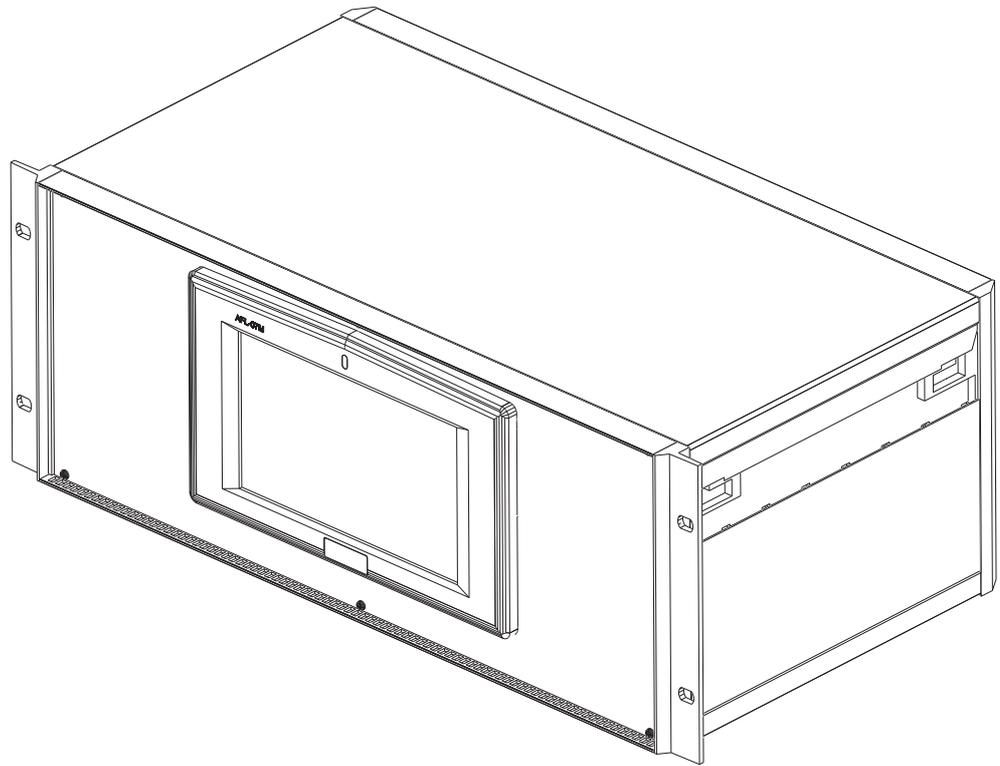


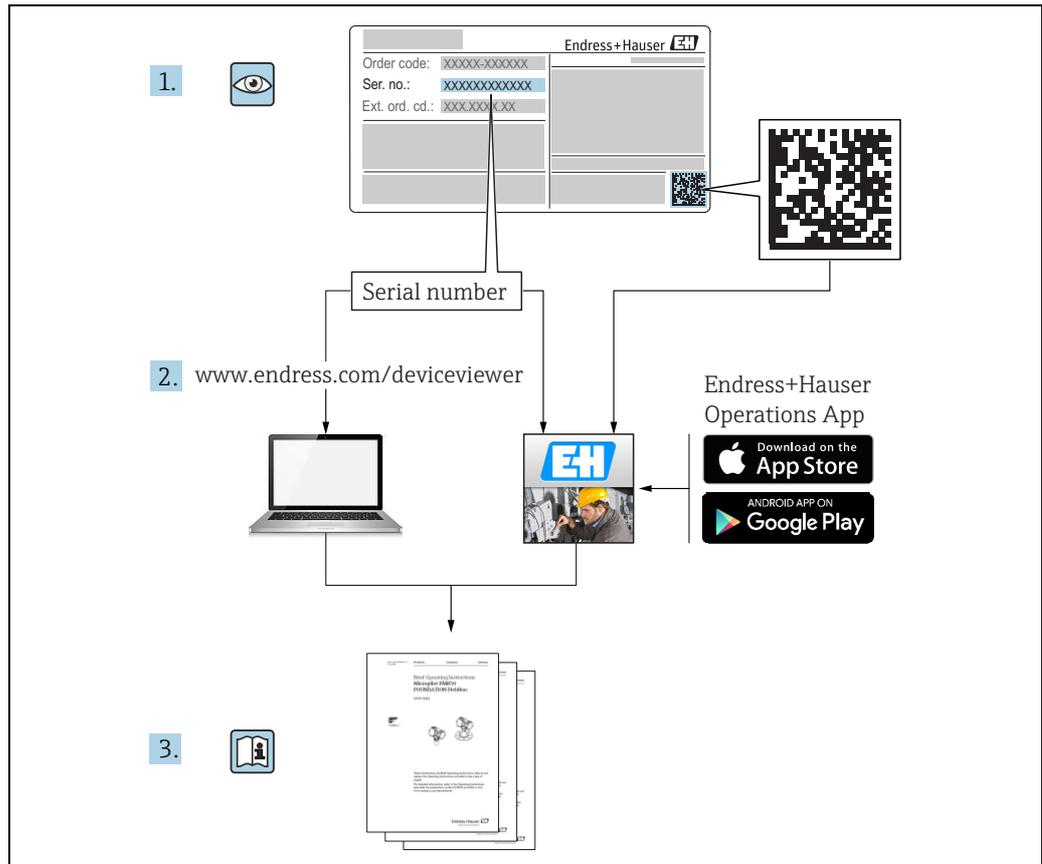
Operating Instructions

Tankvision

Multi Scan NXA83B

Web Client System Operation





A0023555

Version history

| Document version | Valid for SW version | Changes to the previous version |
|---------------------|----------------------|--|
| BA01297/00/EN/01.14 | 3.0.10 | Initial version |
| BA01297/00/EN/02.15 | 3.0.12 | Change of order code structure |
| BA01297/00/EN/03.16 | 3.1.0 and 4.0.0 | Old V1 support and simplified configuration |
| BA01297/00/EN/04.18 | 3.4.0 and 4.4.0 | Changes to V1 Driver and GBT calculations |
| BA01297/00/EN/05.21 | 5.0.0 | Migration to Windows 10 IoT operating system |

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1 Document information

1.1 Target audience for this manual

This manual is giving detailed information on the system capabilities and architecture. It supports project and sales engineers in designing the system architecture during acquisition and execution phase. Furthermore during operation time of the system all servicing personnel in need of detailed knowledge about the system capabilities.

1.2 Document function

1.2.1 Symbols

Safety symbols

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

Symbols for certain types of information and graphics

| Symbol | Meaning |
|--|--|
|  <small>A0011193</small> | Tip Indicates additional information. |
|  <small>A0011195</small> | Reference to page Refers to the corresponding page number. |
|  | Series of steps |
|  <small>A0018373</small> | 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) |

1.3 Documentation

The following documentation types are available in the Downloads area of the Endress+Hauser website: www.endress.com/downloads



For an overview of the scope of the associated Technical Documentation, refer to the following:

- *W@M Device Viewer*: www.endress.com/deviceviewer - Enter the serial number from the nameplate
- *Endress+Hauser Operations App*: Enter the serial number from the nameplate or scan the matrix code on the nameplate

1.4 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.

Mozilla[®] Firefox[®]
Registered trademark of the Mozilla Foundation

Enraf, Honeywell, Rosemount, Emerson, Saab, L&J, VAREC, GPE are registered trademarks and trademarks of these organizations and companies.
All other marks are property of their respective owners.

2 Basic safety instructions

2.1 Requirements for the personnel

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

- Trained, qualified specialists: must have a relevant qualification for this specific function and task
- Are authorized by the plant owner or operator
- Are familiar with federal or 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 fulfil 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

2.2 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.

Endress+Hauser can provide support in performing this task.

2.3 Intended use

2.3.1 Applications

Inventory control

By using Tankvision Multi Scan to monitor the tank level and stored volume of valuable liquids remotely, owners or operators of tank farms or terminals for petroleum products and chemicals (liquids) can visualize the volume of the stored medium in real time. The data can be used to plan the inventory and distribution. The data can also be used to manage tank farm operations like pumping or transferring products. Tankvision has its unique concept using network technology. Without using proprietary software, the users can visualize and manage their valuable liquids stored in the tanks by a web browser. Tankvision Multi Scan is a flexible and cost effective solution due to its scalable architecture. The application coverage goes from small depots with only a few tanks up to refineries.

Inventory Calculations

Tankvision Multi Scan calculates based on measured variables and tank capacity tables:

- Observed or gross volumes
- Net volumes and
- Mass

of products like

- Hydrocarbons,

- Liquefied gases,
- Asphalt.

They are corrected according to international standards, including API/ASTM tables 5A, 5B/6, 53A, 53B/54, 23/24, LPG.

This includes temperature corrections at 15 °C, 60 °F and alternative temperatures. Additionally, available pump able volumes and water volume are calculated.

Remote configuration of measuring equipment

Some on-site operations can be avoided using remote configuration of measuring equipment during commissioning or maintenance (the availability of this feature may depend on the system configuration).

Application areas

- Tank farms in refineries
- Ship loading terminals
- Marketing and distribution terminals
- Pipeline terminals
- Logistic terminals for tanks storing products like crude oils, refined white and black products, chemicals, LPG

2.4 Workplace safety

For work on and with the device:

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

2.5 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.

- Consult with Endress+Hauser if modifications are required.

Repair

To ensure continued operational safety and reliability:

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

2.6 Product safety

This measuring device is designed in accordance with good engineering practice to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate. It meets general safety standards and legal requirements. It also complies with the EC directives listed in the device-specific EC Declaration of Conformity. Endress+Hauser confirms this by affixing the CE mark to the device.

3 System Operation Introduction

The Multi Scan NXA83B is a reliable scalable tank inventory system suited for small terminals and depots, or as part of a larger system on sites with more storage tanks.

The Web Client can be provided on any Windows or Macintosh station with a network connection to the device. The interface provides a uniform, network accessible front end to different vendor's instruments, hiding many of the differences between the gauges employed on site. A wide range of communication drivers and interfaces already exist and more are being developed all the time.

This manual is intended as a guide, for tank farm operators, in using the software.

4 System Installation

To install the Multi Scan NXA83B Web Client, navigate to the appropriate URL e.g. <http://192.168.1.250>. Once the address has loaded you will be prompted to install Silverlight if it is not already installed.

 <http://192.168.1.250> is the default IP address and could have been changed during configuration.

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

4.1 Installing Silverlight

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



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

4.2 Installing Alarm Event Viewer

To install the Alarm Event Viewer, navigate to the URL provided by your installation engineer e.g. <http://192.168.1.250/alarms>. Then click the **Install** icon. This is an optional install, however it is recommended to install this feature for automatic popup warnings, as well as the ability to remotely acknowledge/silence alarms.

 This has been tested on all major web browsing software, including Internet Explorer, Firefox, Chrome and Opera.

 <http://192.168.1.250> is the default IP address and could have been changed during configuration.

4.3 Launching the Multi Scan NXA83B Web Client

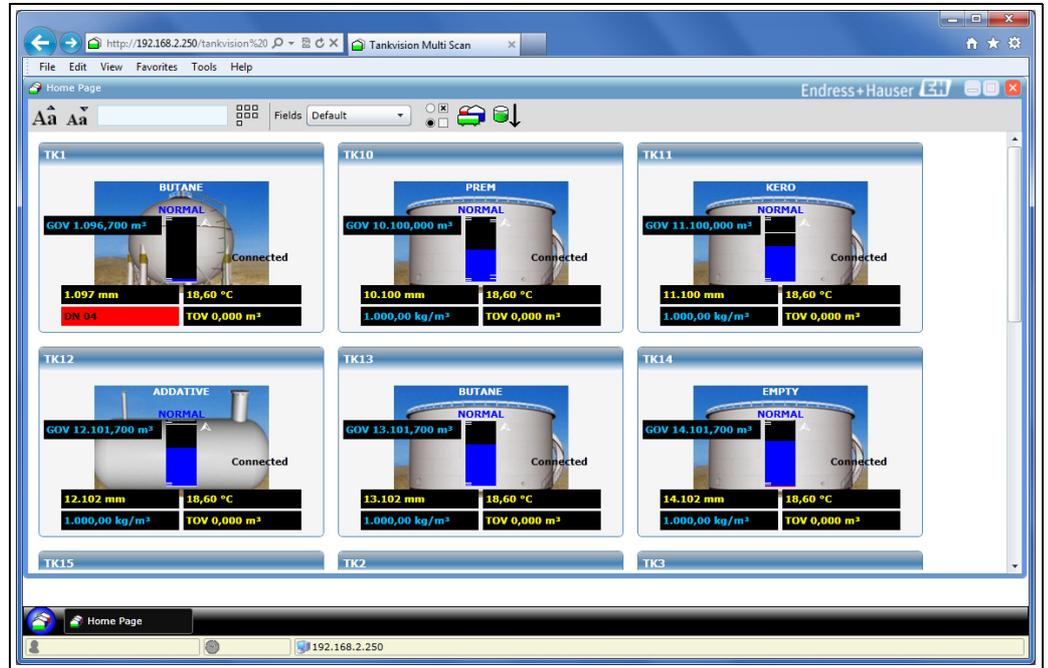
After installation, navigate back to the URL provided by the installation engineer for the server e.g. <http://192.168.1.250>.

 <http://192.168.1.250> is the default IP address and could have been changed during configuration.

5 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.



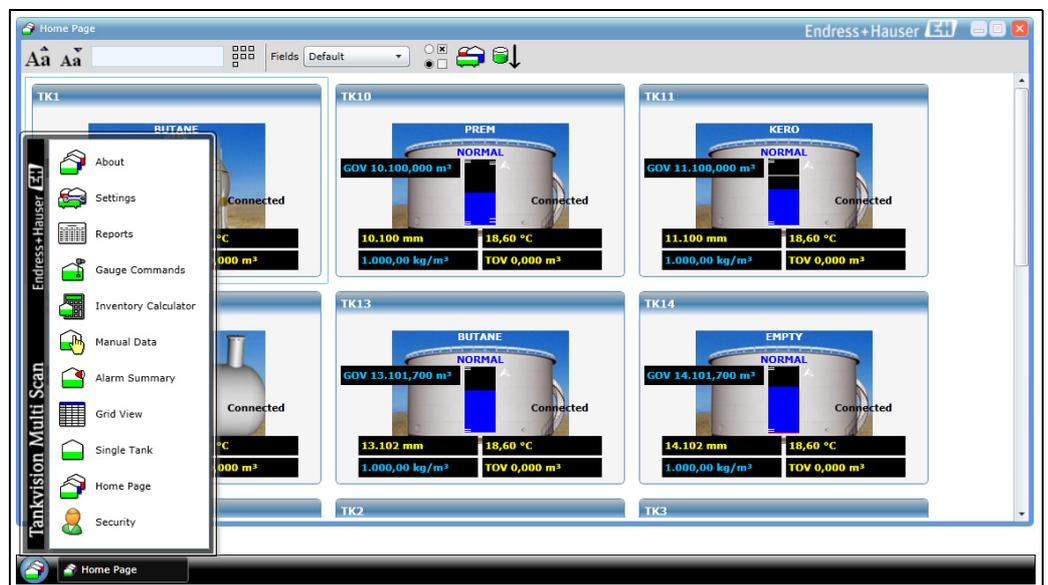
NXA83_Webserver_Home-Page

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.

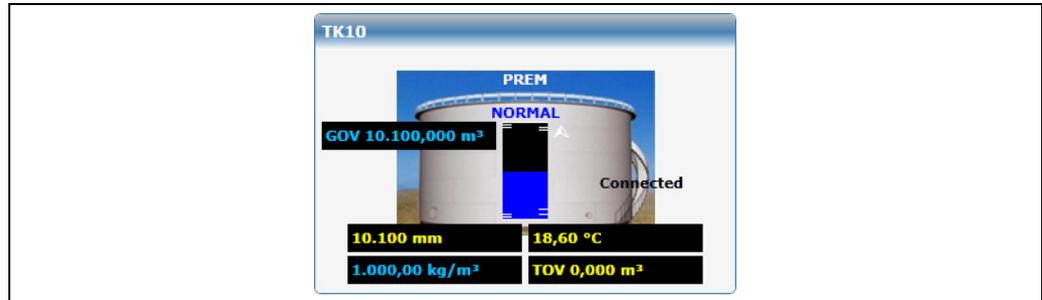
All features can be accessed through the **Start** button  from the web client desktop as shown.



NXA83_Webserver_Home-Page_Start

5.1 Tank View

This is the default view for individual tanks when displayed in the Home Page (see the example below).



NXA83_Webserver_Tank-View

Each window can be scaled in its general appearance and size using shortcuts from the homepage tool bar.



NXA83_Webserver_Scaling

- 1 Used to scale the size of onscreen objects
- 2 Used to tile the individual 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.

5.2 The Basic Tank View Window

The Window shows some fixed and some configurable fields:

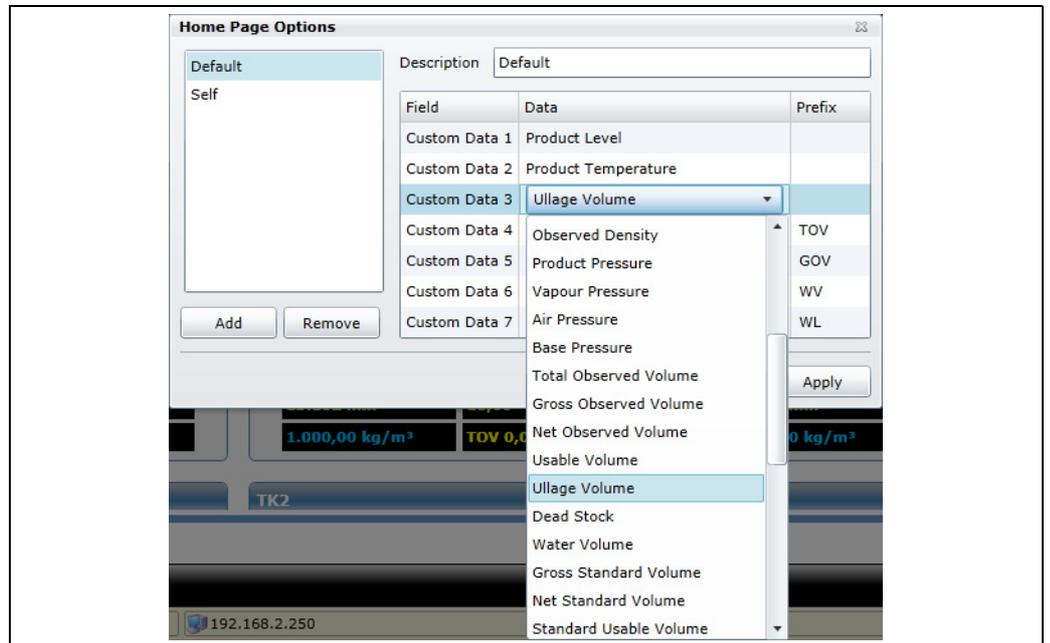
- The tank number for the tank – fixed
- The product allocated to the tank – fixed
- A bar graph showing the level in the tank – fixed
- A selection of numeric data fields – configurable
- Whether an alarm is currently active for the tank – fixed
- Status of the numeric data where relevant (manual/automatic mode) – fixed
- Connection status of the gauge i.e. Connected, Disconnected, Connecting, Disconnecting – fixed



If the connection status is anything other than **Connected**, ALL data for the tank is from the last time it was connected and therefore NOT LIVE.

5.2.1 Configuring Displayed Data

There is a selection of numeric data fields that can be displayed on each tank view, this can be done by selecting the **Home Page Options** button , which will bring up the following menu:



NXA83_Webserver_Home-Page-Options_Ullage-Volume

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

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

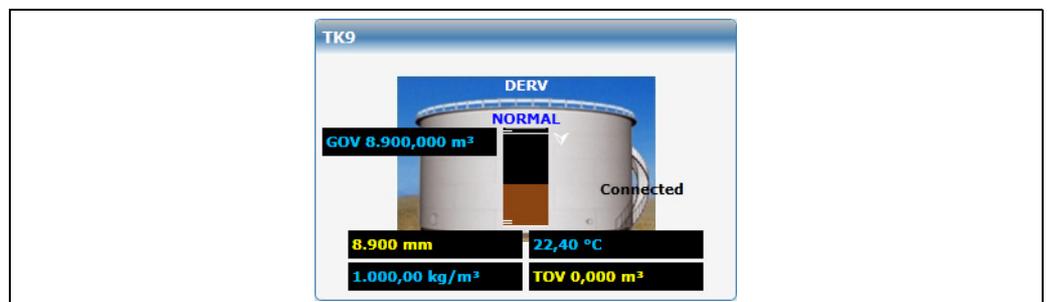
When leaving the menu, click **Apply** to save the new displays.

5.2.2 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.

The following window indicates that the product temperature is in manual mode.

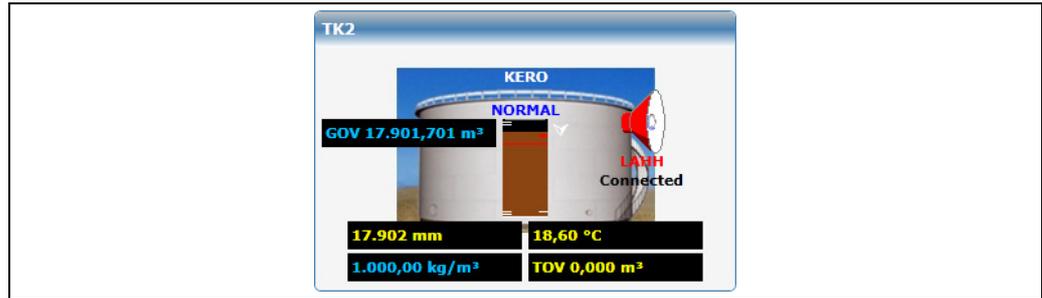
The data is therefore updated by using the Manual Data Entry facility. Please refer to the Section on Manual Data Entry for further details → 14.



NXA83_Webserver_Tank-View_Manual-Data

5.2.3 Tank in Alarm

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



NXA83_Webserver_Tank-View_Alarm

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. In the illustrated case **LAHH** is Level Alarm High High.

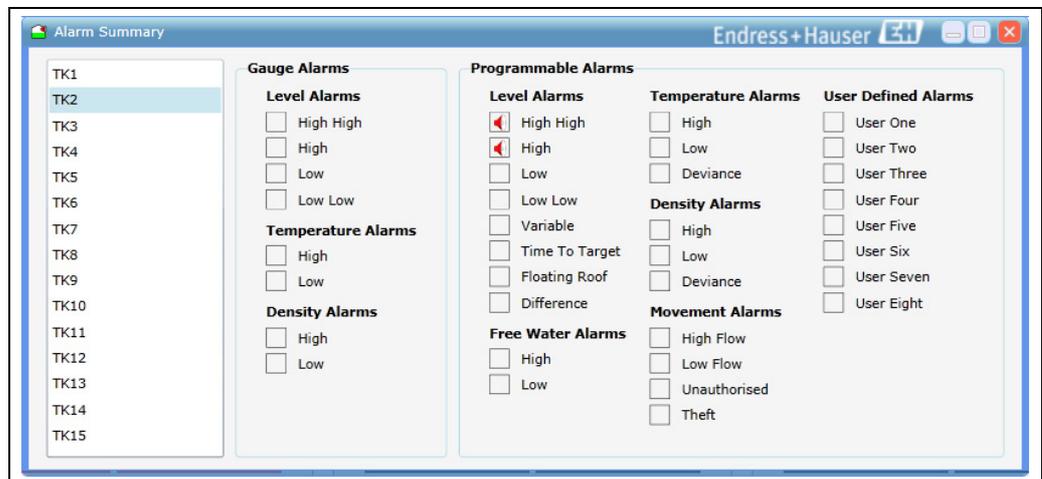
5.2.4 Identifying the Alarm after It Has Occurred

When an alarm first occurs an event is generated, a horn appears on the tank and an audible warning is sounded through the event viewer.

After all of these actions have been dealt with the remaining evidence of the alarm is the **Horn** icon. In addition the **Alarm Summary** window will also show any active alarms.

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

The **Alarm Summary** module will be loaded (see illustration below).



NXA83_Webserver_Alarm-Summary

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.

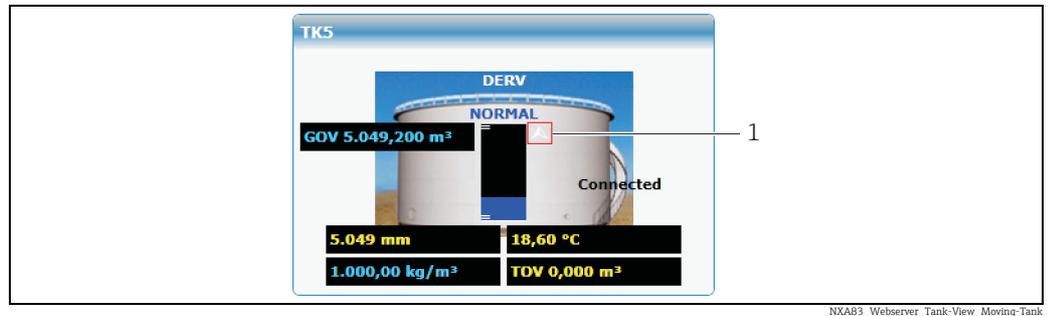
The status of other tanks can be seen by selecting the required tank number from the list box.

5.2.5 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.

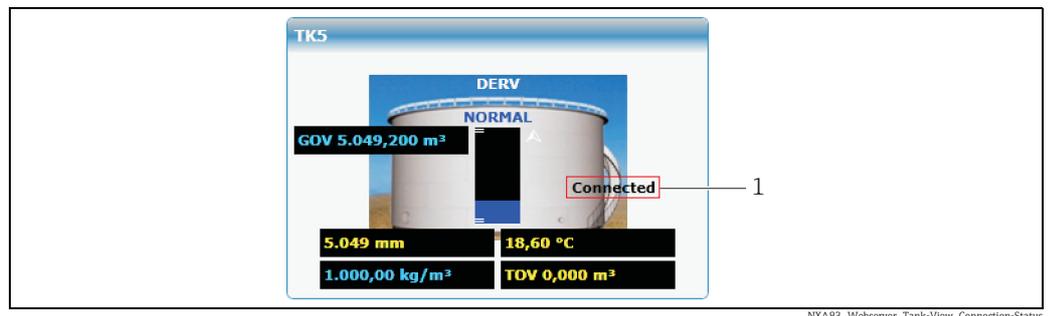


1 Fill direction indicator

The direction indicator has an upward pointing arrow.

5.2.6 Connection Status

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



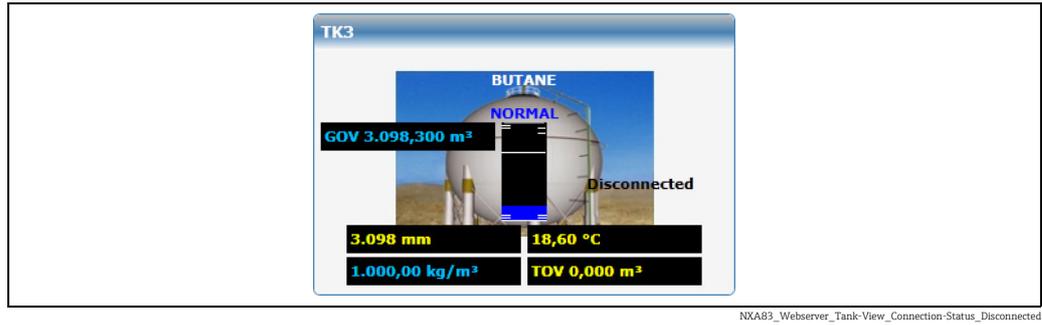
1 Connection status indicator

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.

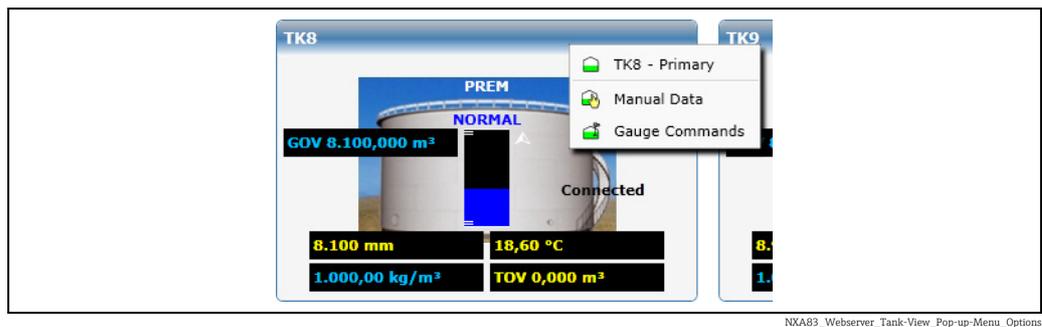
If the connection status is anything other than **Connected** then ALL data for the tank is from the last time it was connected and is therefore NOT LIVE.



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.

5.3 Pop-up Menu Options

A pop-up menu is available. Right mouse click within any Tank View Window and the pop-up menu will appear. See the illustration below for example.

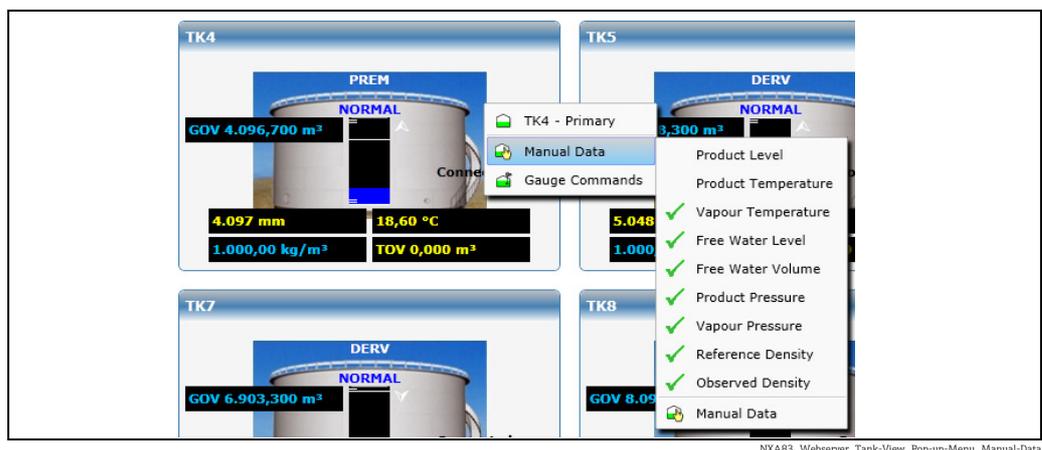


Some of the options within the pop-up menu are sensitive to the configuration of the tank. These will be discussed in the remainder of this chapter.

5.3.1 Manual Data

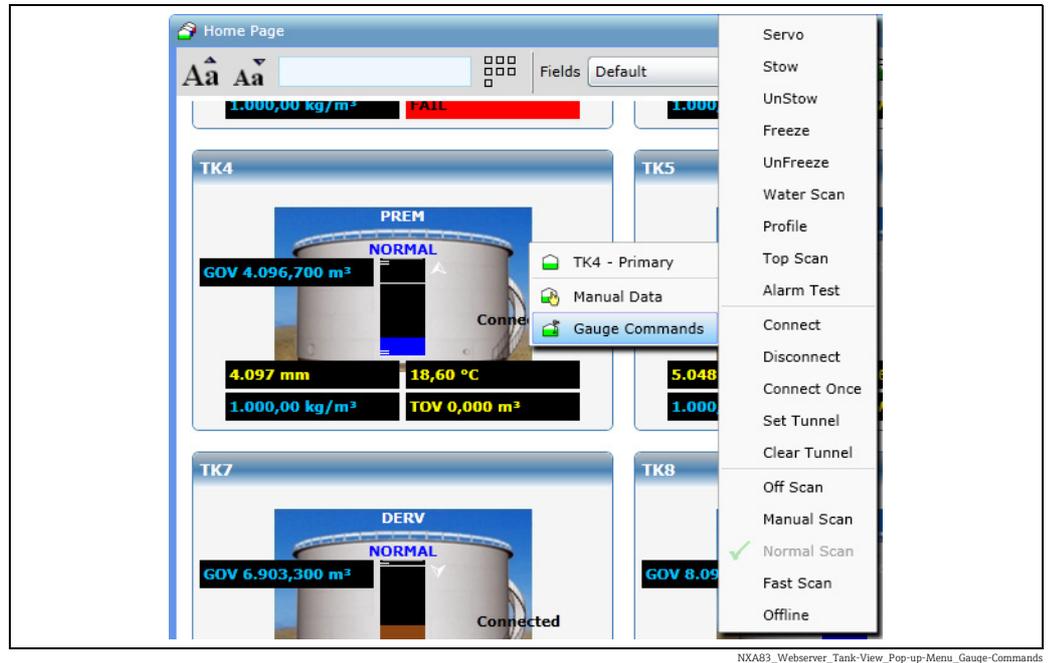
The **Manual Data** menu item has a further sub-menu which contains all of the available manual mode options. This option is used to switch values between manual and automatic mode.

Any value in manual mode will be highlighted by an adjacent tick mark, see the illustration below:



5.3.2 Gauge Commands

The gauge commands menu item has a further sub-menu which contains all of the available gauge commands within this context, see below.



The available commands are discussed and detailed as follows.

Servo

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

Stow

Stow the displacer 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 displacer to the product level. This can also be used to cancel any command currently in operation.

Freeze

Cause the displacer to remain at its current position.

Unfreeze

Release the last Freeze command and allow 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 Water level. Note that this command will only work if your gauge supports water scan.

Profile

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.

Top Scan

Selecting this option will perform a density profile over a defined range. The operator enters the Start and Stop positions of the scan along with the interval between readings and the Wait time in seconds.

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.

Connection Status

Connect, **Disconnect** and **Connect Once** are mutually exclusive options that determine the connection state of the interface port that the tank is connected to. If one of these commands is sent to a tank 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 operator.
- **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.

Scan Mode

Off Scan, **Manual Scan**, **Normal Scan**, **Fast Scan** and **Offline** are mutually exclusive options that control the frequency with which the gauge is scanned.

- **Off Scan**: The gauge is not polled, background scans may still be performed.
- **Manual Scan**: Used when the gauge is "Off Scan" to cause it to be polled once.
- **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.
- **Offline**: The PC will not poll the gauge at all.

6 Single Tank Overview

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

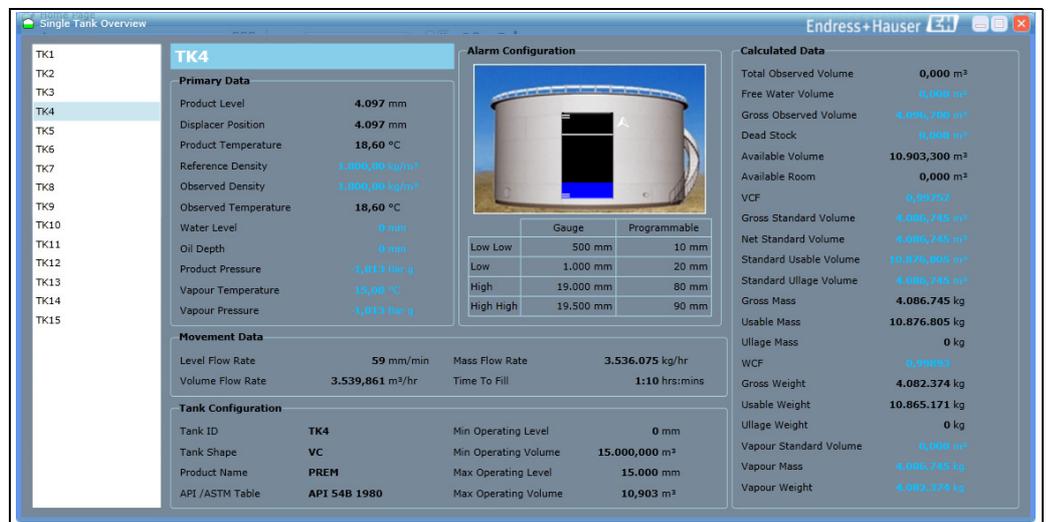
It can be launched:

- 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 on the left.

The displayed data is organized into logical groups: **Primary Data**, **Movement Data**, **Tank Configuration**, **Calculated Data** and **Alarm Configuration**.

Any data values in manual mode will be displayed in green. Any data values unavailable for any reason will be replaced by a diagnostic number. See the illustration below for a typical example.



NXA83_Webserver_Single-Tank-Overview

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

6.1 Tank in Alarm

If the selected tank has an active alarm, a **Horn** icon will be displayed. The details of which alarms are active can be found in the Alarm Summary Display. For details →  12.

7 Logging On

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, however if security is enabled the following sections apply.

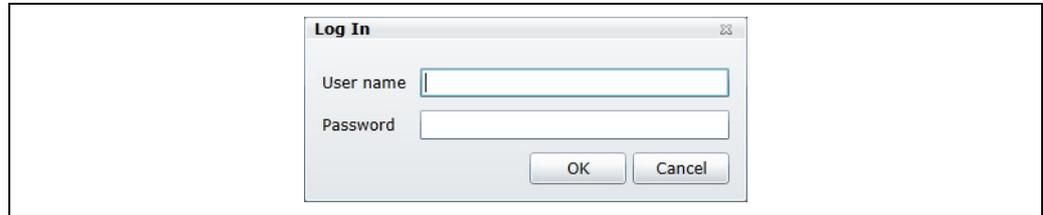
7.1 Logging onto Multi Scan NXA83B Web Client

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



NXA83_Webserver_Home-Page_Log-In

A login prompt will appear.



NXA83_Webserver_Log-In

2. Enter the necessary **User name** and **password**.

The details will be checked against entries in the database. If the User Name 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.

7.2 Logging Out of Multi Scan NXA83B Web Client

Select the **Security** → **Log Out** option from the **Start** button . The system will immediately log out the currently logged on user. This will disable access to all functions requiring a logon.

-  Security settings are configured according to the configuration manual.

8 Alarms and Events

Alarms and Events are displayed on the **Alarm Event Viewer** screen which is permanently available, if installed.

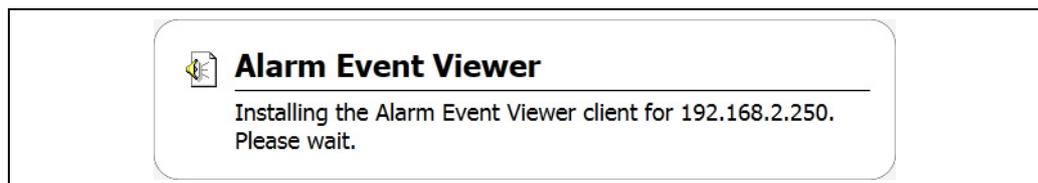
8.1 Installing the Alarm Event Viewer

1. To install the **Alarm Event Viewer** type the IP address of your Multi Scan NXA83B followed by /alarms into your Web browser address bar: e.g http://192.168.1.250/alarms for a Multi Scan NXA83B with its default IP setting. The following dialogue box will be displayed:



NXA83_Webserver_Alarm-Event-Viewer_Install

2. Click the **Install** button to continue.



NXA83_Webserver_Alarm-Event-Viewer_Installing

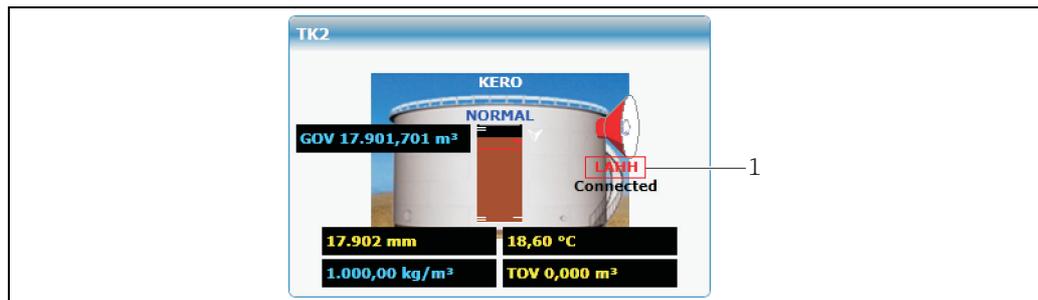
When the installation is complete, **Alarm Event Viewer** will start automatically. After a reboot of your PC, **Alarm Event Viewer** must be started from the desktop shortcut that will be created.



NXA83_Alarm-Event-Viewer_Icon

8.2 What Happens When an Alarm Occurs?

An **Alarm Horn** icon will be displayed on the tank on the **Home page** or in **Single Tank View**.



NXA83_Webserver_Tank-View_Alarm_LAHH

- 1 Alarm status indicator

The alarm status description within **Grid View** and on the **Home page** will change to reflect the highest priority alarm.

| Tank ID | Product Name | Alarm Status | Product Level (mm) | Product Temperature (°C) | Water Level (mm) | Reference Density (kg/m³) | TOV (m³) | Available Room (m³) | Level Flow Rate (mm/min) |
|---------|--------------|--------------|--------------------|--------------------------|------------------|---------------------------|----------|---------------------|--------------------------|
| TK1 | BUTANE | OK | 1.225 | 18,60 | 0M | -1,00 | 0,000 | 0,000 | 85 |
| TK2 | KERO | LAHH | 17.775 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -84 |
| TK3 | BUTANE | OK | 3.227 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 87 |
| TK4 | PREM | OK | 4.227 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 85 |
| TK5 | DERV | OK | 5.113 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 43 |
| TK6 | DERV | OK | 5.773 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -85 |
| TK7 | DERV | OK | 6.773 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -84 |
| TK8 | PREM | OK | 8.228 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 87 |
| TK9 | DERV | OK | 8.772 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -85 |
| TK10 | PREM | OK | 10.228 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 85 |
| TK11 | KERO | OK | 11.228 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 85 |
| TK12 | ADDATIVE | OK | 12.228 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 84 |
| TK13 | BUTANE | OK | 13.230 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 87 |
| TK14 | EMPTY | OK | 14.230 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 85 |
| TK15 | EMPTY | OK | 15.230 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 85 |

1 Alarm status description reflecting the highest priority alarm

An event will be generated by the system and shown in the **Alarm Event Viewer** screen.

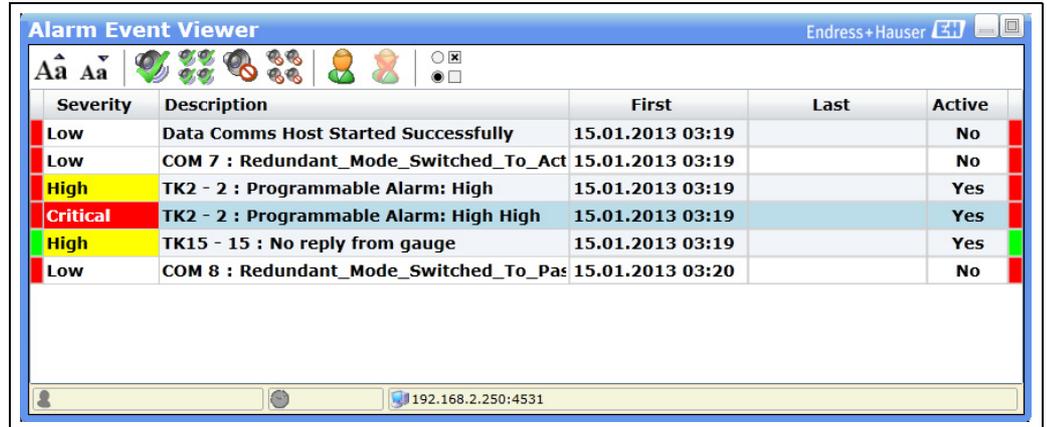
| Severity | Description | First | Last | Active |
|----------|---|------------------|------|--------|
| High | TK2 - 2 : Programmable Alarm: High | 15.01.2013 02:57 | | Yes |
| Critical | TK2 - 2 : Programmable Alarm: High High | 15.01.2013 02:57 | | Yes |
| High | TK15 - 15 : No reply from gauge | 15.01.2013 02:58 | | Yes |
| High | TK3 - 3 : No reply from gauge | 15.01.2013 02:58 | | Yes |

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.

8.3 Acknowledging Alarms

The **Alarm Event Viewer** displays details of alarms as shown below:



NXA83_Alarm-Event-Viewer_Status

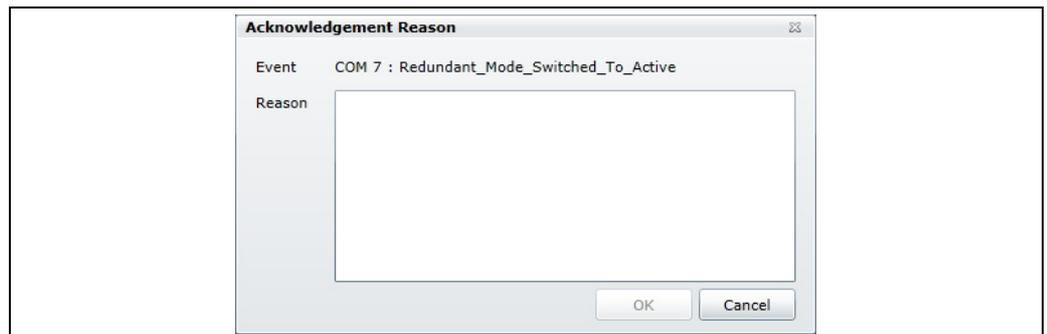
The status of the alarm is indicated in the leftmost and rightmost columns:

- **Red:** Unacknowledged and un-silenced.
- **Grey:** Silenced, but unacknowledged.
- **Green:** Acknowledged and silenced.

To silence or acknowledge an alarm it is first necessary to select the alarm by clicking on the row with the mouse. Once the alarm has been selected (indicated by the background colour turning blue) it may be silenced or acknowledged. If security is enabled, it is necessary to be logged in to silence or acknowledge an alarm.

The selected alarm can be acknowledged by clicking the **Acknowledge Alarm** button  or using the default keyboard shortcut **Spacebar**.

If the selected alarm has been configured to require an acknowledgement reason, an acknowledgement reason screen will be displayed:



NXA83_Alarm-Event-Viewer_Acknowledgement-Reason

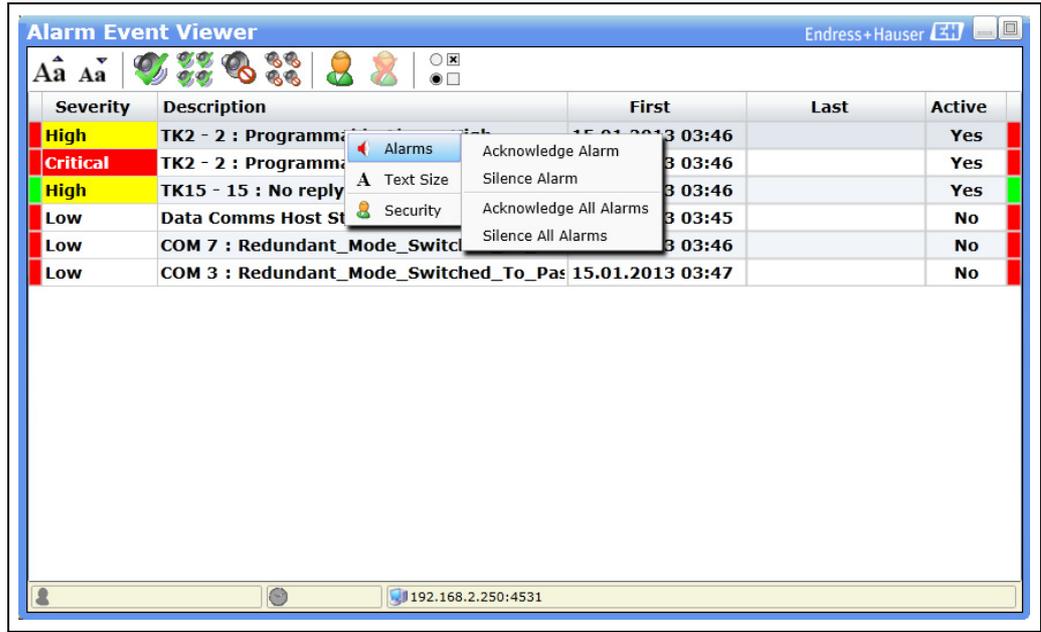
The **OK** button will not be enabled until a reason has been entered. The alarm can only be acknowledged by clicking the **OK** button.

The selected alarm can be silenced by clicking the **Silence Alarm** button  or using the default keyboard shortcut **S**.

It is also possible to acknowledge or silence alarms by clicking the **Acknowledge All** button ,

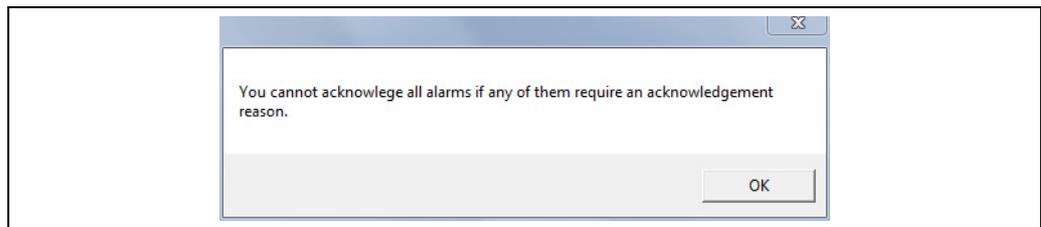
the **Silence all** button  or selecting one of the alarms using the right mouse button.

This will bring up a menu of options:



NXA83_Alarm-Event-Viewer_Mouse-Menu

If any of the unacknowledged alarms requires an acknowledgement reason, the following message will be displayed when trying to acknowledge all alarms.



NXA83_Alarm-Event-Viewer_Acknowledgement-All-Message

All the alarms requiring an acknowledgement reason must be acknowledged individually before any remaining alarms can be acknowledged using the **Acknowledge All** feature.

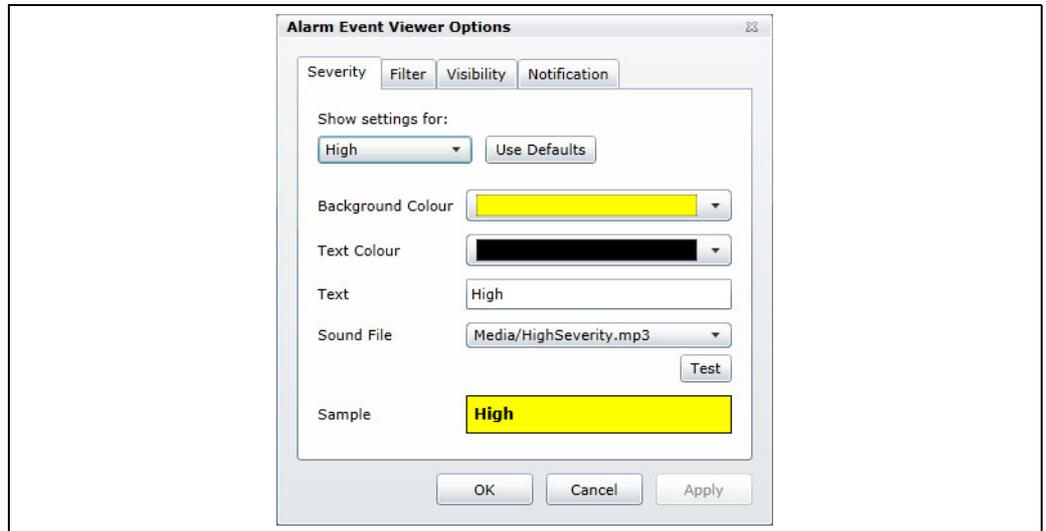
8.4 Alarm Event Viewer Settings

The **Alarm Event Viewer** has options that can be configured to customize the appearance and functionality of the feature. Clicking the **Alarm Event Viewer Options** button  will open the options menu. From here four tabbed sections can be customized:

- Severity
- Filter
- Visibility
- Notification

8.4.1 Severity

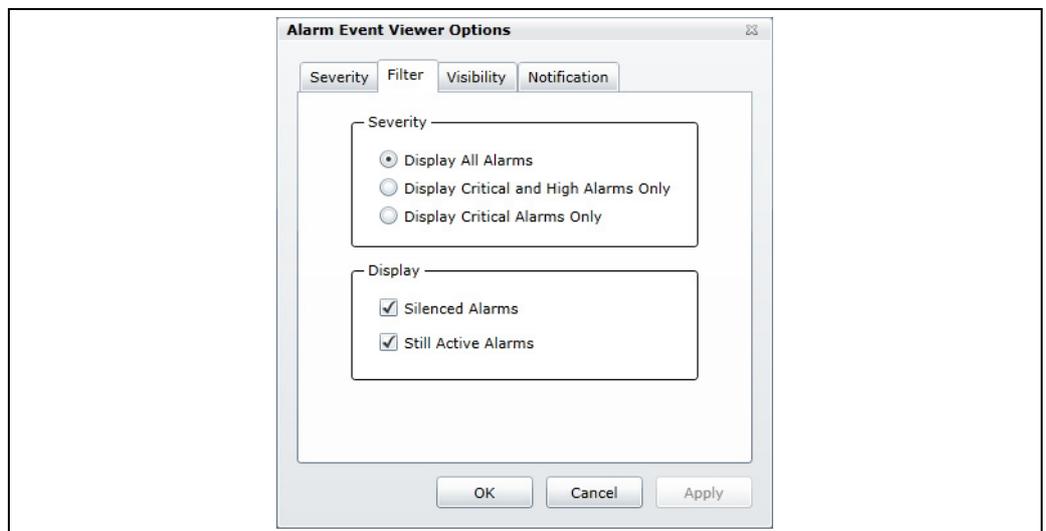
The **Severity** tab is used to customise the appearance and sound of alarms. Selecting an alarm type from the drop down box allows settings to be chosen for that type of alarm.



NXA83_Alarm-Event-Viewer_Options_Severity

8.4.2 Filter

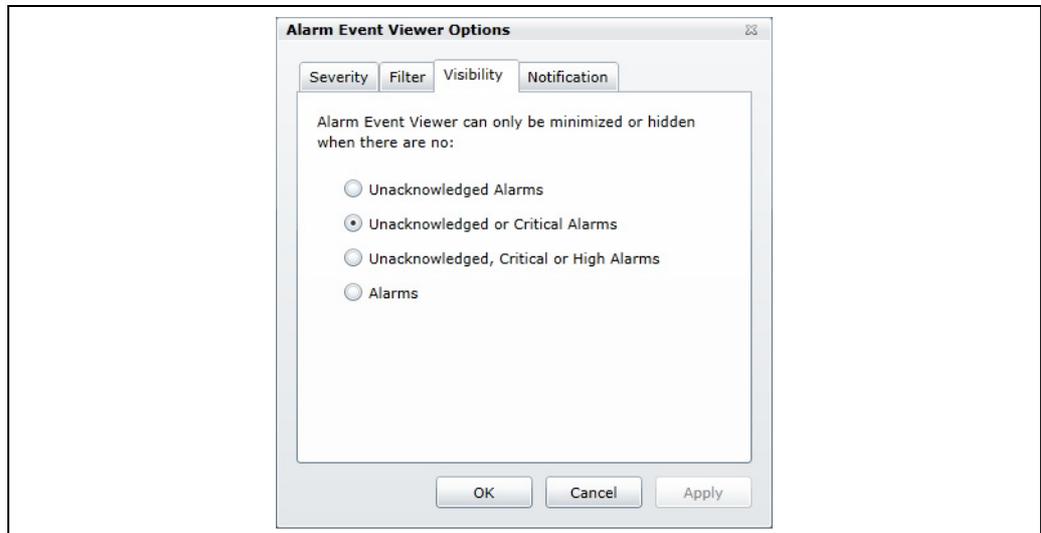
The **Filter** tab is used to customise which alarms are actually displayed depending on their severity and status.



NXA83_Alarm-Event-Viewer_Options_Filter

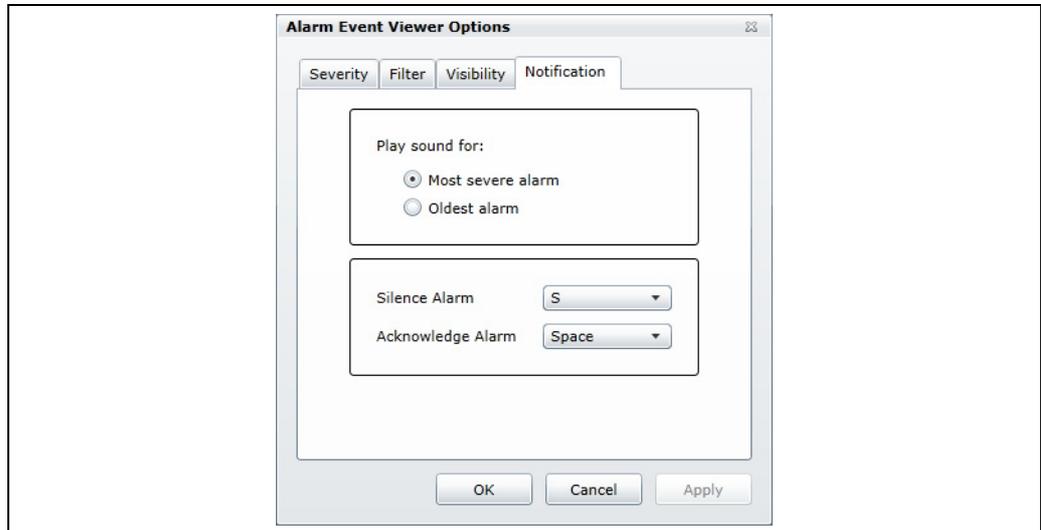
8.4.3 Visibility

The **Visibility** tab is used to customise when the alarm event viewer can be hidden. By default the Event Viewer cannot be minimized or hidden if there are any unacknowledged or critical alarms.



8.4.4 Notification

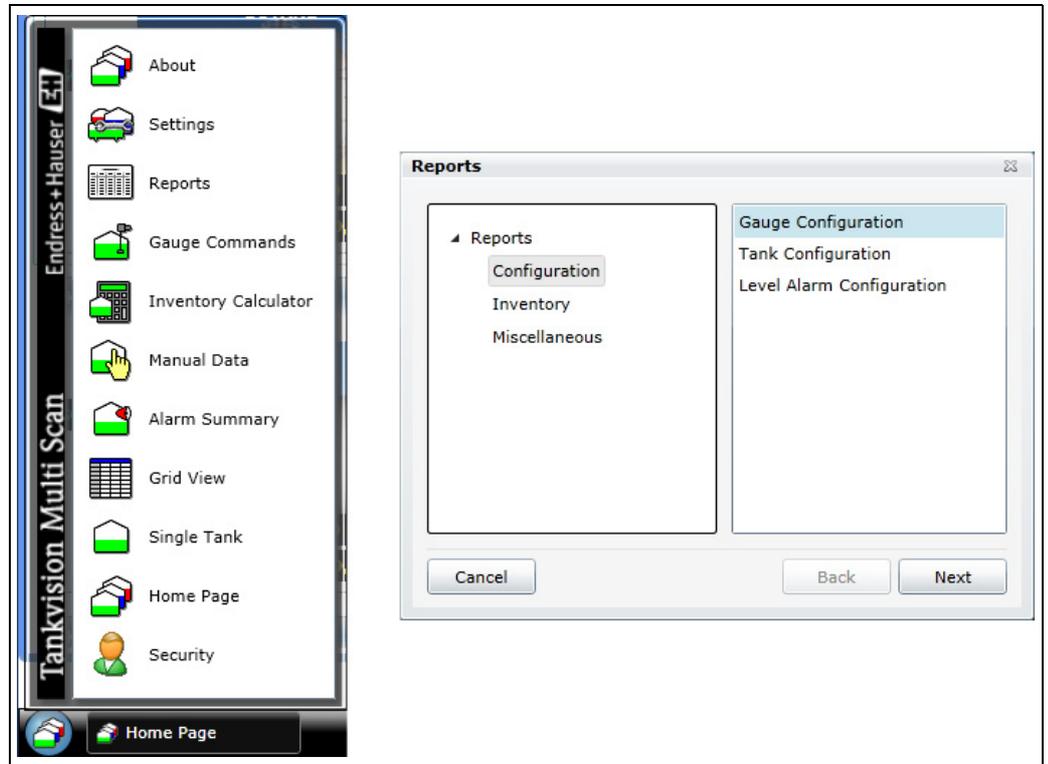
The **Notification** tab is used to customise which sound is played for multiple alarms as well as keyboard shortcuts to acknowledge or silence alarms.



9 Reports

The Webserver is provided with a set of standard tank gauging and inventory reports.

1. To access the reports choose **Reports** from the **Start** button  menu.

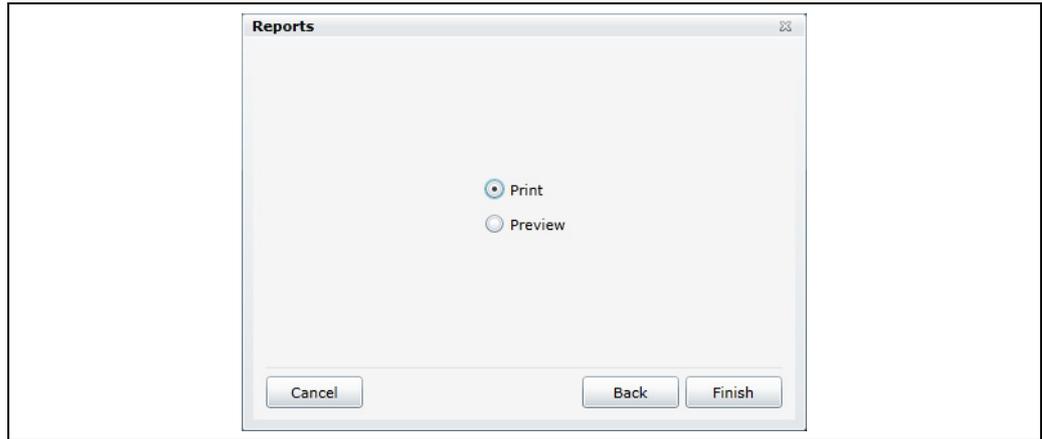


NXA83_Webserver_Reports

2. Select the type of report to be printed:

- **Gauge Configuration:** A report showing the main gauge configuration data for each tank
- **Tank Configuration:** A report showing the main tank configuration data for each tank
- **Level Alarm Configuration:** A report showing the main level alarm configuration for each tank
- **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 View:** 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 containing a particular product (e.g. Jet A1)

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



NXA83_Webserver_Reports_Print

- **Preview:** Will display a copy of the selected report on the computer screen e.g.

| Tank No. | Tank ID | Gauge Type | Tank Address | CIU Address | Gauge Address | Type Of Instrument | Type Of Record | Gauge Duty | Backup CIU Address | Ave Temp Fitted | Aux 1 | Aux 2 | Aux |
|----------|---------|------------|--------------|-------------|---------------|--------------------|----------------|------------|--------------------|-----------------|-------|-------|-----|
| 1 | TK1 | Enraf 854 | 0 | 1 | 1 | B | B | Primary | NO | NO | | | |
| 10 | TK10 | Enraf 854 | 10 | 1 | 10 | A | A | Primary | NO | YES | | | |
| 11 | TK11 | VAREC 1900 | 11 | 0 | 11 | | | Primary | NO | YES | | | |
| 12 | TK12 | VAREC 1900 | 12 | 0 | 12 | | | Primary | NO | YES | | | |
| 13 | TK13 | Enraf 854 | 13 | 0 | 13 | B | B | Primary | NO | YES | 01C | | |
| 14 | TK14 | Enraf 854 | 14 | 1 | 14 | B | B | Primary | NO | YES | | | |
| 15 | TK15 | Modbus TG | 15 | 1 | 2 | 3 | 4 | Primary | NO | YES | | | |
| 2 | TK2 | Enraf 854 | 2 | 0 | 2 | B | B | Primary | NO | YES | 02C | | |
| 3 | TK3 | Enraf 854 | 3 | 0 | 3 | B | B | Primary | NO | YES | 03C | | |
| 4 | TK4 | Enraf 854 | 4 | 0 | 4 | B | B | Primary | NO | YES | 04C | | |
| 5 | TK5 | Enraf 854 | 5 | 0 | 5 | B | B | Primary | NO | YES | 01C | | |
| 6 | TK6 | Saab REX | 6 | 2 | 6 | | | Primary | NO | YES | 001C | | |
| 7 | TK7 | Saab REX | 7 | 3 | 7 | | | Primary | NO | YES | 001C | | |
| 8 | TK8 | Saab REX | 8 | 4 | 8 | | | Primary | NO | YES | 001C | | |

NXA83_Webserver_Reports_Preview-Report

- **Print:** Will print the report to your default Windows printer

10 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.

10.1 Launching the Grid View Module

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



NXA83_Webserver_Home-Page_Grid-View

The illustration below is typical.

| Tank ID | Product Name | Alarm Status | Product Level (mm) | Product Temperature (°C) | Water Level (mm) | Reference Density (kg/m³) | TOV (m³) | Available Room (m³) | Level Flow Rate (mm/min) |
|---------|--------------|--------------|--------------------|--------------------------|------------------|---------------------------|----------|---------------------|--------------------------|
| TK1 | BUTANE | OK | 1.225 | 18,60 | 0M | -1,00 | 0,000 | 0,000 | 85 |
| TK2 | KERO | OK | 17.775 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -84 |
| TK3 | BUTANE | OK | 3.227 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 87 |
| TK4 | PREM | OK | 4.227 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 85 |
| TK5 | DERV | OK | 5.113 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -43 |
| TK6 | DERV | OK | 5.773 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -85 |
| TK7 | DERV | OK | 6.773 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -84 |
| TK8 | PREM | OK | 8.228 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 87 |
| TK9 | DERV | OK | 8.772 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -85 |
| TK10 | PREM | OK | 10.228 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 85 |
| TK11 | KERO | OK | 11.228 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 85 |
| TK12 | ADDATIVE | OK | 12.228 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 84 |
| TK13 | BUTANE | OK | 13.230 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 87 |
| TK14 | EMPTY | OK | 14.230 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 85 |
| TK15 | EMPTY | OK | 15.230 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 85 |

NXA83_Webserver_Grid-View

10.2 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 tool bar.

See the illustration below for information.

| Tank ID | Product Name | Gauge Status | Product Temperature (°C) | Water Level (mm) | Reference Density (kg/m³) | TOV (m³) | Available Room (m³) | Level Flow Rate (mm/min) | |
|---------|--------------|--------------|--------------------------|------------------|---------------------------|-----------|---------------------|--------------------------|-----|
| TK1 | BUTANE | OK | 1.303 | 18,60 | 0M | -1,00 | 0,000 | 0,000 | 90 |
| TK2 | KERO | OK | 17.695 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -90 |
| TK3 | BUTANE | OK | 3.305 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 91 |
| TK4 | PREM | OK | 4.305 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 90 |
| TK5 | DERV | OK | 5.153 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 45 |
| TK6 | DERV | OK | 5.695 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -90 |
| TK7 | DERV | OK | 6.693 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -90 |
| TK8 | PREM | OK | 8.307 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 91 |
| TK9 | DERV | OK | 8.693 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | -90 |
| TK10 | PREM | OK | 10.307 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 90 |
| TK11 | KERO | OK | 11.307 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 90 |
| TK12 | ADDATIVE | OK | 12.308 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 90 |
| TK13 | BUTANE | OK | 13.308 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 91 |
| TK14 | EMPTY | OK | 14.308 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 90 |
| TK15 | EMPTY | OK | 15.308 | 18,60 | 0M | 1.000,00M | 0,000 | 0,000 | 90 |

NXA83_Websserver_Grid-View_Data-Views

The fixed views are:

- Tank Gauging
- Tank Inventory
- Gauge Status

Each view contains different columns of information.

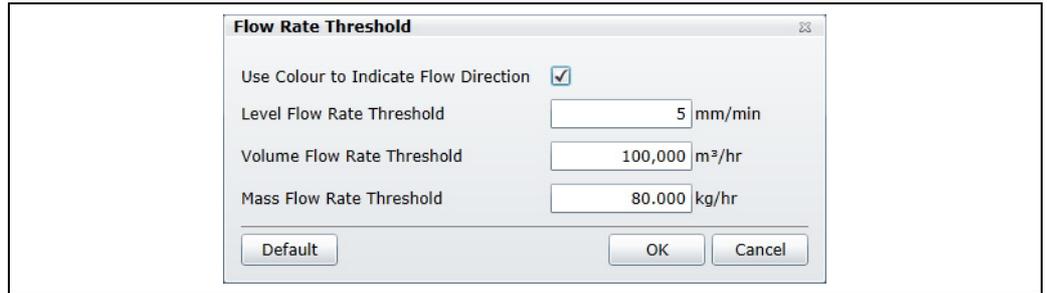
10.3 Flow Rate Color

When a flow rate column is present in the view a row displaying a moving tank is colored 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 color. Cell Colors can be customized for: Alarm, error, failed, manual data or offline. The background and foreground colours can be changed by selecting the **Customise Colours**  toolbar item.

NXA83_Websserver_Grid-View_Customize-Colors

10.4 Flow Rate Threshold

The grid maintains three user configurable threshold values to determine when a row should be colored. The correct threshold values are used depending on whether the view shows a level, mass or volume flow rate. To configure the threshold values choose **Flow Rate Thresholds**  from the toolbar. The **Flow Rate Threshold** dialog will be displayed.



The image shows a configuration dialog box titled "Flow Rate Threshold". It contains the following settings:

- Use Colour to Indicate Flow Direction:**
- Level Flow Rate Threshold:** mm/min
- Volume Flow Rate Threshold:** m³/hr
- Mass Flow Rate Threshold:** kg/hr

At the bottom of the dialog are three buttons: "Default", "OK", and "Cancel".

NXA83_Webserver_Grid-View_Flowrate-Threshold

When any of the data fields exceeds the set-point, the row will be highlighted in brown or blue depending on the movement direction.

None of the values may be set to zero.

The level threshold value in the grid view is independent of the similar threshold figure configured for the home page.

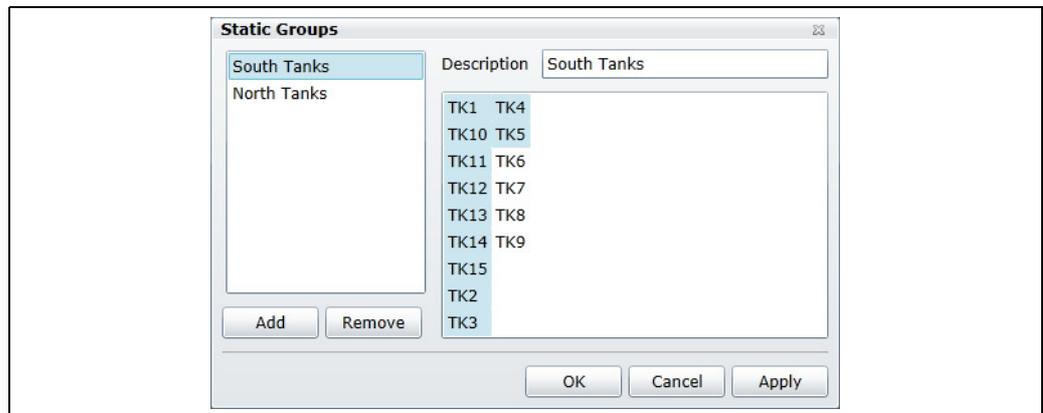
11 Tank Grouping

The system provides a comprehensive range of tools and utilities for the organization and grouping of tanks to user's requirements.

- Static grouping functions are available from the **Tank Grouping** module.
- Grouping is generally organized into static, product, dynamic and alarm groups.
- Static groups can be organized by user defined tank groups.
- Product groups, dynamic groups and alarm groups are automatic as defined by the criteria.

11.1 Configuring and Using a Static Group

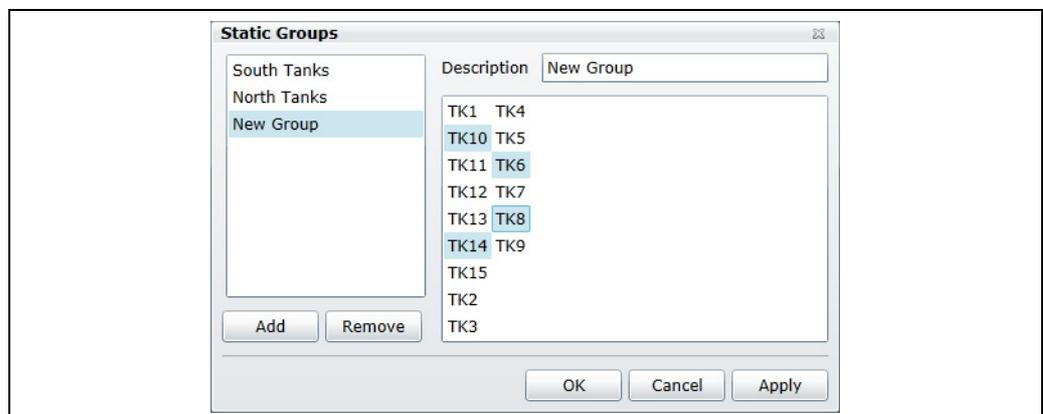
1. Load the **Tank Grouping** module by clicking **Edit Tank Groups**  on the toolbar. The Static Groups window will open.



NXA83_Webserver_Grid-View_Static-Groups

2. Select a group from the list on the left. Any tanks highlighted on the right are members of the selected group. The group may be edited by simply highlighting the tanks required for this group and clicking **OK**.
3. To add another group, select **Add** and type a name for the new group in the **Description** field. Add tanks to the group as described above.

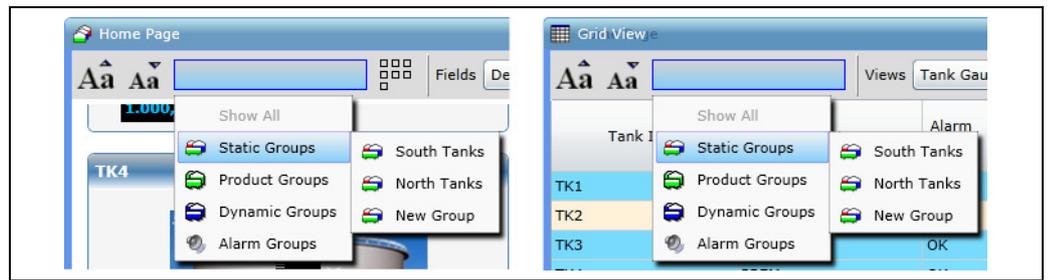
 Tanks can be added or removed individually by holding down the **Ctrl** key on the keyboard whilst clicking on the tank.



NXA83_Webserver_Grid-View_Static-Groups_New-Group

4. To save the group click the **OK** button. To lose any changes click the **Cancel** button.

The static group can now be used by selecting it from the **Static Groups** section of the **Tank Grouping** drop down list.



NXA83_Webserver_Grid-View_Tank-Grouping_New-Group

11.1.1 Deleting an Existing Static Group

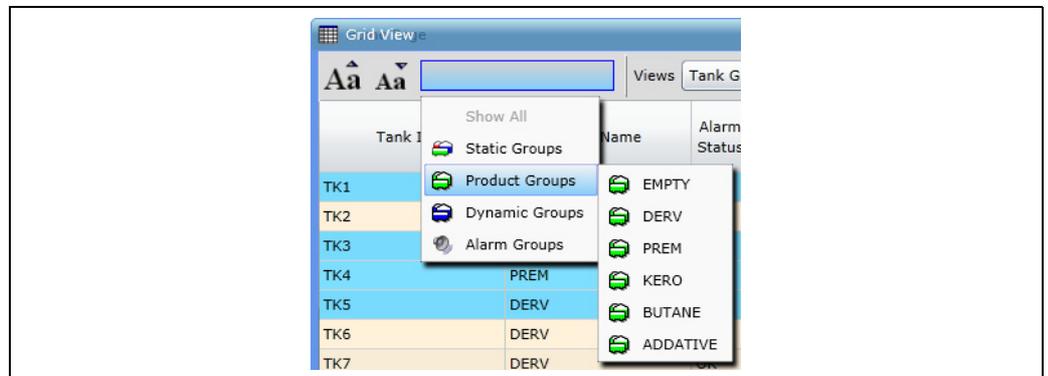
1. Load the Static Grouping module by clicking **Edit Tank Groups**  on the toolbar.
2. Select the tank group to be deleted from the group list.
3. Press the **Remove** button.

11.2 Product Grouping

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

11.2.1 Using a Product Group

View the product groups by clicking the tank grouping drop down list, then selecting **Product Groups** followed by the desired product.



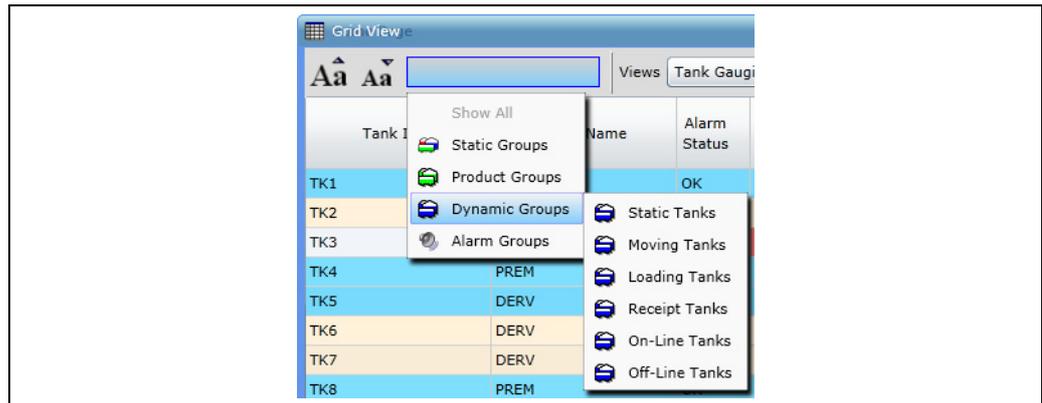
NXA83_Webserver_Grid-View_Tank-Grouping_Product-Group

11.3 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 the display. Similarly if tanks subsequently meet the criteria they will be added to the display.

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



NXA83_Webserver_Grid-View_Tank-Grouping_Dynamic-Groups

11.3.1 Using a Dynamic Group

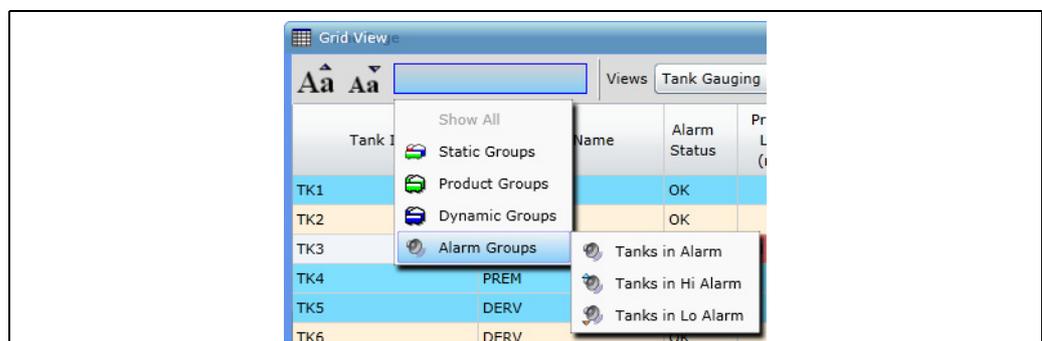
View dynamic groups by clicking the tank grouping drop down list, then selecting **Dynamic Groups** followed by the desired criteria.

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 Tanks:** The on-line tank dynamic group will show all tanks that are currently being polled for data.
- **Off-Line Tanks:** The off-line tank dynamic group will show all tanks that are currently not being polled for data.

11.4 Alarm Grouping

Tanks may be grouped and displayed according to their current alarm status. This is also a dynamic form of grouping therefore as tanks fail to meet the selected alarm criteria they are automatically removed from the group display.



NXA83_Webserver_Grid-View_Tank-Grouping_Alarm-Groups

- **Tanks in Alarm:** Tanks with ANY level of alarm will be displayed in this group
- **Tanks in Hi Alarm:** Only Tanks with High and High High level alarms will be displayed in this group.
- **Tanks in Lo Alarm:** Only Tanks with Low and Low Low level alarms will be displayed in this group.

12 Inventory Calculator

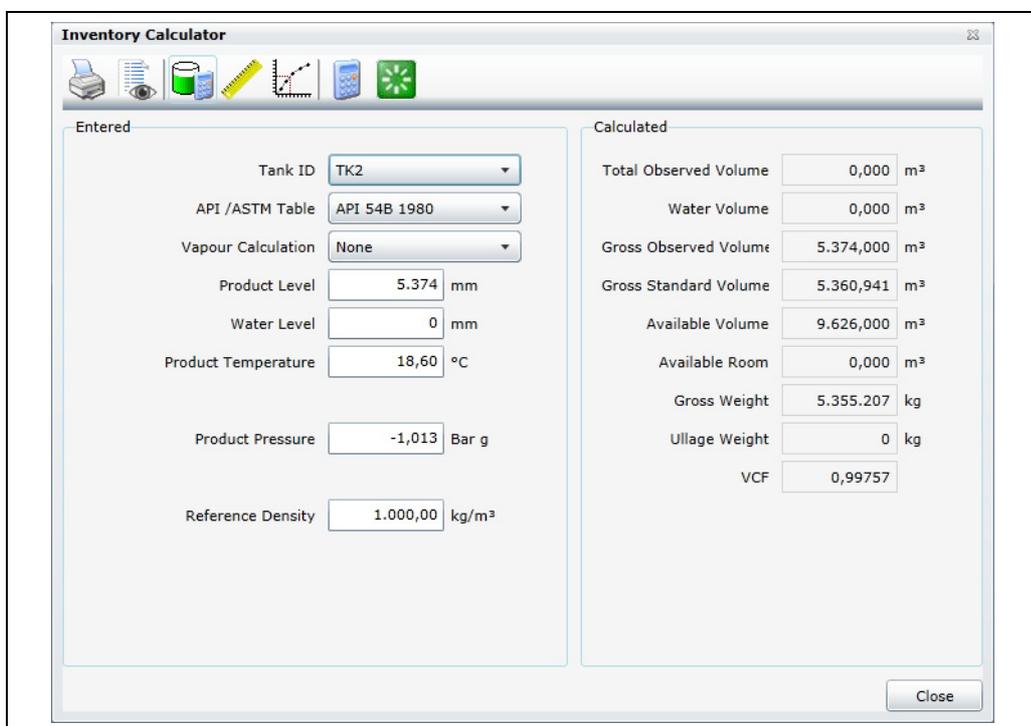
The system comes as standard with an **Inventory Calculator**. The primary purpose of the **Inventory Calculator** is to provide the user with a means of calculating tank inventory for conditions that do not currently exist. For example, it could be used as a "what happens if" calculator, if a tank were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

12.1 Launching the Inventory Calculator Application

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.



NXA83_Webserver_Inventory-Calculator

12.2 Tank Calculator

Press the **Tank Calculator** button  from the **Inventory Calculator** menu.

The Tank calculator provides the user with the facility for calculating tank inventory at user specified conditions.

12.2.1 Viewing Current Tank Data

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.

12.2.2 Entering the User Defined Criteria

The user can enter the following data:

- API/ASTM Table
- Vapor Calculation
- Product Level
- Water Level
- Product Temperature
- Product Pressure
- Reference Density
- Various other variables depending upon the values of API/ASTM and Vapor Calculation selected.

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. 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.

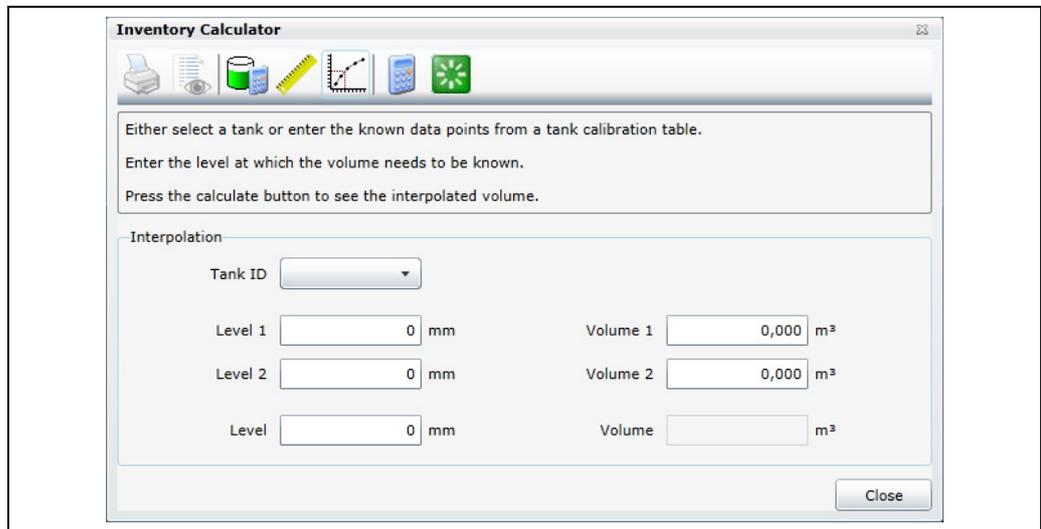
The Inventory parameters will be re-calculated for the new data.

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 an error will be generated.

12.3 Interpolation

Press the **Interpolation** button  from the **Inventory Calculator** menu.

The tab marked **Interpolation** is a very simple linear interpolation calculation tool. 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.



Inventory Calculator

Either select a tank or enter the known data points from a tank calibration table.
Enter the level at which the volume needs to be known.
Press the calculate button to see the interpolated volume.

Interpolation

Tank ID

Level 1 0 mm Volume 1 0,000 m³

Level 2 0 mm Volume 2 0,000 m³

Level 0 mm Volume m³

Close

NXA83_Webserver_Inventory-Calculator_Interpolation

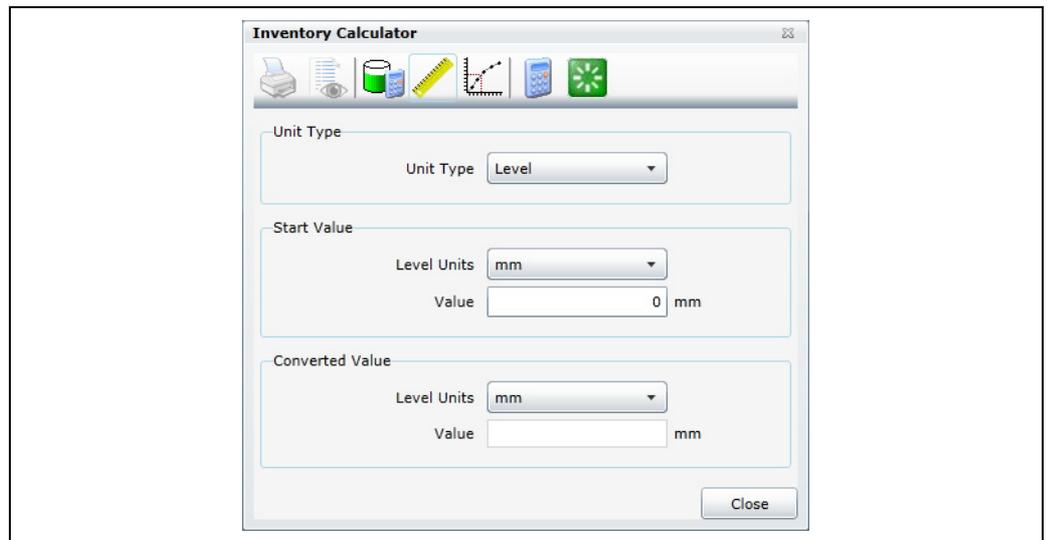
12.4 Unit Conversion

Press the **Unit Conversion** button  from the **Inventory Calculator** menu.

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

First select the type of value from the **Unit Type** drop down list. The user can then select from the drop down list the measurement units of the starting value, and its numeric value

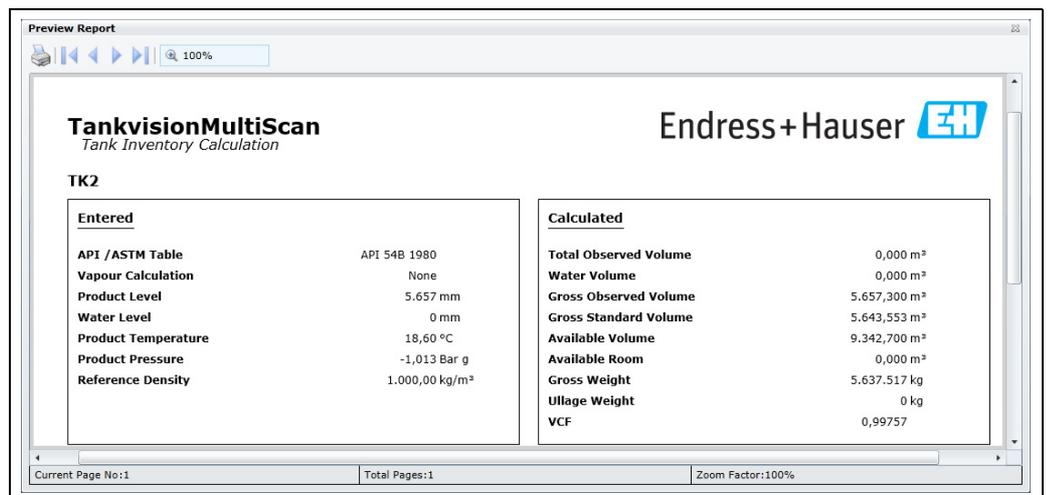
and then select another measurement unit into which the value should be converted. Click on the **Calculate** button to perform the conversion.



NXA83_Webserver_Inventory-Calculator_Unit-Conversion

12.5 Print and Preview

Print Preview  displays a copy of the selected report on the computer screen e.g.



NXA83_Webserver_Inventory-Calculator_Preview-Report

Print  prints the report to your selected Windows printer.

13 Contact addresses of Endress+Hauser

Contact addresses can be found on our homepage: www.endress.com/worldwide. If you have any questions, please do not hesitate to contact your Endress+Hauser representative.

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