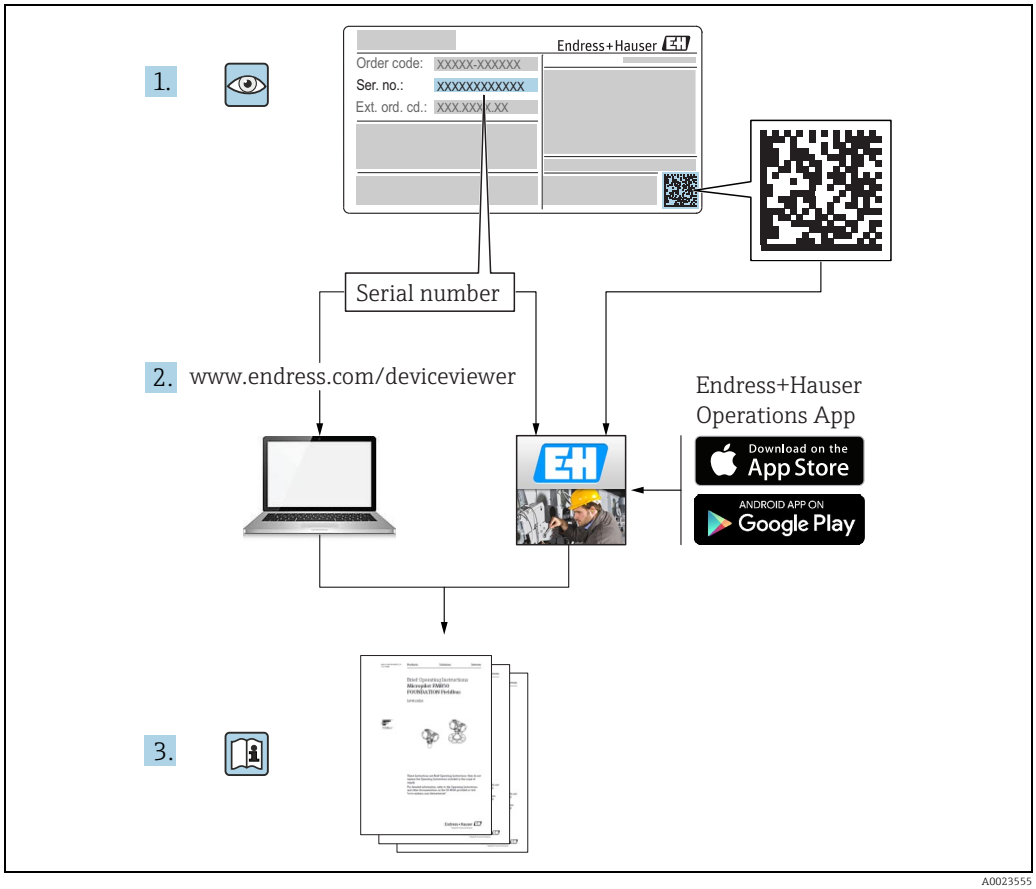
BA01295G/00/EN/03.17
71377910

Valid as of software version:
18.1.1

Operating Instructions
Tankvision Professional NXA85
Web Server/Client System Operation

Endress+Hauser
People for Process Automation


1.
Endress+Hauser
Order code:
Ser. no.:
Ext. ord. cd.:
Serial number
2.
www.endress.com/deviceviewer
Endress+Hauser
Operations App
Download on the App Store
ANDROID APP ON Google Play
3.

A0023555

Table of Contents

1 Document information 4
1.1 Target audience for this manual 4
1.2 Version history 4
1.3 Document function 4
1.4 Documentation 5

2 Identification 7
2.1 Product identification 7
2.2 Nameplate 7
2.3 Order code and device version 8
2.4 Device documentation 8
2.5 Registered trademarks 8

3 Basic safety instructions 9
3.1 Requirements for the personnel 9
3.2 IT security 9
3.3 Designated use 9
3.4 Workplace safety 9
3.5 Operational safety 10
3.6 Product safety 10

4 System Operation Introduction 11
4.1 Web Server 11
4.2 Web Client 11

5 System Installation 12
5.1 Installing Silverlight 12
5.2 Launching the Web Client 12
5.3 Server Installation 12

6 Home Page 14
6.1 Tank View 15
6.2 Connection Status 18
6.3 Context menu options 19

7 Single Tank Overview 22

8 Security 23
8.1 Logging on to the web client 23
8.2 Logging out of the web client 23

9 Alarms and Events 24
9.1 What happens when an alarm occurs 24

10 Reports 25

11 Grid View 26
11.1 Displaying Grid View 26
11.2 Selecting Data Views 26
11.3 Flow Rate Colour 27

12 Tank Grouping 28
12.1 Configuring and using a static group 28
12.2 Product Grouping 29
12.3 Dynamic Grouping 29

13 Inventory Calculator 31
13.1 Launching the Inventory Calculator 31
13.2 Tank Calculator 31
13.3 Interpolation 32
13.4 Unit conversion 32
13.5 Print and print preview 33

14 Settings 34
14.1 Local Settings 34
14.2 Dimensions 34

15 About 35

Index 36

1 Document information

1.1 Target audience for this manual

This manual should support during the operation of Tankvision Professional NXA85. It deals with the web server operation.
This manual is designed as an Operators aide to using the software.
Beside basic PC operating knowledge no special training is needed to perform the Tank Gauging System operations. Nevertheless it is recommended receiving a training on the system by Endress+Hauser.

1.2 Version history

Document version	Valid for SW version	Changes to the previous version
BA01295G/00/EN/01.14	18.0.2 and 18.0.3	Initial version
BA01295G/00/EN/02.16	18.0.2 and 18.0.3	New features
BA01295G/00/EN/03.17	18.1.1	Unification of the W&M and the non W&M software packages.

Due to the certification process with weights and measures agencies, the latest software version might only be certified at a later stage. Also some features might be incompatible with the weights and measure regulations and can therefore not be combined.

1.3 Document function

1.3.1 Used symbols

Safety symbols

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

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.

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

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)

1.4 Documentation

1.4.1 Operating instructions

Document number	Instrument	Type of Document
BA00390G/00	Tankvision Professional	System Configuration
BA00391G/00	Tankvision Professional	Data Communications Controller
BA00392G/00	Tankvision Professional	Installation
BA00393G/00	Tankvision Professional	Maintenance
BA00394G/00	Tankvision Professional	Movements System Configuration
BA00395G/00	Tankvision Professional	Movements Operation
BA00396G/00	Tankvision Professional	System Operation
BA01293G/00	Tankvision Professional	OPC Tank Data Server
BA01294G/00	Tankvision Professional	OPC TG Client Configuration

Document number	Instrument	Type of Document
BA01295G/00	Tankvision Professional	Web Server/Client System Operation
BA01363G/00	Tankvision Professional	Product and Tank Data Synchronization
BA01653G/00	Tankvision Professional	Simple Movements
BA01654G/00	Tankvision Professional	System Monitor

2 Identification

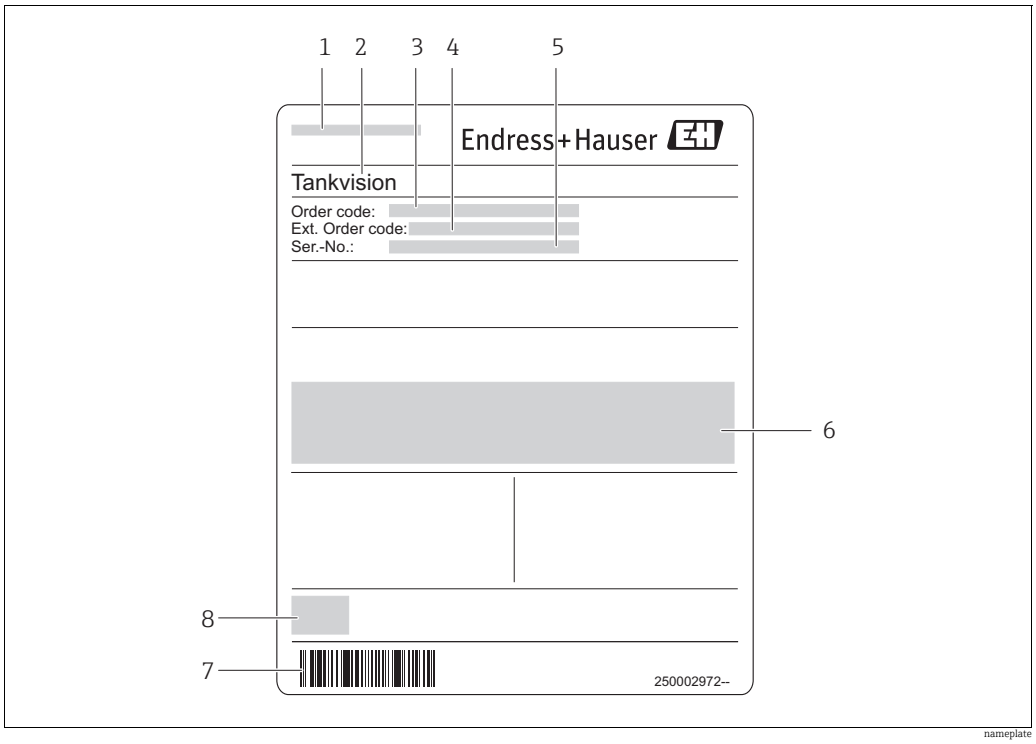
2.1 Product identification

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.

For an overview of the technical documentation provided, enter the serial number from the nameplates in the W@M Device Viewer (www.endress.com/deviceviewer)

2.2 Nameplate



nameplate

1 Address of manufacturer
2 Device name
3 Order code
4 Extended order code (Ext. ord. cd.)
5 Serial number (Ser. no.)
6 Certificate and approval relevant data
7 Barcode
8 CE mark

2.3 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

2.4 Device documentation

The information required to retrieve the documentation can be found on the nameplate of the device.

Technical documentation can also be downloaded from the Download Area of the Endress+Hauser web site: www.endress.com→ Download. However this technical documentation applies to a particular instrument family and is not assigned to a specific device.

2.4.1 W@M Device Viewer

1. Launch the W@M Device Viewer: www.endress.com/deviceviewer
2. Enter the serial number (Ser. no.) of the device: see nameplate.
   ↳ All the associated documentation is displayed.

2.4.2 Endress+Hauser Operations App

The *Endress+Hauser Operations App* is available both for android smart phones (Google Play Store) and for iPhones and iPads (App Store).

Via the serial number:

1. Launch the *Endress+Hauser Operations App*.
2. Enter the serial number (Ser. no.) of the device: see nameplate.
   ↳ All the associated documentation is displayed.

2.5 Registered trademarks

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

Modbus®
Registered trademark of the Modbus-IDA, Hopkinton, MA, USA

Java®
Registered trademark of Sun Microsystems, Inc.

Mozilla® Firefox®
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.

3 Basic safety instructions

3.1 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 beginning work, the specialist staff must have read and understood the instructions in the Operating Instructions and supplementary documentation as well as in the certificates
  (depending on the application)
- Following instructions and basic conditions

The operating personnel must fulfill the following requirements:

- Being instructed and authorized according to the requirements of the task by the facility's owner operator
- Following the instructions in these Operating Instructions

3.2 IT security

We only provide a warranty if the device is installed and used as described in the Operating Instructions. The device is equipped with security mechanisms to protect it against any inadvertent changes to the device settings.

IT security measures in line with operators' security standards and designed to provide additional protection for the device and device data transfer must be implemented by the operators themselves.

3.3 Designated use

3.3.1 Application

Tankvision Professional is specifically designed for operators of bulk storage facilities, marketing terminals, refineries and pipelines. It is designed to handle all the data acquisition, supervisory control and monitoring required in a single fully integrated solution.

Tankvision Professional integrates all major types of tank measurement instruments into one system.

All measured and calculated tank parameters are accessible to your tank farm and terminal operators as well as to connected host systems.
Multi-user operation is provided by the inbuilt Web Server offering the opportunity to access data at any connected location (local/remote) e.g. for administrative and accounting purposes.

3.4 Workplace safety

For work on and with the device:

- Wear the required personal protective equipment according to federal/national regulations.
- Switch off the supply voltage before connecting the device.

3.5 Operational safety

Risk of injury!

- Operate the device in proper technical condition and fail-safe condition only.
- The operator is responsible for interference-free operation of the device.

Conversions to the device
Unauthorized modifications to the device are not permitted and can lead to unforeseeable dangers

- If, despite this, modifications are required, consult with Endress+Hauser.

Repair
To ensure continued operational safety and reliability,

- Carry out repairs on the device only if they are expressly permitted.
- Observe federal/national regulations pertaining to repair of an electrical device.
- Use original spare parts and accessories from Endress+Hauser only.

3.6 Product safety

The device is designed to meet state-of-the-art safety requirements, has been tested and left thefactory in a condition in which it is safe to operate. The device complies with the applicable standards and regulations as listed in the EC declaration of conformity and thus complies with the statutory requirements of the EG directives. Endress+Hauser confirms the successful testing of the device by affixing to it the CE mark.

4 System Operation Introduction

4.1 Web Server

The install package includes a **Web Server**. If your license includes 1 or more concurrent web clients then the tank gauging server can be connected to using a browser.
The **Web Server** permits the users to view tank gauging data in a number of displays mimicking the appearance of the main tank gauging applications and to control certain aspects remotely such as gauge commands and manual data.

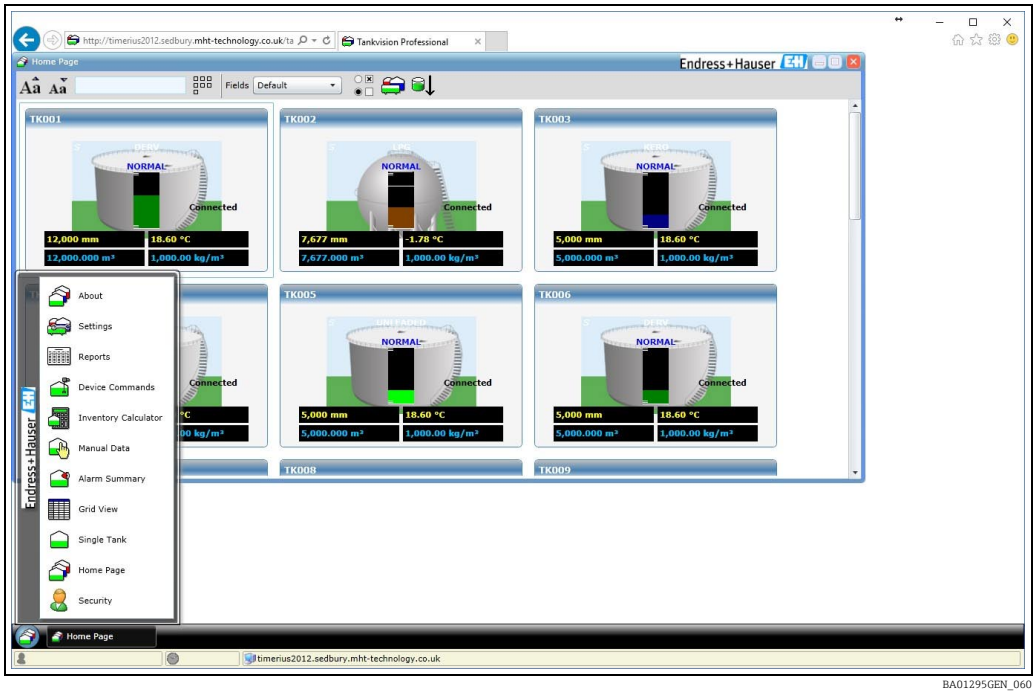
The tank gauging web server is self-contained; it does not require other web server software such as IIS or Apache to be installed on the tank gauging computer.

The only indication of the web server within the main product is the presence of the **Janus Web Server** in the list of services in Service Manager and the ability to configure the web and data services through that option.

4.2 Web Client

The **Web Client** can be provided on any Windows or Macintosh station with a network connection to the device.
The clients for the web server need to have Silverlight 5 installed to be able to display the tank gauging information, which means that although the users have a fairly free hand in their choice of browser they must use one of the operating systems supported by Silverlight, which at the time of writing is Windows and Mac OS X.
As the **Web Server** uses the same license file as the main tank gauging application should you wish to purchase the web server at a later date, then all that is needed is a new license file which can be simply applied by an end user.

Overview showing **Start** menu and **Home Page**:



BA01295GEN_060

5 System Installation

1. To install the **Web Client**, navigate to the appropriate URL e.g. http://tanks. Where **Tanks** is the name of the Tank Gauging server PC.

Once the address has loaded, you will be prompted to install Silverlight if it is not already installed.

Microsoft Silverlight is an application framework for writing and running internet applications, the Silverlight platform has added emphasis on multimedia, animations and graphics.

5.1 Installing Silverlight

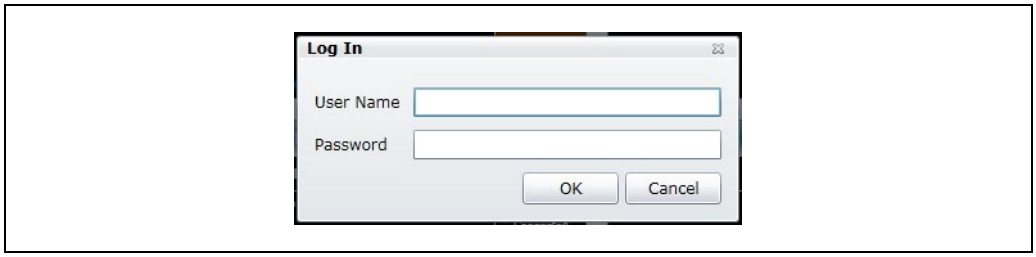
1. To install Silverlight, click the **Install Microsoft Silverlight** icon:

BA00399GEN_002

2. Click **Run** to begin installation, and then follow the on screen prompts.

5.2 Launching the Web Client

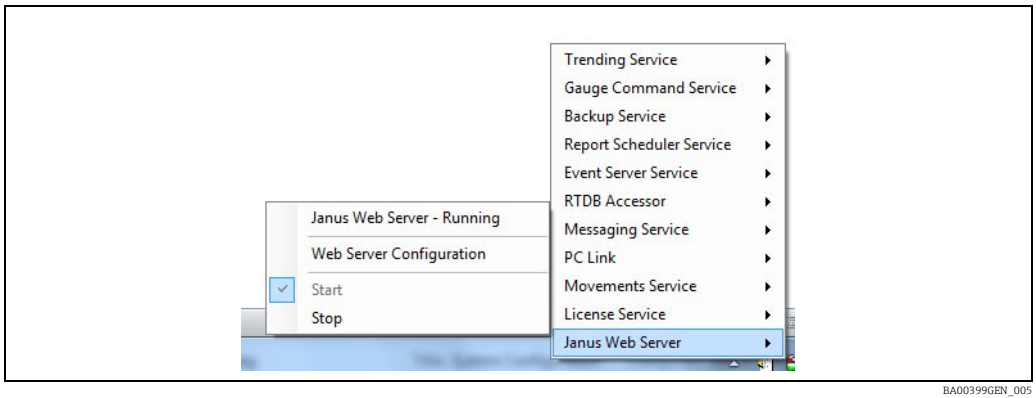
1. After installation, navigate back to the URL for the server e.g. http://tanks.
2. Log In as Normal.



BA00399GEN_003

5.3 Server Installation

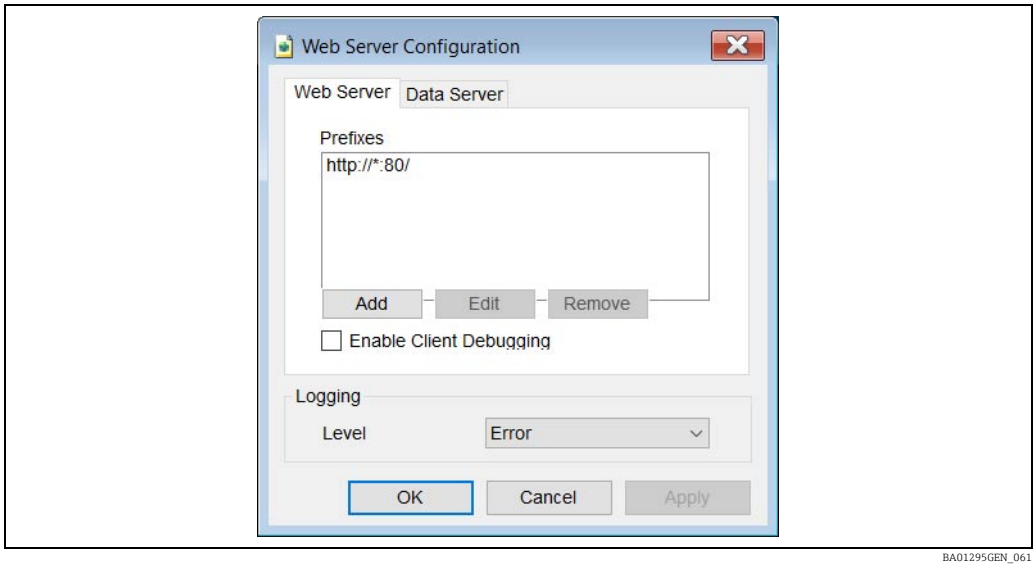
The server is automatically installed and if licensed is shown by the presence of the Janus web server in the tank gauging Service Manager.



BA00399GEN_005

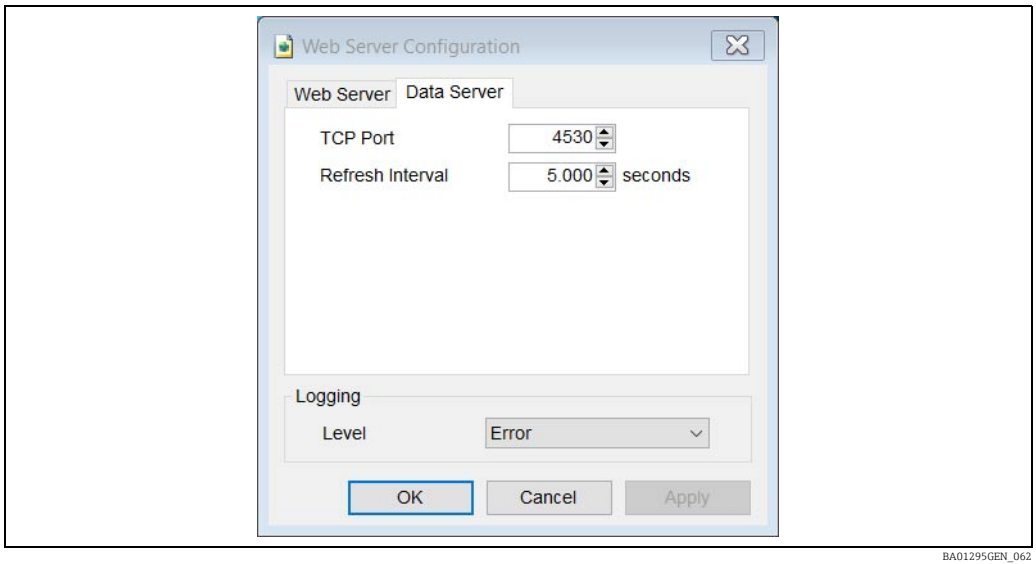
The ports on the webserver can be changed in the configuration, should they be in use by other applications, for example.
The normally used ports are the default choice so if there are no problems do not change them. The following figures show the configuration of these items.

Web server port configuration



BA01295GEN_061

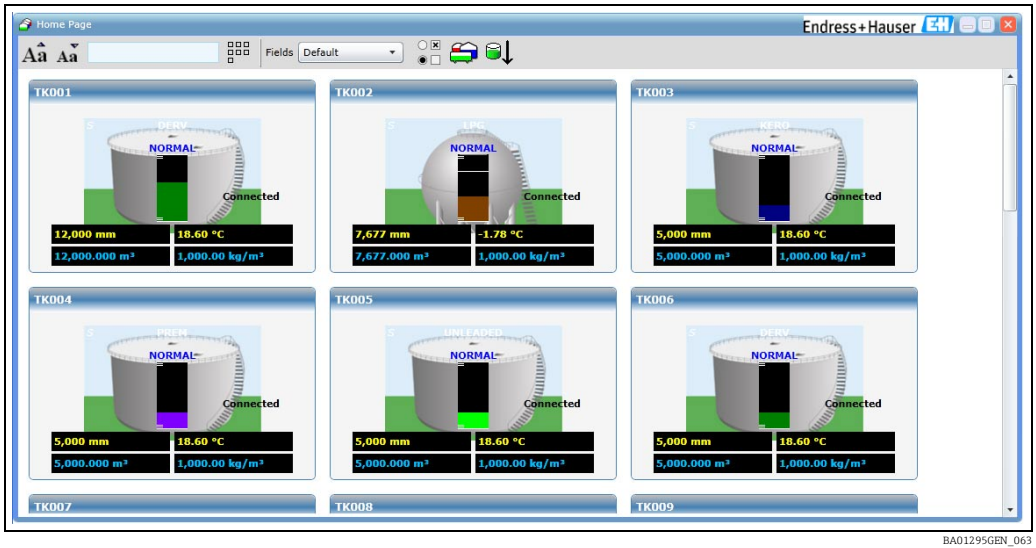
Data server port configuration



BA01295GEN_062

6 Home Page

Once launched in the web browser, the **Home Page** is loaded within the **Web Client** desktop. The system starts with the **Home Page** maximized and with all Tank windows open as shown.

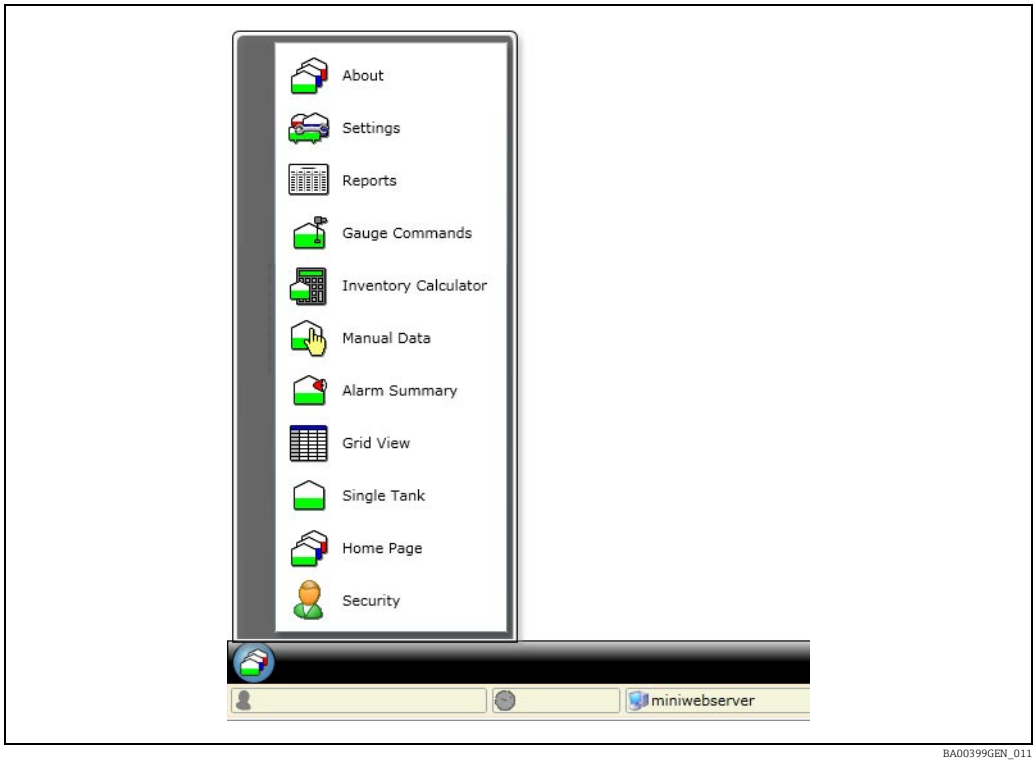


BA01295GEN_063

Each tank configured in the system has its own graphical window.
The **Home Page** has a tool bar and an application work space. Access to the frequently used appearance functions are normally provided from the tool bar.

Tooltips are available throughout the application, hover over items for more information, e.g. when hovering above data, this will show the date/time stamp when the information was last refreshed.

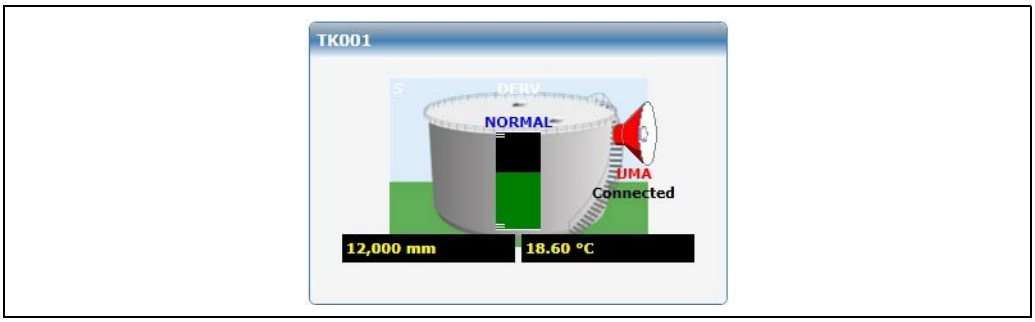
All features can be accessed through the **Start** button from the **Web Client** desktop as shown below.



BA00399GEN_011

6.1 Tank View

This is the default view for individual tanks when displayed in the **Home Page**. See the following picture for an example.



BA01295GEN_064

Each window can be scaled in its general appearance and size using short-cuts from the homepage tool bar:

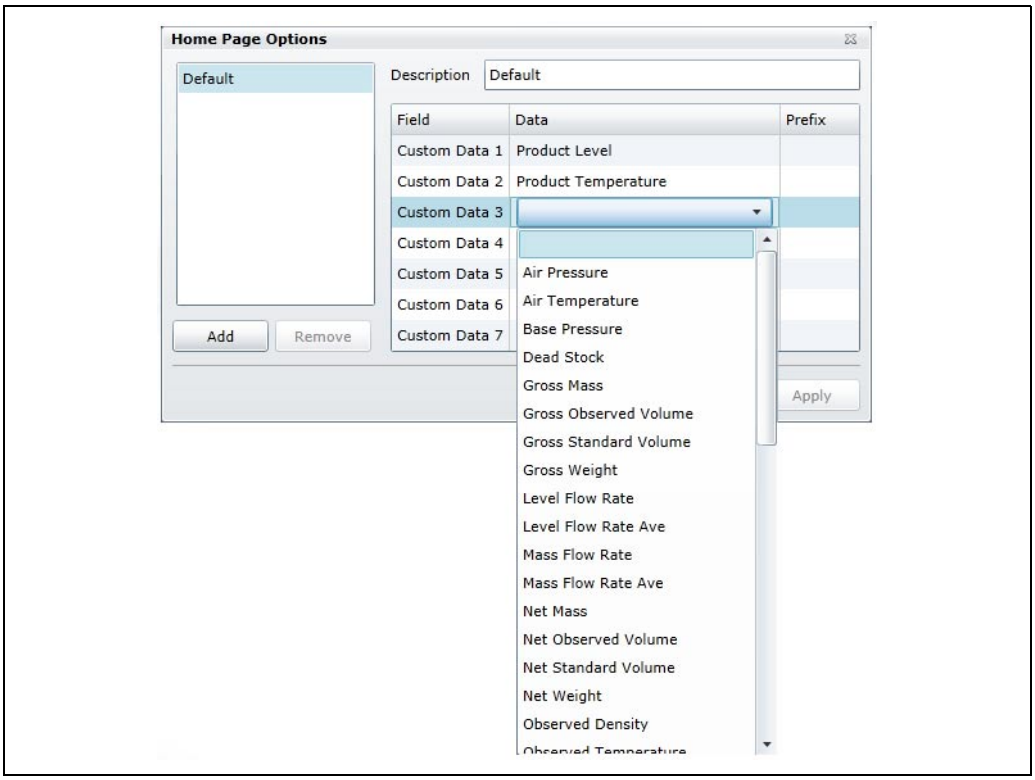
- Aa Aa : Alters the size of on-screen tank displays.
- : Re-tiles the tank displays.

When there are more windows open than available space, scroll bars will automatically appear down the right hand side of the parent window.
The window has been equipped with a number of short-cut links to other display features, and a context sensitive pop-up menu for quick access to other features.

6.1.1 Configuring Displayed Data

There is a selection of numeric data fields that can be displayed on each tank view.

1. This can be done by selecting the home page options button , which will bring up the menu shown below.

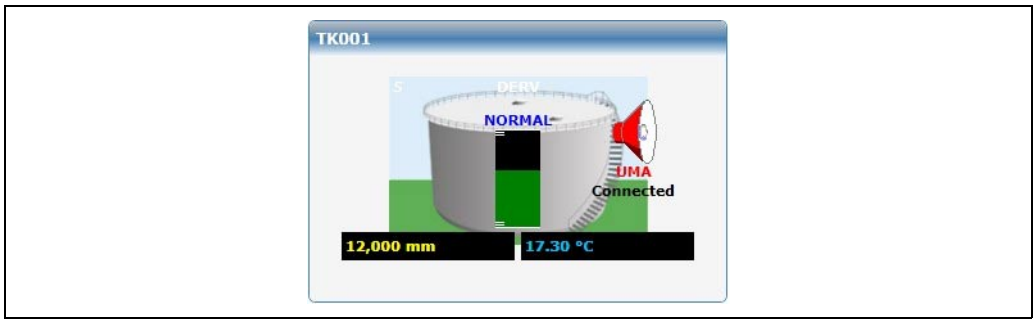


From here additional fields can be added to the tank displays.

2. New customised displays can be added and configured by entering a new description name, then clicking **Add**.

6.1.2 Data display in Manual Mode

Any data value in manual mode is denoted as such by being displayed as blue foreground on a black background. An example of manual data display is shown below, it indicates that the product temperature is in manual mode.

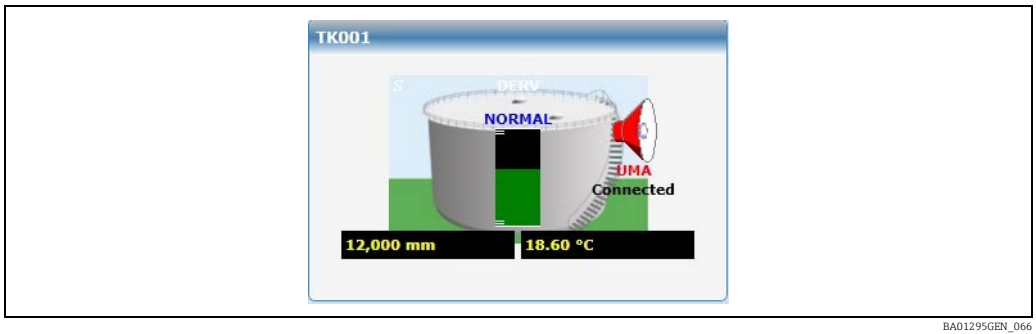


BA00399GEN_015

The data is therefore updated by using the **Manual Data Entry** facility. Please refer to the Section on Manual Data Entry for further details, → 19.

6.1.3 Tank in alarm

When a tank has any active alarm an alarm horn icon appears on the tank as shown.



BA01295GEN_066

In addition an abbreviated label is placed below the horn indicating the type of alarm.
If there are multiple active alarms the highest priority alarm is displayed.
The abbreviations are listed in the table below.

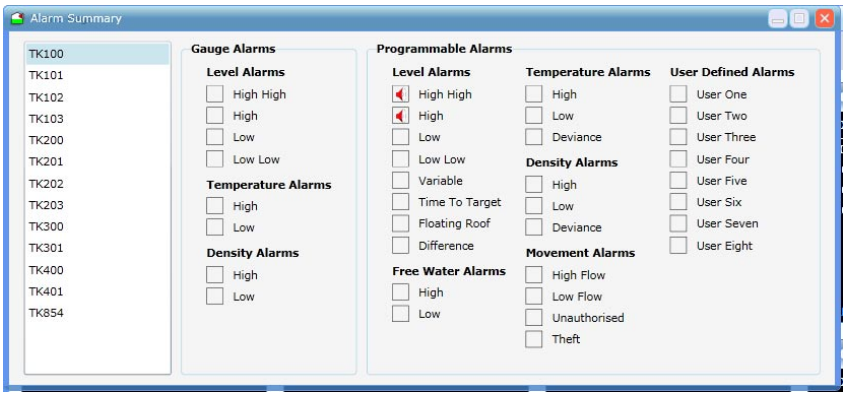
Alarm Code	Alarm Description
LAHH	Level Alarm High High (Software)
LAH	Level Alarm High (Software)
LAL	Level Alarm Low (Software)
LALL	Level Alarm Low Low (Software)
HH	Level Alarm High High (Gauge)
H	Level Alarm High (Gauge)
L	Level Alarm Low (Gauge)
LL	Level Alarm Low Low (Gauge)
NO REPLY	No reply from gauge

Alarm Code	Alarm Description
BAD ALARM	Incongruous collection of alarms active (i.e. High alarm and Low alarm at the same time)
GT H	High temperature (Gauge)
GT L	Low temperature (Gauge)
PT H	High temperature (Software)
PT L	Low temperature (Software)
GD H	High density (Gauge)
GD L	Low density (Gauge)
PD H	High density (Software)
PD L	Low density (Software)
PD DA	Density deviation (Software)
PT DA	Temperature deviation (Software)
PW H	High water (Software)
PW L	Low water (Software)
PL VA	Variable alarm
PF HF	High flow
PF LF	Low flow
UMA	Unauthorised movement by volume
UMAL	Unauthorised movement by level
PL FR	Roof alarm
PL DA	Software difference alarm
PU 1...8	Programmable user defined alarm 1...8

6.1.4 Identifying an alarm after it has occurred

When an alarm first occurs, an event is generated, a horn appears on the tank.
After all of these actions have been dealt with the remaining evidence of the alarm is the horn icon. In addition the active alarm summary will also show any active alarms.

1. To get further information on the active alarms click the **Start** button.
2. Then select **Alarm Summary**.



BA00399GEN_017

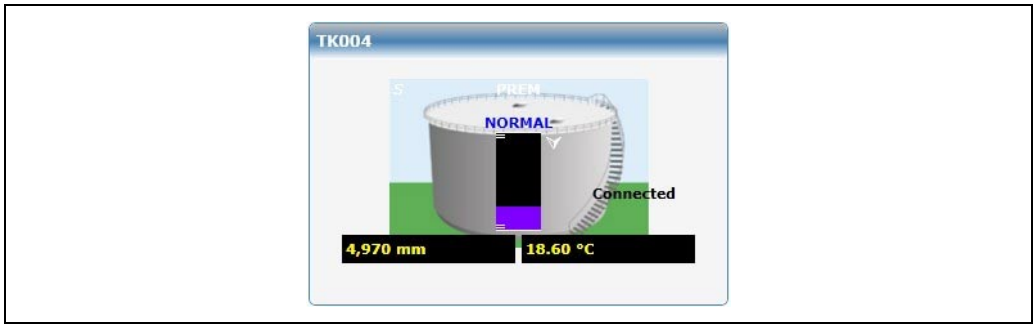
The **Alarm Summary** module will show each of the alarms that are active.
An active alarm will have a horn icon in its corresponding check box.

The status of other tanks can be seen by selecting the required tank number from the list box.

6.1.5 Identifying moving tanks

The **Tank View** window identifies moving tanks in several ways:
- By displaying a fill direction indicator i.e. an arrow pointing up or down dependent on the direction of movement.
- By the magnitude and sign of the Flow Rate e.g. a positive flow rate represents filling, a negative flow rate represents emptying.

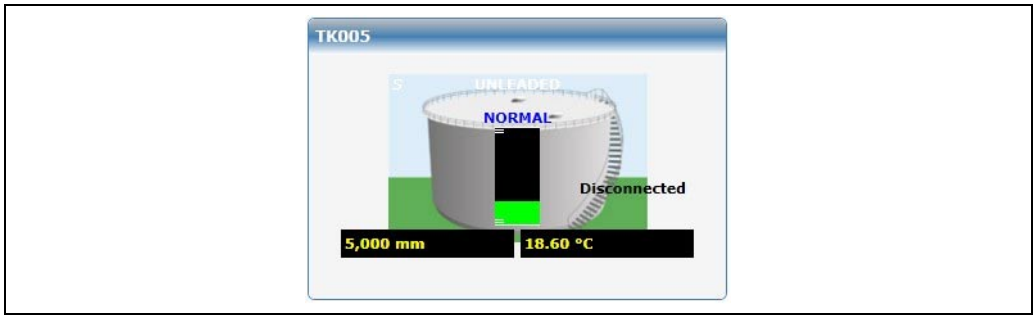
See the illustration below, which shows a moving tank. The direction indicator has a downward pointing arrow and the flow rate is negative.



BA01295GEN_067

6.2 Connection Status

The connection status of the tank is displayed on the right hand side.

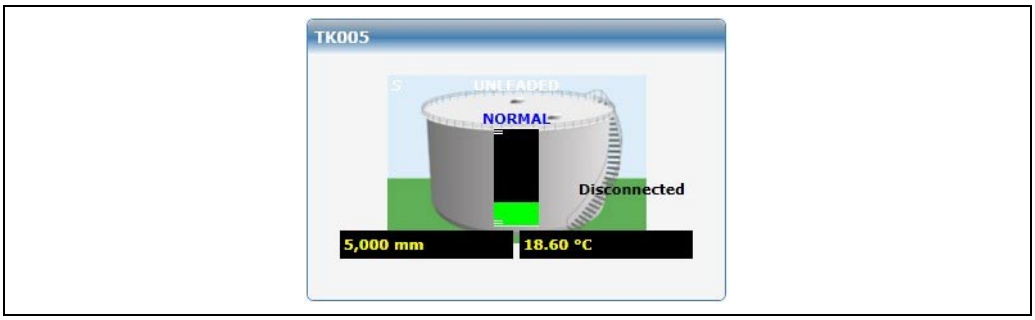


BA01295GEN_068

It will be one of four states:
- Connected
- Disconnecting
- Disconnected
- Connecting

The **Connected** status means that the external devices, e.g. tank gauges, are being polled for data continuously. For dial up connections, data might only be requested periodically.

If the connection status is anything other than **Connected** then all data for the tank is from the last time it was connected and is therefore not live.



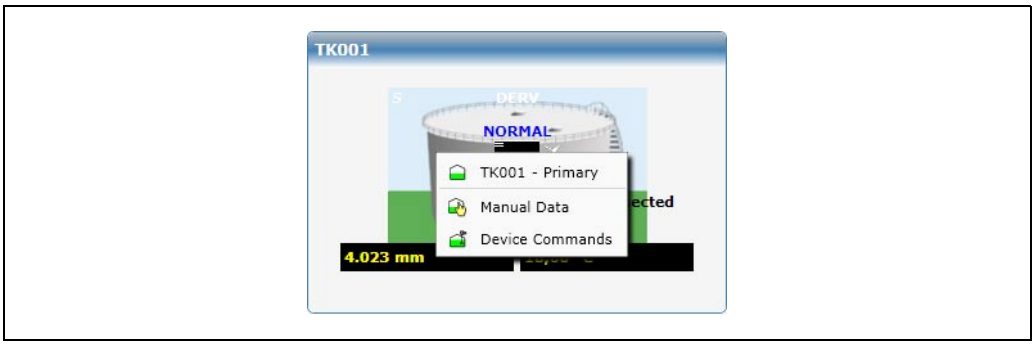
BA01295GEN_068

In the screenshot above the tank has a **Disconnected** state but still retains the data from the last time it was connected. Therefore the data should NOT be assumed to be up to date.

6.3 Context menu options

A context menu is available.

1. Right mouse click within any **Tank View** window and the context menu will appear. See the illustration below for example:

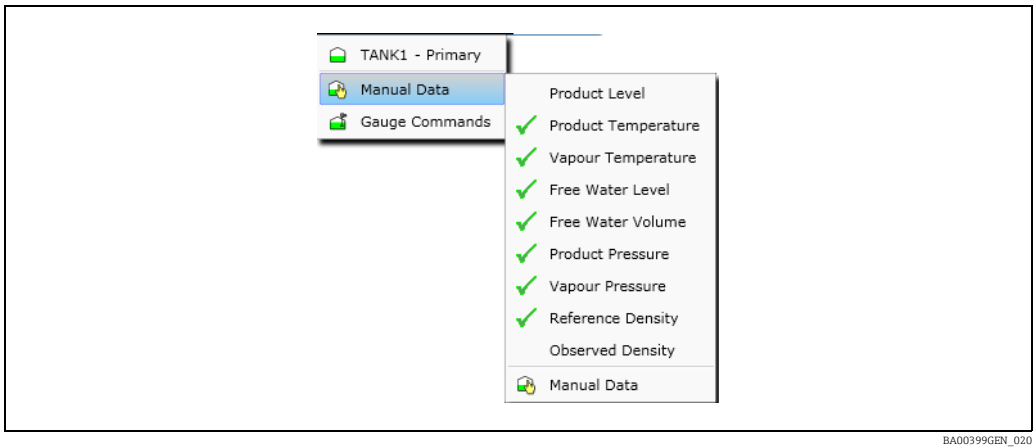


BA00399GEN_019

Some of the options within the context menu are sensitive to the configuration of the tank. These will be discussed in the remainder of this chapter.

6.3.1 Manual data

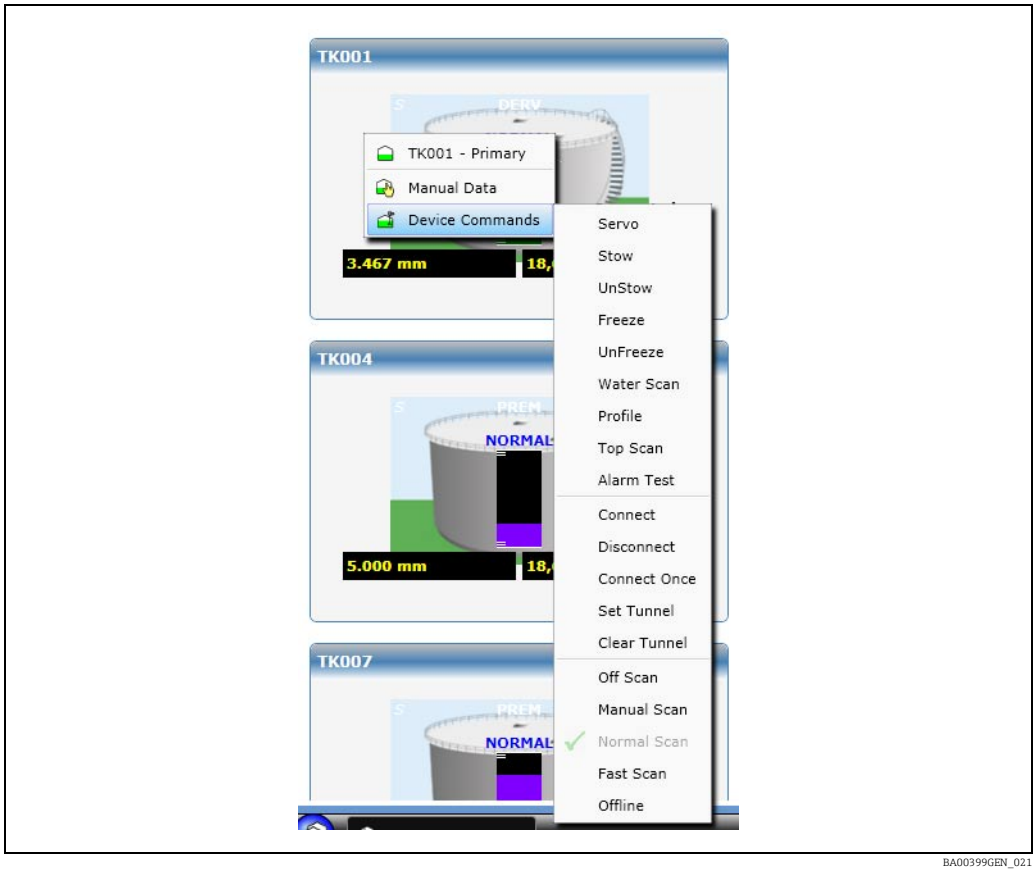
The **Manual Data** menu item has a further sub-menu which contains all of the available **Manual Data** options. This option is used to switch values between manual and automatic mode.
Any value in **Manual Data** will be highlighted by an adjacent tick mark, see the illustration below:



BA00399GEN_020

6.3.2 Device commands

The **Device Commands** menu item has a further sub-menu which contains all of the available gauge commands within this context.
See the illustration below:



BA00399GEN_021

Details of the commands are given in the table below:

Command	Action
Servo Check	Perform a repeatability check on a servo based gauging instrument. This command will attempt to raise the displacer by at least 300 mm and then return it to the product level. The level prior to raising the sensor is compared to the level after the sensor has returned to the product surface. If both are within the defined tolerance the servo check function is considered to have passed. If created, this will generate an event. This command is only available to servo based gauging instruments.

Command	Action
Stow	Stow the sensor of the gauging instrument to the locked or top stop position. This command is only available to servo based gauging instruments.
Unstow	Cancel the Stow command and return the sensor to the product level. It can also be used to cancel any command currently in operation.
Freeze	Causes the displacer to remain at its current position.
Unfreeze	Releases the last Freeze command and allows the displacer to return to the product level.
Water Scan	Selecting this option will cause the gauge to try to find the water interface, and return the product level. Note that this command will only work if your gauge supports water scan.
Density Scan	Selecting this option will cause the gauge to perform a density profile scan, and return the average observed density. Note that this command will only work if your gauge supports density profiling.
Alarm Test	Selecting this option will raise the displacer position to the top of the tank, which will raise any enabled alarms. Depending on gauge type, commands can generate an alarm. Status changes can also occur during command executions.
Scan Mode	Off Scan, Normal Scan and Fast Scan are mutually exclusive options that control the frequency with which the gauge is scanned. ▪ **Off Scan** – The gauge is not polled. ▪ **Normal Scan** – The gauge is polled at the normal intervals. ▪ **Fast Scan** – The gauge is polled every other poll (i.e. More frequently), at the expense of the other gauges. ▪ **Manual Scan** – Used when the gauge is Off Scan, to cause it to be polled once.
Connection Status	Connect, Disconnect, Connect Once are mutually exclusive options that determine the connection state of the interface port that the tank is connected to. Therefore if one of these commands is sent to a tank, then it will apply to ALL tanks connected to the same COM port or Modem on the PC. ▪ **Connect** – The interface will connect to the COM port or Modem and continue polling the gauges for data indefinitely or until a disconnect command is sent by the user. ▪ **Disconnect** – The interface will disconnect from the COM port or modem and remain disconnected. Data from the last refresh will be displayed. ▪ **Connect Once** – The interface will connect to the COM port or Modem and automatically disconnect when it has retrieved all data from the gauges. Data retrieved from the connection will be displayed. A confirmation dialog will be displayed if the Disconnect command is selected, as this command will stop ALL gauges on the same interface from being updated. Be aware that sending a command to one tank will affect all other tanks on the same interface and therefore these commands should be used with caution as they could lead to loss of data for critical tanks.

7 Single Tank Overview

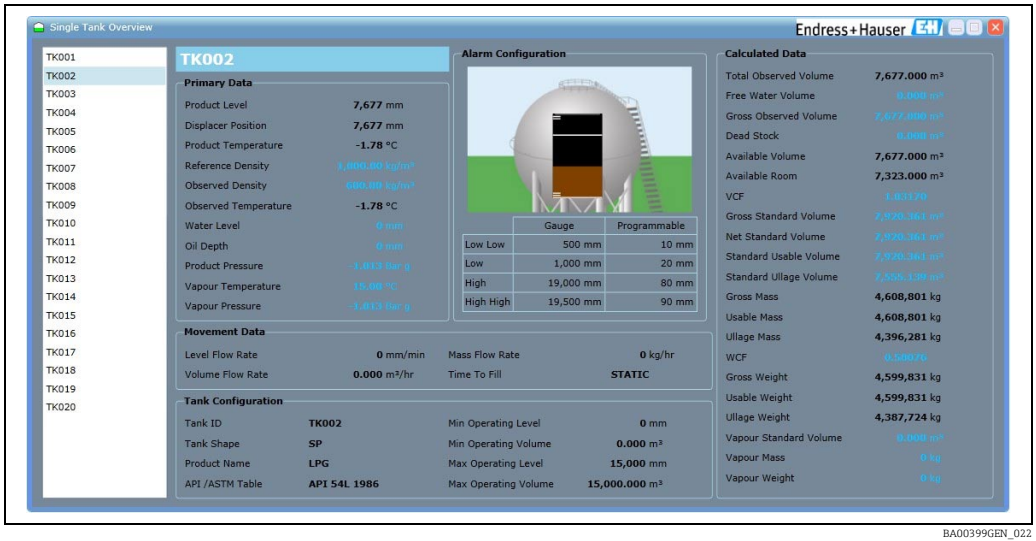
The **Single Tank Overview** provides a detailed display of all data for a single tank.

It can be launched:
- By right clicking a **Tank View** window, then selecting the **Tank Name** - primary
- By clicking the **Start** button and selecting **Single Tank**.

Once the **Single Tank Overview** module has been loaded, other tanks can be viewed by selecting them from the list box provided.

The displayed data is organised into logical groups:
- **Primary Gauging Data**
- **Movement Data**
- **Tank Configuration**
- **Calculated Data**
- **Alarm Settings**

Any data values in **Manual Mode** will be displayed in a blue foreground and black background.
Any data values unavailable for any reason will be replaced by a diagnostic number.
See the illustration below for a typical example:



BA00399GEN_022

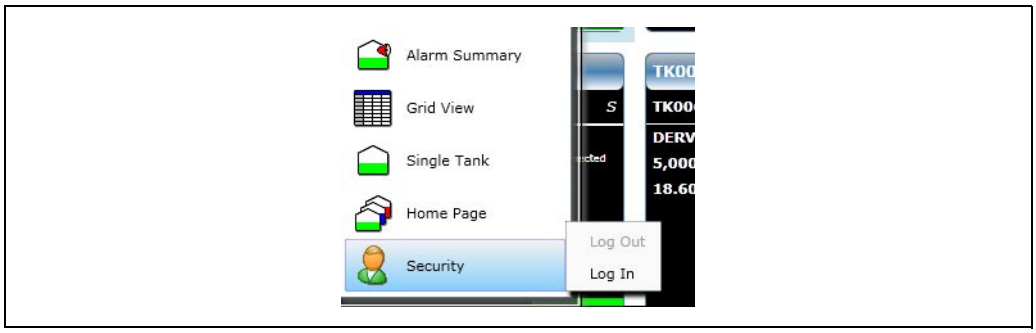
Tool tips are used throughout to provide further information to the user on each of the data display fields.

8 Security

Web Server uses the security manager to control access to its features.
Security on the web interface is configured in the same way as the main applications, the settings being shared between the main application and the web interface. For instance if a user is denied access to **Manual Data** in the main application, the same will be true of the web interface.
Access to the features of the system can be controlled through a user account. The requirement to log on to the system can be disabled allowing any user full access to the system. If security is enabled the following sections apply.

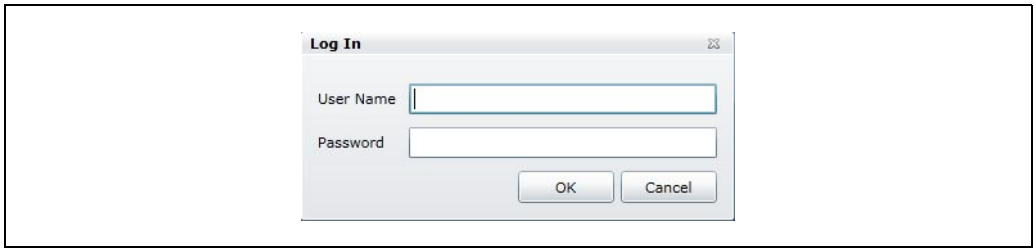
8.1 Logging on to the web client

1. Select **Security**→ **Log In** from the **Start** menu.



BA00399GEN_023

A login prompt will appear:



BA00399GEN_024

2. Enter the necessary username and password.
   The details will be checked against entries in the database. If the username and password are valid the user will be logged on at their designated access level.

Each user account has a designated level of access to each feature. So even if a user is logged on it does not necessarily mean that they have access to all functions. A user's level of access is determined by the rights assigned to them by the System Administrator.
When a user is logged in to the system, the username is displayed in the left most panel of the status bar.

8.2 Logging out of the web client

1. Select the **Security** → **Log Out** option from the start button.
   The system will immediately log out the currently logged on user.

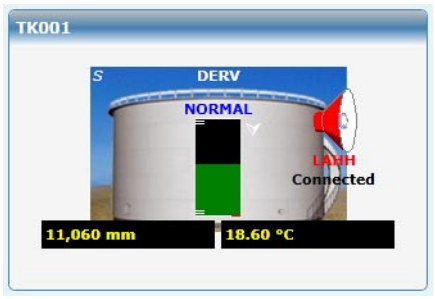
This will prevent access to all functions requiring a logon.

Security settings are configured according to the System Configuration manual BA00390G.

9 Alarms and Events

9.1 What happens when an alarm occurs

An alarm horn icon will be displayed on the tank within the **Tank View** window as seen below.



BA00399GEN_016

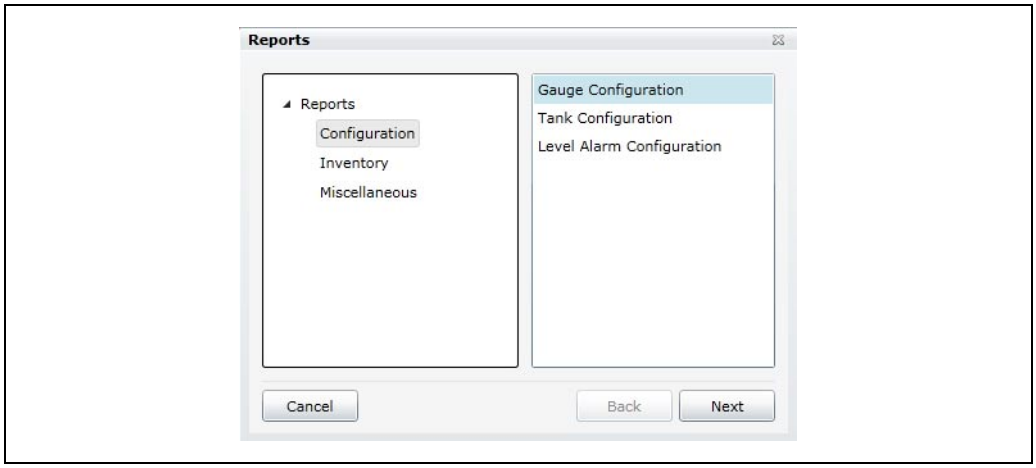
The alarm status description within **Grid View** and **Single Tank Overview** will change to reflect the highest priority alarm (see table in chapter → 16).

An audible signal, if enabled will be generated. This may be in the form of an internal buzzer or sound card.
Alarms are silenced when they are acknowledged. If security is enabled a user must be logged on with the correct privileges to acknowledge the alarm.
All alarms and events are logged to the database. An **Alarm History View** can be used to look at all alarms and events that have occurred.
When an alarm is acknowledged the date and time is logged to the database. The logged on user acknowledging the alarm is also logged.

10 Reports

A standard set of tank gauging and inventory reports are provided.

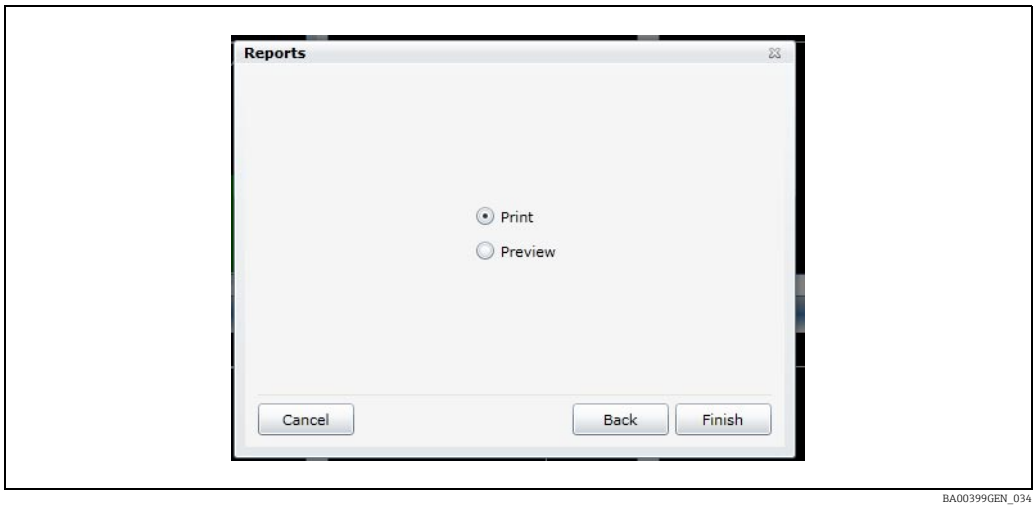
1. To access the reports choose **Reports** from the **Start** button menu.
   A window as illustrated below is shown.



2. Select the type of report to be printed.

- **Gauge Configuration** – A report showing the main gauge configuration data.
- **Tank Configuration** – A report showing the main tank configuration data.
- **Level Alarm Configuration** – A report showing the main level alarm configuration.
- **Standard Inventory Report** – Shows a standard selection of inventory data for all tanks.
- **Standard Summary Report** – Summarizes the inventory of products for all tanks by product.
- **Group Selection** – A report for a user defined group of tanks.
- **Product Selection** – A report showing a summary of all tanks containing a particular product (e.g. Jet A1).
- **Single Tank Overview** – A report showing a summary of a single tank.

3. Click the **Next** button.
4. Select **Print** or **Preview**.



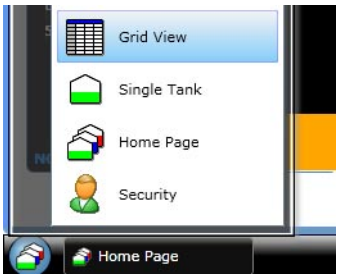
Print – Sends a copy of the report to the printer.
Preview – Displays a copy of the selected report on the computer screen.

11 Grid View

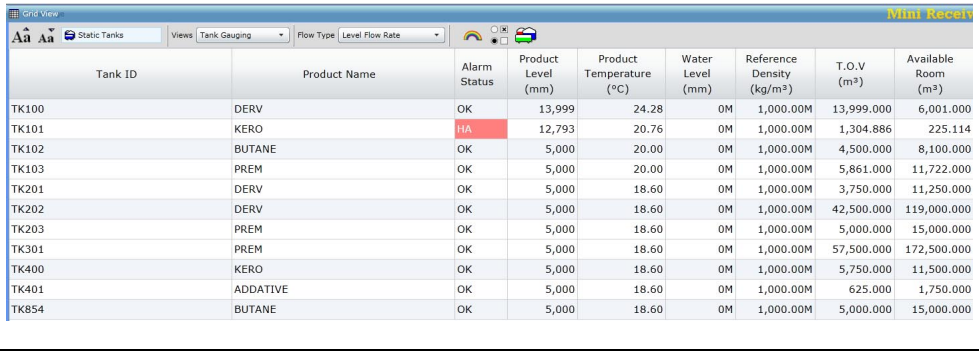
GridView is a tabular view of tank data.
The **GridView** application is very customisable and incorporates a pop-up menu for sending the common gauge commands.

11.1 Displaying Grid View

1. Select **GridView** from the **Start** button menu.



BA00399GEN_036

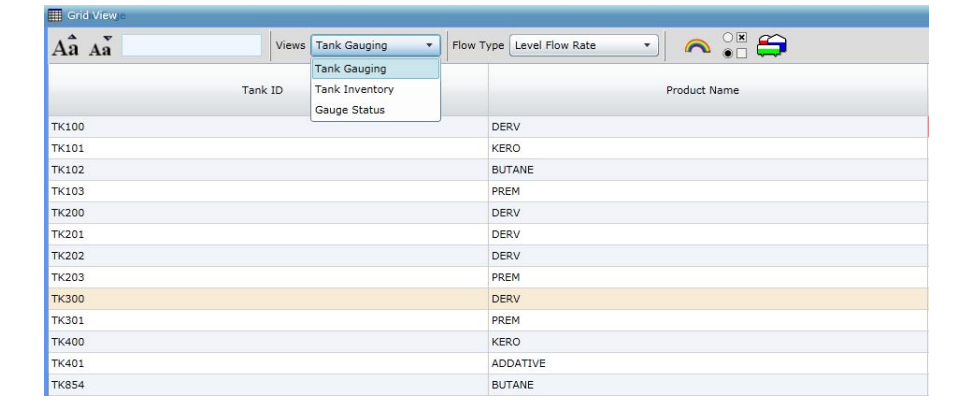


Tank ID	Product Name	Alarm Status	Product Level (mm)	Product Temperature (°C)	Water Level (mm)	Reference Density (kg/m³)	T.O.V (m³)	Available Room (m³)
TK100	DERV	OK	13,999	24.28	0M	1,000.00M	13,999.000	6,001.000
TK101	KERO	HA	12,793	20.76	0M	1,000.00M	1,304.886	225.114
TK102	BUTANE	OK	5,000	20.00	0M	1,000.00M	4,500.000	8,100.000
TK103	PREM	OK	5,000	20.00	0M	1,000.00M	5,861.000	11,722.000
TK201	DERV	OK	5,000	18.60	0M	1,000.00M	3,750.000	11,250.000
TK202	DERV	OK	5,000	18.60	0M	1,000.00M	42,500.000	119,000.000
TK203	PREM	OK	5,000	18.60	0M	1,000.00M	5,000.000	15,000.000
TK301	PREM	OK	5,000	18.60	0M	1,000.00M	57,500.000	172,500.000
TK400	KERO	OK	5,000	18.60	0M	1,000.00M	5,750.000	11,500.000
TK401	ADDATIVE	OK	5,000	18.60	0M	1,000.00M	625.000	1,750.000
TK854	BUTANE	OK	5,000	18.60	0M	1,000.00M	5,000.000	15,000.000

BA00399GEN_037

11.2 Selecting Data Views

Grid View comes as standard with several pre-defined data views.
The available data views are listed in the drop down list on the toolbar (see figure below).



BA00399GEN_038

The fixed views are:
- Tank Gauging
- Tank Inventory
- Gauge Status

Each view contains different columns of information.

11.3 Flow Rate Colour

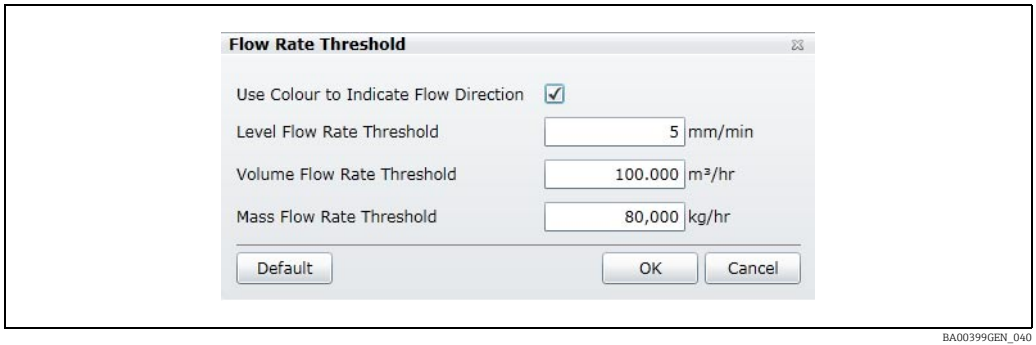
When a **Flow Rate** column is present in the view a row displaying a moving tank is coloured either brown or blue. Brown rows indicate that the level in the tank is moving downwards, blue rows indicate that the level is moving up, while static tanks are displayed in the background colour.

Cell Colours can be customised for:
- Alarm
- Error
- Failed
- Manual Data
- Offline

The background and foreground colours can be changed. Click the button on the toolbar to access this facility.

The grid maintains three user configurable threshold values to determine when a row should be coloured. The correct threshold values are used depending on whether the view shows a level, mass or volume flow rate.

1. To configure the threshold values choose **Flow Rate Thresholds** from the toolbar. The **Flow Rate Threshold** dialog will be displayed.



BA00399GEN_040

When any of the data fields exceeds the set-point the row will be highlighted in brown or blue depending on the movement direction. You cannot set any of the threshold figures to zero.

The level threshold value in the **Grid View** is independent of the similar threshold figure configured for the home page.

12 Tank Grouping

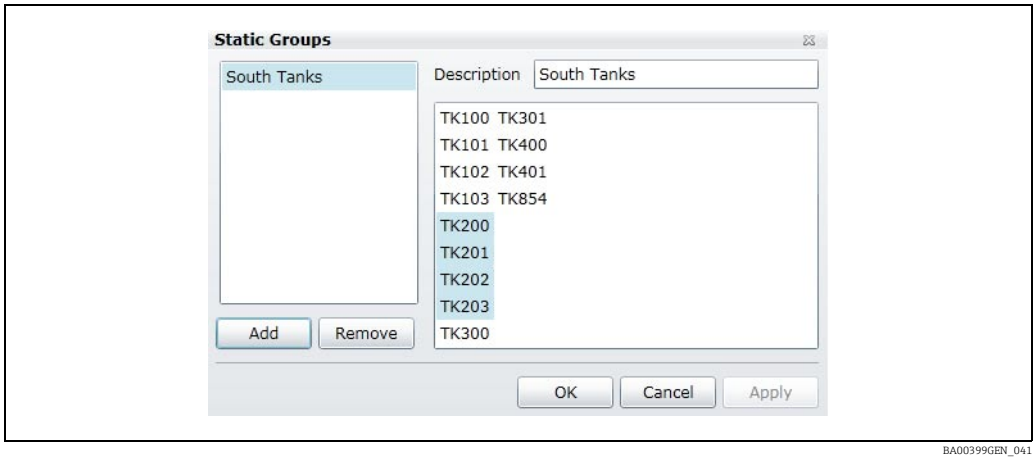
The system provides a comprehensive range of tools and utilities for the organisation and grouping of tanks to user's requirements.
Static grouping functions are available from the **Tank Grouping** module.
Grouping is generally organised into:

- Static groups
- Product groups
- Dynamic groups
- Alarm groups

Static groups can be organised by user defined tank groups.
Product groups, dynamic groups and alarm groups are automatic as defined by the criteria.

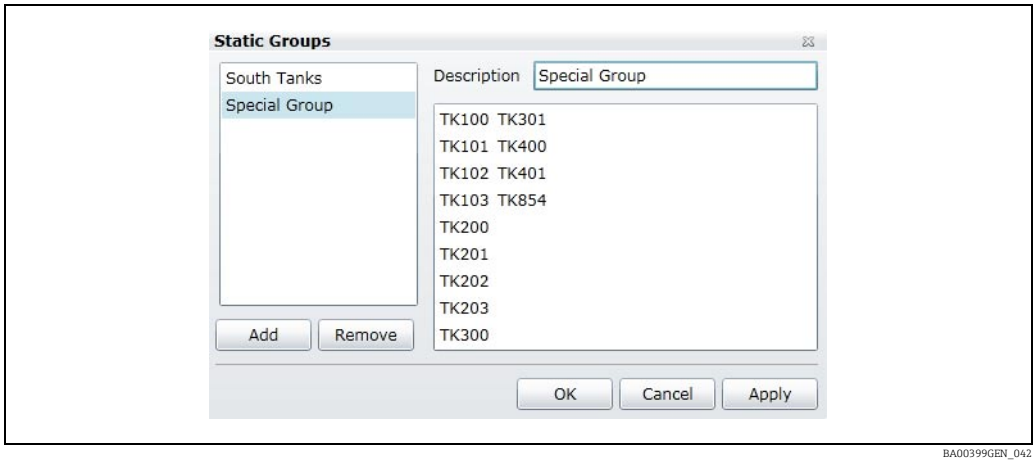
12.1 Configuring and using a static group

1. Load the **Tank Grouping** module by clicking **Edit Tank Groups** on the toolbar.



BA00399GEN_041

2. Press the **Add** button.
The **Static Groups** screen is displayed as shown below:



BA00399GEN_042

3. Enter the name of the group.
4. Click on the available tanks to add or remove them from the group.
Any tanks which are highlighted are members of the group.
5. To save the group click the **OK** button.

6. To lose any changes click the **Cancel** button.
7. The static group can now be used by selecting it from the **Static Groups** menu on the groups menu bar.

12.1.1 Deleting a static group

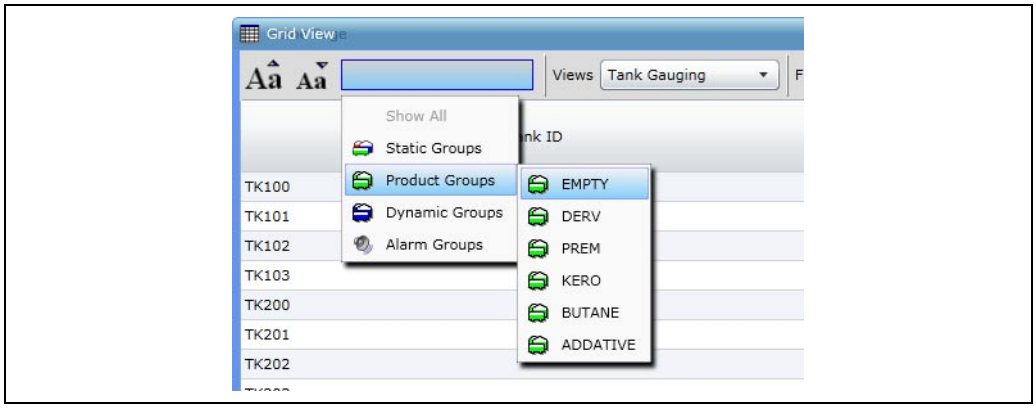
1. Load the **Tank Grouping** module by clicking **Edit Tank Groups** on the toolbar.
2. Select the **Tank Group** to be deleted from the group list.
3. Click the **Remove** button.

12.2 Product Grouping

The system provides the user with the ability to view tanks containing a particular product.

12.2.1 Using a product group

1. View the **Product Groups** by clicking the **Tank Grouping** drop down box.
2. Select **Product Groups** followed by the desired product.



BA00399GEN_058

12.3 Dynamic Grouping

The system currently provides a basic dynamic grouping function which allows the user to view tanks that conform to certain dynamic criteria e.g. moving tanks.
When a **Dynamic Group** is in use, as tanks no longer conform to the criteria they will be automatically removed from display.

The number of available **Dynamic Groups** is currently fixed.
These groups are automatically defined by the system.

12.3.1 Using a dynamic group

1. View dynamic groups by clicking the **Tank Grouping** drop down box
2. Selecting dynamic groups followed by the desired criteria.
   There are six dynamic groups:

- **Static Tanks** - The static tank dynamic group will show all tanks that are currently not moving.
- **Moving Tanks** - The moving tank dynamic group will show all tanks that are currently moving.
- **Loading Tanks** - The loading tank dynamic group will show all tanks that have a negative flow rate.

- **Receipt Tanks** - The receipt tank dynamic group will show all tanks that have a positive flow rate.
- **On-Line Tank** - The on-line tank dynamic group will show all tanks that are currently on-line.
- **Off-Line Tanks** - The off-line tank dynamic group will show all tanks that are currently off-line.

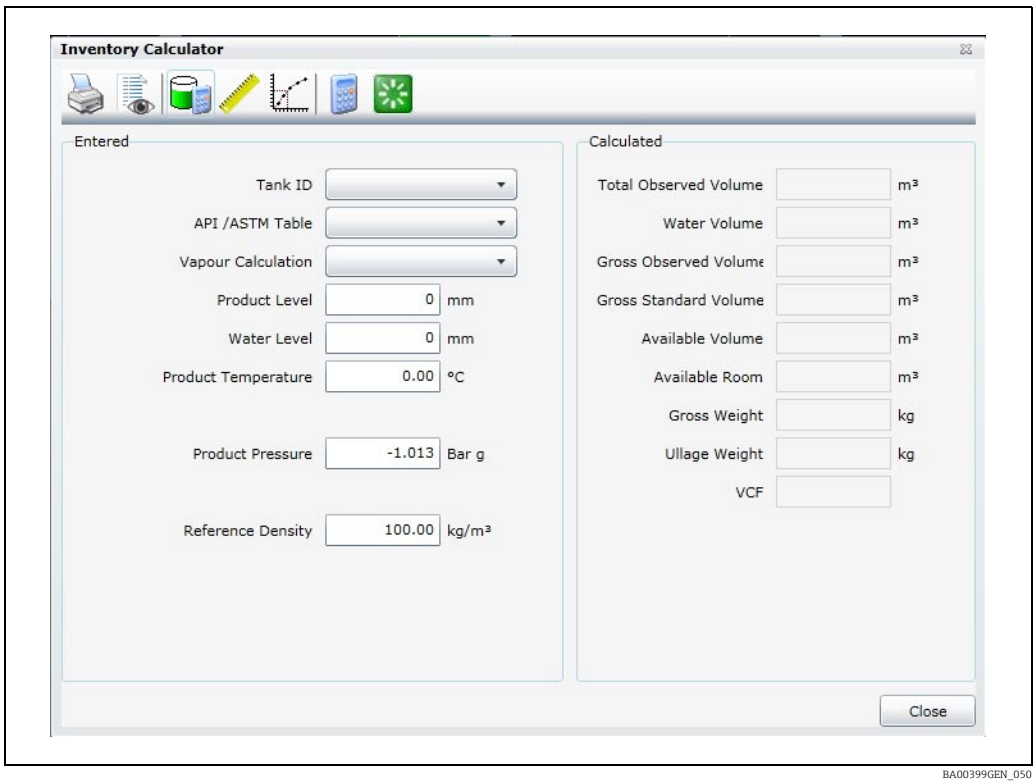
13 Inventory Calculator

The system comes as standard with an **Inventory Calculator**.
The primary purpose of the **Inventory Calculator** is to provide the user with a means of calculating tank inventory for conditions that do not currently exist.
For example, it could be used as a "what happens if" calculator, if a tank were to receive or load X litres of product what would the final tank conditions be.

13.1 Launching the Inventory Calculator

1. Press the **Inventory Calculator** button from the start menu.

The **Inventory Calculator** module will be loaded. See the illustration below for a typical example.
The **Inventory Calculator** is a multi-tabbed display comprising the straightforward **Tank Calculator**, a measurement unit converter and a linear interpolation calculator.



BA00399GEN_050

13.2 Tank Calculator

The **Tank Calculator** provides the user with the facility of calculating tank inventory at user specified conditions.

13.2.1 Viewing current tank data

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

   The current tank gauging and inventory data will be displayed for the selected tank along with the API table currently configured for the tank.

13.2.2 Entering the user's criteria

The user can enter the following data:
- Product Level
- Product Temperature
- Product Density
- Water Level
- Pressure
- Vapor Calculation
- API Table

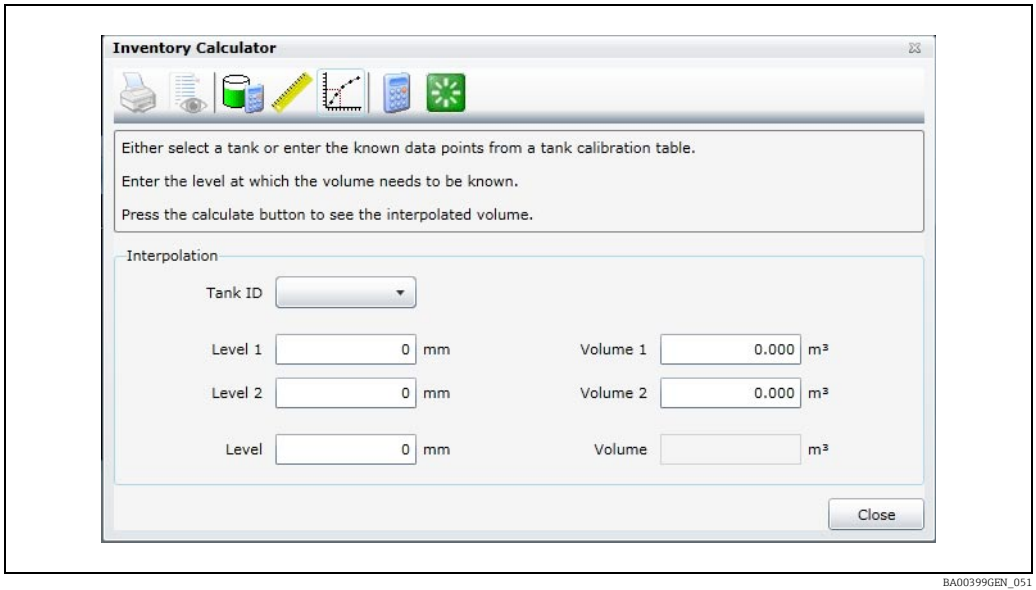
Some of the data fields are not always applicable to the API Table selected.
The fields that can be edited are clearly marked on the display in a white background.

1. For example, to view the **Tank Inventory** at a different product level, simply delete or over type the current level reading with the new one and press the **Calculate** button.

The Inventory parameters will be re-calculated for the new data.
The user configurable data will be validated prior to doing the calculations.
For example, if the level goes beyond the operating extents of the tank a warning will be generated in the status bar along with an audible sound. The description of the warning should be sufficient to determine the error. In most cases the maximum or minimum limit will be displayed where applicable.

13.3 Interpolation

The tab marked **Interpolation** is a very simple linear interpolation calculation tool, shown on figure below. Its purpose is to allow the user to enter data directly from a set of tank calibration charts and calculate the volume at an unknown level by simple linear interpolation.



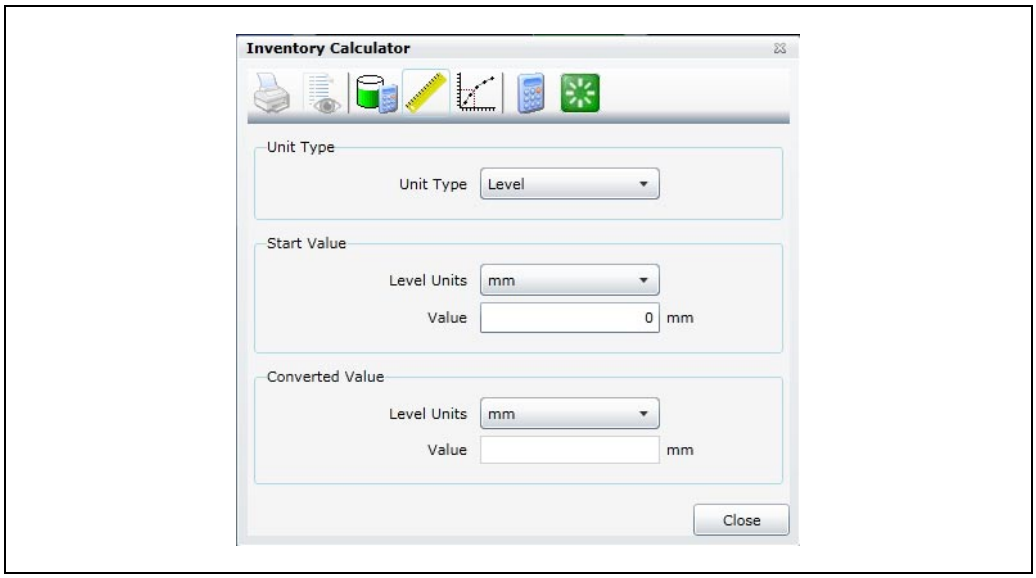
BA00399GEN_051

13.4 Unit conversion

The **Unit Conversion** tab, shown in figure below, contains a simple tool to allow the user to convert a value in one unit of measure into the corresponding value of a different one.

1. First select the type of value from the options on the left.
2. The user can then select from the drop down list the measurement units of the starting value, and its numeric value and then select another measurement unit into which the value should be converted.

3. Click on the **Calculate** button to perform the conversion.



BA00399GEN_051

13.5 Print and print preview

Preview – Displays a copy of the report on the computer screen.
Print – Prints the report to the selected printer.

14 Settings

1. Change the local settings from the **Settings** menu .

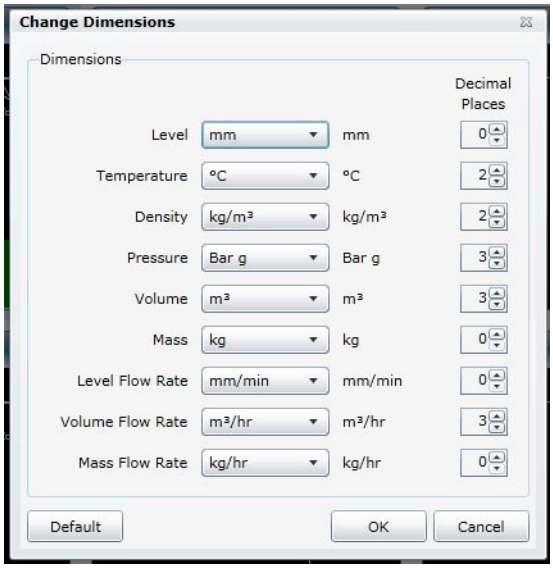
14.1 Local Settings

The facility permits the user to change the language and report page format.

BA00399GEN_054

14.2 Dimensions

Use this facility to select the engineering units used to display your tank gauging data.



BA00399GEN_055

15 About

The **About** option will produce a graphic containing the version numbers of the application. This is useful when contacting the support desk in order to tell them which version of the tank gauging software is in use.

BA01295GEN_070

Index

A
About 35
Alarms And Events 24

C
Configuring Displayed Data 15
Connection Status 18
Context menu options 19

D
Data display In Manual Mode 16
Designated Use 9
Device Version 8
Dynamic Grouping 29
  Using a dynamic group 29

G
Gauge commands 20
Grid View 26
  Displaying Grid View 26
  Flow Rate Colour 27
  Selecting Data Views 26

H
Home Page 14

I
Icons 4
Identifying alarm 17
Identifying moving tanks 18
Installing Silverlight 12
Interpolation 32
Inventory Calculator 31
  Launching The Inventory Calculator 31

L
Launching Web Client 12
Logging on to the web client 23
Logging out of the web client 23

M
Manual data 19

O
Order Code 8

P
Print and print preview 33
Product Grouping 29
  Using a product group 29

R
Reports 25

S
Safety icons 4
Security 23
Server Installation 12
Settings 34
Single Tank Overview 22
Symbols 4
System Installation 12

T
Tank Calculator 31
  Entering the user's criteria 32
  Viewing current tank data 31
Tank Grouping 28
  Configuring and using a static group 28
  Deleting a static group 29
Tank In alarm 16
Tank View 15
Trademarks 8

U
Unit conversion 32

W
Web Client 11
Web Server 11
What Happens When An Alarm Occurs 24

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