



PSM INSTRUMENTATION LTD

Tankview

For Windows

Operation Manual

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Notes about this manual

Incorrect function or damage to associated equipment may occur if Tankview is not used in accordance with this manual.

The information in this manual may be highlighted by the following symbols indicating that special care should be taken when performing these associated actions.



A hazard indicates actions or procedures which, if not performed correctly may invalidate safety certification



A warning indicates actions or procedures which, if not performed correctly may result in personal injury or cause damage to the instrument or associated instruments.



A caution indicates actions or procedures if not performed correctly may cause incorrect function or loss of information



A note indicates that actions or procedures if not performed correctly may cause unexpected results.

About Tankview

Tankview is a simple to operate graphical display package running in the windows environment, which provides the user with a clear picture in both bargraph and numeric format of the current quantity of liquid within any type of storage tank. Displays are normally arranged in a number of windows according to tank duty, i.e. ballast, cargo, fuel oils, fresh water etc. The windows provide an overview of the current situation and from these the user is able to select a single tank display which provides comprehensive data for that tank alone. Input data may be collected from a number of sources and is received via the PC's serial port. Tankview will have been configured with the necessary communication package, and in operation this aspect is transparent to the user as scanning & up-dating of values is an automatic background function. Tankview also provides alarm reporting and logging functions, which, dependent upon the requirements, may simply provide visual warnings and reports or may be enhanced to provide outputs for remote alarm/control purposes

Opening the Program

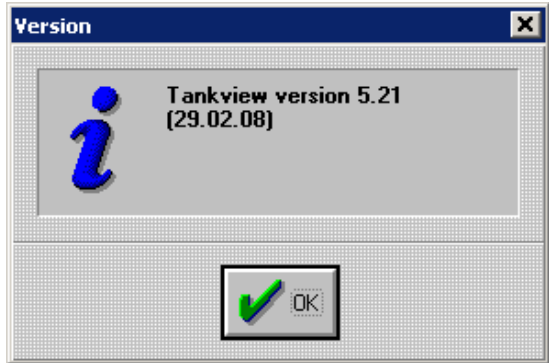
Tankview is delivered with a setup file (OSF) for the specific application according to customer specifications.



Design mode is reserved for use by PSM and is password protected, contact PSM for any modifications required.

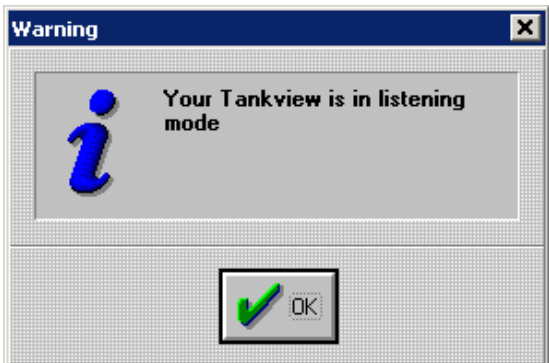
If you have used the installation CD-ROM and followed any specific instructions for your system, everything should be installed correctly.

Once you open the program a dialog box gives you the current Tankview version and issue date.



If the Tankview version is set up to use a network datafile the following dialog box will appear.

This informs you that your Tankview does not communicate directly with the level transmitters but acts as a 'slave' system obtaining its data from another 'master system'.

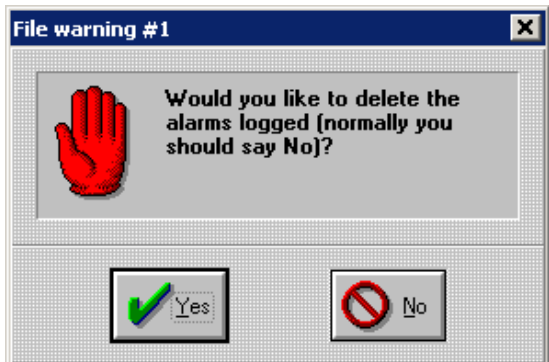


This dialog box asks you if you want to keep the alarms previously logged in the alarm.log file.

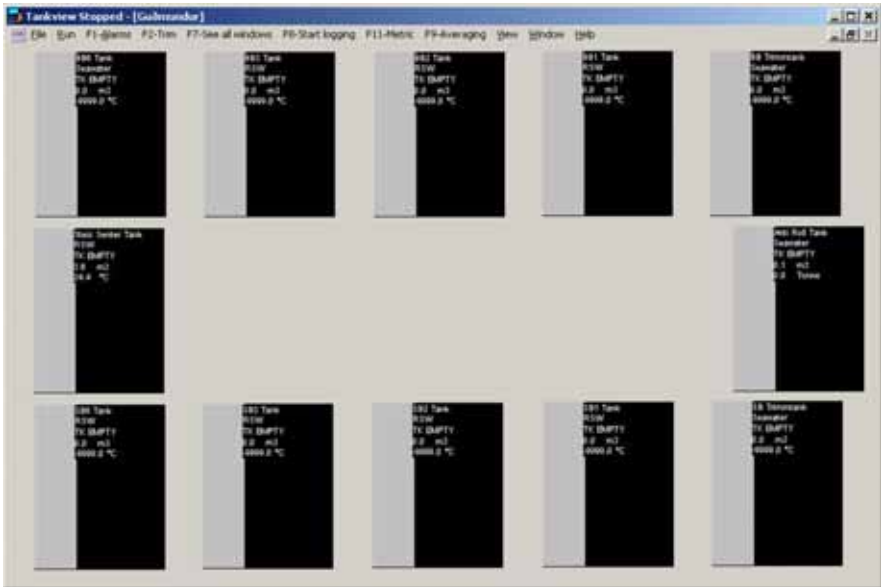


If you say YES it will create a new alarm.log file and all previous alarms deleted.

If you say NO it will append the new alarms to the already created alarm.log file.



Now the main window will appear based on the currently selected OSF setup file with your own pre-determined parameters.



The program can be configured to start running automatically when opened. Where this is required a switch may be added to the command line "/r". To do this, right click the Tankview icon and select 'properties', the shortcut target can be changed to the following where Tankview has been installed on the 'C' drive

c:\tankview.exe /r

If the /r option is not used, the program will open in 'stopped' mode. To activate, click the 'run' command on the menu bar. This will change to 'stop'

Once the system is running, should you wish to stop it click the 'stop' command on the menu bar, you will be asked to enter your password.

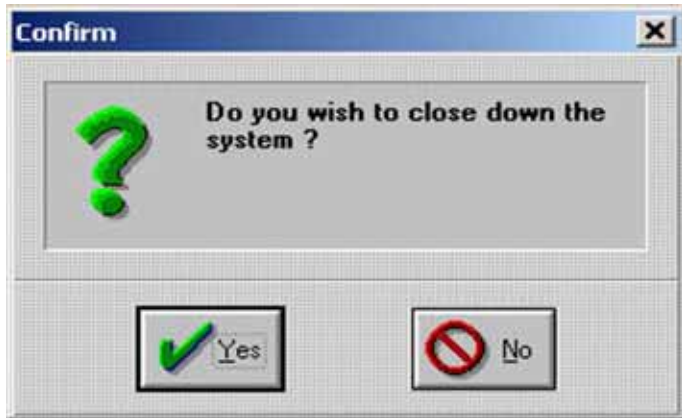


The default password is 1234. This may be changed by clicking the 'change' button and following the on screen instructions.



Any changes to the password should be carefully noted.

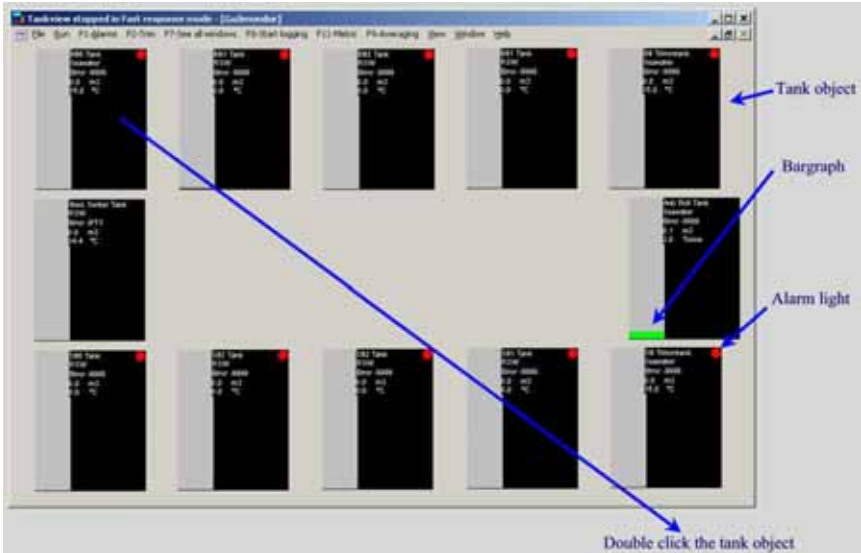
To Exit Tankview select File|Exit from the main menu



Click OK and enter password as prompted.

Navigation

Operation of the system follows standard Windows practice. Access to the various information pages requires either a mouse or other pointing device, or in environments where this may not be suitable the system may be keyboard driven. A standard Windows menu bar at the top of each page provides the options available to the user. In addition to this manual the system provides on-line help which covers all main aspects of operation. Under normal circumstances where the PC employed is dedicated to the function of tank monitoring, Tankview can be set to automatically start when the system is powered up. Where this is not the case Tankview is accessed from the start button and by selecting the program group Tankview and then the icon for Tankview itself. Mouse operation follows standard Windows conventions. On keyboard driven systems, standard Windows convention is employed. The Menu bar is activated using the <Alt> key and the arrow keys are used to highlight the desired option. Once highlighted, press <enter> to select the menu item. Certain menu items also feature an underscored character. These are "Hot keys", keying in the underscored character selects the menu option. The appropriate icon is then highlighted using the arrow keys and the Enter key used to run the program.



Understanding the Display

Each display window contains one or more tank objects. These detail a particular tank and appear as a rectangular box within which any or all of the following information may be displayed.

Graphic display of volume / level - shown as a bargraph which progressively fills the box as its capacity increases.

Alarm neon - where alarms have been assigned to the tank and when any become active a flashing red neon will appear in the top right-hand corner of the box.

Numeric indication of the volume, level, free capacity, ullage, weight, temperature, loading rate, inert gas pressure is also possible depending on requirements



Note that the actual information displayed and colours employed will depend upon the original contract requirements.

Individual Tank Information Dialogue



This is only available on tanks if configured in the system setup

To access the Tank Information dialog on mouse driven systems position the cursor over the appropriate tank object and double left click on the mouse.

For keyboard driven systems press <F10> to activate the Menu bar, left right arrows to highlight View and <Enter> or down arrows to display a list of all tanks on the active display window.

Use the up-down arrows to highlight the desired tank and <Enter> to display.

Tank Information

Tank ID : ADAM033 : 8SB GMT 11-12-2007 16:25:13

Tank product : Ballast Water

Ullage : 15.000

Flow (Fill = +) : 0.0 Cu.Ft/h

% of level : 0.00 %

Actual density : 1.0250 t/m3

Volume : 6180.460 Cu.Ft

Weight : 0.00 S.Ton

Inert gas press. : 0.000 mmWG

Actual temp. : 15.0 °C

Unit for level ft

Level : 0.000

Refill : 0.000 Cu.Ft

Time to fill : --:--

Transmitter status

Raw : N/A OK

VDC : N/A

Alarm 1 : 98.00 %

Alarm 2 : 0.00 %

Alarm 3 : 0.00 %

Alarm 4 : 0.00 %

Base density : 1.0250 t/m3

Max Ullage : 15.000

Max Volume : 6180.460 Cu.Ft

Volume offset : 0.000

Sensor offset : 0.333

Actual level from radar

Temp. Density Product

Leakage Print OK

Tank ID : Display the IO channel and the tank name

Tank product : shows the selected product

Ullage : the empty space in the tank

Flow : the filling rate using volume per hour

% of level/volume : the percentage of either level or volume based on what is selected in alarm setup.

Actual Density : the calculated density based on either temperature or density transmitter(s)

Volume : the actual calculated volume based on density and tank table.

Weight : the weight of the contents in the tank given by volume x SG

Inert gas press. : the overpressure in the tank, used to compensate the level measurements

Actual temp. : the calculated or measured temperature

Alarm 1 : alarm setpoint no. 1, the check mark box to the right shows if the alarm is active (checked) or not.

Alarm 2 : alarm setpoint no. 2, also used for leakage detection, the check mark box to the right shows if the alarm is active (checked) or not.

Alarm 3 : alarm setpoint no. 3, also used for leakage detection, the check mark box to the right shows if the alarm is active (checked) or not.

Alarm 4 : alarm setpoint no. 4, the check mark box to the right shows if the alarm is active (checked) or not.

Base density : the base density of the product, defined in the design mode.

Max ullage : the maximum height in the tank

Max Volume : the maximum volume in the tank, capacity.

Volume offset : this is used if the user wants to see only "usable" volume. Typically it might not be possible to empty a tank completely with the pump.

If the tank table includes the 'dead volume'" the user may not want to see this since it is unusable.

Sensor offset : the mounting height above the bottom of the tank table !.

Unit for level : the unit used for level, defined in design mode

Level : the calculated level based on SG and sensor mounting height.

Refill : the volume needed to fill the tank

Time to fill : the calculated time based on current volume / flow rate

Transmitter status— See communication section for more details

Raw : Gives the unscaled information from the sensor depending on what type of input devices are used.

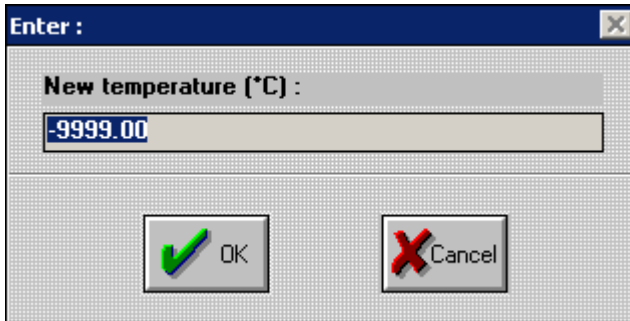
VDC/ICT : The voltage level or communication status for this tank's input device depending on what device is connected

Buttons

Dependant upon on the individual setup some of the buttons may be disabled.

Temperature (for correction of display)

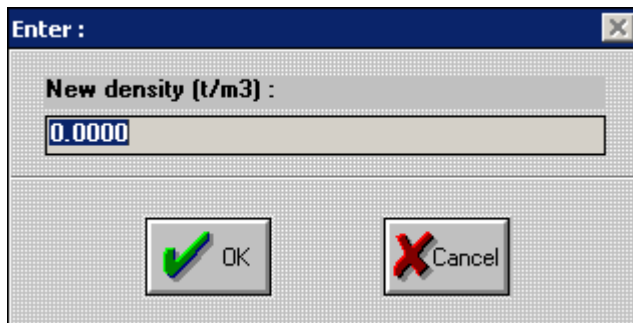
Click this button to manually enter the temperature within the tank.



The image shows a dialog box titled "Enter :". Inside the dialog, there is a label "New temperature [*C] :" followed by a text input field containing the value "-9999.00". Below the input field, there are two buttons: "OK" with a green checkmark icon and "Cancel" with a red X icon.

Density (for correction of display)

Click this button to manually enter the density within the tank.



The image shows a dialog box titled "Enter :". Inside the dialog, there is a label "New density [t/m3] :" followed by a text input field containing the value "0.0000". Below the input field, there are two buttons: "OK" with a green checkmark icon and "Cancel" with a red X icon.

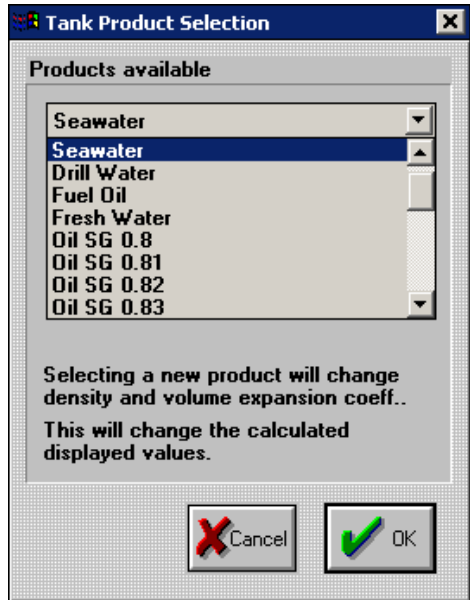
Product

Click this button to select the current product.

The list of products is generated from the information supplied for configuration. Additional products can be added as required

Leakage

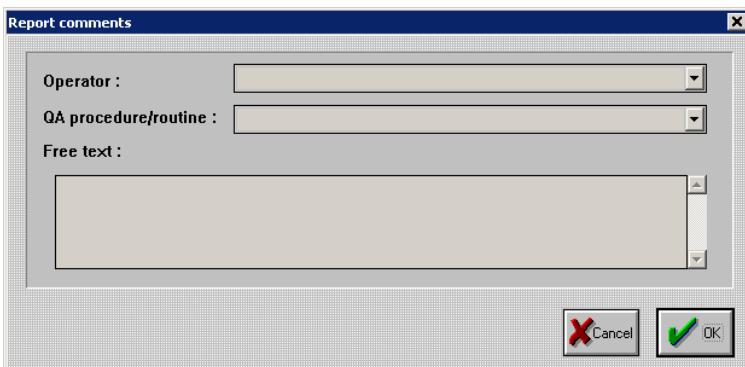
The Leakage button if enabled in design mode will set alarms 2 & 3 active. They can then be set to trigger if the level value changes outside predetermined limits.



Print

This function gives you a report which includes all information possible to retrieve from the tank.

It also enables you to enter Operator, QA / procedure and notes.



This is how you would expect the report to look :

Printed Time: 14:23:28 Date: 10-03-2008 Tankview detailed tank report.

Tank ID.....: BB6 Tank

Product.....: Seawater

Operator.....: Default

QA Procedure/routine...: Default

Comments.....: Comments !

READINGS AND CALCULATED VALUES

Level.....: 0.00 mwg

Ullage.....: 7.20 mwg

Flowrate.....: 0.00 m3/h

Percentage of volume.....: 0.00 %

Actual density.....: 1.0250 t/m3

Total tank volume.....: 0.20 m3

Refill (current).....: 199.04 m3

Usable tank volume.....: 0.20 m3

Weight (current).....: 0.00 Tonnes

Inertgas pressure.....: 0.0 mbar

Temperature (average).....: -9999.00 °C

ALARM SETTINGS

Alarm 1.....: 90.00 Deadband : 3.00

Alarm 2.....: 10.00 Deadband : 3.00

Alarm 3.....: 0.00 Deadband : 1.00

Alarm 4.....: 0.00 Deadband : 1.00

Alarms are percentage of volume.

SETTINGS

Maximum ullage.....: 7.20 metres

Maximum volume.....: 199.24 m3

Volume offset.....: 0.00 m3

Base density of product...: 1.02 t/m3

Base density temp.: 15.00 °C

Temp. coeff of product...: 0.00000

Sensor mounting height....: 0.050 metres

Alarm window

The alarm window has a menu with the following items :

Log

If enabled the alarms will be logged to the file 'alarm.log' which is located in the Tankview directory.

View log file

Selecting this will open up notepad with the current alarm.log file.

Audible alarm

If enabled will give you either the standard sound beep or play a "wav" file depending on system set up.

Print current alarm list

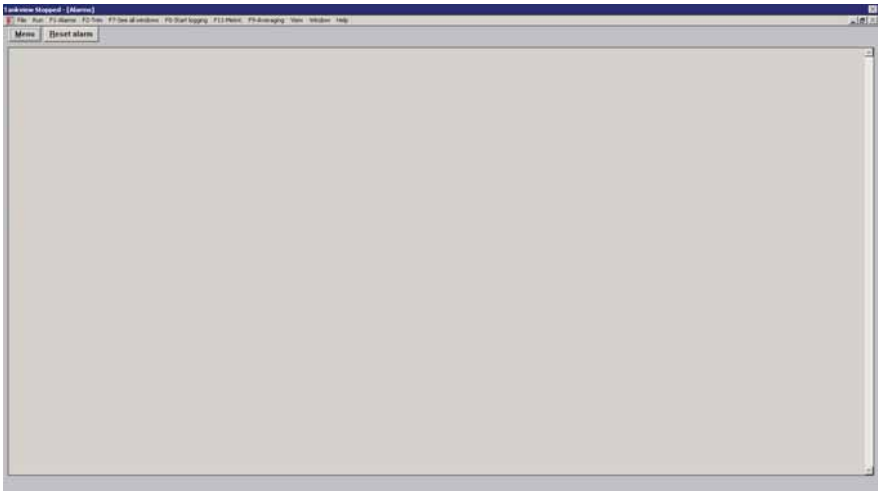
Selecting this will print the current alarm list on the screen.

Reset alarm

Select/ highlight the alarm to reset, then click this button.

You will be asked if you want to Reset the alarm.

If the specific alarm has an output channel defined the program will reset the relay module connected to the alarm.



Shortcut/menu/Function Keys

This page describes the various functions in Tankview like logging, Units etc.

File

Password

Tankview has two password levels: user password which enables you to stop and exit the program, supervisor password which enables you to stop, exit and enter design mode.



Operators do not have access to the design mode as it requires special knowledge. Entering the design mode without knowledge of how it works will invalidate the setup and potentially lead to unsafe operation or complete failure

At installation time a default password is set, this is 1234. If changed ensure you change the password to a 4-digit code only authorised personnel know. To change a password follow instructions in the Password dialog box.



Enter Design/Setup mode



Entering design mode is only for authorised user

Reports

View Log file

Selecting this menu item will display the current log file in notepad

Date&Time	Modbus #1 Volume	Modbus #1 Temperature	Modbus #2 Volume	Mo...
12/14/0714:36:40	0.33	22.10	7.40	47.90
12/14/0714:37:40	0.28	22.10	7.31	47.60
12/14/0714:38:41	0.26	22.10	7.36	47.30
12/14/0714:39:41	0.19	22.10	7.14	47.30
12/14/0714:40:42	0.18	22.10	7.16	46.90
12/14/0714:41:42	0.10	22.10	6.98	46.90
12/14/0714:42:42	0.10	22.10	7.26	46.60
12/14/0714:43:43	0.07	21.80	7.19	46.60
12/14/0714:44:43	0.09	21.80	7.01	46.30
12/14/0714:45:44	0.05	21.80	7.21	46.30
12/14/0714:46:44	0.04	21.80	7.07	46.00
12/14/0714:47:44	0.03	21.80	7.00	46.00
12/14/0714:48:45	0.04	21.80	7.05	46.00
12/14/0714:49:45	0.02	21.80	6.91	45.60
12/14/0714:50:45	0.03	21.80	6.97	45.60
12/14/0714:51:46	0.01	21.80	6.84	45.30
12/14/0714:52:46	0.02	21.80	6.76	45.30
12/14/0714:53:46	0.02	21.80	6.33	45.30
12/14/0714:54:47	0.01	21.80	6.84	45.30
12/14/0714:55:47	0.02	21.80	7.04	45.00
12/14/0714:56:47	0.02	21.80	6.90	45.00
12/14/0714:57:48	0.02	21.80	6.93	45.00
12/14/0714:58:48	0.02	21.80	6.88	45.00
12/14/0714:59:49	0.02	21.80	6.91	45.00
12/14/0715:00:49	0.02	21.80	6.88	45.00
12/14/0715:01:50	0.02	21.80	6.90	44.70
12/14/0715:02:50	0.02	21.80	6.82	44.70
12/14/0715:03:50	0.02	21.80	6.79	44.70
12/14/0715:04:50	0.02	21.80	6.93	44.70
12/14/0715:05:51	0.01	21.80	6.67	44.70
12/14/0715:06:51	0.01	21.50	6.67	44.70
12/14/0715:07:52	0.84	21.50	7.04	44.70
12/14/0715:08:52	0.84	21.50	6.74	44.70
12/14/0715:09:53	0.84	21.50	6.82	44.40
12/14/0715:10:53	0.84	21.50	6.88	44.40
12/14/0715:11:53	0.84	21.50	6.71	44.40
12/14/0715:12:53	0.84	21.50	6.76	44.40
12/14/0715:13:54	0.84	21.50	6.71	44.40
12/14/0715:14:54	0.84	21.50	6.72	44.40
12/14/0715:15:55	0.84	21.50	6.60	44.40
12/14/0715:16:55	0.84	21.50	6.69	44.40
12/14/0715:17:55	0.84	21.50	6.78	44.40
12/14/0715:18:56	0.84	21.50	6.78	44.40
12/14/0715:19:56	0.84	21.50	6.61	44.40

Total Tank Contents

This report gives you a summary of the various tank groups.



The groups and tanks within them will have been defined in the original configuration

Total Tank Contents for groups

Select which tank groups should be in the

- CARGO
- FUEL
- BALLAST
- FRESHWATER
- LUBOIL
- MISC.TANKS

The REPORT will show total contents of each product type and total of each group.

Report

OK

The report would look like this :

TANKVIEW Contents summary report created 12-03-2008 12:20:57

Vessel :

BALLAST TANK SUMMARY :

Product : Seawater

Tank name Volume Unit

Forepeak 0.055 m3
STBD BW 2 2.500 m3
BW T3S 0.015 m3
BW T3P 0.015 m3
BW T2P 0.050 m3
BWT 4P 0.170 m3
BW T1P 0.044 m3
BWT1S 0.050 m3
BWT 4S 0.170 m3
BW T2S 0.020 m3

Total contents for Seawater : 3.089 m3

Product : Freshwater

Tank name Volume Unit

BW T2S 0.000 m3

Total contents for Freshwater : 0.000 m3

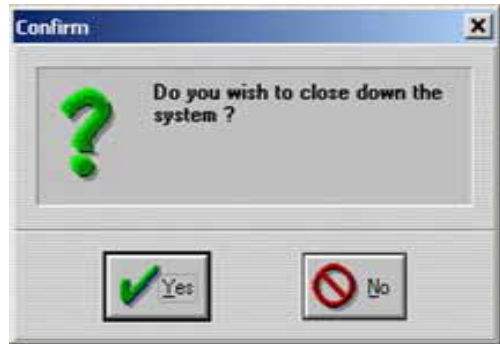
Grand total contents for this group: 3.089 m3

File name and directory : d:\data\tankview\03121220.txt

Exit

Click to exit the program

Type in the user password to exit



Run

To start the program click Run, the text will now change to Stop (see pages 6 & 7)

F1 - Alarms

Press F1 and the alarm window will popup if minimized.

F2 - Trim (if appropriate)

Press F2 and the input dialog for entering a trim value manually will pop up.

F7—See all windows

Pressing F7 will tile all windows, same as Window | Tile function in the main menu.

F8 - Start/stop logging

Pressing F8 will either Start or Stop the logging based on what the logging

F9 - Average / Fast response mode

Pressing F9 will switch between averaging and direct display of the measured value.

Typically when at sea you should use averaging mode, otherwise you may see level move up/down due to ships movement.

When bunkering you should use Fast response mode.

F11 - Metric/Imperial

Enabled if the system is setup for both Metric and Imperial units, pressing F11 will switch between 3 different display options.

1. Metric
2. Metric & Imperial
3. Imperial



The setup of this is achieved in design mode and should only be done by a trained Tankview layout designer.

Logging

Tankview has function for logging the readings to a file.

The file format is Tabbed and called "Excel".

The extension is tlf (tankview log file).

You should assign tlf files to excel, this way when clicking on a tlf file it opens directly in excel

View

When a window including tank objects is active the tank objects in that window will be listed. Selecting a tank object will bring up the Tank Information dialog.

Window

Includes the standard window functions :

Tile : Shows all windows

Cascade : Cascades the windows

Arrange Icons

"List of windows with tank objects"

Help

Opens the standard help menu.

Communication

Tankview collects its data from the serial port of the PC. Several input types are possible

Analogue Advantech systems

Using 4-20mA sensors and ADAM 4017+ IO modules

Each ADAM IO module is assigned an ID. First one is 01, 02 etc.

Each ADAM 4017+ has 8 analogue inputs.

Tank information dialog shows which input channel the tank object has been assigned to.

Below is a tank which is assigned to input channel ADAM033, this means ADAM ID 03 and channel number 3.



The assignment is done in design mode.

Transmitter status

Raw : displays the mA received from the sensor.

VDC : Not used.

The screenshot shows the 'Tank Information' dialog box with the following data:

Tank ID : ADAM033 : 85B		GMT	11-12-2007	16:25:13
Tank product : Ballast Water				
Ullage :	15.000		Alarm 1 :	90.00 z <input checked="" type="checkbox"/>
Flow (Fill = +) :	0.0	Cu.Ft/h	Alarm 2 :	0.00 z <input type="checkbox"/>
z of level :	0.00	z	Alarm 3 :	0.00 z <input type="checkbox"/>
Actual density :	1.0250	t/m3	Alarm 4 :	0.00 z <input type="checkbox"/>
Volume :	6180.460	Cu.Ft	Base density :	1.0250 t/m3
Weight :	0.00	S.Ton	Max Ullage :	15.000
Inert gas press. :	0.000	mmWG	Max Volume :	6180.460 Cu.Ft
Actual temp. :	15.0	°C	Volume offset :	0.000
Unit for level :	ft		Sensor offset :	0.333
Level :	0.000		Actual level from radar	
Refill :	0.000	Cu.Ft	[Imp.] [Cancel] [Print]	
Time to fill :	--:--		[Language] [Print] [OK]	
Transmitter status				
Raw :	12.2	DK		
VDC :	N/A			

Modbus ICT systems

PSM ICT level transmitters communicating on Modbus.

ICT sensors has each a unique ID code ie. Modbus1, Modbus2 etc.

When using ICT sensors the system may also read the temperature in the tank.

Transmitter status

Raw : displays the mmWG received from the ICT sensor.

ICT : Gives a status code on the quality of the communication with the ICT sensor.

4 = excellent

5 = very good

Any values above this would indicate a network configuration or communication problem.

The screenshot shows the 'Transmitter status' window in Tankview. At the top, it displays 'Tank ID : Modbus10 : BB Trimm-tank', 'GMT 13-03-2008', and '08:40:56'. Below this, 'Tank product : Seawater' is shown. The main area is divided into several sections:

- Ullage**: 0.236
- Flow (Fill +)**: 0.0 m³/h
- % of volume**: 67.23 %
- Actual density**: 1.0250 t/m³
- Volume**: 16.606 m³
- Weight**: 17.02 Tonnes
- Inert gas press.**: 0.000 mmWG
- Actual temp.**: 21.5 °C
- Unit for level**: mwg
- Level**: 1.164
- Refill**: 8.094 m³
- Time to fill**: --:--

On the right side, there are alarm settings:

- Alarm 1**: 90.00 %
- Alarm 2**: 10.00 %
- Alarm 3**: 0.00 %
- Alarm 4**: 0.00 %
- Base density**: 1.0250 t/m³
- Max Ullage**: 1.400
- Max Volume**: 24.700 m³
- Volume offset**: 0.000 m³
- Sensor offset**: 0.050

At the bottom, there is a 'Density compensated level' section and a 'Transmitter status' section. The 'Transmitter status' section shows 'Raw : 1141.400' and 'ICT : 5'. There are buttons for 'Input', 'Output', 'Product', 'Leakage', 'Pigt', and a green 'OK' button.

Please contact your supplier of the system.

Design mode

The design mode is only for trained designers of the Tankview tank gauging system.

Normally the osf setup file is included in the delivery.

Any unauthorized use of design mode may cause the system to malfunction and any warranty is invalidated.