Weight		✔	Total Weight and Weight

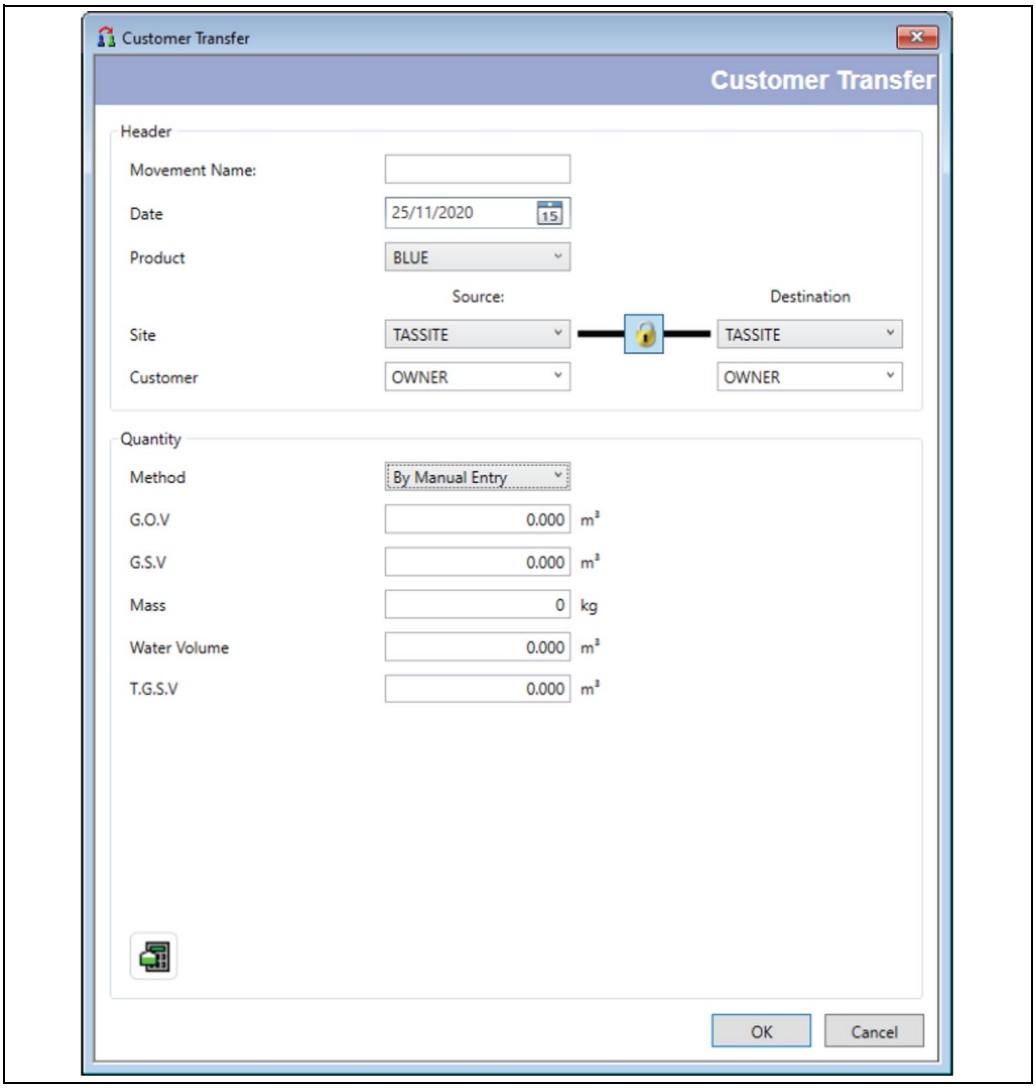
In addition a temperature and density must be entered, or alternatively select **Use Average VCF** for the movement, see figure below.



Click **OK** to save the changes or **Cancel** to discard them.

By Manual Entry

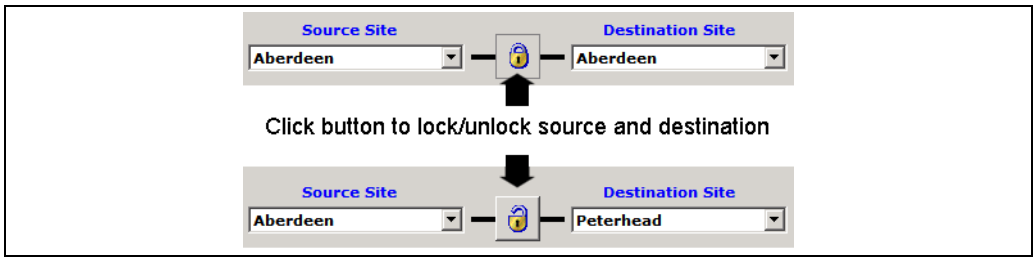
To define the transfer manually it is necessary to provide **GOV**, **GSV**, **Mass/Weight** and **TGSV**. It is assumed that these will have been correctly calculated. There are no checks to ensure the numbers entered are reasonable (see figure below).



Click **OK** to save the changes or **Cancel** to discard them.

Inter-site Transfers

By default, customer transfers occur within the same site, resulting in no net change to the amount of product stored on that site. In this simple case a quantity of product is deducted from the stock totals of one customer and an equal amount is credited to another. However, it is possible to transfer product owned by a customer on one site to the same or different customer on another site. To accomplish this, the Site Lock must be deactivated by clicking the **Lock** button.



6.6.4 Tank Transfer Details

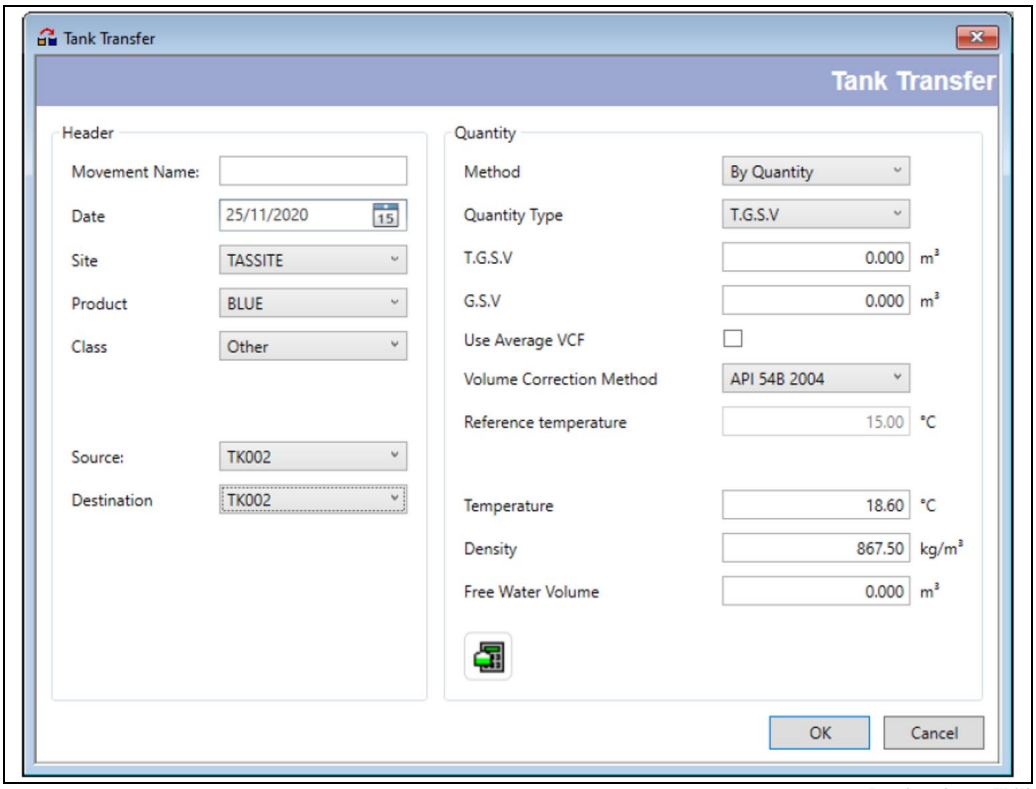
Tank transfers represent internal tank to tank movements.
Depending on the information available to you, you can choose to enter a temperature, a density and either a GOV, GSV or Mass/Weight. Alternatively you can manually enter the GOV, GSV and Mass/Weight from your own calculations.
You also need to provide the site, product and date of the transfer, as well as the tanks involved.

By Quantity

The definition of **Movement By Quantity** requires that one or two quantities are entered depending on **System Settings**:

Quantity Type	Use Mass	Include Vapour	Required Quantities
GOV	N/A	N/A	GOV
GSV	N/A	N/A	GSV
Mass	✔	N/A	Mass
Weight		N/A	Weight
TGSV	N/A	✔	TGSV and GSV
Total Mass	✔	✔	Total Mass and Mass
Total Weight		✔	Total Weight and Weight

In addition a temperature and density must be entered, or alternatively select **Use Average VCF** for the movement, see figure below.

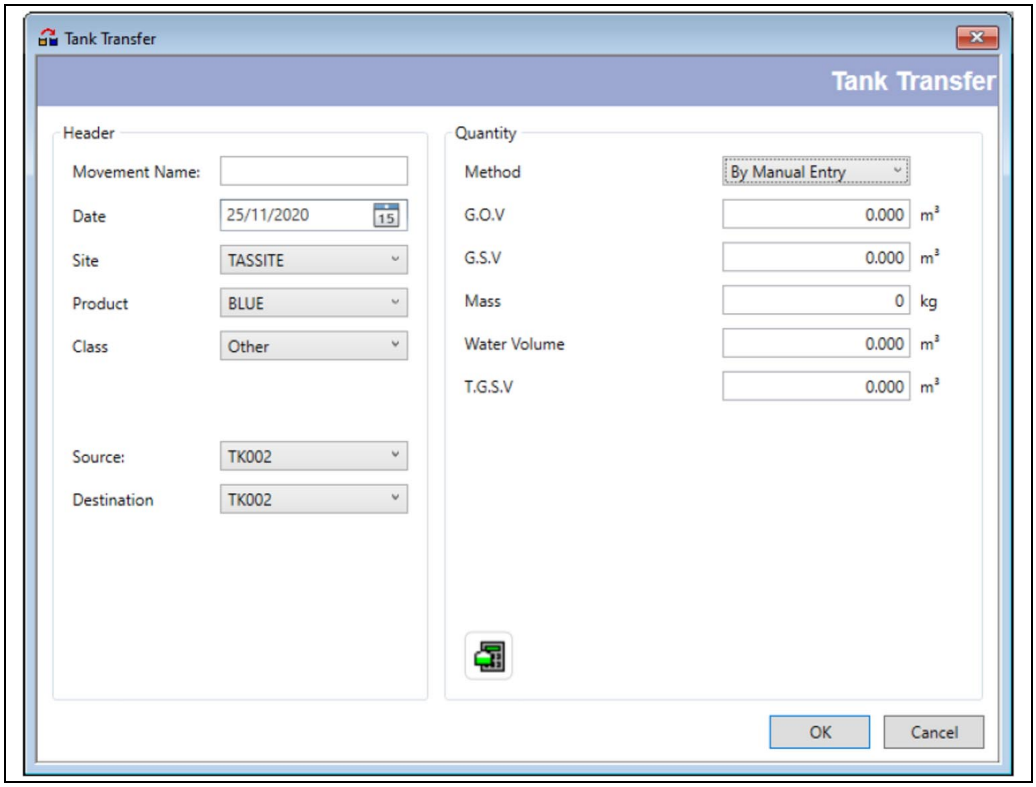


Terminalvision_Operation_EN_073

Click **OK** to save the changes or **Cancel** to discard them.

By Manual Entry

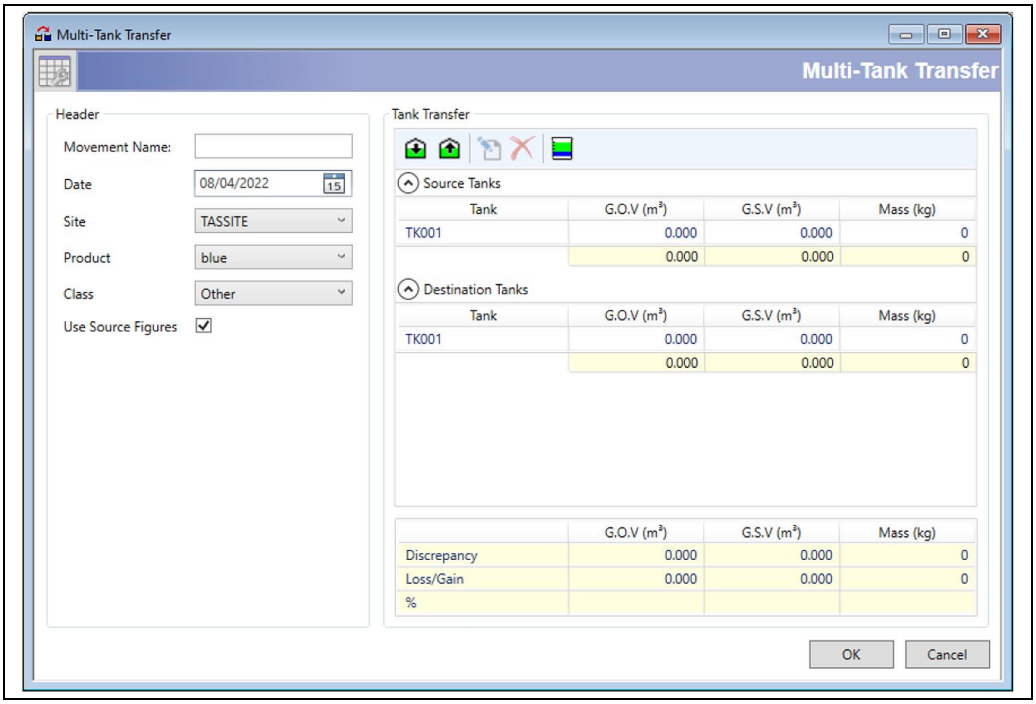
To define the transfer manually it is necessary to provide **GOV**, **GSV**, **Mass/Weight** and **TGSV**. It is assumed that these will have been correctly calculated. There are no checks to ensure the numbers entered are reasonable (see figure below).



Click **OK** to save the transfer, click **Cancel** to discard your changes.

Multi-Tank Transfer

Multi-tank transfers represent internal tank to tank movements involving multiple source and/or destination tanks (see figure below).



Terminalvision_Operation_Multi-Tank-Transfers

Since the quantities are calculated independently for each tank it is necessary to define which quantities are to be used for the movement so that the net effect upon the stock is zero. To use the quantities calculated from the figures for the source tanks, check the **Use Source Figures** field, otherwise the figures from the destination tanks will be used.

To add a new source tank to the transfer click on the **Add Source Tank** button .

To add a new destination tank to the transfer click in the **Add Destination Tank** button .

To configure an existing source or destination tank for the transfer, select the tank and then click on the **Edit Movement Tank** button .

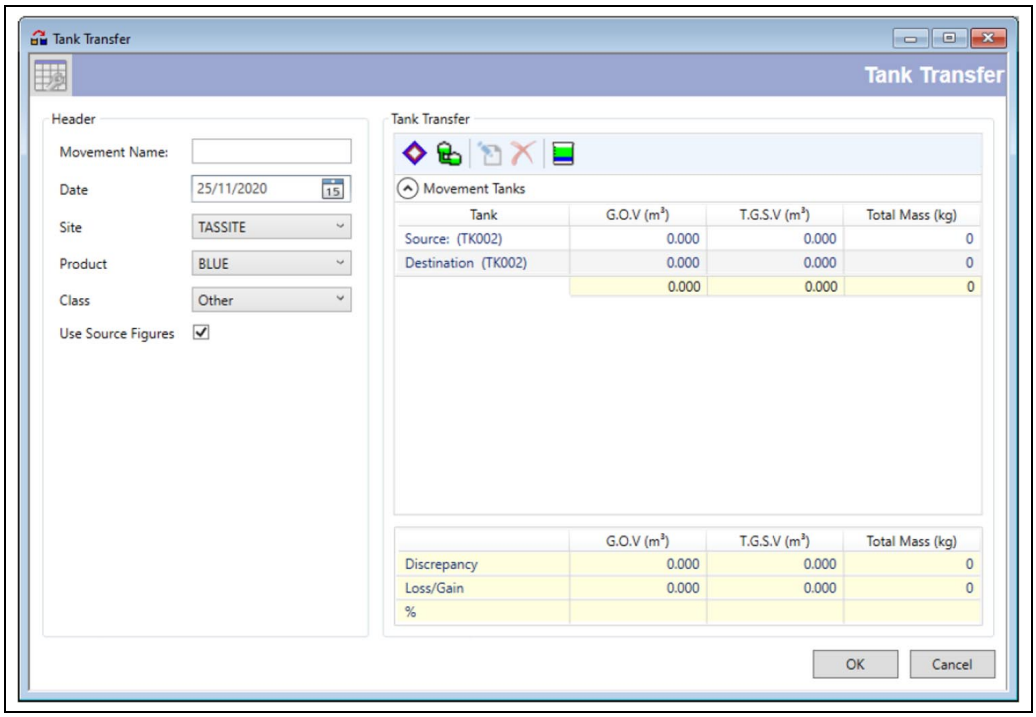
To remove an existing source or destination tank for the transfer, select the tank and then click on the **Delete Movement Tank** button .

For details on how to edit tank component figures see Tank Components → 62.

Click **OK** to save the changes or **Cancel** to discard them.

Tank Transfer by Level

Tank transfer by level represent internal tank to tank movements when the quantity of product moved is calculated from the levels in the tanks before and after the movement. In addition, it is possible to configure miscellaneous items and pipelines when performing tank transfers by level (see figure below).



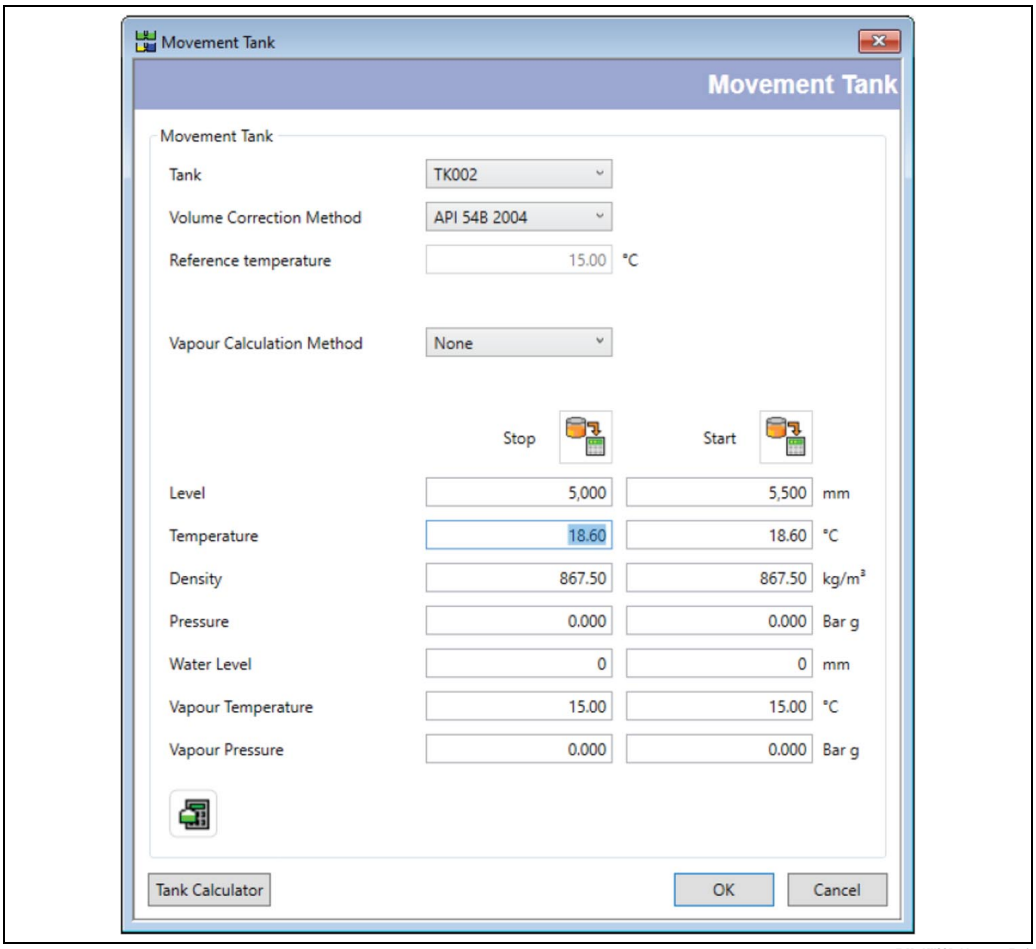
TeVi_NXS85_TankTransferbyLevel

Since the quantities are calculated independently for each tank it is necessary to define which quantities are to be used for the movement so that the net effect upon the stock is zero. To use the quantities calculated from the source tank figures, check the **Use Source Figures** field, otherwise the figures from the destination tank will be used.

Tank Components

Tanks cannot be added or removed. There will always be exactly one source tank and one destination tank. To edit a tank, select the tank and then click the **Edit** button .

To use this definition there must be two sets of tank readings available, one immediately prior to the transfer starting and a second immediately after the transfer completed. The sets of data must consist of readings of level, temperature, water level and density. In addition, if **Include Vapour** is set in the **System Settings**, the sets of data must also include vapour temperature and vapour pressure.
If you have integrated Terminalvision with your Tank Gauging system you may click the **Get Current Data** button to retrieve the current tank status into both the starting and finish conditions on the form (see figure below).



TeVi_NXS85_MovementTank

Click **OK** to save the transfer, click **Cancel** to discard your changes.

Miscellaneous Component

Select the **Add Movement Misc** icon from toolbar. More than one miscellaneous component can be added and each must be configured as below.
Miscellaneous Components describe any part of a transfer not otherwise accounted for.

You can define the quantity of product moved in one of two ways:
- By quantity
- By manual entry

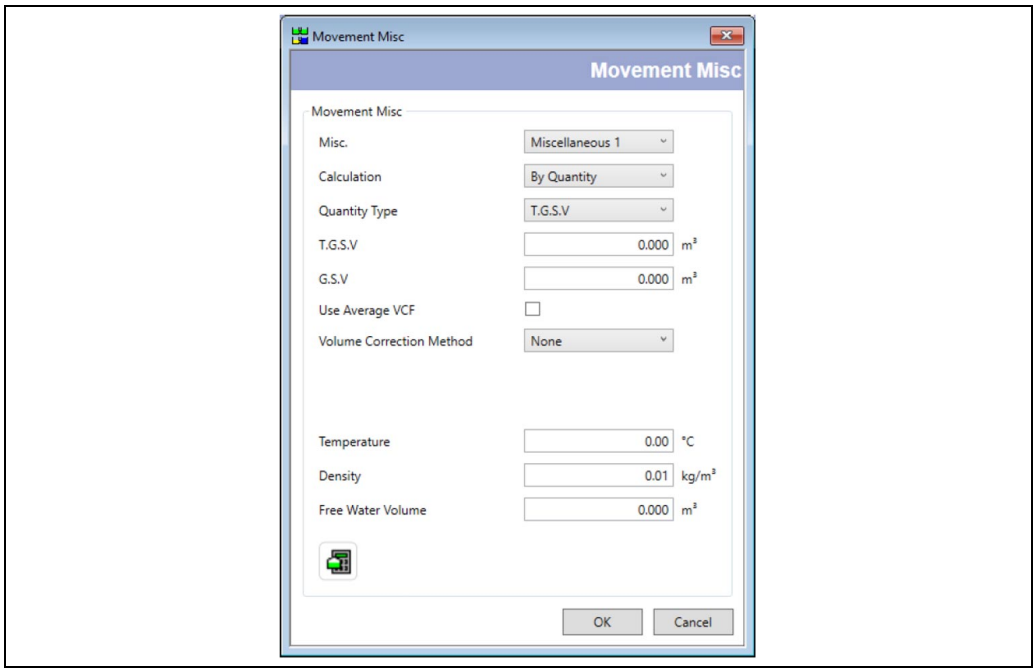
The information available concerning the transfer will largely determine the definition used.

By Quantity

The definition of **Movement By Quantity** requires that one or two quantities are entered depending on **System Settings**:

Quantity Type	Use Mass	Include Vapour	Required Quantities
GOV	N/A	N/A	GOV
GSV	N/A	N/A	GSV
Mass	✔	N/A	Mass
Weight		N/A	Weight
TGSV	N/A	✔	TGSV and GSV
Total Mass	✔	✔	Total Mass and Mass
Total Weight		✔	Total Weight and Weight

In addition a temperature and density must be entered, or alternatively select **Use Average VCF** for the movement, see figure below.

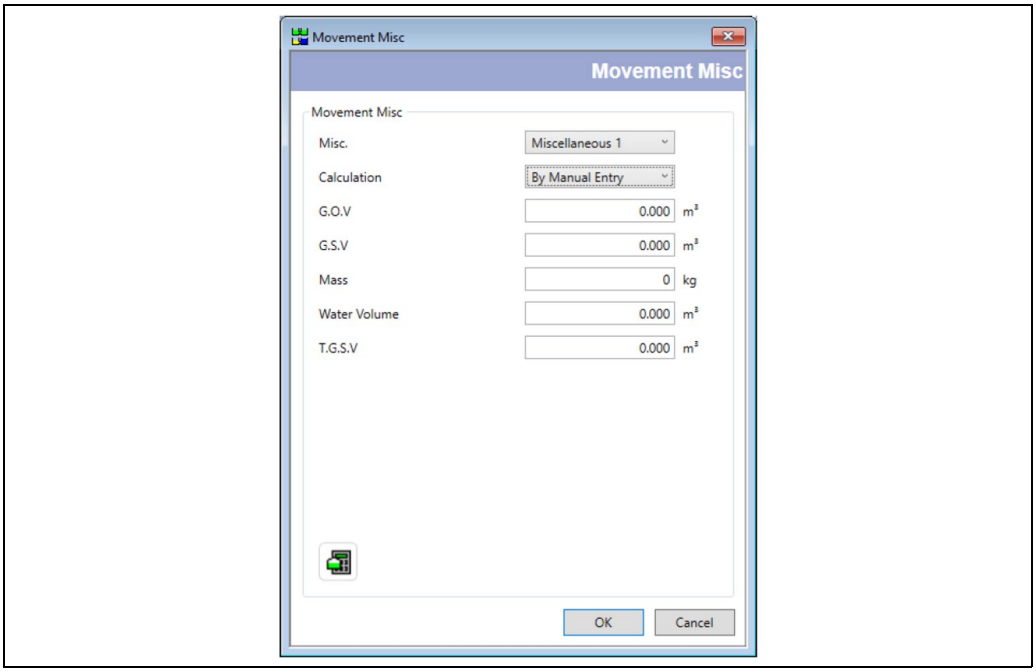


TeVi_NXS85_MovementMisc

Sediment and water content may also be entered at this stage. The default values for sediment and water content for the volume of product is zero. Click **OK** to save the changes or **Cancel** to discard them.

By Manual Entry

The manual entry definition requires that **GOV**, **GSV**, **Mass**/**Weight** and **TGSV** quantities are separately entered having been previously calculated by some other means. There are no checks to ensure that the values entered make sense (see figure below).

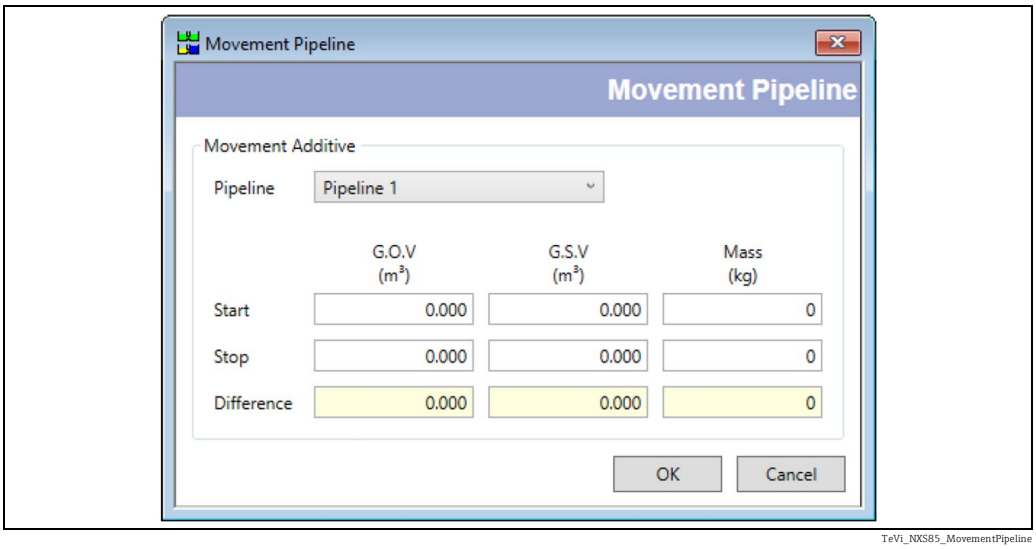


TeVi_NXS85_MovementMiscMan

Click **OK** to save the transfer, click **Cancel** to discard your changes.

Pipeline Component

For tank transfers by level, the quantity of product left in or removed from the pipeline can be accounted for using the Pipeline component. For example, if the pipeline was full at the start of the transfer and empty at the end, the capacity of the pipeline needs to be added to the transfer. Similarly product remaining in a previously empty pipeline can be deducted from the transfer.
To add a **Pipeline Component**, click on the **Add Pipeline** icon (see figure below).



TeVi_NXS85_MovementPipeline

Since the temperature and therefore density of the product can differ in the pipeline from that of the tank, the GOV, GSV and Mass/Weight must be calculated separately and all three figures need to be manually entered.

It is necessary to manually enter the amount of product in the pipeline at the start and end of the movement. Any difference will be calculated and recorded on the movement transaction report.

Click **OK** to save the transfer, click **Cancel** to discard your changes.

6.7 Adjustments

The system provides two ways to correct mistakes that have occurred in the processing of movements. The first is that at any time after a **movement** or **transfer** has been entered you can go back and revisit the movement and alter the figures it contains. Adjustments, the second way, are generally used to correct stock figures after customers have been issued with a statement of their activities for the period.
If the first method of correcting your accounting figures is used, it is necessary to recalculate every day's closing stock from the date of the corrected movement up to the current date. If that period encompasses an end of month, then it will affect the monthly statement for the customers concerned, and you would have to re-issue those statements, which may not be possible or practical.
With the second method, of entering an adjustment, the previous period's error is left in place and a correction made for it in the current month. The adjustment will be shown on the monthly reports and will be accounted for in the closing stock calculations at the end of the current month. Monthly statements would therefore not need to be re-issued.

6.7.1 Tank Adjustments

Tank Adjustments are used to correct the tank stock figures. A tank adjustment would be used if, for example, it became necessary to recalibrate a tank gauge after discovering that it had been providing inaccurate level readings. The difference between the volumes and mass at the old level reading and new level reading ought to be accounted for by entering an adjustment into the system.

6.7.2 Customer Adjustments

Customer Adjustments are used to correct errors made in entering movement details and so on. For example if a stock receipt was incorrectly attributed to the wrong customer, an adjustment to debit stock from one customer and a second adjustment to credit a similar amount to another would be necessary. Stock transfers could be entered by this mechanism, however the system has a separate mechanism for handling this which may be more convenient than creating a pair of adjustments (see Transfers, → 72).

6.7.3 Creating Tank Adjustments

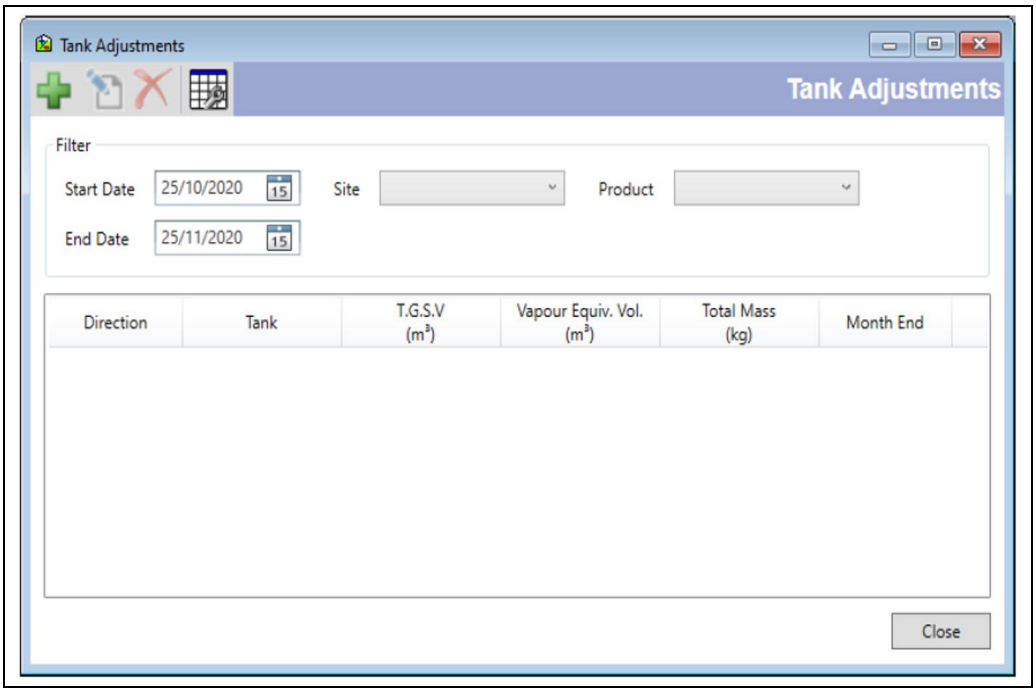
The tank adjustment form is accessed from the **Accounting → Tank Adjustments** menu option in the main application.
This form can be used to locate and edit existing tank adjustments and enter new ones. Existing adjustments can be viewed by entering the correct range into the date fields. This will display all adjustments between and including the specified dates. The search can be narrowed by applying filters for **Site** and **Product** (see figure below).

Adjustments are separated into credit and debit adjustments so that stock quantities are always entered as positive figures. This eliminates potential errors caused by having to enter negative quantities for debit adjustments.

To enter a new adjustment, select the appropriate site, product and date and then click the **Add** button.

There are two methods of entering an adjustment:
- By quantity
- By manual entry

The choice of definition will depend on the data available for the adjustment.



Terminalvision_Operation_EN_077

To edit an existing adjustment select the adjustment from the list and either double-click or press the **Edit** button. To delete an adjustment select the adjustment from the list and press the **Delete** button to remove it.
The addition and editing process for tank adjustments uses the **Tank Adjustment Form**.

6.7.4 Tank Adjustment Details

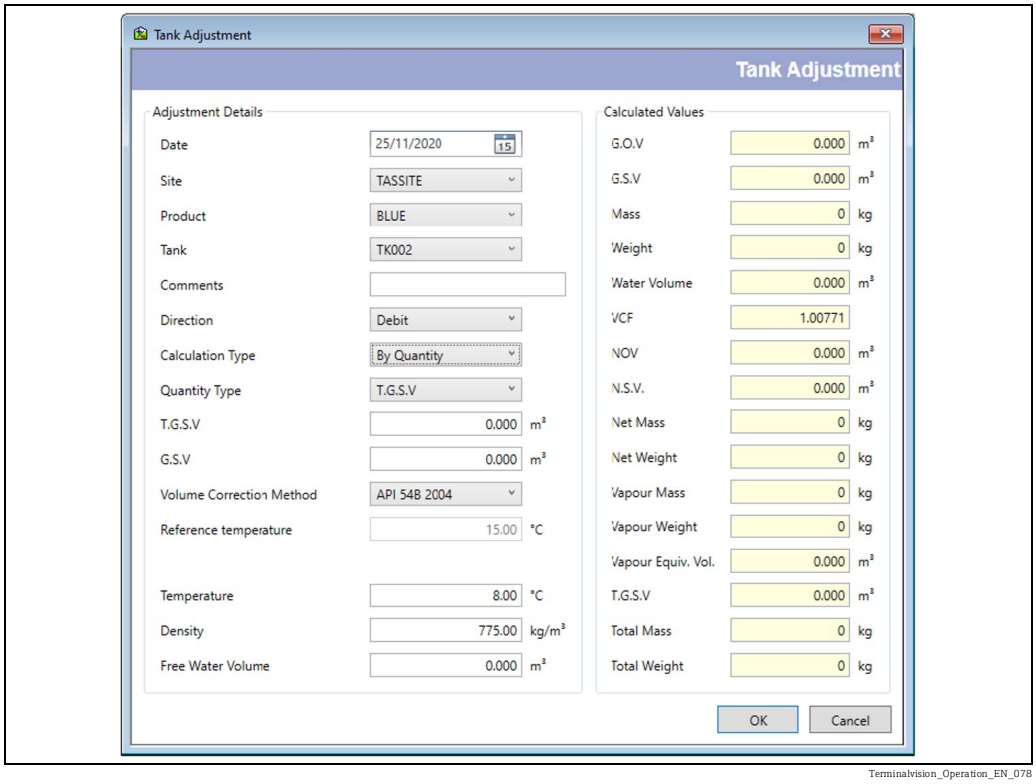
When editing or creating a new Tank adjustment choose whether to define the adjustment by quantity or manual entry. The choice will largely be based on the information you have available to you.
Next specify whether the adjustment is a **Credit** or a **Debit**.

By Quantity

Select the tank from the drop down menu.
To define the adjustment by quantity requires that one or two quantities are entered depending on **System Settings**:

Quantity Type	Use Mass	Include Vapour	Required Quantities
GOV	N/A	N/A	GOV
GSV	N/A	N/A	GSV
Mass	✔	N/A	Mass
Weight		N/A	Weight
TGSV	N/A	✔	TGSV and GSV
Total Mass	✔	✔	Total Mass and Mass
Total Weight		✔	Total Weight and Weight

In addition a temperature and density must be entered. The system will then calculate the remaining quantities from those supplied using the temperature and density to calculate a **VCF.** See figure below.

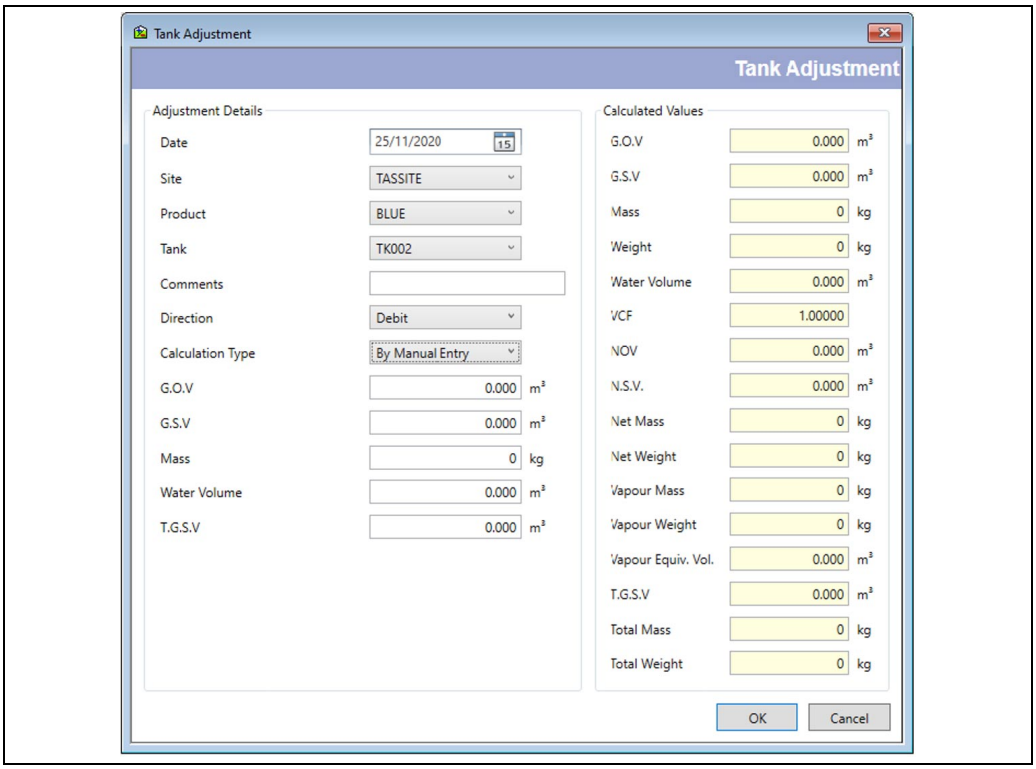


Terminalvision_Operation_EN_078

Click **OK** to save the changes or **Cancel** to discard them.

By Manual Entry

Select the tank from the drop down menu.
To define the adjustment manually you need to provide **GOV**, **GSV**, **Mass/Weight** and **TGSV** quantities. It is assumed you will have calculated the 4 values yourself. There are no checks to make sure the numbers you enter are reasonable (see figure below).

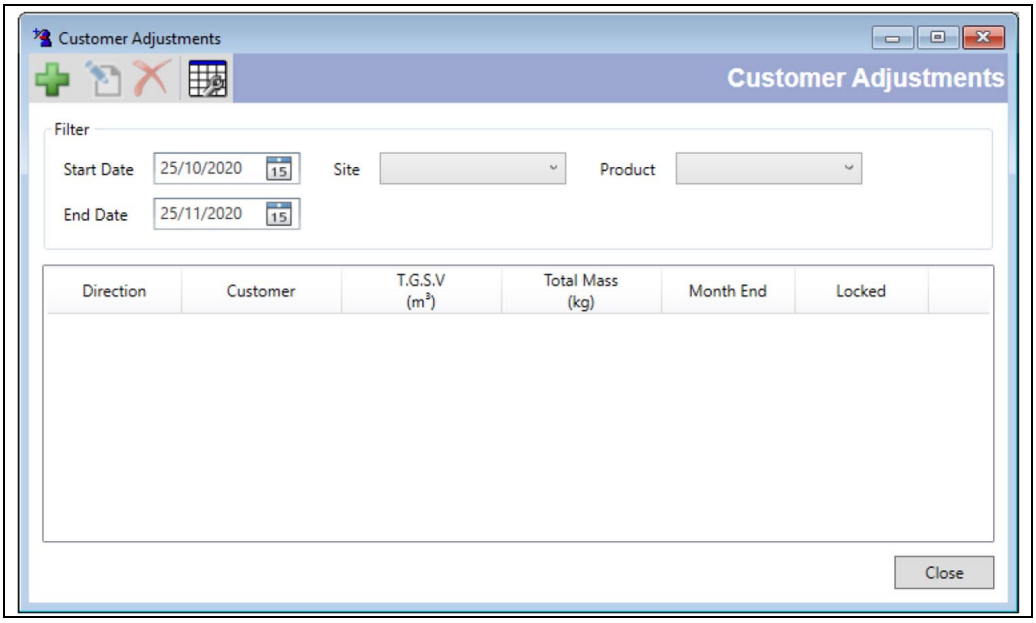


Terminalvision_Operation_EN_079

Click **OK** to save the changes or **Cancel** to discard them.

6.7.5 Customer Adjustments

The customer adjustment form is accessed from the **Accounting** → **Customer Adjustments** menu option in the main application.
This form can be used to locate and edit existing customer adjustments and enter new ones. Existing adjustments can be viewed by entering the correct range into the date fields. This will display all adjustments between and including the specified dates. The search can be narrowed by applying filters for **Site** and **Product** (see figure below).



Terminalvision_Operation_EN_043

Adjustments are separated into credit and debit adjustments so that stock quantities are always entered as positive figures. This eliminates potential errors caused by having to enter negative quantities for debit adjustments.
To enter a new adjustment, select the appropriate site, product and date and then click the **Add** button.

There are two methods of entering an adjustment:
- By quantity
- By manual entry

The choice of definition will depend on the data available for the adjustment.
To edit an existing adjustment select the adjustment from the list and either double-click or press the **Edit** button. To delete an adjustment select the adjustments from the list and press the **Delete** button to remove it.
The addition and editing process for customer adjustments uses the **Customer Adjustment Form**.

6.7.6 Customer Adjustment Details

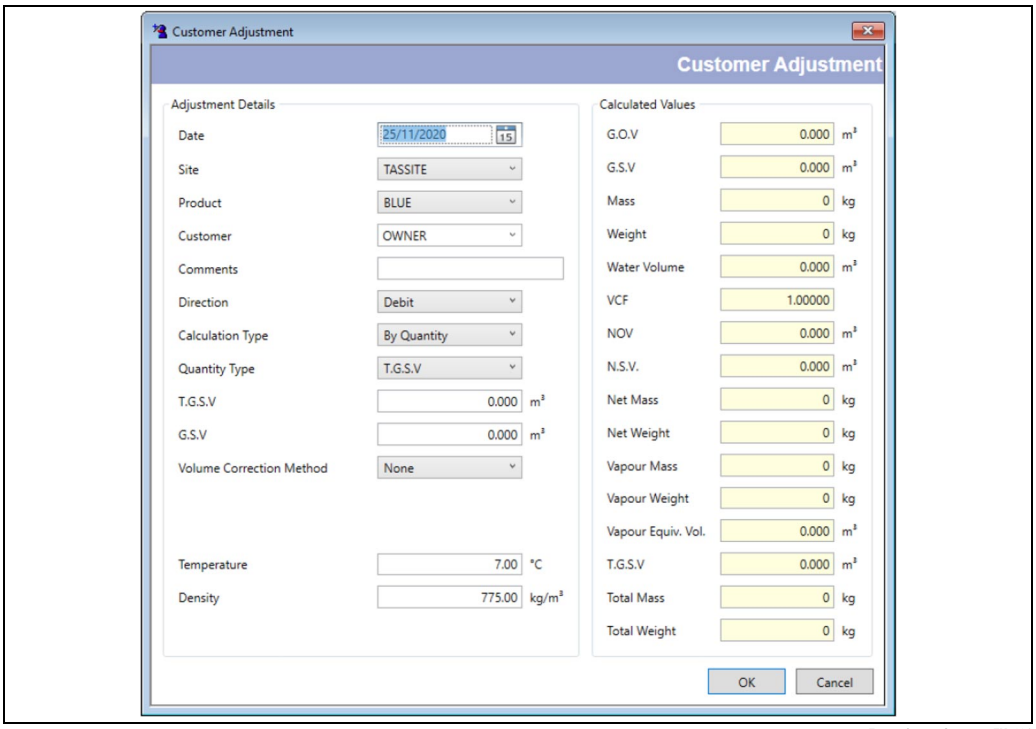
When editing or creating a new Customer adjustment choose whether to define the adjustment by quantity or manual entry. The choice will largely be based on the information you have available to you.
Next specify whether the adjustment is a **Credit** or a **Debit**

By Quantity

Select the customer from the drop down menu.
To define the adjustment by quantity requires that one or two quantities are entered depending on **System Settings**:

Quantity Type	Use Mass	Include Vapour	Required Quantities
GOV	N/A	N/A	GOV
GSV	N/A	N/A	GSV
Mass	✔	N/A	Mass
Weight		N/A	Weight
TGSV	N/A	✔	TGSV and GSV
Total Mass	✔	✔	Total Mass and Mass
Total Weight		✔	Total Weight and Weight

In addition a temperature and density must be entered. The system will then calculate the remaining quantities from those supplied using the temperature and density to calculate a **VCF.** See figure below.

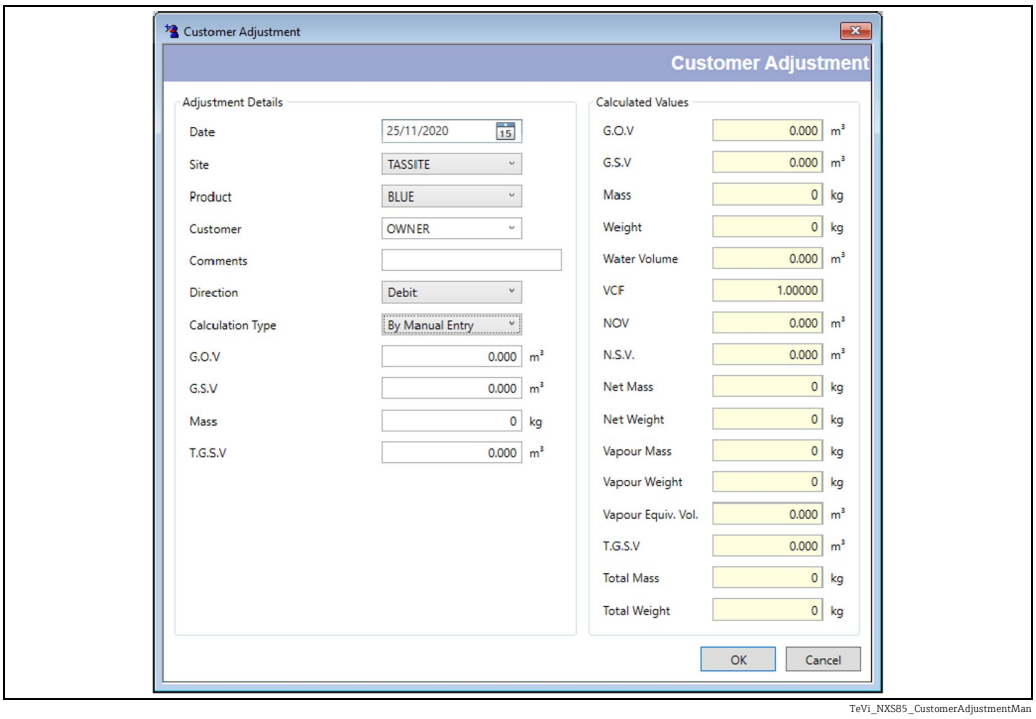


Terminalvision_Operation_EN_116

Click **OK** to save the changes or **Cancel** to discard them.

By Manual Entry

Select the customer from the drop down menu.
To define the adjustment manually you need to provide **GOV**, **GSV**, **Mass**/**Weight** and **TGSV** quantities. It is assumed you will have calculated the 4 values yourself. There are no checks to make sure the numbers you enter are reasonable (see figure below).



TeVi_NXS85_CustomerAdjustmentMan

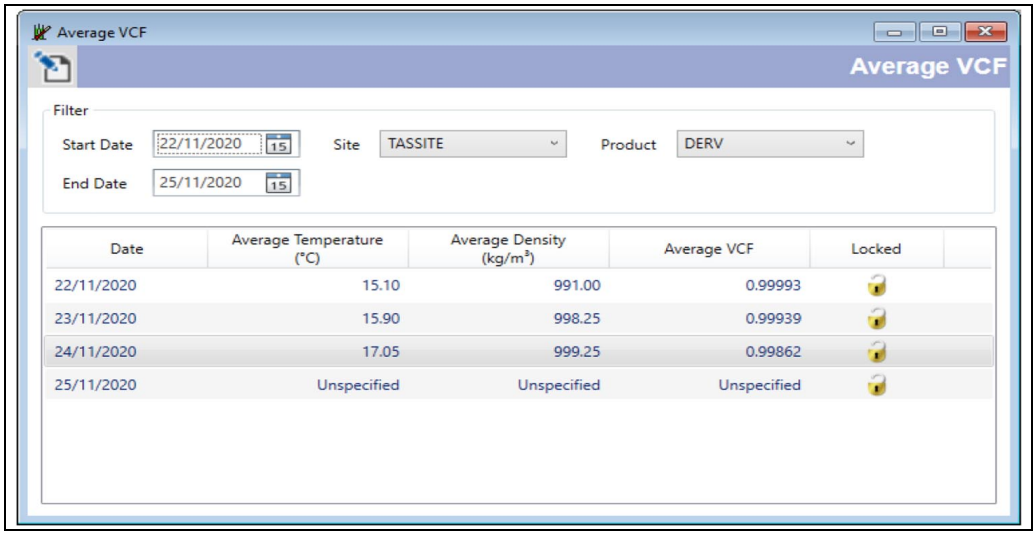
Click **OK** to save the changes or **Cancel** to discard them.

6.8 Average VCF

For site operations where a temperature and density cannot be ascertained for the beginning and end of the operation, you can use the day's average VCF information. The average VCF data consists of up to six pairs of temperatures and densities collected at various times throughout the day.
For example, hydrant movements are a collection of movements drawn from a series of inter-connected fuel hydrants. The data that is recorded by the hydrant users cannot be reconciled back to a specific time, so the hydrant user cannot know the temperature and density of the fuel being supplied. To overcome this problem a series of temperature and density readings are taken over the course of the day and an average is calculated. This average can then be used to calculate the standard and tonnage quantities for the movements.
It should be understood that where an actual temperature and density reading is available for a movement this should be used in preference to the daily average.
Movements that use the average VCF figures can be entered at any point during the day and further temperature and density samples can still be entered later. When the cut-off calculations are run, the movement will be updated with the average VCF data, prior to being incorporated into the daily figures.

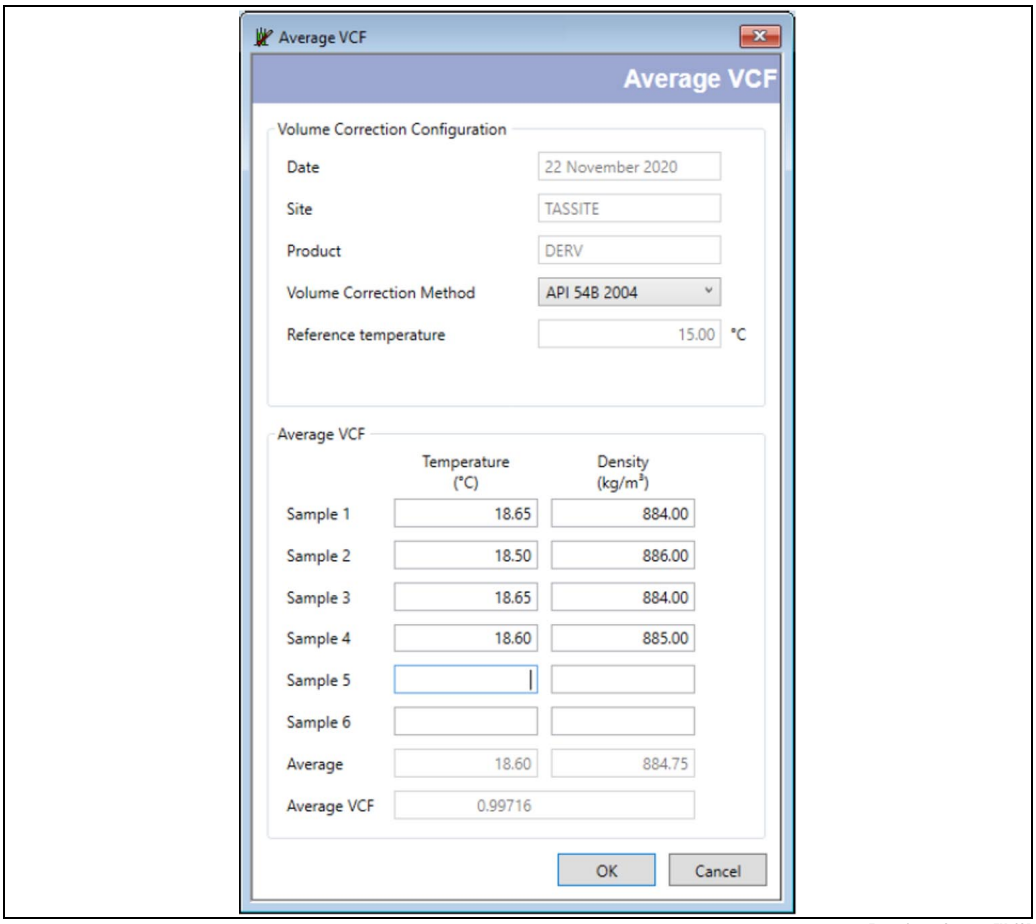
6.8.1 Viewing Average VCF Data

Average VCF Data is accessed from the menu by select **Accounting** → **Ave VCF** or by clicking the **Ave VCF** button on the tool bar .
The **Ave VCF** form is then displayed, as shown in figure below, which shows the average temperature, density and VCF recorded for each day in a specified time period. By default the time period is 1 month prior to the current date, however this can be altered as required.



Terminalvision_Operation_EN_084

Each VCF is date, site and product specific.
Where no samples are recorded for a particular day, the values will be shown as being **Unspecified**.
To enter temperature and density values for a day, double click on the date to open a second form, as shown in figure below. From this form you can enter a day's samples, edit those samples or remove a set of samples.

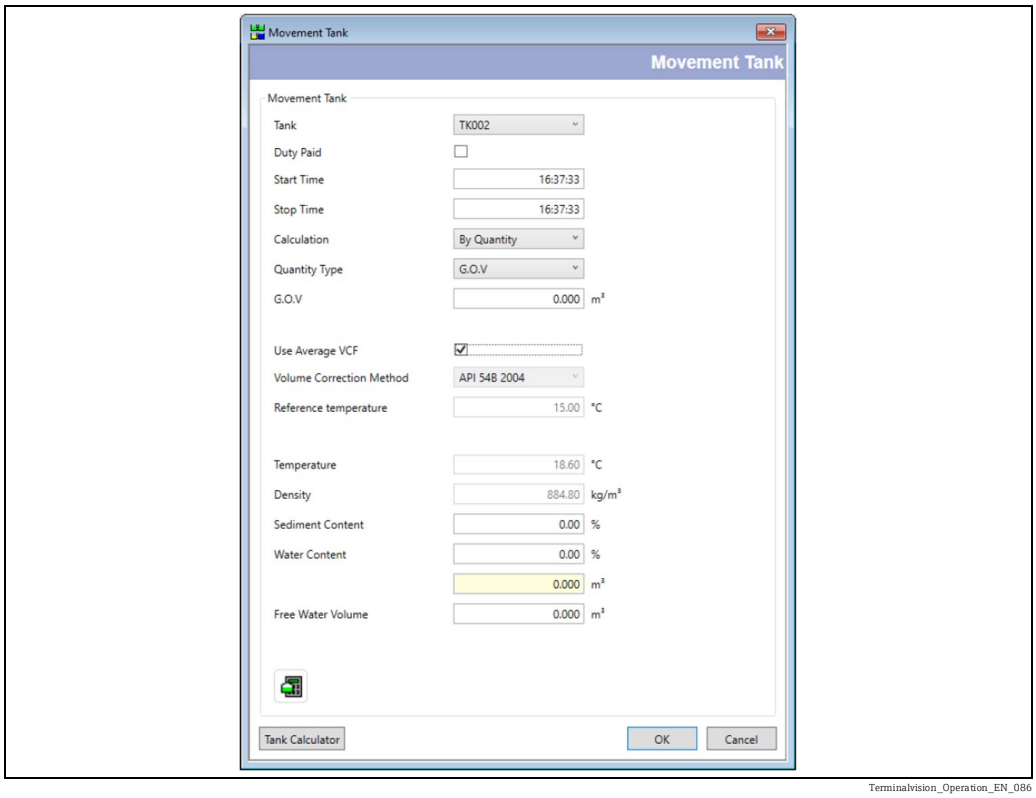


Terminalvision_Operation_EN_085

The form provides space for up to six samples. The temperatures and densities do not need to be paired as the average VCF is calculated by first calculating the average temperature, then by calculating the average density and subsequently using those two values calculate a figure for the VCF using the selected volume correction method. Any fields that do not have a figure entered in them are not used in the calculation of average temperature and density. If the average temperature or density falls outside the range of values specified by the selected volume correction method, then the average VCF will be set to **-1.0** to indicate an error.

6.8.2 Using Average VCF Data

To make use of the average VCF data, movements or transfers that specify **Use Average VCF** in their component definitions must be created. The movement components that can make use of the average VCF data have been specified in the movements section. For reference these are tank movements, customer movements and miscellaneous items. Average VCF data can only be applied when specifying the movement "By Quantity".
For the reasons mentioned above, Hydrant movements are a special case where the use of average VCF data is implied.
When the **Use Average VCF** option is selected the **Temperature** and **Density** fields will become read only and will be populated with the current average temperature and density for the date of the movement, leaving only the quantity field(s) for the movement component to be completed (see figure below).



Terminalvision_Operation_EN_086

The Average VCF data may be updated after entering the movement since the average VCF data will be reapplied during the cut-off calculations and any changes in the figures will be accounted for. If movement certificates for a movement using average VCF are to be printed, it may be necessary to reprint the certificate to reflect the changes.

6.9 Typical End of Day Procedure

Obviously the end of day procedure will differ between sites, so this section is only intended as a guide to site operators developing their own end of day processes.

1. Check that all the day's receipts, loads and transfers have been entered. Use the tank and customer historical screens to get a list of today's movements.
2. Check that any corrections needed have been entered in the adjustments. It is good practise to write an entry in the daily and monthly logs when this had been done.
3. Enter the closing stock figures.
4. Run the cut-off calculation.
5. Use the check stock facility to make sure your figures balance, if they don't repeat from step 1.
6. Prepare daily reports.

The key thing to remember is that if the stock does not balance on one day, in all probability it will still not balance the next unless some action is taken to reconcile the difference. The job of reconciling the figures gets harder the more entries there are to consider.

6.10 Typical Month End Procedure

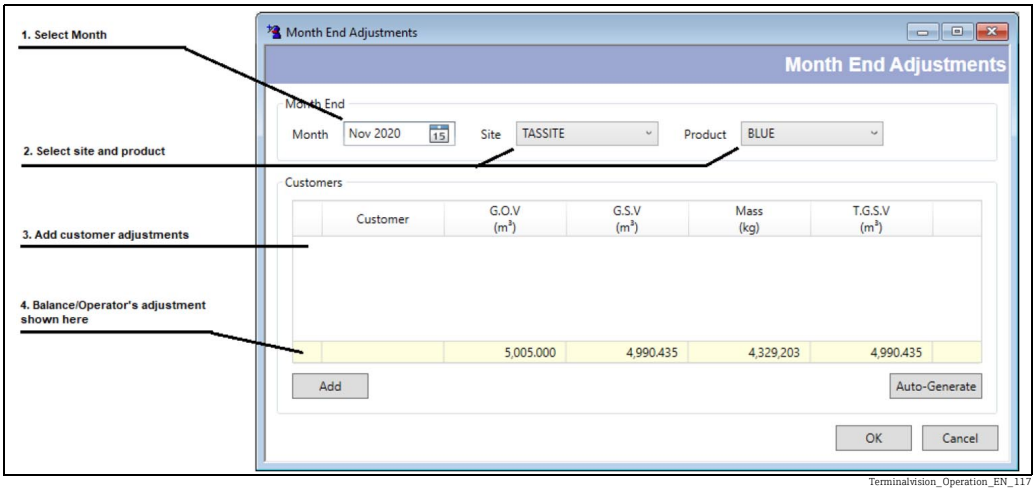
The month end procedure is really just the same as the daily procedure above, except that at month ends the losses and gains are calculated and apportioned. Customers are normally issued with "statements" at the end of the month showing the withdrawals and receipts into their accounts.

1. Check that all the day's receipts, loads and transfers have been entered. Use the tank and customer historical screens to get a list of today's movements.
2. Check that any corrections needed have been entered in the adjustments. It is good practise to write an entry in the daily and monthly logs when this had been done.
3. Enter the closing stock figures.
4. Run the cut-off calculation.
5. For each product, calculate the month end adjustment.
6. Repeat cut-off calculations.
7. Use the check stock facility to make sure your figures balance, if they don't repeat from step 1.
8. Prepare daily reports.
9. Prepare monthly reports.
10. Backup database.

6.11 Month End Adjustments

The process of rebalancing the book stock and physical stocks involves creating adjustments to allow for losses and gains incurred during the previous month. The processing undertaken by Terminalvision involves first calculating the difference between book and physical stocks, and creating tank adjustments for each tank.

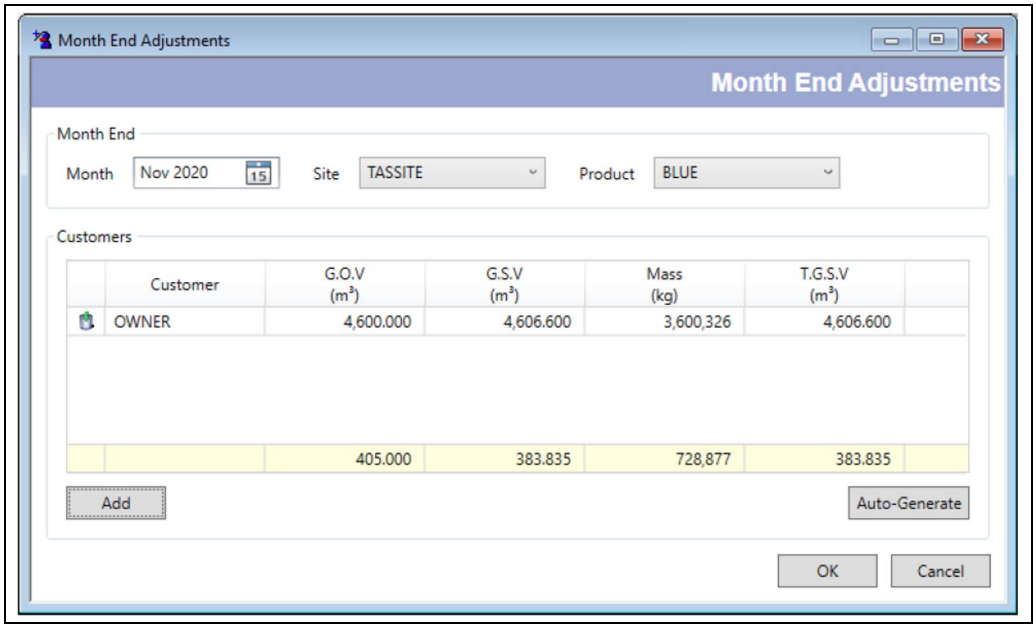
These adjustments for each tank are totalled, and an equal quantity of adjustments need to be applied to the customers' book stocks so that the balance between tank and customer stocks is maintained. The operators have free reign to allocate the losses and gains the way they feel, and site policies will dictate how this calculation is performed. There is a facility to automatically apportion the adjustments based on each customer's throughput.



1 Select month
2 Select site and product
3 Add customer adjustments
4 Balance/Operator's adjustment shown here

Launch the Month End Adjustment utility by selecting **Accounting → Month End Adjustments**.

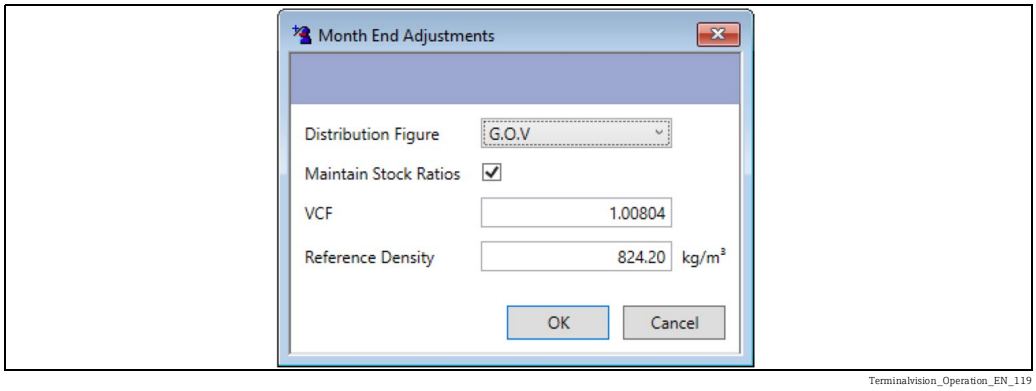
Select the appropriate month, and then for each site/product combination for the month view the loss and gain for the month. The image in figure below shows a month for which there is a gain of product, a loss would be shown as a negative quantity. Typically, the loss or gain would be shared fairly among the stockholders for the product according to some rationale. The site operator is always the last entry and is allocated the balancing adjustment. The site operator's adjustment quantity is never directly entered because it is calculated as the difference between the other customer's adjustment and the physical tank stocks.
In figure below the operator has allocated a portion of the gain to a customer called OWNER. The operator's adjustment is calculated as the remaining portion of the gain.



Terminalvision_Operation_EN_118

6.11.1 Auto-Generate

The **Auto-Generate** button can be used to automatically create adjustments. If your site allocates losses and gains in proportion to the customer's throughput, then this feature can be used to calculate the losses and gains.



Terminalvision_Operation_EN_119

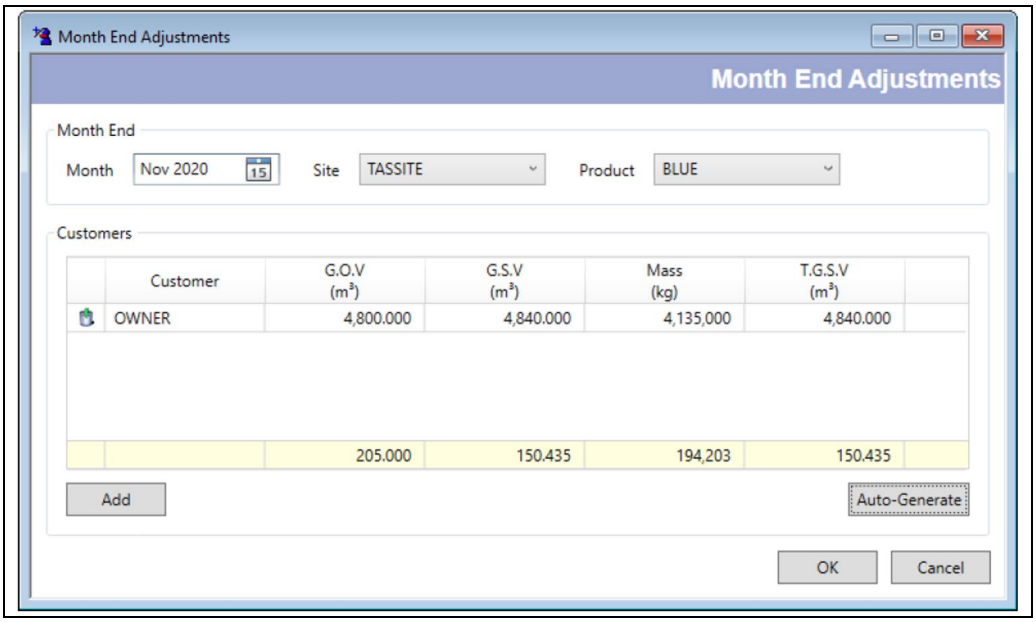
Throughput is defined as the quantity of product that a given customer has loaded during the month period.

The site operators throughput will only be considered if the **Operators contribute to loss/gain** system setting is enabled.

The auto-generate form allows you to choose whether to base that throughput calculation on observed volume, standard volume or tonnage. The **Maintain Stock Ratios** flag, when set, uses the provided **VCF** and **Reference Density** values to calculate the adjustments in proportion to the selected **Distribution Figure**. If this is unticked the allocation is driven purely in proportion to the adjustment.

It is not uncommon to face a situation where the month end figures present a loss in observed volume and a gain in weight. Your choice of distribution figures in this situation can affect whether the month has a loss or a gain.

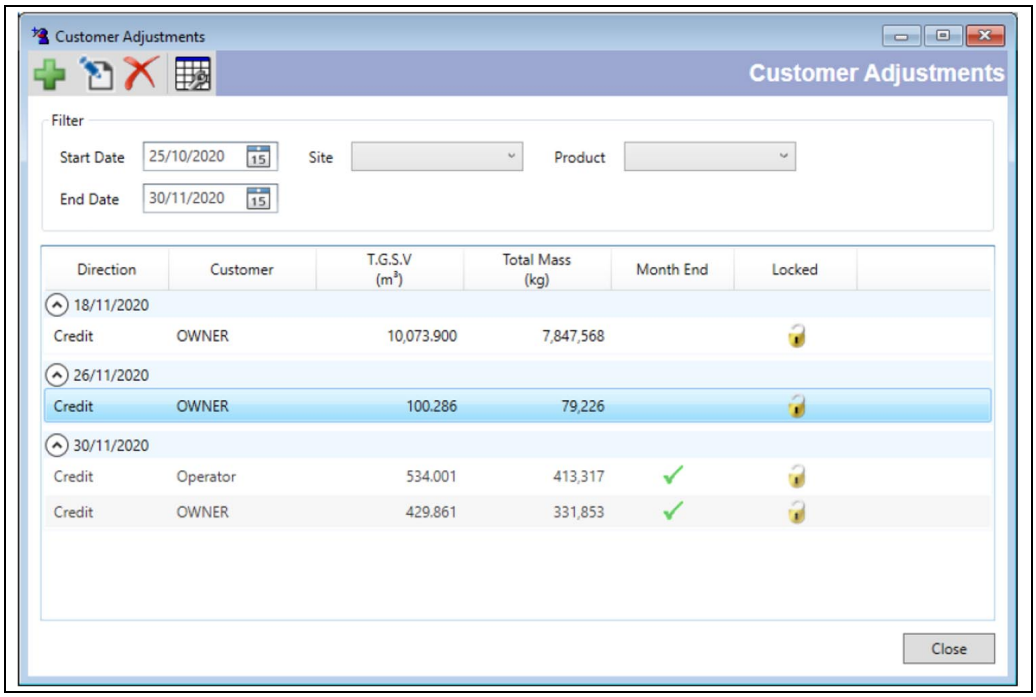
Click **OK** to return to the **Month End Adjustment** form, where the calculated adjustments are presented. The auto-generated adjustments are editable on this form if you wish to tweak the figures.



Terminalvision_Operation_EN_120

6.11.2 Checking the month end adjustments

The month end adjustments can be viewed in the customer and tank adjustment history pages, see figure below. Unlike the normal adjustments, they cannot be edited from this screen.



Terminalvision_Operation_EN_121

7 Reporting

There are a number of reports associated with the inventory features in Terminalvision . Some offer methods of summarizing information for a site's customers to use for reconciliation and other provide analysis of operations for site owners.

7.1 Loss and Gain Reports

Losses and gains on a site can be driven by losses due to leakage from the storage and losses due to transport. Where those losses are small and gradual it can be difficult to spot them among the movements which are a consequence of the sites' activities.

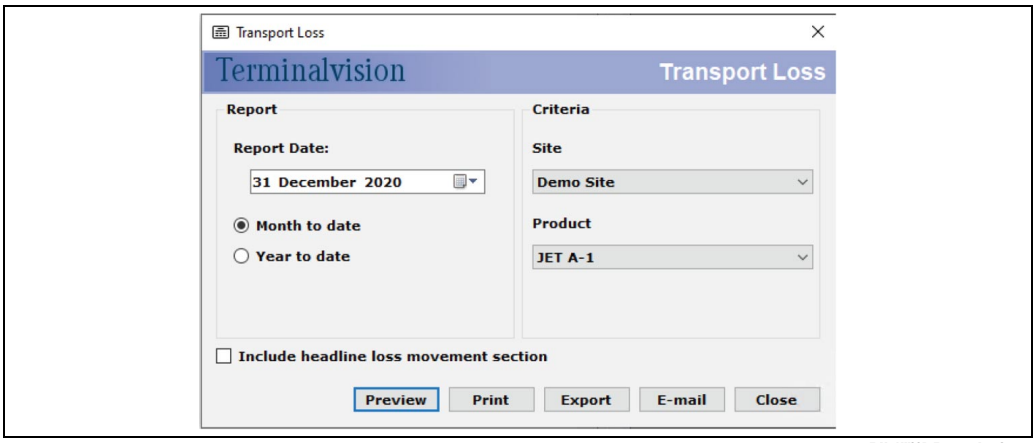
- Operational Loss report analyses the differences between book stock and physical tank stocks.
- Transport Loss analyses the differences between actual and advised quantities in receipt movements.

The reports can analyse a single product and site for either a single month or a single year of data. Reports on the current month or year are presented as a month-to-date or year-to-date.

7.1.1 Transportation Loss

There are two formats for the report: month-to-date and year-to-date. The report groups data by site and product and shows the total differences for observed and standard volume for receipts either day-by-day (monthly) or monthby-month (yearly). The differences are then expressed as percentage against the total received volume for the day or month.

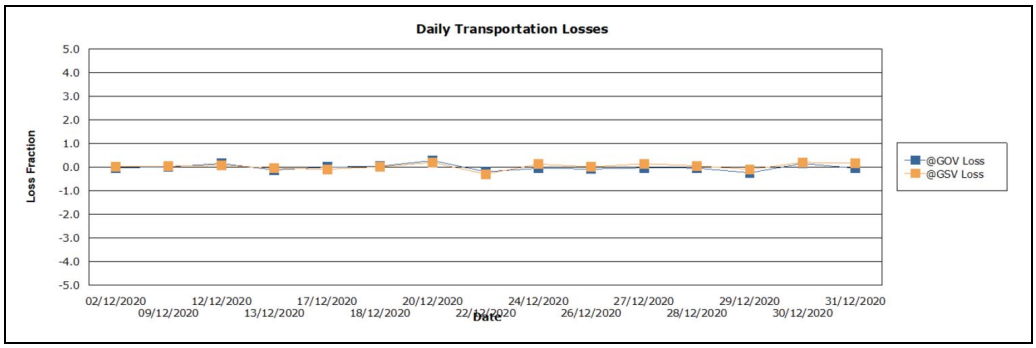
Transportation Loss Criteria



TeVi_NXS85_TransportLossCriteria

- **Report Date** - Date on which to base the report
- **Month to date/Year to date** - Period of the report: single month or single year
- **Site** - Site on which to report
- **Product** - Product on which to report
- **Include headline loss movement section** - Include a section on the report detailing headline movements

The chart beneath the summary data graphically shows the daily loss/gain percentage to show any daily/monthly spikes in deviation. Typically a daily loss/gain of 3% of total is deemed acceptable.



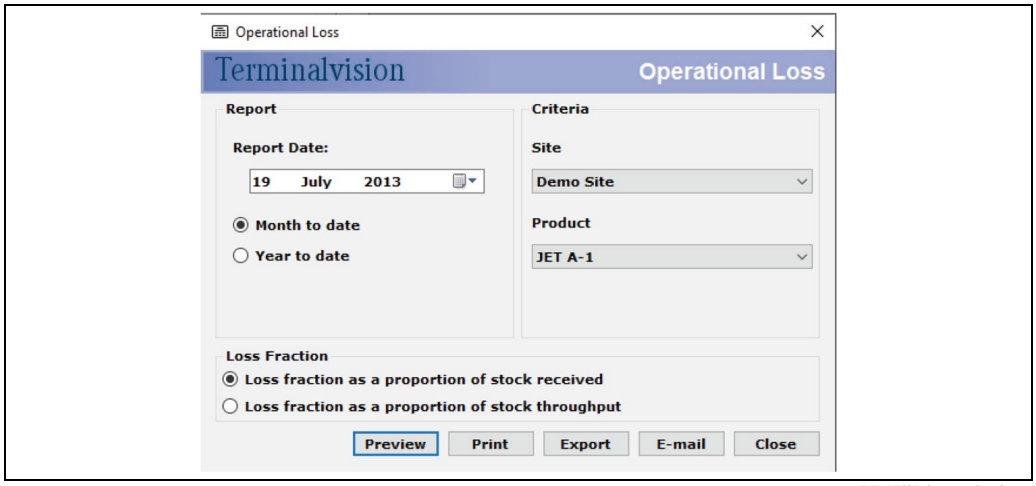
TeVi_NXS85_TransportLossChart

The headline movements (if the option is selected) lists individual movements that exceed the 3% limit.

7.1.2 Operational Loss

Similar to the **Transportation Loss** report this report has two modes, reporting either a single month or a single year of data. Where the current month or year is selected the data available "to date" is reported. This report, however, shows the total differences between the physical and book stocks for the site/product combination for either each day (month to date) or each month (year to date).

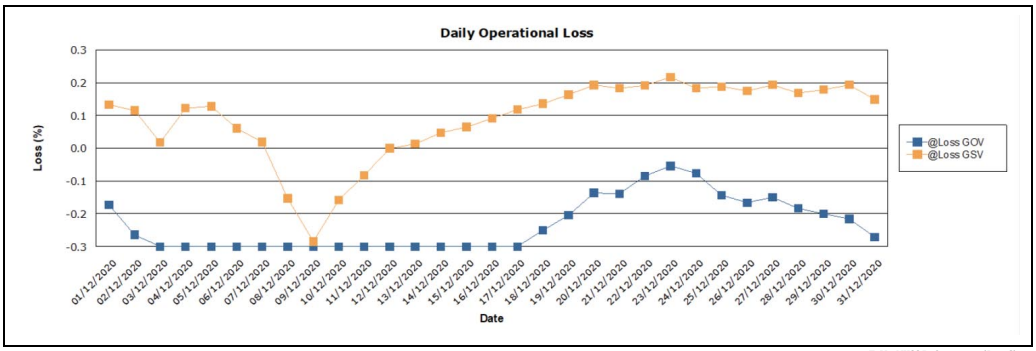
Operational Loss Criteria



TeVi_NXS85_OperationalLossCriteria

- **Report Date** - Date on which to base the report
- **Month to date/Year to date** - Period of the report: single month or single year
- **Site** - Site on which to report
- **Product** - Product on which to report
- **Loss Fraction** - Express percentage loss as a fraction of the receipts or of the throughput

The report breaks down the differences between the physical and book stocks at the end of each report period (day for month report, month for year report). Ideally no period loss should exceed 3%. The chart at the foor graphically depicts the variation in loss for each period on the main body allowing dates with troubling data to be quickly identified.



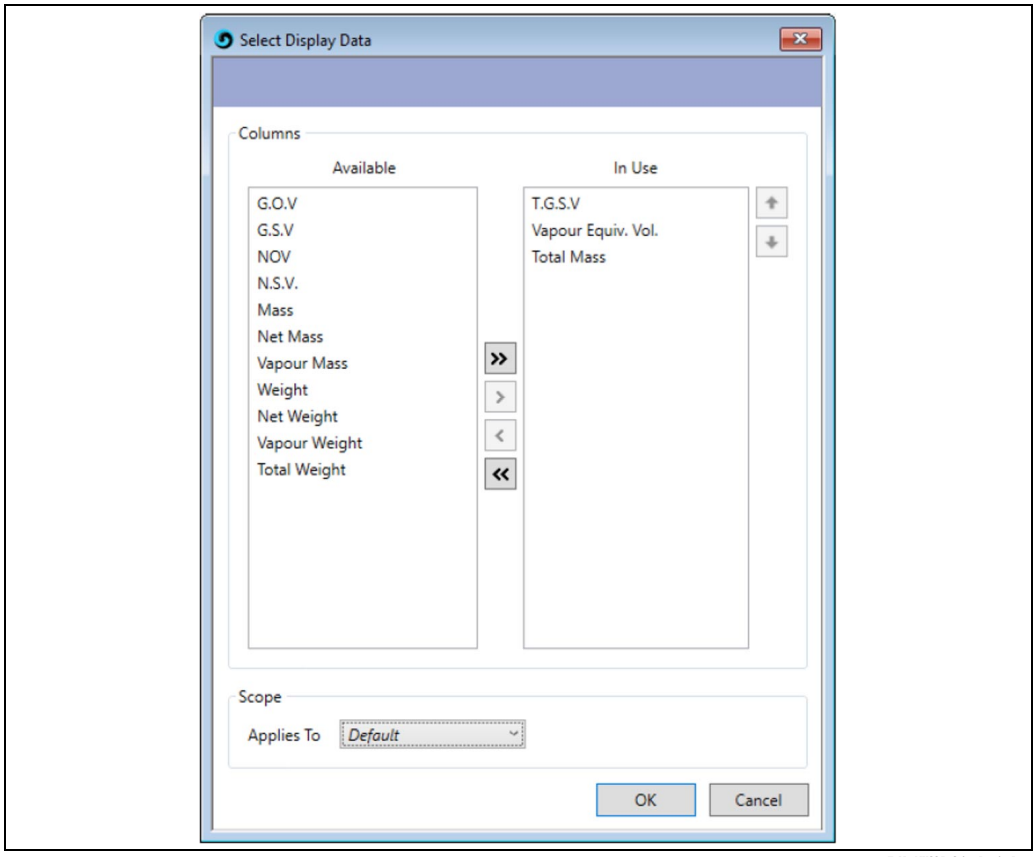
TeVi_NXS85_OperationalLossChart

8 Appendix A: Custom Display Columns

On a number of display screens within the stock management functionality there is the ability to customise the inventory data which is displayed. The columns which are displayed by default depend upon the way the **System Settings** have been configured.

Use Mass	Include Vapour	Columns
		GOV, GSV, Weight
✔		GOV, GSV, Mass
	✔	TGSV, Vapour Equivalent Volume, Total Weight
✔	✔	TGSV, Vapour Equivalent Volume, Total Mass

The columns which are displayed can be changed by clicking on the **Customise Columns** button . This will show the **Select Display Data** window:



This window contains a list of available columns on the left, and a list of the currently used columns on the right.

To add all available columns, click the **Add All** button ».
To add a specific column, select the required column and then click the **Add** button ›.
To remove a specific column, select the required column and then click the **Remove** button ‹.
To remove all custom columns, click the **Remove All** button «.

The order of the columns can also be amended. The Left-to-right column order on the display window corresponds to the top-to-bottom order of the list of used columns on this window. To change the order of the columns, select a column from the list of used columns

and click the **Move Up** button to move it up the list, or the **Move Down** button to move it down the list.
To save the configuration, click the **OK** button.

The column configuration will be applied to the users selected in the **Applies To** field as follows:

- **Default**: The columns will be used when no user is logged in, or the user has not specifically configured the columns for the display window.
- **Current User**: This option is only available if there is a user currently logged in. The columns will only be used for this user.
- **All Users**: This option has the effect of clearing all the current user customisations for this display window. This set of columns effectively becomes the default set.

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