Honeywell



User's Manual ENTIS R130.1

About this Guide

This manual describes how to operate the ENTIS system. It has been written for operators, as well as system supervisors, to provide them with all the information required to operate the system.

For installation details refer also to the ENTIS Installation Guide.

Safety and prevention of damage

'Cautions', and 'Notes' have been used throughout this manual to bring special matters to the immediate attention of the reader.



A Caution draws attention to an action which may damage the equipment.



A Note points out a statement deserving more emphasis than the general text but does not deserve a "Warning" or a "Caution".

Additional information

Contact Honeywell, or its representative, if you require additional information. Also, refer to the list of related documents in Appendix for more information.

Legal aspects

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Support

For support, contact your local Honeywell Process Solutions Customer Contact Centre (CCC). To find your local CCC visit the website, <u>https://process.honeywell.com/us/en/contact-us</u>

Revision History

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Documentation References

The following list identifies publications that may contain information relevant to the information in this document.

ETDOC-X612-en-R130.1	ENTIS Quick Start Guide
ETDOC-X613-en-R130.1	ENTIS Installation and Configuration Guide
EHDOC-X136-en-511B	Experion HS Software Installation Users Guide
EHDOC-XX75-en-511A	Network and Security Guide
EPDOC-X111-en-501	Experion PKS Backup and Restore User's Guide
EHDOC-X127-en-511C	Experion Server and Client configuration guide
EHDOC-XX80-en-510A	Experion Operator's Guide

ENTIS documentation on HPS web:

https://process.honeywell.com/us/en/products/terminals/enraf-tank-gauging/entistank-inventory-system

Experion HS Network and Security Guide:

https://process.honeywell.com/us/en/support/product-documentsdownloads?search=%2522experion%2520lx%2520network%2520and%2520securi ty%2520planning%2520guide%2520exdoc-xx75-en-511a%2522

Contacts

See back page for details

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ENTIS is a unique Tank Inventory Management System developed for Windows 10 Enterprise, and powered by the Experion platform, to display Tank inventory data.

Real Time Inventory

ENTIS is a Windows 10 Enterprise application. Data is retrieved via dedicated Communication Interface Units (CIU's) and processed through to the open ENTIS database. Various displays are available for inventory management. These displays include bar graphs, tabular data, iconized tanks, and a whole range of modules such as trending, report printing, and a "what if" tank calculator.

Movement

Movement is offered as a licensed feature in ENTIS. The base offering does not include movement. Three license options are available: simple movement, advanced movement, and infrastructure pipelines. The infrastructure pipeline license is only available for advanced movement and cannot be purchased with base offering or simple movement.

Simple Movement

Simple movement supports transfers from/to a selected tank or movements between two tanks. It displays the current measurement values for the selected tanks, the expected values after the movement has completed, and verifies whether the movement is possible depending on the current tank status, available space, product type etc.

Advanced Movement

Advanced movement is used for calculating and setting up movements. Advanced movements are not limited to tanks only. Many object types e.g. pipe line and train can be selected. Transfers can also be one-to-many and many-toone. ENTIS monitors the transfers but by itself does not control the movements in sense of opening and closing valves. During the active transfer, all related data will be published to the Experion Scada points.

Infrastructure Pipelines

The Infrastructure pipelines license allows the creation of movement object which can be used to configure advanced movement. It also allows for the accounting of the product in the physical pipes connected to the tanks during advanced movements.

Numerical & Graphical Display

The graphical displays provide a quick overview of tank data. The numerical displays can be customized to suit your own particular needs. These displays can be either tank or group related. Several graphical displays are also available, and tank images can be customized per tank if required.

Networking

The network facilities of the Experion system allow you to integrate ENTIS into your plant's networks.

Alarm System

ENTIS provides you with an array of programmable alarm set points. Privileged users can create their own alarms for all measured and calculated data. During inactive periods, tanks can be put into a leak detection mode. Alarms and acknowledgements, together with all tank information, are stored and recorded for future review and traceability.

ENTIS Redundancy Support

The ENTIS system can be used in a redundant server mode, with automatic failover capabilities.

Refer the instructions provided in section 5 of ENTIS Installation and Configuration Guide for more details about Installing ENTIS with redundancy.

Hot Standby & CIU Redundancy Support

The ENTIS system can be enhanced for use in critical applications with hot standby and CIU redundancy support. CIU redundancy support can cover the unlikely event of a network failure, providing sustained and reliable data to your management system. After the occurrence of an error, the second CIU will automatically start and take over the lost functionality. Following the switch over, all gauge data will be rescanned and recalculated to ensure data reliability.

Multiple gauges

ENTIS supports tanks on which multiple gauges are installed. Acquiring the level of two gauges enables the function to program an alarm to be raised when the difference between the two measurements exceeds the programmed limits.

Test Alarm Support

ENTIS can be used to generate test alarms for the 954 servo.

Profiles

ENTIS supports temperature and density profiles data acquired from the gauges including the extended profile of 50 points provided by the 954 Servo gauge.

Reporting Enhancements

ENTIS reporting now allows for the use of customized customer name, sites and logos, on the standard and Legal Metrology-approved report set.

ENTIS Language Support

Next to English ENTIS supports the languages: French, Italian, Dutch, Chinese, Spanish or Russian language. ENTIS will appear in the language as being set at commissioning. User with Admin rights can change the language of ENTIS when required. Experion menu items are available in English, French, Italian, Dutch, Chinese, Spanish or Russian language.

Refer the instructions provided in section 6.1 of ENTIS Installation and Configuration Guide for changing the language.

Experion Alarms & Events Screen Language Support

ENTIS supports the user to view the alarm and event description in either of English, French, Italian, Dutch, Spanish language.

Tank hooks to address a specific tank from Experion

From ENTIS it is possible to see the tank details of a specific tank by selecting the "Tank Detail" screen and by selecting the required tank. In some cases it is very useful to have a direct link to the tank "Tank Detail" screen and the selected tank. For example when you have a HMIWeb page in Experion and you want to link the tank details from this page.

%HwProgramData%\Experion PKS\Client\MenusAndToolbars\EntisHTML\Entis.HTML?tab=tank-details\T111

In case of linking anther tank instead of T111 you need to replace the tank name at the end of the link.

The part between the brackets below needs to be replaced with the tank name:

%HwProgramData%\Experion PKS\Client\MenusAndToolbars\EntisHTML\Entis.HTML?tab=tankdetails\[TankName]

To test the link in Experion Station you can execute the link in the Experion "Command" bar.

INTERFACE GUIDELINES

The ENTIS user interface consists of a set of inter-related graphical objects together with a set of rules governing their deployment, such as windows, dialog boxes, task icons, colours and others.

Although ENTIS is a Windows application, there are certain additional conventions used in ENTIS that will be described in this chapter. This chapter also describes a basic set of rules to help the user learn how to use ENTIS

Help

ENTIS supports the displaying of the PDF of the User's Manual. Navigating to the Help menu item will open the pdf version of the ENTIS User's Manual.

Data Status

Measured and calculated data is indicated by a status sign. The statuses are shown in the following table:

Sta	tus
8	Data is manually overwritten
6	Data is stored
?	Data has reduced accuracy
Ø	Data is in fail
K	Data is not scanned
	Data is over range
⊘	Data is under range
0	Data is uninitialized
	No data available (Data is not displayed)
	Data is valid (Data is displayed)

S&W, Liq/Vol Ratio and Molar Weight are always manually entered

General Guidelines

ENTIS runs on the Experion HS platform; therefore, Experion's security guidelines / recommendations should be followed in any ENTIS deployment.

Experion HS provides a comprehensive Network and Security Guide (ID: EHDOC-XX75-en-511A) that should be reviewed prior to an ENTIS deployment. It contains numerous guidelines to help ensure a secure deployment.

In addition to the information provided in that manual, this section provides some additional security-related details.

This information is ENTIS-specific and is meant only to augment the Experion documentation.

Signed Assemblies

Digitally signing files allows users to confirm that those files were provided by Honeywell.

Honeywell has digitally signed the assemblies that it provides with ENTIS. Note that this does not include third-party assemblies that are not maintained as a part of the ENTIS product line.

Users can confirm that their ENTIS assemblies are signed by bringing up the assembly properties via Windows Explorer.

Users can check for signing by right-clicking on the dll/exe, and selecting Properties from the context menu.

If the ensuing dialog has a Digital Signatures tab, and there is a "Honeywell Limited" signer listed, then your assembly has been properly signed by Honeywell.

Network Shares

ENTIS creates the following network shares beyond what Experion configures, and documents, in their Network and Security Guide.

Shares created by Server-Client install are as follows:

Table 1 : Network Shares

Name	Location	Nodes	Usage
ENTISRepository	C:\ProgramData\Ho neywell\ENTIS	Server	Used by File Replication to replicate contents to a redundant server
Broker	C:\Program Files (x86)\Mosquitto	Server	Used to exchange the certificate and configuration file with a redundant server.

Access to the shares is limited to users of the groups Administrators, Product Administrators and Local servers.

Access Control List

ENTIS will set up the appropriate access controls on its files for the application to run securely.

This ACL configuration step is run automatically as a part of the installation process.

In addition to the ENTIS-specific ACL settings, ENTIS also relies on the standard Experion ACL implementation, as is described in the Experion Network and Security Guide.

Backup & Restore

For the backup and restoration process for the node, please refer to the following sections of the Experion PKS Backup and Restore User's Guide, EPDOC-X111-en-501 on process.honeywell.com.

- 1. Backups on a Physical node.
- 2. Backups on a Virtual node.
- 3. Restoring Physical Nodes.
- 4. Restoring Virtual Nodes.

User Accounts and Roles

User roles define the set of operations that a user is allowed to perform. ENTIS leverages the Experion platform and its user roles. For information on the roles, please refer to the "User accounts and Experion user roles" section in the Network and Security Guide (ID: EHDOC-XX75-en-511A). Note that the Legal Metrology user roles are ENTIS specific and explained in more detail in the ENTIS Sealing guide. For a high level description of enabled/disabled features, please refer to Appendix B.

Physical and Environmental Considerations

While the security issues for ENTIS on Experion are largely the same as for any IT server, the physical access of a tank information system can be particularly important. For physical and environmental considerations, please see the Physical and Environmental Considerations section in the Network and Security Guide (ID: EHDOC-XX75-en-511A).

System Monitoring

ENTIS and Experion provide a number of ways to detect potential evidence of intrusion. The System Monitoring section of the Network and Security Guide (ID: EHDOC-XX75-en-511A) provides details on this subject. In addition to the information in that guide, it should be added that ENTIS wll write events into the ENTIS event log, which is available through the Windows event viewer.

Vulnerability Reporting

In the previously mentioned Network and Security Guide (ID: EHDOC-XX75-en-511A), please refer to the section titled "How to report a security vulnerability" for information pertaining to reporting potential security vulnerabilities against Honeywell products.

Toolbar

The toolbar is present in Experion Station. It offers a fast navigation tool for ENTIS displays. Based on their access level, users can navigate to ENTIS screens by clicking on the associated menu icons.



Figure 1: Tool bar

Status bar

The status bar includes the following display areas:

DateTime

Displays the current system date and time.

Alarms

Whenever an alarm is raised, the alarm icon will start blinking in red. Clicking on the icon will open the Alarm display.

System

If it is blinking in blue, the system status is OK. If any system related issues come up, it will start blinking in red. Click on it to open the system status view.

Message, Alert

Any message or alert logged by Experion will be available here.

29-Nov-19 15:36:18	🛆 ALARM	E MESSAGE	() ALERT	hpvie1fbldp203	Stn01	Mngr

Figure 2: Status bar

Server Name

Server to which Experion Station is connected. Click on the icon to view details.

Station Name

The connected Station name will be displayed here.

Role

Displays the logged-in user role. Click on it to enter the credentials and change the role.

ENTIS MULTI SCREENS USING SAFEVIEW

Multi-screen layouts are achieved using the Experion SafeView application. ENTIS comes with preconfigured workspace settings files that implement various screen layout configurations. The image below shows the window layout for each screen configuration.





The actual screen resolutions depend on the hardware that the system runs on and needs to be configured. This configuration is normally done during the installation process but can also be done at a later stage, instructions on how to do this can be found in the installation manual.

Customize the SafeView Windows

The WDL files included with ENTIS are preconfigured to display certain Experion or ENTIS pages in each "window". This can be changed to any page:

1. Use the >> button to make a window active/focus on respective window title bar.

Note: Only one of the windows will have output focus.

2. Use ENTIS or Experion menu's and open any page (e.g. Alarm, ENTIS Group View, etc.)

To Hide unwanted Windows click on Hide <Placeholder>. To for example go back from 4 to 3 windows.

Exit Multi Screens

- 1. From Experion Station Select the Menu Station -> Exit
- 2. From SafeView application menu -> Exit.

Note: Exiting SafeView will reset the customized page selections to the default screens installed with ENTIS

MANAGE DISPLAYS

Manage displays are used to create user defined views and user defined Groups of tanks which helps operator to monitor tank inventory for huge tank farms, Manage Displays can be created via Group detail / Group view of ENTIS

Manage Groups

Tank groups can be defined to allow for easier navigation between subsets of tanks.

The Manage Groups dialog can be opened from the Group View, Group Detail, or Totalizers screen.

bits Diff.											
E Honeywell ENTIS											
Group View										It Inventory	minall 🕅 🛈
Group Details	Tank Name		Product Name		(m ¹)		55V (m ²)	Product Code	Pafarence Density	Groups	-
🚍 Tank Details	h TVDCo		Description 2		#04 799	0	#36 060			Alltanks	E YIPTH
2 Gauge Commands	P TKH04		Densityteblez	0	024./33	0	635.969			movement group	0.000
2 Manual Openanita	▶ TKR65	1	Densitytable1	0	622.768	0	617.253	-		Terminal 1	6.908
	▶ TKR69		Densitytable1	0	821.088	0	817.256	•		Manage Groups	6.979
<u>~ Profiles</u> ~	▶ TKR70	ł.	Densitytable1	0	899.721	0	895.726			913.546	6.908
Totalizers	▶TKR71	I	Densitytable2	0	2.877.121	0	2.931.231	-		892.603	11.380
a What If	▶ TKR72	I	Densitytable1	0	1.582.875	0	1,576.567	14. (4)		913.546	8.443
3 Reports	►TKR73	1	Densitytable2	0	1.489.054	0	1.517.406	-		892.603	4,545
🗄 Manage Tasks	FTKR74	1	Densitytable2	0	877.135	0	893.115	(a)		892.603	7.538
7) Help	▶ TKR75	1	Densitytable2	0	900.240	0	913.907	-		892.603	1.987
	FTKR76	1	Densitytable1	0	1.482.720	0	1,474.447	12.		913.546	7.848
	► TKR77	1	Densitytable2	0	7.932.744	0	6.070.825			892.603	154.731
	► TKR78	1	Densitytable1	٥	2.570 713	0	2,552,848	12		913.546	5.823
	► TKR79	1	Densitytable1	0	4.078.534	0	4,041 801			91.3.546	10.052
	► TKRBO	1	Densitytable2		1,578,786		1,603,493			892 603	89.763
	FTKR84	:	Densitytable2	0	6,843.009	0	6,977 253			692 603	10.750
3 Settings									5	0 rows + < < 1.1	5 of 15 > >l

• <u>UN</u> U	1											
Honeywell ENTIS												
Group View		Manage Groups								×	fti Invento	ry 🕼 Terminal 1 🗸
Group Details	Tank Name	All Groups	Rear	Avall	able Tanks (58)	1	Terr	minai 1 Grour	(15)		ity (lb/ft)	FWV (m ³)
Tank Details	P TKR64	All Groups		Alvanta	Die Tallica (30)	-		ninal 1 oroop	(15)		092.603	0.90
Gauge Commands	+ TKROS	Group name			Tank 🗧	Product 0		Tank	Product		913.546	6.94
Manual Overwrite	FTKR69	movement group			TKRI	ConcentrationT.		TKR65	Densitytable1	* 1	913.545	6.97
Profiles 🧹	FTKR70	Terminal 1	8.0		TKR2	TCF		TKR89	Densitytable1	*	913.546	6.90
Totalizers	FTKR71				TKR15	ManualCTL		TKR70	Densitytable1	÷	892.603	11.3/
Wheel If	► TKR72				TKR16	ConcentrationT.		TKR73	Densitytable2	*	013.546	8.4
Proventer .	►TKR73				TIGR17	D125004	_	TKR72	Oensitytable1	*	892.603	4.5
Heports	FTKR74				TKRIB	ConcentrationT	2	TKR71	Densitytable2	•	092.603	7.6
Manage Talks	►TK875				TKR19	Densitytable1	< 5	TKR76	Densitytable1	+	892.603	1.0
Halp	TER75				TKR20	Densitytable2		TKR74	Densitytable2	+	913 545	7.8
	► TERZZ				TKR21	Densitytable3		110864	DensitytableZ	•	002.003	154.7
	► TKP78				TKR22	Densitytable4		TKR75	Densitytable2	4	913546	5.8
	NTURTO				TKR23	ConcentrationT		TKR77	Densitytable2	+	013548	10.0
	F TRRES				TKR24	CTLTable		TKR78	Densitytable1	+	803.603	20.7
	F TKRBD				TKR25	D125004		TKR79	Densitytable1	۰.	892.003	10.7
	P 11009				TKR26	ConcentrationT		TKR80	Densitytable2	4	052.003	40.75
										-		

This dialog displays the following main sections:

- On the left side, all created tank groups are displayed.
- In the middle part, the available tanks to be added to the tank group are shown.
- At the right side, the tanks which are a member of the selected tank group are displayed.

Creating a Group

- 1. Log on as a user with SUPV permissions (or higher).
- 2. Click the Manage Groups icon from either the Group View or the Group Detail display. The Manage Groups dialog opens.
- 3. Click on **New** An edit field opens where you can enter the tank group name.
- 4. Enter the tank group name and click Create. The tank group is added to the list of created Tank Groups.
- 5. In the middle part of the screen, select the tanks that you want to add to the group.

6. Click on

The selected tanks are moved from the middle panel to the right part of the dialog.

7. Click **OK**.

The dialog closes.

The newly created group can be selected in the Group selector dropdown box on the various UI screens.

8. Similarly, to remove tanks from a group, select the tanks in the right part of

the screen and click on

🔮 Station - ENTIS - EntiaEntis.htm three Stanon com view 昆 田 岡 命 命 図 述 ど 8	солткос астоя сонглани 9 Г. Д. ОР ПП (Ф) ф.	≠ === ▲▲□□□□□□□□□□□□□□□□=================	7 ✔ X 😫 🕄 Zorm To Fit	Command						
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= Honeywell ENTIS										
🔁 Group View		Manage Groups						×		††∔ Gauging []a Att tanks 🗇 🔘
🗐 Group Details	Tank Name		1							Displacer Position (mm)
🖽 Tank Octails	h.TVD1	All Groups	Available Tanks (54)			movement gro	up Group (19)			
② Gauge Commands	PIRE	Group name	🗌 Tarik 💠	Product 0		Tank	Product			
P2 Manual Occurrity	▶ TKR2	Terminal 2	TKR1	ConcentrationT	î	TKR71	Densitytable2	÷ 1		
	▶TKR15	Carroel Create	TKR2	TCF		TKR69	Densitytable1	\$	3.872	
Profiles V	▶ TKR16		TKR15	ManualCTL		TKR70	Densitytable1	•		16.242.0
E Totalizers	▶TKR17	Group name	TKR16	ConcentrationT_		TKR85	Concentratio_			17.970.0
🕞 What If	▶ TKR18	movement group 🗄 🗊	TKR17	0125009		TKR84	Densitytable2		1.627	8.292.0
B Reports	▶TKR19	Terminal 1	TRENE	Consideration		[] max2	Densibutable1	÷.	1.823	16.022.0
Manage Tasks	▶TKR20			During and the			Dentifyater		.718	
A	FTKR21		I TRR19	Densitytable1	•		Densitytable2	-		15.994.0
Ш нар	▶TKR22		L TKR20	Densitytable2		TKR62	Concentratio	-	1814	17.459.0
	▶TKR23		TKR21	Densitytable3		TKR63	Densitytable1	*		16.597.0
	h TYP24		TKR22	Densitytable4		TKR68	Concentratio	+	1003	16 366 0
	F TKR24		TKR23	ConcentrationT		TKR72	Densitytable1	+	1.000	102000
	P TKR20		TKR24	CTLTable		TKR73	Densitytable2	÷	1.4291	
	▶TKR26		TKR25	D125004		TKR74	Densitytable2	÷	.206	11.055.0
	▶TKR27		TKR26	ConcentrationT		TKR75	Densitytable2	φ.	1187	12,647.0
	▶ TRR28				•			*	.416	8,945.0
	▶ TKR29						Cancel	Dk	1.077	13.180.0
Settings									- 30 rows	✓ IC < 1-30 at 73 > >I
Honeywell Ex		08-Jun-21 18:00:00 SERV 06-Jun-21 18:40:55 (A) ALARM	ER_112 Testing license L	ICENSE H 00 License	for internal t	testing - 08-Jun-2 ERT	desktop-vh3cati			Stn01 L Mngr

Note that the "All tanks" group is available by default and cannot be removed or altered.

Manage Views

The Group Detail displays tank inventory data for multiple tanks in a tabular format. Tanks are organized in rows, while the entities are displayed in columns.

This dialog enables the user to customize the view that defines the columns to be displayed in Group Detail. The first column (Tank name) is fixed.

A number of predefined views are available; it is also possible to create new views.

Note : Manage views option also available in "Group View but that is independent from Group details.

Nennual ENTIS											
Group View										iti Inventor	v 🔽 Terminal 1 🗸 🛈
Group Dataile	and the second							-1. No. 10.2778-01		Views	
aroopoctana	Tank Name	2.	Product Name	(àOV (m³)		GSV (m ³)	Product Code	Rofe	Gauging	FWV (m ³)
Tank Details	▶ TKR64	1	Densitytable2	0	540.259	0	553.246			Inventory	6.908
Gauge Commands	▶ TKR65	1	Densitytable1	0	538.295	0	536.518			C Mass	6.908
Manual Overwrite	▶TKR69		Densitytable1	Ø	821.088	0	822.206			Movement	6.979
Profiles \sim	►TKR70		Densitytable1	0	899.721	0	895.726			O Pumping	6.908
Totalizars	FTKR71		Densitytable2	0	2.472.303	0	2.535.476			O Volumes	11.380
What If	▶TKR72		Densitytable1	0	1.112.434	0	1.108.001	5 (S		O Deltas	8.443
Reports	►TKR73		Densitytable2	0	1.278.898	0	1.303.248	÷		Manage Views	4.545
Manage Tasks	FTKR74	1	Densitytable2	۲		Ø				892.603	7.538
	▶TKR75	1	Densitytable2	Ø	634.682	0	648.021			892.603	1.987
	►TKR76	3	Densitytable1	0	1.300.737	0	1.301.623			913.546	7.848
	►TKR77		Densitytable2	0	8.691.360	0	8.897.302	-		892.603	154 731
	▶TKR78	1	Densitytable1	0	1.813.514	0	1.811.652			913.546	5.823
	FTKR79	1	Densitytable1	0	4.418.181	0	4.404.599	Q.		913.546	10.052
	▶ TKR00	- 1	Densitytable2		1.094.383		1.117.891	2		892.603	89.783
	► TKR04	1	Densitytable2	0	6.843.009	0	6.977.253			892.603	10.750

The predefined views can be altered, but not deleted. However, they can be reset as shown below:

Critis 💽								
Bill Honeywell ENTE	5							
ង Group View		Manage Views			×	+14	Mass 🔯 Ter	rminat 1 🖓 🤇
E Group Details	Tank Name	All Menue	Available Entities	Magg Minus		VM (kg)	N	ITSM (kg)
🗦 Tank Details	► TKR64		Avanuone Erattica	Initial Them			0	
Gauge Commands	▶ TKR65	View name	Entity 0	Entity			0	
Manual Overwrite	▶ TKR69	Realities	AALD	Tanik Name			0	11.373.89
Profiles V	►TKP70	Cancel Greate	AALF	Product Name	\$		0	12 473 77
Totalizara	ETKP71		Air Density	Product Level	÷		0	78.633.75
	h TKDT2	View name	Alarms	Reference Density	\$		0	60.095.71
g what ir	A TUDTS	Gauging	Ambient Temperature	Product Code	÷		0	40.558.08
Reports	P TRR15	Inventory	Available Room	NSM	÷		0	37.031.00
Manage Tasks	F TARI4	Mais 52	Available TOV	NVM	÷		0	57,021,90
) Help	FTKR75	Movement	Background Time Stamp	NTSM	4		0	30,119,24
	▶ TKR76	Pumping	Calculation Method				ø	41,645,56
	▶ TKR77	Volumes	Concentration				0	33,277,38
	▶ TKR78	Deltas	🗆 сть				0	111,159,29
	▶TKR79		Стян				0	17,967,46
	▶ TKR80		DCF					67.911.62
	▶ TKR84		Delta GOV				0	91,632,661
				Cancel	Ok			

Newly created views can be altered and deleted.

The Manage Views dialog can be launched from the Group Detail screen.

Honeywell ENTI:	5									
Group View		Manage Views					×	H	Mass to Te	rminal 1 🗸
Group Details	Tank Name	All Views	New	Available Entities		Alarms View		VM (kg)	N	ITSM (kg)
Tank Details	▶ TKR64								G	
Gauge Commands	▶ TKR65	Viewname		Entity S		Entity			0	
Manual Overwrite	FTKR69	Gauging		. Ar Density	_	lank Name	22		0	11,373,8
Profiles 🗸 🗸	► TKR70	Inventory		Ambient Temperature	_	AALB	*		٥	12,473.7
Totalizers	▶TKR71	Mass		Available Hoom		AALF	•		0	85,939.4
What If	▶ TKR72	Movement		Available TOV		Alarms	+		٥	78,666,6
Reports	►TKR73	Volument		Calculation Mathem					Ø	44,496,6
Manage Tasks	▶ TKR74	Dattas		Cancentesting					0	43.186.7
Helo	► TKR75	Ueitas	G2 81	Concentration					0	42,896,7
	▶ TKR76	Alarms							Ø	45,859,9
	▶ TKR77								٥	17.330.1
	▶ TKR78			Dette GOV					0	127.069.1
	▶ TKR79			Delta GSV					ø	9.571.5
	▶ TKR80			Delta Level						78,093,7
	▶ TKR84			Delta NSV					0	90.774.4
					*					

This dialog displays the following main sections:

- At the left side, all available views are shown.
- In the middle part, the available entities to be added to the view are displayed.
- At the right side, the entities which are available in the selected view are shown.

Creating a view

- 1. Log on as a user with SUPV level permissions (or higher).
- 2. Click the **Manage Views** icon from the Group Detail display. The Manage Views dialog opens.
- 3. Click on **Create**. An edit field opens where you can enter the view name.
- 4. Enter the view name and click **Create**. The view is added to the list of available views.
- 5. In the middle pane of the dialog, select the entities that you want to add to the view.
- 6. Click on >

The selected entities are moved from the middle pane to the right side of the dialog.

7. Click OK.

The window closes. The newly created view can be selected in the View selector dropdown box on Group detail.

8. Similarly, to remove entities from a view, select the entities in the right part of the screen and click on <

Note: The order of the entities can be changed by dragging and dropping them on the right part of the Manage Views dialog.

Manage Filters

This dialog offers the possibility to define filters on tanks to be displayed in a Tank Group.

A few examples of filters:

- Show tanks with a certain Product name.
- Show tanks with a Product temperature above a certain value.
- Show tanks with a Product level between 2 values.

The Manage Filter dialog can be launched from the Group Detail display.

706												
E Honeywell ENTIS												
Group View						1					the Mass Lo' Terr	ninal1 Y O
Group Details	Tank Name	5 E	Product Name	Produc	t Level (mm)	Reference Density (lb/ft3)	Product Code		NSM (kg)	NVM (kg	Filters	
Tank Details	► TKR64	i.	Densitytable2		7,450.0	892.603		0	8.209.503		Please create a new filter	In Mana 1.503
2) Gauge Commands	▶ TKRG5	1	Densitytable1		7.550.0	913.546		0	8,533.360		gerniters sestion.	3.360
🖄 Manual Overwrite	▶ TKRG9		Densitytable1	0	10,450.0	913.546		0	11,789,338		Manage Filters	11,789,338
\simeq Profiles \checkmark	▶ TKR70	1	Densitytable1	0	11,450.0	913.546	-	0	12,922,753		0	12,922.753
Totalizers	▶ TKR71	i.	Densitytable2		7,550.0	892,603	-	0	37,982,586		0	37,982,586
à What If	FTKR72	1	Densitytable1		4.167.0	913.546	. 41	0	19.787.151		0	19.787.151
] Reports	▶TKR73	÷	Densitytable2		7.525.0	892.603		0	19,661.341		0	19.661.341
Manage Tasks	▶TKR74	i.	Densitytable2		4.103.0	892.603	121	0	10.693.232		0	10.693.232
D Help	▶TKR75	E.	Densitytable2		4.262.0	892.603	-	0	11.132.962		0	11.132.962
	▶TKR76	1	Densitytable1		7.475.0	913 546		0	20.048.381		0	20.048.381
	▶TKR77		Densitytable2		4,135.0	892.603		0	116,002,667		0	116,002.667
	▶TKR78	1	Densitytable1		4,198.0	913.546		0	31,847,858		0	31,847,858
	▶ TKR79		Densitytable1		7,500.0	913.546		0	61,120,234		0	61,120,234
	FTKR80	1	Densitytable2		4,135.0	892.603			18,418.917			18,418,917
	▶TKR84	1	Densitytable2	0	10.300.0	892.603		0	95,814,966		0	95,814,966

Window layout

This window displays the following main sections:

- At the left side, all created filters are shown.
- In the middle part, the entities that can be used in a filter are displayed.
- At the right side, the configured parameters (Operation, Value) for the selected filter are shown.

Boogen LENC	Broagwall ENUS ManageFilters Group Dock Task Deales ManageFilters Group Dock Task Pilters ManageFilters Filter Sections Filters ManageFilters Group Dock Task Deales Filters Filters Group Dock Filters Filters Filters Group Dock Filters Cented Filters Foundation Filters Cented Cented Filters Group Commund Filters Cented Cented Filters Foundation Filters Cented Cented Cented Group Commund Filters socialation Cented Cented Cented Group Commund Filters socialation Filters socialation Filters socialation Filters Group Commund Filters Filters socialation Filters Filters Group Commund Filters Filters Filters socialation Filters Group Commund Filters Filters Filters Filters Filters <th>× tH inventor</th> <th>y [2 movement.group ⊽ FWV (m*) 26.544 0.000 28.544 0.000 28.544 0.000</th>	× tH inventor	y [2 movement.group ⊽ FWV (m*) 26.544 0.000 28.544 0.000 28.544 0.000
Compose Compose Manage Filters Manage Filters <th< th=""><th>Corucy bould Tank Name (Corucy bould Tank Name (Tank Name (Alf Hiter: Corucy bould Filler Corucy bould Filler Corucy bould Filler Corucy bould Filler Outsel bould Filler Polock Filler Corucy bould Filler Corucy bould Filler Polock Filler Corucy bould Filler Corucy bould Filler Corucy bould Filler Corucy bould Filler Polock Corucy bould Corucy bould Filler Corucy bould Corucy bould Polock Corucy bould Corucy bould Corucy bould Polock Filler Polock Filler Polock Filler Polock Filler Polock Filler<</th><th>× (1) Inventory sy (16/112)</th><th>y _ i movement group FWV (m*) 0.000 26.594 0.000 0.000 26.594 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.000000 0.00000000</th></th<>	Corucy bould Tank Name (Corucy bould Tank Name (Tank Name (Alf Hiter: Corucy bould Filler Corucy bould Filler Corucy bould Filler Corucy bould Filler Outsel bould Filler Polock Filler Corucy bould Filler Corucy bould Filler Polock Filler Corucy bould Filler Corucy bould Filler Corucy bould Filler Corucy bould Filler Polock Corucy bould Corucy bould Filler Corucy bould Corucy bould Polock Corucy bould Corucy bould Corucy bould Polock Filler Polock Filler Polock Filler Polock Filler Polock Filler<	× (1) Inventory sy (16/112)	y _ i movement group FWV (m*) 0.000 26.594 0.000 0.000 26.594 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.000000 0.00000000
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NR071 NR072 Image: Second Sec	Ныр Эткяті		0.000
F10/72 0 F10/73 0 F10/74 0			
> TK8/3	► TKR72		8.443
> 100/a	+TER73		*****
> 15875 0 > 15876 0 > 15877 354 > 15870 0 > 15800 0	▶ TKR7≈		
> FX8276 C > FX8277 3134 > FX8278 - > FX8279 - > FX8270 -	₱ TKR75		0.000
> Тб877 154 > Тб878 - > Тб880 Слося! Он	▶ TKR76.		0.000
▶такла ▶таклао Сансия Он 89	PTKR77		154,731
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fetn.	81						
= Honeywell EN	ns						
🖪 Group View		Manage Filters			×	Ht Inventory	$\fbox{G} \text{ movement group } \nabla = \textcircled{0}$
Group Details	Tank Name	All Filters New	Filter Settings			:y (lb/ft²)	FWV (m ²)
🕀 Tank Details	► TK857						0.000
② Gauge Commands	► TKR58	Filter name	Entity Name	Set Parameters			26.544
🖾 Manual Overwrite	▶ TKR60	Product 🗵 🕄	Moving Status	Please select an entity.			0.000
🗠 Profiles 🔍 🗸	FTKR62		Remark				28.549
Totalizers	► TKRG3		Product Name				0.000
E what If	► TKRGB		Product Level				26.544
P Reports	► TKR69		Water Level				0.000
	▶ TKR70		Product Temperature				0.000
()±) Manage tasks	►TKR71		Vapor Room Temperature				
① Help	►TED72		Vaper Room Pressure				6443
	h THOTA		TOV				
	P INRI3		FWV				
	P TRRZ4		GOV				
	▶ TKR75		GSV				0.000
	►TKR76		NSV				0.000
	▶TKR77		Liquid In vapor				154 731
	▶TKR78			1			
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Creating a filter:

- 1. Log on as a user with SUPV level permissions (or higher see note below)
- 2. Click the **Filter** icon from the Group Detail display. Then click **Manage Filters**.
- 3. Click on **New** An edit field opens where you can enter the filter name.
- 4. Enter the filter name and click **Create** The filter is added to the list of created filters.
- 5. In the middle part of the dialog, select the entity that you want to be used in the filter.
- 6. In the right part of the dialog, select the Operation and the Value.
- 7. Click OK

The window closes. The newly created filter can be selected in Group detail by clicking on **Filter**, then selecting the required filter.

Note: When logged on as Operator, a filter can be selected to be viewed, but not *created* or changed.

Group View							††i Default _o All Tanks ③
B Group Details	TK101 TCF Product Level 3,010.0 mm Product Temperature 14,91 °C Reference Density 850.00 splint	TK102 DCF Product Level 3,020.0 mm Product Temperature 14,63 °C Reference Density 845.00 ig/m²	TK103 D125004 Product Level 5,566.0 mm Product Temperature 52.00 1:C Reference Density @ 848.50 hpt/st	Image: Non-State State Image: Non-State State Image: Non-State Image: Non-State	TK105 CCP805 Product Level 3,050.0 m Product Temperature 14.17 ~ Reference Density ©	Product Level 5,597,0 mm Product Level 13,00 ~C Reference Density	Product Level 3,0700 mm Product Temperature 13,80 °C Reference Density @ 845.00 hptr/
Help	Image: Second	Product Level 5,628.0 nm Product Set Cituation Product Set Galaxie Product Set Galaxie 13,50 °C Reference Density 1,024.00 °c/m*	Product Level 404% TK110 404% Traduct Level 3,300.0 mm Product Temperature 57,83 °C Reference Density 860.00 \ms/m²	Intervention	Product Level 3.320.0 mm Product Cereprature 58.05 % Reference Density 913.55 kplm*	Product Level 5,660.0 mm Product Level 5,660.0 mm Product Chenperature 41.50 °C Reference Density 850.00 kp/m²	Product Level 3,340,0 mm Product Temperature 5,8,46 % References Density Ø
🛞 Settings	TK910 TCP Product Level 3,350.0 mm Product Temperature	Image: Constraint of the second se					

The Group View display shows the tanks from the selected group in a tile layout.

Figure 4 : Group View with default entities

Each tile shows the tank icon (1), movement status icon (2), flow direction icon (3), target movement direction (4), alarms icon (5), level percentage (6), tank name (7), product name (8) and the entities from the selected view (9).

■ ○ △ (3)	4, 5)
TK101 (7) TCF (8)	
Product Level	
3,010.0 mm	
Product Temperature	(0)
○ 17.54 °C	(3)
Reference Density	
850 00 ka/m	

Figure 5 : Tank Tile

Tank Icon

The tank icon of each tank is configurable, this is done in the CIU 888 Service tool. The tank icon also functions as a bar graph showing how far the tank is filled, the color of the bar graph is based on the Product colors settings in the settings screen.

Movement Status	Description
ACTIVE	This tank is part of an active movement.
AVAILABLE	This tank is available for movement.
ARMED	This tank is armed for movement.
CLOSED	This tank is available for movement. The previous
	movement has been closed recently.
PAUSED	The tank is in movement but temporary on hold.
RESUMED	This tank is part of an active movement and was on hold
	for a certain period.
UNKNOWN	Unknown tank movement status.

The movement status can have the following values:

Flow Direction Icon

The flow direction icon shows the actual flow direction, it can have the following value:

Icon	Description
•	Product flowing into the tank.
•	Product is stable in tank.
V	Product flowing out of the tank.
?	Flow cannot be determined.

Target Movement Direction Icon

The target movement direction icon shows the direction of the configured movement, it can have the following value:

Icon	Description
	Product configured to move into the tank.
0	Product configured to move out of the tank.
\bigcirc	Product movement not configured.

Alarm Icon

The alarm icon shows if there is one or more alarms for the tank, it has the following values:

lcon	Description		
\bigtriangleup	When there are no alarms		
A	When there is one or more alarms		

When there are alarms, hovering over the alarm icon will show detailed alarm information:

ls				Tank	-1	Product	
	💧 10-Ji Backgrou	ın-2021 nd age a	9:51:50 AM	I BACK_G	ND		ŀ
r -	💧 10-Jι Foregrou	un-2021 nd age a	. 9:51:50 AN larm	I FORE_C	GND		ŀ
	💧 10-Ju Checksun	un-2021 n calcula	10:55:38 A ated over ta	M CRC_fa	ail aramete	ers by the CIU	

Figure 6 : Alarm icon tooltip

Entities

Initially the view 'Default' with entities Product Level, Product Temperature and Reference Density are displayed on the tiles. These entities can be changed by selecting a different view, this can be done by clicking on the active view that is shown in the top right corner of the display and selecting another view.

∮†↓ Default	🔓 All tanks	(j)

Views can be configured with up to 5 different entities, see the chapter about <u>Manage Views</u> on how to configure views.



Figure 7 : View examples

Context Menu

When hovering over a tile, a 3-dot menu button is shown. Clicking on this button will open the context menu. From this menu the operator can start delta, configure movement actions and execute gauge commands. For more information about the context menu see chapter GROUP DETAIL.



Figure 8 : Context menu of a tank

How to select the Group View display

1. Group View is the default display when ENTIS is started. You can also access the Group view display from the menu, or from the icon in the toolbar.

- 2. Select the desired group from the Group selection dropdown box (default set to 'All tanks').
- 3. Select the desired view from the View selection dropdown boxentity. (default set to 'Default').
GROUP DETAIL

The Group Detail display show tank inventory data for multiple Tanks in a tabular format. Tanks are organized in rows, while the entities are displayed in columns.

In addition, this display enables the user to make use of additional functionality such as the Delta column (licensed option). Dimensions are user-definable and displayed in the column header.

The user can create their preferred views via the Manage Views dialog.

Display layout

The display presents Tank data in a tabular format. The data displayed on the grid depends on the selected view. Both values and if applicable - statuses, are displayed. Clicking the mouse on the column header will sort the selected column. Multi column sorting is available by holding the Shift button and selecting multiple column headers. A blue line on the column header will indicate that it is sorted, with the blue line position indicating if the sort is ascending (top) or descending (bottom).

A user definable number of columns, measured from the first column, can be identified as fixed columns. Fixed columns do not scroll horizontally. The user can select the number of rows they want to view on a page and toggle between them via 'Previous' and 'Next' buttons.

The user can also filter the rows by using 'Filter' button where they can select the column where filter should be applied and set the parameters of filtering accordingly.

Honeywell ENTI												
75 Group View		_						_		F	the Mass To Tr	erminal 1 V (
C Group Details	Tank Nami		Desduct Name	Dradus	· · · · · · · · · · · · · · · · · · ·	Perferance Dansilty (Ib (B2)	Product Cade	_	****** (ka)	ADVA (Inc.)	-	ATTENA (km)
- Tarix Details	Tank Name	1.2	Product Name	Product	Lever(mm)	Reference Density (up it-)	Product Code	-	NSM (kg)	NVM (Kg)		TSM (kg)
- Anna Commente	FTKR64		Densitytable2		12,450.0	892,603		0	13,430,094		0	13.430.094
in Gauge Commanus	▶ TKR65	1	Densitytable1		12,425.0	913.546		0	13.740.772		0	13.740.772
2 Manual Overwrite	▶ TKR69	1	Densitytable1	0	10.450.0	913.546		0	11.605.187		0	11.605.187
🗠 Profiles 🗸 🗸	FTKR70	E	Densitytable1	0	11.450.0	913.546		0	12.721.147		0	12.721.147
] Totalizers	FTKR71	1	Densitytable2		12.425.0	892.603		0	61.057.373		0	61.057.372
what If	FTKR72	E	Densitytable1		10.310.0	913.546		0	47.856.622		ø	47.855.627
3 Reports	FTKR73	t.	Densitytable2		12.400.0	892 603	-	٥	31.642.503		0	31.642.502
E Manage Tasks	FTKR74	1	Densitytable2		10.342.0	892 603		۲	26.335.772		ø	26.335.775
2) the	►TKR75	E	Densitytable2		10,437.0	892.603		۲	26.630.221		0	26,630,221
Ф неф	►TKR76	I.	Densitytable1		12,400.0	913.546		۲	32,470,249		٥	32,470,24
	►TKR77	E	Densitytable2		10.437.0	892.603		0	67.496.765		0	67,496,76
	▶ TKR78	i.	Densitytable1		10,342.0	913.546		0	77.342.555		0	77.342.55
	► TKR79	÷	Densitytable1		12,400.0	913.546		0	36.269.768		0	36,269,76
	FTKR80	i.	Densitytable2		10,310.0	892,603			46.871.005	10		46,871.00
	FTKR84		Densitytable2	0	10.300.0	892,603		0	93 426 104	20	0	93,425,10
		16	•	-						30		Sector Sector
										40		
					_			_		50		

Figure 9: Group Detail

Opening the Group Detail Display

1. Click on the 'Group Detail' menu item, or the 'Group Detail' icon in the tool bar



- 2. The 'Group/Tank' display will appear
- 3. Select a Group from the dropdown combobox
- 4. Tank data will appear in the table
- 5. 'All' indicates that all the tanks will be shown
- 6. Change the View from the the view dropdown



Column width: The current size is stored whenever the user selects another view, or the window is closed.

Delta column

The Delta column displays the difference between the actual value and the start value. This feature enables an operator to verify tank operations with real-time data. Delta values are available for GOV, TGSV, Total Mass, NSV, Level, GSV and TOV.

The Delta column is only available in the Group Detail display. The column can be enabled via the Define View dialog.

When the Delta column is available in Group Detail, a click on the Delta column header (the horizontal ellipses) gives the following context menu:

Critis 💽											
	5										
뎝 Group View										H Deltas 🛛 Terr	minal1 V 🛈
Group Details	Tank Name		Pro	oduct Name	Start Level (mm)	Delta Level (mm)	Start TOV (m*)	Delta TOV (m³)	Start GSV (m1)	Delta GSV (m²)	Start NTSM
🚍 Tank Details	TKR64	Start D	elta Group	ytable2							
Gauge Commands	TKR65	Stop De	elta Group	ytable1							
🖄 Manual Overwrite	TKR69	Export	leport	ytable1							
🗠 Profiles 🗸 🗸	TKR70	E	Dens	sitytable1							
🖹 Totalizers	TKR71	Ĩ	Dens	iitytable2							
🔒 What If	TKR72	1	Dens	iitytable1							
🖸 Reports	TKR73	1	Dens	titytable2							
🗐 Manage Tasks	TKR74	E	Dens	itytable2							
② Help	TKR75	E	Dans	itytable2							
	TKR76	ŧ,	Dens	iitytable1							
	TKR77	1	Dons	itytable2							
	TKR78	E	Dans	itytable1							
	TKR79	I	Dens	itytable1							
	TKRBD	1	Dens	sitytable2							
	TKR84	Ŧ	Dens	itytable2							

Figure 10: Delta Column

Selecting a Delta Column

Clicking on the horizontal ellipses on the delta tank entity gives the following menu:

Start Tank When clicked, the delta calculation for the selected tank (row) will be started or restarted

Stop Tank When clicked, the delta calculation for the selected tank (row) will be stopped and cleared

Start Group When clicked, the calculation for a group of tanks is started

Stop Group When clicked, the calculation for a group of tanks is stopped and blanked

And a second														11	Daltas 77 Terrs		V .0
Group Details				1						-				(0	Contas - Co rom	10.1	
Touch Describe	Tank Name		Product Name	Start	Level (mm)	Delta	Level (mm)	Sta	rt TOV (m ²)	3	lelta TOV (m²)	Sta	rt GSV (m²)	Delt	a GSV (m²)	Sta	Int NTS
	▶ TKR64		Densitytable2		12,500.0		75.0		989.154		5.895	0	978.861		5.875	0	1
Gauge Commands	▶ TKR65	Į.	Densitytable1		12,500.0		75.0		989.154		5.895	0	958.819		5.754	0	1
Manual Overwrite	▶TKR69		Densitytable1	0	10,450.0		0.0	0	828.067		0.000	0	800.073		0.000	0	1
Profiles 💛	▶TKR70	3	Densitytable1	0	11,450.0		0.0	0	906.629		0.000	0	677.110		0.000	0	1
Totalizers	▶ TKR71		Densitytable2		12,400.0		150,0		4.472.163		53.995	0	4,443.523		53.707	0	6
What If	▶ TKR72	ĩ	Densitytable1		10,437.0		0.0		3,449.959		0.000	0	3.355,469		0.000	0	4
Reports	►TKR73		Densitytable2		12.375.0		150.0		2.313.737		28.000	0	2.303.076		27.925	0	3
Manage Tasks	▶TKR74	÷	Densitytable2		10,405.0		158.0		1.948.433		29 490	0	1.931.731		29.351	0	2
Help	►TKR75	ŧ	Densitytable2		10.373.0		190.0		1.934.319		35.383	0	1,930.501		22.467	0	2
	▶TKR76	ŧ	Densitytable1		12,425.0		150.0		2,325.773		28.003	0	2,252,946		27.218	0	13
	▶ TKR77	ŧ	Densitytable2		10,405.0		190.0		5.120.823		-101.015	0	4,939.006		-100 468	0	- 19
	▶ TKR78	1	Densitytable1		10,468.0		0.0		5,555.004		0.000	0	5,388.097		0.000	0	1
	►TKR79	I.	Densitytable1		12,525.0		0.0		2,545,943		0.000	ø	2,471.583		0.000	0	1
	▶ TKR80	E.	Densitytable2		10,468.0		0.0		3,563,521		0.000		3,449.361		0.000		4
				0	10,000,0		0.0	Ø	6,853,765		0.000	0	6.012.138		0.000	0	24

Figure 11 : Delta Column group

Delta Report The delta values will be printed in form of report.

9m 🚯																				
Honeywell ENTIS																				
占 Group View																	+	14 Deltas 🛛 🖓 Term	inst 1	V (1)
🕄 Group Details	Tank Name	1	Print P	Previe	w											× 'n	De	lta GSV (m²)	St	tart NTS
🗎 Tank Details	▶TKR64	÷														5.861			0	1
2) Gauge Commands	▶ TKES5		Rep	port i op	ened on i	-30/26 PM	4.08-Jun-2021									5.819			0	1
7 Manual Overwrite	h Tyroco														î	0.072		0.000	0	
of Decision of	P TKROD	-					Group: Teminal 1		Dalla C	aluma Danasi				Preclass: Preclass: 7	06-Jun-2021 30 PM UTC-95-30	0.010		0.000	0	
The second secon	PTRE/D	-			Honeyv	vell	Customer: Vopak		Della Ci	olumn Report				DET	Cel Paga tor 1	7110			0	
-1 lotalizers	#TRE71	-		Tenk	Product	Start	Delta	Start	Deita	Start	Delta	Start	Delta	Start	Delta	0.040		0/1/009	0	0
🔓 What If	▶TKR72	1		Name	Name	Level	Level	TOV .m*	TOV	GSV 	GSV	TNSM Ag	TNSM Ay	Abe Time	Ref Date & Time	5.469		666.794	ø	4
3 Reports	▶TKR73	÷		TURDA	Detaily -	12.000.0	5.200.2	888.154	94.316	ereze: 4	00.800	10.405200	1281.107	68-34-3521 135-34 PM	2 days, 0 teams, 0	3.076		299.914	e	3
🔣 Manage Tasks	▶TKR74	8		110123	Dently .	0.866.5	0.011	883.154	12.385	395.519 A	00.150	10.000.000	1.302.007	08-Jun-2020 7220:19 PM 08-Jun-2020	2 days 3 heaves 0 mitrates 2 days 3 heaves 0	1.731		385 718	0	2
D Inda	▶TKR75	1		16823	Density	11,666		NULLER .	6.000	477.110	1500	12,072,011		7.20.10 PM	Pitrates E-Bash, ETheorem, D	0.501		376 377	0	2
5 map	►TKR76	1		THR21	Density -	12.400.0	1271.1	4.472.183	432,241	4.40323 4	425.194	92,062,037	1.851-025	08-34-3023 (39)/39-8%	3 days. 3 have 0 minutes	2.946		296.667	0	3
	A TWOTT			160672	Density .	10.427.0	1.425.2	1.440.083	470.885	1,00,400 4	454.142	40,400.041 B	8,274,010	728/19 PM 08-3ue-2625	2-Sant -Shears, D	9,006		1 179 007	0	
	P TREE ?			THR21	Density	10,405.0	1.015.0	1.848.433	381.437	1.621.725	286.375	95.545.332 B	3.831,850	12000 PM 03-3440020 72000 PM	Lings, Chesro, C	0.000		-1.17 2.001	0	
	▶TKR78	2		108/25	Density	10,573.0	1.015.2	1.854,313	306.75	1300.021 &	205.5+0	25,438,440 \$	3,923,504	CB-Dur-DCD1 YOR TH FM	2 days 3 hours 0 returns	5.097		1.068.799	0	7
	►TKR79	÷		TOUR	Density.	0.401.0	1.000.0	2,325 (73	242.647	2.292.546	220.041	52.593.213	2,181,013	725:15 PM 18.4#-2021	Trippe Trippe C Trippe C	1.583		-538.763	0	з
	►TKERD	-		16829	Denkly .	10,668	0.001	5.505.004	107.407	1.00.057	064.800	77.672.00	15.544,776	T25:15 PM	Triffyles 2 Jayl, Olman, U	9.361		647.512		4
				T1823	Density .	12.555.5	0.05.1	2,545,943	-982.382	2471582 4	-365.127	25.722.235	458.94	68-049-0C01	3 days, 3 hours, 0					
	► TKR84															2138		-43.305	0	9
														Cancel	Print					

Group Details Movement view \

Group detail manage view have some default views Movement view is one among them. Movement view can be selected in combination with Group of tanks, which are used for movement transfer operartion

Below screen shows Movement view.

🔗 Station - ENTS - Entis(Entis.ntml)												- * ×
ENTE SERION EDIT VIEW O	сомпись лепен о				6 6 6 mars 1 m							
Critis							_	_	_		_	
- Honeywell ENTIS												
🛱 Group View										łt.	Movement	e Terminal I 🕅 🛞
E Group Details	Tank Name		Movement Relations	Movement Name	Movement Status	Product Name	Produc	t Level (mm)	Moverne	Views	(n	m) Planned Volu
🚍 Tank Details	b TX PGa	ř				Densitytable?		16 200.0		Gauging		
Gauge Commands	h Tunor					Densit tablet		10 200 0		 Inventory 		
R Manual Overwrite	h Traco					Densitytation:	0	10450.0		O Mess		
les Duriture	PTICKOS	*				Durnerycalowi	0	10,450.0		 Movement 		
Control and a second se	F TKR70	1					ø	11,450.0		Pumping		
H Totalizers	#16871					Uonsitytabiez		16,100.0		O Poliumes		
Eb What If	►TKR72	t.				Densitytable1		15,155.0		O Deltas		
🗋 Roports	▶TKR73					Densitytable2		16,100.0		O Permarke		
🗵 Manage Tasks	►TKR74					Densitytable2		15,092.0		Manage Views		
③ Help	▶TKR75					Densitytable2		15,092.0		and any a train		
	▶TKR76	1			(111111G	Densitytable1		16,200.0				
	►TKR77					Densitytable2		15,092.0				
	▶ TKR78	5			\$7150134B	Densitytable1		15.187.0				
	►TKR79					Densitytable1		16,225.0				
	▶ TKR80				000000	Densitytable2		15,155.0				
	► TKR84					Densitytable2	0	10.300.0				
		_										
										50 rows	- 10 - 00	1-15 of 15 > >
© Settings			03	Jun 21 2002/24 Entinteen	TICERS Disadversi event DV	I II 00 The coduct laur	t in the tank	16200				
Honeywell Exp	penon i		08-Jun-21 20-21-19	ALARM	E SYSIEM	MESSAGE Ø	ALERI	19299 ININ	desktop-vtGciph	D	m01	1 Mag

a Group View								tti Movemen	t 💽 Terminal 1 🔍 🤅
Group Details	Tank Name	Level (mm)	Planned Volume (m*)	Transferred Volume (m*)	Volume Left (m*)	Time to Target (hh:mm:ss)	Flow Rate (m*/min)	Target Pre Alert 1 (mm)	Target Pre Alert 2 (mm
3 Tank Details	►TKR64					00.00.00			
Gauge Commands	▶ TKR65	i.				00.00.00			
3 Manual Overwrite	▶ TKR69	1				00:00:00			
: Profiles 💛	FTKR70	i.				00.00.00			
Totalizers	▶TKR71					00.00.00	452.04		
h What If	▶ TKR72	1				00.00.00	594.54		
] Reports	▶ TKR73					00.00.00	232.90		
] Manage Tasks	►TKR74					00.00.00	306.07		
) Help	▶TKR75					00.00.00	284.86		
	▶TKR76					00.00.00	233.24		
	▶TKR77					00.00.00	-812.62		
	►TKR78	1				00.00.00	841.00		
	▶TKR79	E				00:00:00	-408.37		
	▶ TKR80	E				00.00.00	522.94		
	▶ TKR84	1				00.00.00			

Group Detail Alarm Column

This column can be used to display PAL statuses in the Group Detail display with different colour indication based on priority.

Station ENTIS Entis(Entis.html)				- 8 ×
ENTIS STATION EDIT VIEW	CONTROL ACTION CONFIGURE HELP		o	
604488888				rt - Command -
Entis				
= Honeywell ENTIS	1			
Group View				††∔ Alarms 🕞 Terminal 1 🖓 🕕
Group Details	Tank Name :		AALF	Alarms
🚍 Tank Details	▶ TKR73	1	0	
Gauge Commands	▶TKR74	1	0	A
🖉 Manual Overwrite	▶TKR75	1	0	<u>۸</u>
🗠 Profiles 🛛 🗸	▶TKR76	1	0	
A Totalizers	▶ TKR77	1	0	<u>م</u>
En What If	▶TKR78	1	0	▲
🖸 Reports	▶TKR79	1	0	4 08-Jun-2021 8:02:24 PM LoLo 16200 mm
Manage lasks	▶ TKR80	:	0	The product level in the tank
⑦ Help	▶TKR84	1	0	
A				50 rows ▼ < < 1-15 of 15 > >
(9) Settings				
Honeywell Experion	08-Jun-21 20:02:24 Entis/ 08-Jun-21 20:09:32 🛆 A	Asset TKR80_Product	tLevel PVLL U 00 The product level in t M 🔄 MESSAGE 🛛 🛇 ALERT	the tank 16200 mm desktop-vh3cqfn LJ Stn01 L Mngr

Figure 12 : Alarm Column

Selecting an Alarm column from Group Detail

To view an alarm, the columns must be added through the "Manage View" dialog in Group Detail.

- 1. Go to 'Manage View' from Group Detail
- 2. Select Alarm columns from the Available Entity list.
- 3. Click on the OK button.

teta 🕅									
Honeywell ENTIS	5								
Group View		Manage Views				×	it.	Mass 🕞 Te	minal I 🕅 🛈
Group Details	Tank Name	All Views	New	Available Entities	Alarms View		VM (kg)	N	ITSM (kg)
🗎 Tank Details	FTKR64	Tage			The second			0	
Gauge Commands	▶ TKR65	Viewname		Entity C	Entity			0	
🖞 Manual Overwrite	▶ TKR69	Gauging		Air Density	Tank Name			0	11.373,886
🗠 Profilas 🛛 🗸	▶TKR70	Inventory		Ambient Temperature	AALB	÷		0	12.473.773
리 Totalizers	▶TKR71	Mass		Available Room	A4LF	+		0	85,939,420
à where it	▶ TKE72	Movement		Available TOV	Alarms	÷		0	78.666.630
1	bTKD73	Pumping		Background Time Stamp				0	05 095 631
Reports	h TKD To	Volumes		Calculation Method	>			0	0310677
Manage Tasks	P TREZ 4	Deltas		Concentration	<u>×</u>			0	43.100,11
) Help	P TKH75	Alarms	81 B	🖂 CTL				0	42.090,71
	▶ TKR76			CTSh				0	45.859,91
	▶TKR77			DCF				0	17,330,16
	▶TKR78			Delta GOV				0	127.069,174
	▶TKR79			Delta GSV				0	9,571,50
	▶ TKR80			Delta Level					76.093,70
	FTKR84			Delta NSV				0	90.774,443
					*				
					Cancel	Ok	_		

Figure 13 : Alarm Column views

4. When the View is selected in Group detail, the selected columns will be available in the display.

Station ENTIS Entis(Entis.html				- 6
ENTIS STATION EDIT VIEW				
BBBQQKKB	356060808080	BO 0-5	🛛 🈂 🛄 🛆 🤝 🗸 😫 🔕 🛛 Zoom To F	it - Command -
Entis				
= Honeywell ENTIS	5			
🔂 Group View				††i Alarms [o] Terminal 1 ∇ ①
Group Details	Tank Name		AALF	Alarms
🚍 Tank Details	▶ TKR73	1	0	
Gauge Commands	▶ TKR74	1	0	<u>۸</u>
🖄 Manual Overwrite	▶TKR75	1	0	<u>۸</u>
🗠 Profiles 🗸 🗸	▶ TKR76	1	0	ίΔ.
P Totalizers	▶ TKR77	1	0	<u>ک</u>
En What If	▶ TKR78	1	0	▲
🗂 Reports	▶TKR79	1	0	08-Jun-2021 8:02:24 PM LoLo 16200 mm
Manage lasks	▶ TKR80	1	0	The product level in the tank
(7) Help	▶ TKR84	1	0	Δ.
				50 rows - IC C 1-15 of 15 > >I
(g) Settings				
	08-Jun-21 20:02:24 EntisAsset	TKR80_Produ	ctLevel PVLL U 00 The product level in t	he tank 16200 mm
Honeywell Experion	08-Jun-21 20:09:32 🔬 ALARM	He SYST	EM 🖃 MESSAGE 🛛 🛇 ALERT	desktop-vh3cqfn 🛄 Stn01 🙎 Mngr

Figure 14: Group Detail Alarm Column

Remark Column

This column allows the user to enter additional text in the Remarks field. The text can be entered by a left mouse click on the edit icon. See example below. This field is only available on the Group Detail display.

NTS STATION EDIT VIEW				
IIII & R R R R	8 51 B 0 B 0	☆ 金 臺 亞 亜 @ ② · 5 \$24 團 △ ▽ v X 参 和 zoon to fit + Command		
a.)				
Honeywell ENTI:	s			
Group View			tti Remarks 🛛 🕞 Termin	ali 7 (
Group Details		Remark		
3 Tank Details	▶ TKR64		PM;	View Mor
a Gauge Commands	▶ TKR65	Enteruseroame	erminal 1 at 08-Jun-2021 8 16:23 PM:	View Mor
Manual Overwrite	+ TKR09	Enter comment		e
🗠 Profiles 🔍 🖂	FTKR70			2
] Totalizara	FTKR71	Please AD in a unername		8
ig What If	▶ TKR72	Operator terminal 1 at 08-Jun-2021 8:18/23 PM; Beuge command will be in progress every morning 11 am		R
S Reports	FTRR73			R
Manage Tasks	► TKR74			2
() Help	▶TKR75			2
	▶TKR76			12
	▶TKR77			R
	▶TKR78			R
	▶ TKR79			2
	▶ TKR80			2
	▶ TKR84			
		Cance		
			50 rows - ic < 1-15 of	15 3 3
Settings			www.weed. 195 - 19 - 195	NU-1850 - 653

Figure 15: Remarks Column

Selecting the remark column from Group Detail

The remark columns must be added through the "Manage View" option in Group Detail.

orte 💽					
E Honeywell ENT	IS				
3 Group View		Manage Views		×	tti Remarks [ji All tanks ⊽ 0
E Group Details		All Views	Available Entities	Remarks View	
🚍 Tank Details	► TKRL				View More
② Gauge Commands	▶ TKR2	View name	Entity 0	Entity	8
🖗 Manual Overwrite	▶ TKRL5	Gauging	AALB	Tank Name	B
<u>~</u> Profiles ~	▶ TKR16	Inventory	AALF	Remark 💠	B
의 Totalizers	▶ TKR17	Mess	Air Density		B
7	b TKP18	Movement	Alarms		R
n what it	b TKD10	Pumping	Ambient Temperature		 [8
] Reports	h TVDDD	Volumes	Available Room	2	12
🗈 Managa Tasks	P TKR20	Deitas	Available TOV		0
	P TKR21	Alarms	Rackground Time Stamp		8
	▶ TKRZZ	Remarks 🗵 🖄	Calculation Method		10
	▶ TKR23		Concentration		16.
	▶ TKR24		CTL CTL		8
	▶ TKR25		CTSh		18
	▶ TKR26		DCF		ß
	▶ TKR27		Detta GOV		6
	▶ TKR28				18
	k ryman			Cancel	<u>12</u>
A					50 rows - 1< < 1-50 of 73 > >

Figure 16: Remarks Views

- 1. Select Manage View from Group Detail.
- 2. Select the Remark column from the Available Entity list.
- 3. Click on the **OK** button.
- 4. Select the View in Group detail screen.
- 5. Left mouse click on remark field edit icon for selected tank.
- 6. Enter user name and save remarks.
- 7. Remark will be available for the selected view in Group Detail.

Adding a remark from group detail

1. Remark can be edited by a left mouse click on the edit icon.

2. Upon clicking, the remarks column is expanded as shown in the screenshot below.

Station - EV-15 - EntaEvisitem		
ENTS STRAIN EDT VIEW CONTROL KOTINGULT INEF		
ZIESEZZEIGOBC⊕&&&©□₩0000+5\$8₩&&>∀∀X®©Quantata General		
202. 2		
E Honeywell ENTIS		
(2) Group View	Hi Remarks 🛛 Terminat 1 🗍	7 (1)
E Group Distails Remark		
Tank Details	PM: Vian	More
Cologe Commands FTXR055 Enter scename	erminel 1 at 08- Jun-2021 8 16 23 PM: View	More
Menual Overante FTKR08 Enter comment		3
🗠 Profiles 🗸 🕨 TKR70		8
C Tetalovas. b T1871		1
What!! bTIR72. Operator terminal 1 at 08-Jun-2022 B1623 PM; Gauge company at UE to in progress every morring 11 am		1
C Reports FIGR73		63
El Manage Tarks + THRTA		68
② Heqp → TKRT5		8
+ TKR76		12
+ TKRT7		ß
▶ TKR70		8
▶ TKR75		8
▶ TKR00		13
▶ TKR04		3
Cancel Ok		
		_
(b) Settings	50 rows - IC C 1 15 at 15 >	>1
06-Jun-21 20:02:14 EntisAsset TKR80_ProductLevel PVLL U 00 The product level in the tank 16200 mm Naneywedl Experim 00.jun_21 20:16:52 & A.ARM PJ: SYSTEM (2):MSSAGE © ALERT deskup-M3.cdm	El Stalt 🔒 Mirar	

Figure 17: Remarks Views edit

3. The user can add their username and remarks and click **OK**. The remark is saved as history with username, date, time, and the remark.

TANK DETAIL

Tank Detail is a display that shows all measured and inventory data for one particular tank and is updated continuously.

Data presentation

- 1. Measured data is always presented as green text.
- 2. Calculated data, such as inventory data is presented as black text.
- 3. Status and Validity information is available in circular indicators.
- 4. Units are shown in black after the status and validity symbols.

Display layout

The tank detail window consists of two main parts, the first part is the toolbar which is shown below:

		_	-
TK4201	\sim	_¢ All tanks	(j)

Figure 18: Tank Detail Toolbar

The toolbar shows a combo box at the left-hand side that can be used to change the tank for which the information will be shown.

The combo box only lists the tanks that are in the currently selected tank group which can be changed from the tank group selection menu located at the right-hand side of the toolbar.

The information icon, when clicked, will show an overview of all the icons that can occur on the screen.

The second part of the tank detail window is the Graphical Pane, this is shown below:

u ~											o' All tanks
Auxenate Tank 9% TA1	Product Tank P1 Con	Connect nected	ion Gauge St Measuri	atus Last Update ing level 16-Nov-2022 1	Legal 7 57:06 AM 양 Not	letrolog Approv	y ed				
Product				Tank				Inventory			
Calculation Method	ASTM D1250-80	0 T5/6	в	Available Room	111,898.73	0	bbl	GRH		0	fis
Range Checking				Available GOV	12,325.04	0	bbi	Product Level	7'03"00	0	fis
Product Reference Temperature	60.0	0	٥E	Low TOV	1,572.45		bbl	Ullage		0	fis
Product Thermal Expansion	4,109.000	00	10E-7/°F	High TOV	125,796.22		bbl	TOV	13,897.49	0	bbi
Reference Density	20.60	00	*API	Shell Capacity	157,245.00		bbl	FWV	0.00	0	bbl
28. 2. 10 March 10				Remaining Capacity		0	bbl	GOV	13,897.49	୍ତ	bbl
Measured Data								Liquid Density	25.00	00	°API
Gauge Level	7'03*00		fis	Flow				CTL	1.02040	00	
Sauge 2 Level	15'11"02	0	fis	Flow Rate	0.0		bb1/hr	GSV	14,181.00	0	bbl
Water Level	0.00.00	0	fis	Time to Fill / Empty	00:00:00		hhmmiss	TCV		0	bbl
Product Temperature	10.0		٩F					GSM		0	lb
9 Hydrometer Correction				Miscellaneous				NSM	4,619,588	00	(b
Sampled Density	25.00	0	°ADI	Air Danaihi	1 226	0	kalmi	WCF		0	
Sampled Temperature	130.0	0	чE	Ambient Terrenthum	84.0	0	or	GSW		0	lb
Product Pressure	******	0	psi	Anonin Inspiratory	-0410			NSW		0	lb
			A. 92	Roof Immersion Compens	ation			NTSM	4,619,588	00	lb
/apor											
/apor Pressure		0	osi	HIC Mode	011	0	£.,				
	12.0	00	ar.	inverage noot onset		0	115				

Figure 19: Tank Detail graphical pane

The graphical pane consists of the following sections:

- General tank information (see <u>GROUP VIEW</u> for more info on the tank/indicator icons)
- Product
- Measured Data
- Vapor Room
- Tank
- Flow
- Miscellaneous
- Roof Immersion Compensation
- Inventory

The 'Gauge Level' in the Measured Data and 'Product Level' in the Inventory section differ in the value they represent:

Gauge Level: The product's level as measured by the gauge without correction (can be Ullage or Innage).

Product Level: Corrected Innage product level as used in tank data calculations

The time to fill is calculated from available TOV/flow TOV. The time to empty is calculated from available room/flow TOV.

Some entities are only displayed depending on the volume correction, calculation method and if the tank has zoning enabled, see below for some examples.

Example 1: No zoning, S&D correction, TCF method

This window selection is based on a tank without zoning that uses S&D correction and TCF method calculation.

= Honeywell ENT	5											
🔁 Group View	T1_GRHT V										All tanks	D
Group Details	ADMED	Outer	Tool Connection	Course Status								
🚍 Tank Details	18% T1_GRHT	Product P1_D1250_888	Connected	Measuring level	15-Nov-2022 6:27:33 PM	м	Not Approved					
② Gauge Commands			_									-
Annual Overwrite	Product			Tank				Inventory				
	Calculation Method	TCF method		Available Room	24,002.787	ଁ	m ^a	GRH	34.9972	ଁ	m	
Profiles V	Range Checking			Available GOV	5,897.213	୍	m ^a	Product Level	5.9972	0	m	
🗎 Totalizers	Product Reference Temperature	20.00 0	°C	Low TOV	100.000		m ³	Ullage	29.0000	0	m	
8	Product Thermal Expansion	୍	10E-7/°C	High TOV	30,000.000		m ^a	TOV	5,997.213	ଁ ଡ	m ³	
Ls; Movement	Reference Density	0	kg/m³	Shell Capacity	34,000.000		m ³	FWV	0.000	ଁ ଡ	m ³	
Ek What If	TCF	0.00000 🕲 🕲		Remaining Capacity	28,002.787	ଁ Ø	m ^a	GOV	5,997.213	ଁ ଡ	ma	
Reports								Liquid Density		00	kg/m³	
	Measured Data			Flow				CTL	1.00000	ିଠ		
Manage Tasks	Gauge Level	6.0000 🛛 🔘	m	Flow Rate	0.00	•	m ⁹ /min	GSV	5,997.213	ଁ ଡ	m ³	
⑦ Help	Gauge 2 Level	12.0000 🛛 😂	m	Time to Fill / Empty	00:00:00		hhmmiss	S&W	1.23	0	95	
	Water Level	0.0000 0	m					S&W Volume	73.766	୍	ma	
	Product Temperature	20.00 🛛 🕲	°C	Miscellaneous				NSV	5,923.447	ିଡ	m ³	
	Sampled Density	745.00 🛛 🕲	kg/m ⁸	Air Density	1.226	୦୦	kg/m³	TCV	5,997.213	ି	ma	
	Sampled Temperature	20.00 🔿 🔘	°C	Ambient Temperature	12.86	0	°C	GSM		00	kg	
	Product Pressure	53.7 🛛 🖨	kPa					NSM		00	kg	
				Roof Immersion Con	npensation			WCF		୍		
	Vapor			RIC Mode	Off			GSW		00	kg	
	Vapor Temperature	12.86 🛛 🕲	°C	Average Roof Offset		0	m	NSW		00	kg	
				RIC Volume		0	m ³					
Settings												

Figure 20 : Tank detail with No zoning, S&D correction, TCF method

Example 2: Zoning

This window selection is based on a tank without zoning that uses S&D correction and TCF method calculation.

🔓 Group View	T1_GRHT V											o' All tanks	0
Group Details	AVAILABLE												
🛱 Tank Details	18% T1_GRHT	Product P1_D1250_	388	Tank Connection Connected	Gauge Status Measuring level	Last Update 15-Nov-2022 6:34:42 P	м	Legal Metrology	1				
Gauge Commands			-	_							-		-
Manual Overwrite	Product				Tank				Inventory				_
-	Calculation Method	TCF m	thod		Available Room	24,002.787	ଁ ୦	m ^a	GRH	34.9972	ଁ	m	_
∠ Profiles ∨	Range Checking				Available GOV		00	ma	Product Level	5.9972	0	m	
Totalizers	Product Reference Temperature	20.00	୍	°C	Low TOV	100.000	00	m³	Ullage	29.0000	୍	m	
	Product Thermal Expansion		ଁ Ø	10E-7/°C	High TOV	30,000.000		m³	TOV	5,997.213	ଁ	m ^a	_
Lig Movement	Reference Density		ଁ Ø	kg/m³	Roof Weight	1,000		kg	FWV	0.000	୍	m ^a	
EB What If	TCF	0.00000	00		Support Height	2.0000		m	GOV		00	m ^a	_
Reports					Take Off Height	6.0000		m	Liquid Density		00	kg/m³	
	Measured Data				Shell Capacity	34,000.000		m ³	CTL	1.00000	୍		_
Manage Tasks	Gauge Level	6.0000	୍	m	Remaining Capacity	28,002.787	ଁ ଡ	ma	GSV		00	m ^a	_
⑦ Help	Gauge 2 Level	12.0000	0	m					S&W	1.23	୍ତ	%	
	Water Level	0.0000	0	m	Flow				S&W Volume		00	ma	_
	Product Temperature	20.00	ଁ Ø	*C	Flow Rate	0.00	•	m³/min	NSV		00	ma	
	Sampled Density	745.00	0	kg/m³	Time to Fill / Empty	00:00:00		hh:mm:ss	TCV		00	ma	
	Sampled Temperature	20.00	0	°C					GSM		00	kg	.
	Product Pressure	53.7	ଁ Ø	kPa	Miscellaneous				NSM		00	kg	
					Air Density	1.226	ം	kg/m ³	WCF		ଁ		.
	Vapor				Ambient Temperature	12.86	0	°C	GSW		00	kg	_
	Vapor Temperature	12.86	ം	*c					NSW		00	kg	_
					Roof Immersion Com	pensation							
					RIC Mode	Off							
					Average Roof Offset		୦୦	m					
Settings					RIC Volume		୍ଦ	m³					

Example 3: Concentration Table

This window selection is based on a tank without zoning that uses S&D correction and TCF method calculation.

Eros	1												
	ns												
🔓 Group View	Tell 🗸												Te All tanks
🗄 Group Details	(ANELING)												
💭 Tank Details	42% T411	Preduct P94_888_CON	CENTR	ATION_Table	Tank Connection Connected	Gauge Status Measuring level	Last Updat 15-Nov-2	te 2022 (6:45:47 PM				
② Gauge Commands		100			-			_		1			
8 Manual Overerite	Product				Tank					Inventory			
	Calculation Method	Concentration	Table		Available Room		270.000		m ¹	GRH	25.0000		m
🗠 Profiles 🛛 🗡	🧐 Range Checking				Available GOV	12	730.000		m ²	Product Level	12.7300		m
Totalizers	Product Reference Temperature	46.00		9C	Low TOV		0.000		m ²	Ullage	12.2700		m
	Product Thermal Expansion			10E-77*C	High TOV	20	,000.000		m ²	TOV	12,730.000		m ²
3 Movement	Reference Density	1,047.67		kg/m³	Roof Weight		0		kg	FWV	0.000		m3
🗄 What If	Concentration	4.50	0	95	Support Height		0.0000		m	GOV	12,730.000		m ²
T Reports	WCF Method	API MPMS C	H11 5		Take Off Height		0.0000		m	Liquid Density		0	kg/m³
	Air Brass Density	9.999		kg/m*	Shell Capacity	30	,000.000		m?	CTL	•••••	Ø	
🗄 Manage Tasks	Vapor Density	1.19		kg/m ³	Remaining Capai	iny 17	,270.000		m ²	GSV		Ø	m*
7) Hela					1			-		Sew	1.23		16
	Measured Data				Flow					S&W Volume		0	mi
	Gauge Lavel	12,7300		m	Flow Rete		819.00	0	m*Zmin	NSV		Ø	m ²
	Water Level	0.0000		m	Time to Fill / Emi	atv	00:09:00		hlymmas	TCV		Ø	m ²
	Product Temperature	22.53		оĽ	100000000000000000000000000000000000000			_	1996-002-0	GSM	******	Ø	kg
	Sampled Density		ø	kg/m ³	Miscellaneous					NSM	•••••	Ø	kg
	Sampled Temperature	22.53		°C	ArDensity		1 100		kolmi	WCF	0.99901		
	Product Pressure			kPa	Auchines Transmis	2/10		0	10	GSW		0	kg
	1			1000	Arricient rempere	store		•	~	NSW		G	kg
	Vapor				Roof Immersio	n Compensation							
Settings	Vapor Temperature		Ø	υC	RIC Mode		off						
				5-Nov-22 18:24:1	4 Server Location 0	Redundant COMMS	100 ISEBVER	R R S1 2	Server & Down				
Honeywell	Experien 161	Nov-22 18.45.55		A ALARM	HI SYSTEM	F MESSAGE		O ALE	RT				1 Mag

The window selection is based on tanks with calculation method 'Concentration Table'.

Selecting the Tank Detail display and choosing a tank

Proceed as follows:

- 1. Click on the 'Tank Detail' menu item, or on the 'Tank Detail' icon in the Experion toolbar.
- 2. The page can also be reached by clicking on a tank in the Group View/Detail screens.



Figure 21: Tank Detail Icon

- 3. The 'Tank details' window will appear.
- 4. Optionally select a tank group to filter the tanks that are shown in the tank selection box.
- 5. Select the desired tank from the tank selection box.

GAUGE COMMANDS

Modern gauges often support special commands and/or functions. These commands can be used, for example, to 'Block' the displacer at a certain level, or for testing alarm contacts remotely.

The available command and function can be dependent on the type of gauge or the application.

The Gauge Command display for ENTIS is 'gauge aware'. It shows the user an icon corresponding to the gauge type, and shows which functions are enabled for that particular gauge.

Tab layout

	IS				
Group View	Gauge Commands	тк101 🗸			🗔 All tanks 🕕
Group Details		Dipping		Displacer	
拱 Tank Details		Density Dip	Original Displacer Position	⊖ Test	
Gauge Commands	22%	O Downwards O Upwards	3,010.0 mm	 Locktest to Endswitch 	
🖄 Manual Overwrite	ТК101	Water Dip	0	O Locktest at	
\succeq Profiles \checkmark	TCF		3,010.0 mm	mm	
🗎 Totalizers	Ā			Verify Calibration	
EB What If	r R			Unlock	
🗋 Reports	Servo Level Gauge 854				
🗐 Manage Tasks	Measuring level	Test Gauge Alarm			
⑦ Help		О ніні			
		О ні			
		O Lo			
		O LoLo			
Settings		Schedule Gauge Command			Cancel Apply

Figure 22: Gauge Commands

- 1. Select the group.
- 2. Select the tank.
- 3. Select one of the available command tab.
- 4. Click on the desired function and press Apply.

Dipping	
 Density Dip Downwards Upwards Water Dip 	Product Level 19.0000 m

How to issue a Dipping Command

Figure 23: Dipping Command

Proceed as follows:

- Click on the 'Gauge Commands' tab. The Dipping section will be displayed by default.
- Select a group from the dropdown.
 The selected group will be displayed in the tool bar.
- 3. Individual tanks can be selected from dropdown.
- 4. Select the command you want to issue from the check boxes:
- Density dip Select to execute a density dip. This command only applies to 854 type gauges with the density option. Select one of the two radio buttons. Density can be executed in two ways:
 - Downwards
 - Upwards
- *Water dip* Select to execute a water dip

How to issue a Displacer Command

Displacer
O Test
C Locktest to Endswitch
C Locktest at
m
Auto Unlock
O Verify Calibration
Unlock

Figure 24: Displacer command

Two different displacer commands can be issued:

- 1. Go to the 'Displacer' panel of the 'Gauge Commands' tab.
- Select a group from the dropdown. The selected group will be displayed in the tool bar.
- 3. Individual tanks can be selected from dropdown.
- 4. Select the command you want to issue by means of the radio buttons.

Table 2: Displacer Commands

Radio Button	Comman Description
Test	The level gauge will be set in lock test for approx. 1 minute, followed by an unlock command
Lock Test	When selecting this radio button, a data entry field will be enabled
Lock Test at	Enter the Lock test value
Auto Unlock	When selecting this check box, the displacer will be lowered automatically after reaching the value entered in the data entry field.
Verify Calibration	When selecting this radio button, the displacer will be raised until the CA setting in the servo gauge is reached



Displacer commands such as locktest and verify calibration will result in an "unknown" Product/Gauge Level with "No data available status". SCADA point data will go to 0.0 in this case. This could cause L/LL alarms to be triggered in Experion if setpoints are set to 0 or below.

How to issue a Test Gauge Alarm

Test Gauge Alarm	
ніні	
Hi	
C Lo	
C LoLo	

Figure 25: Tank Gauge Alarm

Proceed as follows:

- 1. Go to the 'Test gauge alarm' section of the 'Gauge Commands' tab.
- Select a group from the dropdown.
 The selected group will be displayed in the tool bar.
- 3. Individual tanks can be selected from dropdown.
 - Alarm tests: Click on one or more alarms you want to test

This command can be used to test the alarm settings in the radar gauge. The alarm settings to be tested are HiHi, Hi, Lo, LoLo in any combination.

How to cancel commands



An unlock command can be sent to the level gauge in order to cancel the command in progress.

Running Dipping Commands

This window shows the progress of a dipping command. The progress indicator is used to show the percentage of completion of the issued command.

The progress of the following dipping commands can be monitored:

- Density dip
- Water dip

Tab layout

At start-up, the Tank name, dipping command and original displacer position are shown. After start up, the actual displacer position is displayed.



Figure 26: Displacer

Title bar Displays the selected tank name and the issued command

Displacer Position

This group box shows the displacer position:

Original - The level at start up

Actual - The actual position of the displacer

Running Displacer Commands

This window shows the actual displacer position during a Lock test or Verify calibration test command. These commands can only be issued for servo level gauges.

Tab layout

At start-up, the window shows the tank name and the displacer command in the title bar.

The group box shows the 'Original' displacer position (level at start-up) and the 'Actual' position. In addition to the level values the status and the dimension are displayed.

Original Displacer Position
18.0000 m
0
Actual Displacer Position
18.0000 m
0

Figure 27: Displacer

Scheduling Gauge Command

This option is displayed at the bottom of left hand panel on the 'Gauge Commands' screen. This feature allows the user to send automated commands to gauges at a given time.

The user can create a task and schedule gauge commands for different intervals like daily, weekly, monthly etc., starting at a specific time. The tasks created here are shown on 'Manage Tasks' screen.

Once the gauge command is scheduled, it will be executed at the scheduled time.

Schedule Command $\qquad \qquad \qquad$
Task Name Command01
Start at Repeat 12:59 AM ∨ Never Always
Select Cycle Interval Weekly Monthly
🗌 Monday 🔽 Tuesday 🗌 Wednesday
🗹 Thursday 🗌 Friday 🗹 Saturday
Sunday All days
Cancel
Cancel

Figure 28: Schedule Command Screen

How to schedule a gauge command

- Choose the specifications of the gauge command that needs to be scheduled. Then click on Schedule button.
- **Task Name :** This is user defined field which defines name of the task.
- Starts at : User can choose when the task execution will start.
- **Repeat :** If the task has to be executed only once, 'Never' should be selected. If is a repeated task, 'Always' should be chosen.
- Select Cycle : User can choose the frequency of the task from below available 3 options. The option will only be enabled when 'Repeat' is 'Always'.
- **1. Interval :** User can give any interval in hh:mm.After the 'start at' time, this task will be executed continuously at the given interval.
- 2. Weekly : The user can choose the days. Every week this task will be executed on the selected days, and the time provided in 'start at'.
- **3.** Monthly : The user can choose the dates in a month. Every month this task will be executed on the provided dates, and the time provided in 'start at'.
- **Never:** User can opt for scheduling the gauge command only once without repeating it.

Schedule Command $ imes$	Schedule Command $ imes$	Schedule Command $ imes$
Task Name GaugeCommandTask01 Start at Repeat 12 : 59 AM ∨ Never Always Select Cycle Interval Weekly Monthly	Task Name GaugeCommandTask01 Start at Repeat 12 : 59 AM ∨ ○ Never Always Select Cycle Interval Weekly Monthly	Task Name GaugeCommandTask01 Start at Repeat 12 : 59 AM ∨ ○ Never Always Select Cycle Interval Weekly Monthly
<u>1</u> hh <u>0</u> mm Cancel Ok	 Monday ☐ Tuesday ☐ Wednesday ✓ Thursday ✓ Friday ☐ Saturday ✓ Sunday ☐ All days 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 U U U

Figure 29: Scheduling screens

MANUAL OVERWRITE

This display allows the user to manually overwrite tank data. The 'Manual Overwrite' display can, for example, be used to overwrite an invalid entity, or to enter the value of an entity that is not being scanned or for which automatic measurement has stopped scanning (formerly known as 'killed').

This display supports basically two actions:

- Stop scanning an entity (formerly known as 'kill')
- Resume scanning an entity (formerly known as 'resurrect')
 Enter manual data for an entity

Display Layout

The 'Manual Overwrite' window consists of two main parts:

- The entity selection pane (left)
- The entity overwrite area (right)

All Entities

This panel shows a tree with all available entities.



Figure 30: Manual Overwrite

Entity Pane

The entity overwrite area consists of four fields.

Table 3: Entity Fields

Entity Name	This fields shows the selected entity
Stop Scan	This check box indicated whether the entity is not scanning. Marked means not scanning (or stopped). This check box is not present by every tank entity.
Resume Scan	This checkbox enables the user to resume scan of an entity which was previously stopped. This check box is not present by every tank entity.
Overwrite Value	This column may contain a mix of data entry fields, combo boxes and check boxes depending on the entity being displayed. The entity can be overwritten by entering/selecting a value in this column.
Current Value	This column displays the current value of the selected entity if:
	- the entity status is set to manual. (with manual data icon)
	- the entity has actual data. (with actual data icon)
	If the entity has stopped scanning, it will be displayed with killed icon and blank value
Units of Measure	Shows the entities unit of measure

Performing a Manual Overwrite

- 1. Click on the 'Manual Overwrite' icon.
- 2. Click on the tree icon at the left site in the tool bar. The 'Group/Tank' window will appear.
- 3. Select a group from the tree view.
- 4. Select the tank you want to overwrite.
- 5. Select the entity you want to overwrite from the 'All Entities' pane and click on Apply. The entity is now in 'killed' state and the 'Current value''Overwrite value' field will be enabled.
- 6. Click on the 'Stop Scan' check box of the selected entity in the right pane means killed. The 'Current value' field will be enabled.
- 7. Click on the 'Overwrite value' field.
- 8. Enter the manual value.

nual Overwrite Ma Product D125004 77% CTLTable тк101 D125004 TCF DCF Densitytable1 e Entities S&W Peri 0 Densitytable2 Densitytable3 Densitytab ManualCTL 4311_15M 4311 15

9. Click on **Apply**.



Before you begin entering data into the currently selected entity field, the field background will be white. After entering the value the background changes to yellow to indicate that you have made a change and not yet saved it.



If you want to save the entered values click on the Apply button.



Ambient Temperature overwrite can only be performed on tank number 1 of a given CIU.



The entities Sample Density, Sample Temperature and Hydro correction have a close relation. In the entity tree they are put on one line. In the data area they are always shown together (3 lines) but can be edited individually. However Sample Density and Sample Temperature must be edited as a pair.

_	
_	

For Sample Density, Sample Temperature and Reference Density, there are usage conditions present that are based on the calculation method selected for the product.

İ

The Product entity can be manually overwritten with another Product from the Product Database that is configured by the CIU888 Service Tool. The Concentration and S&W percentage entities can be overwritten if they are supported by the calculation method configured in the product.

PROFILES

The primary Profiles usage is to create profiles for a selected tank and to show a graphical display of the density and/or temperature variation of the product in a tank.

The user has a number of options to generate profiles such as:

Density profile:

Used to measure the observed density.

The 854 or 954 servo gauge is commanded to start a density measurement.

The density measurement moves the displacer through the product in the tank, and determines the density at 10 equidistant points if a 854 gauge is connected, and up to 50 equidistant points if a 954 gauge is connected.

Temperature profile:

VITO probe connected to Radar or servo gauges will allow user to have temperature profiles on ENTIS, Number of temperature points configured in VITO associated at different level's will decide Average temperature in profile graph.

Density and temperature profile:

Determines a density and temperature profile for different product types in the tank.

Combined profile:

Measures the water interface, and determines a density profile.

Combined profile (Incl. Temperature)

Measures the water interface and determines a density and temperature profile.

Interface Profile

An Interface profile command starts a density measurement between two specified levels.

The interface profile measurement moves the displacer through the product in the tank and determines the density at 10 equidistant points if an 854 gauge is connected, and up to 50 equidistant points if the 954 gauge is connected between the two specified levels.

Display layout

Figure 32 : Create Profile

This display has the following sections:

- At the upper part, tank data is displayed.
- In the middle part, the selection can be made for the type of profile to be created.
- At the bottom part, a progress window is displayed for each profile currently in progress.

How to create a profile:

- 1. Select Profiles | Create Profile This opens the Create Profile screen.
- When using a user defined filename, uncheck the checkbox "Automatic Filename Generation". This gives you the opportunity to enter your own filename in the edit box. By default, the checkbox is checked. In that case the filename is: [tankname]_yyyy-mm-ddThh-mm-ss.json
 - 3. Select the required profile type (Density, Combined, Temperature, Interface); For an Interface profile, enter the Highest and Lowest level.
 - 4. Select advanced data Upwards or Downwards (only for Density and Interface profile) and "Temperature profile included" (for Density, Combined and Interface)

- 5. Select advanced data Upwards or Downwards (only for Density and Interface profile) and "Temperature profile included" (for Density, Combined and Interface).
- Click on Start.
 The profile command will be sent to the CIU888;
- 7. When the profile is ready, this will be indicated by a popup dialog:



Figure 33 : Profile Ready

Viewing a profile:

- 1. Select Profiles | View Profiles This opens the View Profiles screen
- 2. Click on Browse Files.
- 3. In Filters, select whether you want to see all profiles, or only certain types (Density, Combined, Temperature, Interface)
- In Filters, update the date range as required (by default, it shows the profiles from the last week)
- 5. From the list of profiles, select the profiles you want to view.
- Click Open: The selected profiles are displayed.

Profile screen examples



Temperature Profile

Figure 34: Temperature profile



Figure 35 : Temperature profile – Graph view

18%	T954 D1250805354_v_none.				View Graph	×
Date: 2021-06-	07 Time: 15-47-52 Profile type: 1	Temperatur	e			
	Level (m)		Temperature (°C)			
0.0000		-1.76			Product Level 1.7870 m	0
1.5385		24.68			Water Level	6
3.0769		24.89			Product Temperature 24.68 °C Vapor Pressure	
4.6154		32.96			^{kPa} Vapor Temperature 12.00 °C	8
		30 rows 👻	<pre> < < 1-14 of 14 ></pre>	>1		

Figure 36 : Temperature profile – Tabular view



Figure 37: Density Profile



Figure 38: Interface Profile



Figure 39: Density and Temperature profile



Figure 40: Density profile



Figure 41 : Combined profile – Graph view

F	T954			View Graph	×
18%	D1250805354_v_none.				
Date: 2021-06-0	07 Time: 16-00-30 Profile type: 1	Water and De	ensity		
	Level (m)		Density (kg/m³)	Product Level	
1.3230		1,024.71		1.7870 m	0
		0		Water Level	6
1 3635		1.023.22		Product Temperature	
0		0		24.68 °C	S
				Reference Density	•
1.4039		1,016.74 S		1,021.83 kg/m ³	8
				Vapor Pressure kPa	
1.4444		1,017.65		Vapor Temperature	
		0		12.00 °C	8
		30 rows 👻	< < 1-10 of 10 > >		

Figure 42 : Combined profile – Tabular view
MOVEMENT

Movement is a licensed feature in ENTIS. The base offering does not have movement feature.

Simple movement

If the user has Simple movement license, using the Movement screen, a user can calculate and set a movement:

- From/to a selected tank, or
- Between two selected tanks.

It displays the current measurement values for the selected tanks, the expected values after the movement has completed, and verifies whether the movement is possible depending on the current tank status, available space, product type etc.

How to access the Movement screen

1. On the main application menu, select the **Movement** option.

= Honeywell ENTIS											
Group View											Co All tar
E Group Details	Movement			Source Tank				Destination Tank			
🚍 Tank Dotails	Movement Type	Transfer To	~								
Gauge Commands		Transa and		• • • ТК804	TCF880 N	leasuring leve	ı	0 0 TK105	TCF880	Gauge Status Measuring le	rvel
Manual Overwrite	Source Tank	TK804	~								
🗠 Profiles 🗸 🗸	Destination Tank	TR105	v		Start	Stop	Delta		Start	Stop	Delta
Totalizers	Measurement	Product Level	v	Product Level (mm)	3,340.0	3,290.0	-50.0	Product Level (mm)	3.050.0		
C Movement	Amount to Move	50	mm	Product Temperature (°C)	33.39	33.39	0.00	Product Temperature (*C)	41.70		
🕞 What If	Rum Calculate Destination Tank			Reference Density (kg/m ³)	999.00	999.00	0.00	Reference Density (kg/m³)	945.00		
Descerta				Water Level (mm)				Water Level (mm)			
Manage Tasks		Set Mov	erient		Rel	oad Data	Calculate		F	eload Data	Calculate
③ Help				Target Pre-alerts				Target Pre-alerts			
				Enabled	Level Offset (mm)		Setpoint (mm)	Enabled	Level Offset (mm)		Setpoint (mm)
					0				0		
				0	0				0		
					0				0		
				0	0				0		
				Husteresis		00		Husteresis		00	104
A										0.0	110

Figure 43 : Movement option in main application menu

2. Click on the Movement menu item, or the Movement icon in the tool bar.

┗◨◱▱◪⊻どႲ<mark>ҫ</mark>ᅆ╹П⊘

3. On the Group Details screen, click on the row menu (denoted by 3 dots after the tank name) and select the Configure Movement option, which will take you to the Movement screen, where the current tank will have been selected as the Source Tank:

TK108	:	
TK109	Start	Delta
TK110	Confi	gure Movement
TK801	Gaug	e Commands 🕨

Figure 44 : Configure Movement option in Group Detail screen

4. Or, on the Group View screen, click on the context menu (denoted by 3 dots in the top right corner of a tank tile) and select the Configure Movement option, which will take you to the Movement screen, where the current tank will have been selected as the Source Tank:



Figure 45 : Configure Movement option in Group View screen

The screen contents

The screen is divided into 3 vertical sections:

- Movement,
- Source Tank,
- Destination Tank.

	ô									
🔁 Group View										o All tanks
Group Details	Movement		Source Tank				Destination Tank			
🔛 Tank Details	Movement Type	Transfer To 🗸 🗸			_					
Gauge Commands				K804 TCF880 M	auge Status leasuring lev	el		TCF880	Sauge Status Measuring le	vel
🖄 Manual Overwrite	Source Tank	тк804 ~	12%				22%			
🗠 Profiles 🗸 🗸	Destination Tank	тк105 ~		Start	Stop	Delta		Start	Stop	Delta
Totalizers	Measurement	Product Level V	Product Level (mm)	3,340.0	3,290.0	-50.0	Product Level (mm)	3,050.0		
-		50	GSV (m ³)	621.952	609.357	-12.595	GSV (m ³)	232.329		
C: Movement	Amount to Move	50 mm	Product Temperature (*	C) 33.39	33.39	0.00	Product Temperature (°C)	41.70		
🔓 What If	(i) Run: Calculate Destination Tank		Reference Density (kg/r	m ³) 999.00	999.00	0.00	Reference Density (kg/m ³)	945.00		
Reports			Water Level (mm)				Water Level (mm)			
Manage Tasks		Set Movement		Re	load Data	Calculate		Re	eload Data	Calculate
i manage rasks										
⑦ Help			Target Pre-alerts				Target Pre-alerts			
			Enabled	Level Offset (mm)		Setpoint (mm)	Enabled	Level Offset (mm)		Setpoint (mm)
				0				0		
				0				0		
				0				0		
				0				0		
③ Settings			Hysteresis		0.0	mm	Hysteresis		0.0	mm

Figure 46 : Simple movement configuration

Source Tank and Destination Tank will be disabled if no Movement Type has been selected.

Movement Types that can be selected are listed below along with the direction of flow:

Table 4 : Movement

Movement Type	Source direction	Destination direction
Receive	In	-
Load	Out	-
Transfer To	Out	In
Fill	In	-
Fill From	In	Out
Empty	Out	-
Empty To	Out	In

For the movement types Receive and Load, only a Source Tank can be selected.

Measurements that can be selected are:

- GOV,
- TOV,
- GSV,
- NTSM,
- NTSW,
- Product Level.

Validations and information messages

The Calculate and Set Movement buttons will be enabled or disabled depending on the selected parameters, entered values, current tank status, and the calculation results.

An information or error message will be displayed at the bottom of the Movement section to guide you through the process, such as:

```
(i) Select: Movement Type
```

Figure 47 : Information message

Step 1: Select the Movement Parameters

Select:

- A Movement Type,
- The Source Tank, and if applicable, also the Destination Tank.
- The preferred Measurement,

and enter the required Amount to Move, as in the following example:

Movement	
Movement Type	Transfer To 🗸 🗸
Source Tank	ТК804 🗸
Destination Tank	ТК105 🗸
Measurement	Product Level 💉
Amount to Move	50 mm
(i) Run: Calculate Destination Tank	
	Set Movement

The right units will be displayed depending on the selected measurement and the parameter type.

The current status of the selected tanks or tanks will be displayed, as in the following example.

The current and target levels will be displayed for: product level, GSV, the selected measurement, product temperature, reference density and water level. These last three can be adjusted by the user.

ource Tank				Destination Tank			
АУАЦАНЦЕ Тапк ТК804 12%	Product G TCF880 N	auge Status Ieasuring leve	ι	AVAILABLE Tank TK105 22%	Product TCF880	Gauge Status Measuring le v	vel
	Start	Stop	Delta		Start	Stop	Del
Product Level (mm)	3,340.0	3,290.0	-50.0	Product Level (mm)	3,050.0		
GSV (m ³)	621.952	609.357	-12.595	GSV (m³)	232.329		
Product Temperature (°C)	33.39	33.39	0.00	Product Temperature (°C)	41.70		
	999.00	999.00	0.00	Reference Density (kg/m³)	945.00		
Reference Density (kg/m³)							

Figure 48 : Source and Destination tank calculations

Step 2: Calculate Source

Click the Calculate button in the Source Tank selection.

After a few seconds, the calculated target values will be displayed in the column under the label "Target".

If the calculated values are valid, the Calculate button in the Destination Tank section will be enabled.

Step 3: Calculate Destination

Click the Calculate button in the Destination Tank section.

Identical to the Source the Target values for the Destination will now be calculated.

If the calculated values are valid, the Set Movement button is enabled.

Step 4: Target Pre-alerts

Optionally, after each tank's calculation has succeeded, you can enter and enable up till 4 alerts for the desired level offsets. The corresponding setpoints will be calculated and displayed. An alert will be triggered when each setpoint is reached.

You can also enter a Hysteresis value for the alerts for each tank, in order to avoid repeated alerts on each setpoint due to small up and down changes in the tank during the movement process.

Target Pre-aler	ts		Target Pre-aler	ts	
Enabled	Level Offset (mm)	Setpoint (mm)	Enabled	Level Offset (mm)	Setpoint (mm)
	0			0	
	0			0	
	0			0	
	0			0	
Hysteresis	0.0	mm	Hysteresis	0.0	mm

Figure 49 : Target Pre-alerts

Step 5: Set Movement

When you have selected all the parameters you require, you can click the Set Movement button.

The movement will then be set on the selected tank or tanks. The movement progress can be followed on the Group Details or Group View screen.

Advanced movement

Advanced movement is available if the user has purchased the Advanced Movement license. Advanced movement is used for calculating and setting up movements. There can be a movement configured between a tank and an object/tank, multiple tanks and an object/tank, or one tank/object and multiple tanks.

Advanced movement can be configured from the Configure Movement dialog window, which can be launched by any of the following methods:

1. In the left pane, click Movement, and then click **New Movement** as shown in the following figure.

24.V	2									
= Honeywell ENT	IS									
🗟 Group View									+ New movement	III Overview 🛛 🖓
🗉 Group Details	Movement Name		Source	Destination	Movement St	atus Planned Qu	antity	Product Name		ETF
🕀 Tank Details	× MOV1	1 TK 2		TK 6 TK 8 TK 11						
🙆 Gauge Commands	V MOTI	1 15.2		18_0, 18_0, 18_11	CLOSED		I TC	F		
🖄 Manual Overwrite	✓ Other2Tank	Other		TK_8	ARMED		TC	F		
🔄 Profiles 🔍 🗸										
Totalizers										
🗟 Movement										
🛱 What If										
🗍 Reports										
🗒 Manage Tasks										
(2) Нер									_	
③ Settings								20 ro	ws * 1-2 of 2	(< < >)
-			02-Jun-22 17:00	0.00 Vivek101 Testing lic	cense LICENSE H 00 License fo	r internal testing - 02-Jun-22 17:00				
Honeywell		02-30n-22 17:45:5	U ALAR	M He SYSIE	M ESSAGE	O ALERI	desktop-dau9dm5	L SI		Coer .

Figure 50 : Advanced Movement Main Screen (New Movement)

2. On the Group or Group Details view, click the vertical ellipsis icon next to a tank to open the Context menu, as shown in the following figure. Click **Configure Movement**.

								the Movement of All tanks	7 (
Tank Name	• :	Movement Relations	Movement Name	Movement Status	Product Name	Produ	ict Level (mm)	Movement Start Level (mm)	т
ТК101	:	🧿 тк910	Movement-Many-1	ARMED	TCF		9,585.0	8,115.0	
TK102	1			ANNUARLE	DCF		3,501.0		
TK103	9	Start Delta		AVAILABLE	D125004		1.000.0		
TK104	0	Gauge Commands +		CLOSED	Densitytable1		1.028.0		
ТК105	:	O TK106	Movement-1-Many	ALTINE	Densitytable1		1.973.0	1,997.0	
TK106	:	0 TK104, TK105, TK802	Movement-1-Many	ACTIVE	Densitytable1		6.000.0	6,000.0	
ТК107	:			ANNLARLE	Densitytable4		5,642.0		
TK108	:	0 Train_01	Movement-1-1		ConcentrationTable		3,501.0	3,501.0	
ТК109	:			AVAILABLE	CTLTable		6,000.0		
TK110	:			AVAILABLE	ManualCTL		6,000.0		
ТК801	:			ANNILABLE	D125004		4,000.0		
TK802	:	O TK106	Movement-1-Many	ADMED	Densitytable1		3.000.0	3.000.0	

Figure 51 : The context menu on the Group View screen

Entis						
	Honeywell ENTIS		Configure Movement	_ ×		
					H Movement 🕞 All tanks	7 0
	Tank Name		Source	Destination	Movement Start Level (mm)	Tan
			+ Add source	+ Add destination		1000
æ	TK101	O TK			8,115.0	
ß	TK102					
k	TK103	ġ.				
8	TK104 :					
6	TK105	0 TK			1,997.0	
6	TK106	0 TK			6,000.0	
Ē	TK107	0.				
٢	TK108	O Tri			3,501.0	
	TK109	0				
	TK110 :					
	TK801	0				
	тк802	0 TK			3,000.0	
ø			Movement name Movement name cannot be empty	Cancel Print Arm Movement	20 rows + 1-16 of 16	

The Configure Movement window appears as shown in the following figure.

Figure 52 : Configure Movement window

Configure Movement

The Configure Movement window consists of three sections:

Source Section

The left side of the window is the source – from where the product is taken.

Destination Section

The right side of the window is the destination – from where the product is transferred to.

Bottom Section

Additionally, at the bottom of the window, you can name a movement and perform actions such as Cancel, Print, and Arm Movement.

From Source/Destination sections, the user can select the transfer object, movement type, measurement and enter quantity to move. It is possible to calculate target values, reload data, add infra pipes, configure target pre-alerts and perform other actions.

Type of movements

There are three types of movements:

One to one

A one-to-one transfer can be a configured between a tank and an object or a tank that has the same product and is not in movement.



Figure 53 : One to one transfer

Many to one

Many-to-one transfers can be configured between many tanks and a tank or an object. All tanks must contain the same product. Thus, the dropdown box will filter out tanks that do not have the same product.

ource	Destination
Tank Product Planned quantity 18% TK_2 TCF 10.083 m ³	Truck Product Planned quantity Truck1 TCF 20.000 m ³
TK_6 Product Planned quantity 18% TK_6 TCF 10.083 m ³	+ Add destination
+ Add source	

Figure 54 : Many to one transfer

One to many

A one-to-many transfer can be configured between a tank or an object and many tanks. Here, the source is one tank or object with many tanks for the destination. The same rules apply as for many to one transfer.

purce	Destination
Tank Product Planned quantity 26% TK-2 TCF 1,008.300 m ³	RESUMED Tank Product Planned quantity 0 TK_6 TCF 302.490 m ²
+ Add source	Tank Product Planned quantity TK_8 TCF 302.490 m ³
	Tank Product Planned quantity 19% TK_11 TCF 403.320 m ³
	+ Add destination

Figure 55 : One to many transfer

Steps to configure Advanced movement

1. Name the movement

The user should give the movement a name in the input at the bottom of the window. The movement cannot be armed or printed without providing a movement name. If the **Movement Name** field is blank, an error message is displayed.

2. Add Source and Destination objects

The user must add source and destination. To add a source or destination, click the **Add source** or **Add destination** button that is present in Figure 52 : Configure Movement window. The following figure is displayed after adding source/destination.

	comgute movement				(m)	+ New movement, 111	Overview
	Source				Destination		
Movement Name		Product Diana	ed ausotitu			EIF	
V Movement-1-1 : TK10	€ • • • TK911 7%	TCF 98.74	5 m ³		+ Add destination	27-May-2022 12:25:45 AM	0.000
✓ Movement-1-Many : TK10	Object			~		27-May-2022 12:25:45 AM	0.000
v Movement-Many-1 : TK8C	Tank name Teat name TK911 Movement Load Quantity to move	n hox	Ship Pres	000 et 000		27-May-2022 12:25:45 AM	490.5
	100	m ³					
	Pipe	Capacity (m ³)	Slack (%)	Fill at start?			
		Start	Stop	Delta			
	Product Level (mm)	2,000.0	1,705.8	-294.2			
	court m	070.075	6777 700	00.747			

Figure 56 : Advanced movement with the source being configured

Transfer Objects consist of the following sections:

Object Details Section

The icon representing the selected object type, the name of the object, the product, and the planned quantity are displayed in this section. If the selected object type is a tank, in addition to the tank icon, the tank status, measurement values, and icons as mentioned in the tank icons section of Group View can be seen.

The planned quantity for tanks is the Delta value of the selected measurement calculated using the quantity to move. The quantity to move is the planned quantity for the other object types.



Figure 57 : Object Details Section

Object Selection Section

The user must first select the object type. The available object types for selection are Tank, Pipe, Train, Truck, Ship, Preset, and Other.



Figure 58 : Object Selection Section

If **Tank** is selected, all the tanks that are not in movement are listed in the dropdown box from which the user can select the required tank. Note that if the Configure Movement Dialog Window was launched by clicking on the tank's context menu in the Group View or Group Details, that tank is automatically selected in the dropdown box. The user has the ability to change the object at any time before clicking the "Save" button. However, all filled in details will be reset upon switching objects.

If Preset is selected, all the user-created movement objects, except movement objects of type infrastructure pipe, will be listed in the dropdown box.

For the rest of the object types, namely Pipe, Train, Truck, Ship and Other, the user should input a name.

Movement Section

The next step in configuring a movement is to fill the details in the Movement section.

lovemen	t Type		Measurement					
Load		\sim			\sim			
)uantity t	o move							
	Pipe	Capaci	ty (m³)	Slack (%)	Fill at start?			
	~							
		St	art	Stop	Delta			
Product	Product Level (mm)		3,501.0					
GSV (m ³))							
Product	Temperature (°C)		21.00					
Reference	ce Density (kg/m³)							
Water Le	evel (mm)							

Figure 59 : Movement Section

- 1. The Movement type can be selected from the dropdown box. On the source side, the user can select "Load" or "Empty". On the destination, the user can select "Receive" or "Fill". For "Empty" and "Fill" movement types, the measurement and quantity are set automatically and can't be changed.
- The user can select "GOV", "TOV", "GSV", "NTSM", "NTSW", "Product Level", "Absolute GOV", "Absolute TOV", "Absolute GSV", "Absolute NTSM", "Absolute NTSW", or "Absolute Product Level" as the Measurement.

Tank	D Pipe Train	Truck	s Ship	Preset	Other
Tank na	me				
TK102		\sim			
Mover	ment				~
Moveme	ent Type		Measurement		
Load		\sim			~
Quantity	y to move		GOV TOV		
	Dias	Constitution	GSV		
	нре	Capacity	NTSW		
			Product Level		
		Star	Absolute GOV		
Produ	ct Level (mm)	3.	Absolute TOV		
GSV (r	m³)		Absolute GSV Absolute NTSM		
Produ	ct Temperature (°C)	2	Absolute NTSW		
Refere	nce Density (kg/m³)		Absolute Product I	_evel	
Water	Level (mm)				
		Γ	Reload Data	Calcu	liato

Figure 60 : Various Measurements

- 3. For the Quantity to move, user can enter the desired amount to move. The right units will be displayed depending on the selected measurement and the parameter type.
- 4. Optionally, the user can add infra pipelines to the movement configuration. Infra pipelines are explained in detail the next section.
- 5. If the object type is tank, the tank table can be seen, and it displays the Start, Stop, and Delta levels for: Product level, GSV, the selected Measurement, Product temperature, Reference density, Water level, and Total Pipe Volume. Product temperature, Reference density, and Water level can be adjusted by the user. If infra pipe is added, Total Pipe Volume can be seen. The Start Column data is populated as per the tank selected.

The user is required to click the "Calculate" button, which calculates the outcome of the movement and populates the result in the Stop and Delta columns of the tank table.

The Delta Value is the difference between the Start level and the Stop level. The Delta values of Objects on source side will have negative as the product is been taken out and objects on the destination side will have positive Delta values as product is added into them. "Calculate" button will be disabled, if tank, Measurement or Quantity to move details are not availabe.

	Start	Stop	Delta
Product Level (mm)	2,000.0		
GSV (m³)	683.270		
Product Temperature (°C)	17.60		
Reference Density (kg/m³)	850.00		
Water Level (mm)			
	0.000	209 454	209.454

Figure 61 : Tank table in Movement Section

Target Pre-alerts Section

Optionally, the user can configure the target pre-alerts by selecting the measurement and filling in the offset and hysteresis after each tank's calculation has succeeded. Up to four pre-alerts can be added for the desired level offsets. The corresponding setpoints will be calculated and displayed. An alert will be triggered when each setpoint is reached. To avoid repeated alerts on each setpoint due to small up and down changes in the tank during the movement process, the user can enter Hysteresis value for the alerts.

	Measurement	Offset	Setpoint	Hysteresis
~	GOV (m³) 🗸 🗸	0.000		0.000
	~	0		0
	~	0		0

Figure 62 : Target Pre-alerts section

Finally, the user must save the object. The "Save" button will not be enabled in case of validation or calculation error. Object Selection, Movement Type, Measurement, and Quantity to Move must be filled. If the object type is tank, the calculation should be successful.

Note that the user can also cancel or delete the movement configuration and start over.

Repeat the same steps to configure the other side of the movement in order to make a valid movement configuration. An example of many to one can be seen in the Figure 63: Advanced movement example.



Figure 63 : Advanced movement example

Validation, errors and informational messages

There are two types of messages. The first type is a validation message. These messages are for individual inputs. The second type is an action flow error or guidance information. These messages inform the user of what should be done while configuring the movement.

Once data is entered, the user might see validation messages when the entered value is incorrect. For individual input, validation messages will appear below the input. Validation message will appear in red color.

The second type of message will appear above the action buttons. That is, above the "Delete" button. This message will be in red or gray, with an "i" icon on the left. This type of messages will inform the user about flow errors or guide the user through the process of configuring the movement. It will suggest what to do next.

3. Print the Movement

When the movement is configured, the user can make a report and print it by clicking the "Print" button. Once the button is clicked, the user will be presented with another window that contains a PDF preview for the current configuration. See Figure 64: Advanced movement print preview. From there, the user can print the movement configuration.

Honeywell Customer Site Movement Configuration Report movement Date 27-May-2022 12:48 AM UTC+05:30 Movement details Diject mark of the team of team of team of the team of	rt opened on 12:48:14 AM, 27-May-2022					
Movement details Object Tank Movement type Load Object name TKSU4 TKSU4 Object name TKSU4 TKSU4 Product TCF Movement relation Calculation Method TCF method - Mosement and the thod TCF method - Mosement relation TKSU4 Movement relation TKSU4 True Feed / RD InfraPripe_01 1000000 InfraPripe_02 120000 I True	Honeywell Movement Con movement	nfiguration Report	Customer Site Date 27-May	y-2022 12:48 AM UTC+05:	30	
Object Tank Movement type Load Object TKB04 TKB04 Product TCF Movement relation Calculation Method GDV Gotter activity GDV Truck / Drum Feed / RD Infrastructure pipelines Pipe name Capacity (m*) InfraPipe_01 100.000 10 True	Movement detai	ls			_	
Other activity Truck / Drum Feed / RD Infrastructure pipelines Pipe name Capacity (m²) Slack (%) Fill at start? InfraPipe_01 100000 10 True InfraPipe_02 120000 0 True	Object Object name Product Calculation Method Measurement Amount to move	Tank TK911 TCF TCF method - GOV 500,000 m ³	Movement type Movement relation	Load TK804		
Truck / Drum Feed / RD Infrastructure pipelines Fill at start? Pipe name Capacity (m²) Slack (%) Fill at start? InfraPipe_01 100000 10 True InfraPipe_02 120000 0 True	Other activity				_	
Infrastructure pipelines Pipe name Capacity (m³) Slack (%) Fill at start? InfraPipe_01 100,000 10 True InfraPipe_02 120,000 0 True	Truck / Drum		Feed / RD			
Pipe name Capacity (m ³) Slack (%) Fill at start? InfraPipe_01 100.000 10 True InfraPipe_02 120.000 0 True	Infrastructure pi	pelines				
	Pipe name InfraPipe_01 InfraPipe_02	Capacity (m ³) 100 120	Slack (%)	Fill at start?	True True	

Figure 64 : Advanced movement print preview

Movement End Report

A movement end report can be generated from the Movement main screen once a movement is in the closed state. This report shows the summary of the movement along with all the transfers. The report data is based on the actual tank inventory snapshots captured at the start and end of the movement. Therefore, this report can only be generated for closed movements.

The report is structured into multiple pages where each page describes the summary of individual transfer objects. The first page of the report contains the summary of the transfer object, which is part of multiple transfers. This page describes the complete summary of the movement. Similarly, the other pages describe the summary of other transfer objects involved in the movement. Depending on the type of transfer object, each page of the report contains sections describing the movement details, infrastructure pipelines used, transferred quantities, and pre-alert status and timestamps if triggered.

Transfer objects which are of type 'Tank', include a section called "Transferred quantities" which contains three columns: "Start", "Stop" and "Delta". "Start" is a snapshot of the tank record when movement is Activated. "Stop" is the snapshot when the movement is Closed. "Delta" is the difference between Start and Stop.

For example, let's have a one-to-many movement from tank T101 to tanks T102 and T103. Since T101 is part of multiple transfer, the first page will have the summary of T101. If T103 is activated first and later T102 is activated, then the "Start" record for T101 is set when T103 is activated and the "Stop" record will be set when T102 is closed.

Movement End Report template

Honeywell		Cu Sit	stomer e	Customer Nar Site Name	ne
Movement Report		Da	te	01-Jun-2022	08:27 PM UTC+05:30
Movement Name					
Movement details					
Object T	ank	Mo	vement	type Loa	ıd
Object name T	K_1	Mo	vement	relation TK_	.7
Product T	CF				
Calculation Method	CF method -				
Measurement G	iOV				
Amount to move 1	00 m ³				
Movement Status	losed				
Infrastructure pipeli	nes				
Pipe name	Capacit	:y (m³)		Slack (%)	Fill at start?
Pipe1		50.000		0	True
Transferred quantiti	es				
	S	tart		Stop	Delta
Product Level (m)		0.3133		0.2430	-0.0703
TOV (m ³)		4,973.013		3,857.141	-1,115.872
GSV (m ³)		6,123.419		4,998.285	-1,125.134
GOV (m ³)		6,073.013		4,957.141	-1,115.872
GSM (US ton)		161.764		132.041	-29.723
GSW (US ton)		153.692		125.452	-28.240
Product Temperature (°F)		85.0		85.0	0.0
Reference Density (lb/ US	gal)	0.2000	Q	0.2000	0.0000
Water Level (m)	U	0.0000	U	0.0000	0.0000
Water Volume (m ³)		0.000		0.000	0.000
CTL		1.00830		1.00830	0.00000
Product in pipe (GSV)		0.000		50.415	50.415
Timestamp	01-Jun-202	22 08:14 PM	01-Ju	in-2022 08:17 PM	00:02
Pre-alerts					
	Setpoint	Hyst	eresis	Status	Timestamp
Pre-alert 1-GOV (m ³)	5.644.4	1/13	0.000	Not triggered	

Figure 65 : Movement End Report template

How to Generate Movement End Report

When a movement is completely closed (all the transfers are closed), the "Generate report" option will be enabled for that movement.

To generate the Movement End report, perform the following steps:

- 1. Go to the Movement main screen.
- 2. Click the vertical ellipsis icon.
- 3. Click **Generate report**. This option is disabled for a movement in Closed state.

🗄 Group Details	Movement Name		Source	Destination	Movement Status
🔛 Tank Details	✓ Movement1	:	ТК 1	TK 2. TK 6	
🙆 Gauge Commands	V MOVEMENT	Ed	it Movement	11(<u>2</u> , 11(<u>0</u>)	CLOSED
🖉 Manual Overwrite	∨ Mov2	De	lete movement	P1	CLOSED
🗠 Profiles 🗸 🗸	∨ 27_1	Ge	nerate report	ТК_8	CLOSED
Totalizers	∨ 27_2	:	TK_7	TK_8	ACTIVE
🛱 Movement					

Figure 66 : Generate Movement End Report

The **Generate report** option is disabled for status other than "Closed" because for the transfers that are not Closed, the Movement will not have any Stop snapshot for the tank so, the report won't be able to show the correct summary of the movement.

4. Arm the Movement

The user can arm the movement in the same way as they can print. The movement will be armed and the window will dismiss when you click the 'Arm Movement' button. A new row with movement details will be added to the Advanced Movement Main Screen. In the Group Details, the Movement Status is updated to Armed.

The user can now perform movement actions.

Note that once a movement is canceled, the movement state of the tank will be set to closed.

Movement Actions

The initial status of a configured movement is Armed. The user can perform movement action on the tank by clicking on the context menu of the tank in movement from Group View, Group Details, or Advanced Movement Main Screen (see Group Details context menu to activate movement).

	;											
Group View											ł¦i Movement _ [d All	tanks 🔻 🛈
🗄 Group Details	Tank Name		Movement Re	lations	Movement Name	Movement Status	Product Name	Product	Level (mm)	Movement Start Level (mm)	Target Level (mm)	Planned Vo
🖶 Tank Details	TK101	1	0 Titanic		Many-to-one movement	HARD	TCF		3.010.0	3.010.0	2.010.0	
Gauge Commands	ТК910	Start	Delta		Many-to-one movement	1FMED	TCF		3.350.0	3.350.0	2.850.0	
🖾 Manual Overwrite	TK102	Move	ement Actions	Cancel			Densitytable1		3,020.0			
🗠 Profiles 🗸 🗸	TK103	Gaug	e Commands 🕨			(AVAL/BLE)	D125004		6,322.0			
Totalizers	TK104	4					Densitytable1		3,040.0			
Es What If	TK105	1					TCF880		3,050.0			
B Reports	TK106	1					DCF880		3,657.0			
🗐 Manage Tasks	TK107					ANALABLE	D125004880		3,070.0			
(i) Help	TK108	1					ConcentrationTable		3,080.0			
	TK109	1				AVAN ARE C	CTLTable		3,638.0			
	TK110	1					ManualCTL		3,300.0			
	TK801	÷				AVALABLE	ManualCTL880		3,310.0			
	TK802	1					Densitytable1		3,320.0			
	ТК803	4				AND DEC	TCF		6.385.0			
	TK8D4	4					TCF880		3.340.0			
Settings										ad	rows ▼ < < 1-16 c	if 16 > >

Figure 67 : Movement Actions when Movement Status is Armed

The user can activate or cancel an armed movement. Once activated, the user will see something similar to the Figure 68: Group Details screen with moving product. Also, once the movement is active, the user can pause and resume the movement from the same context menu.

Note that once a movement is canceled, the movement state of the tank will be set to closed.

∃ Honeywell ENTIS											
🛱 Group View										H Movement 🕞 All	anks 🛛 🛈
Group Details	Tank Name		Movement Relations	Movement Name	Movement Status	Product Name	Produ	ct Level (mm)	Movement Start Level (mm)	Target Level (mm)	Planned Vo
🛱 Tank Details	TK101		O Titanic	Many-to-one movement	ACTIVE	TCF		3,010.0	3,010.0	2,010.0	
② Gauge Commands	ТК910	1	O Titanic	Many-to-one movement	ARMED	TCF		3,350.0	3.350.0	2.850.0	
Manual Overwrite	TK102	1				Densitytable1		3.020.0			
🗠 Profiles 🗸 🗸	TK103	1			AVAULABLE	D125004		6.302.0			
Totalizers	TK104					Densitytable1		3,040.0			
Et: What If	TK105	1			ANALASILE	TCF880		3,050.0			
Reports	TK106	1				DCF880		3,678.0			
🗄 Manage Tasks	TK107	4			AVA.4.461.0	D125004880		3.070.0			
① Help	TK108	1				ConcentrationTable		3,080.0			
	TK109				AVAILABLE	CTLTable		3,657.0			
	TK110	1				ManualCTL		3,300.0			
	TK801	4			AVAILABLE .	ManualCTL680		3.310.0			
	TK802	4				Densitytable1		3.320.0			
	TK803	1			AVALABLE	TCF		6.365.0			
	ТК804					TCF880		3,340.0			
Settings									30) rows 👻 < < 1-16 c	r16 > >

Figure 68 : Group Details screen with moving product

Edit Movement

A configured movement which is not closed/cancelled can be edited from the Edit Movement dialog window, which can be launched by any of the following methods: 1. Click on the **Edit Movement** button from the movement summary line in the Advanced Movement Main Screen as shown in the Figure.

n 🦻							
Honeywell ENTIS							
						+ New movement	Noverview Y
Movement Name	Source	Destination	Planned Quantity	Movement Status	Product Name	ETF	Actua
∨ Movement-1-1	ТК108	Train_01	100.000	(ARMED	ConcentrationTable	27-May-2022 12:15:49 AM	0.000
∽ Movement-1-Many	Delete movement	TK104, TK105, TK802	1000.000	ACTIVE	Densitytable1	27-May-2022 12:15:49 AM	0.000
✓ Movement-Many-1	Generate report	ТК910	250.000	ACTIVE	TCF	27-May-2022 12:15:49 AM	499.018
						20 rows + 1-3 of 3	1< < > >1

Figure 69 : Advanced Movement Main Screen (Edit Movement)

2. On the Group or Group Details view, click the vertical ellipsis icon next to a tank to open the Context menu as shown in the following figure. Click **Edit Movement**.

							f¶ Movement ☐ All tanks	Υ (
Tank Name	Tank Name : Movement Relations		Movement Name	≎ Movement Status	Product Name	Product Level (mm)	Movement Start Level (mm)	1
ГК803	;	🤒 тк910	TK910 Movement-Many-1		TCF	3,400	0 3,400.0	
ГК910	:	TK803, TK101	Movement-Many-1	ACTIVE	TCF	4,225	0 2.417.0	
ГК101	S	tart Delta	Movement-Many-1	(JANED	TCF	8.805	0 8,115.0	
TK108	E	dit Movement	Movement-1-1	(APIVED)	ConcentrationTable	3,501	0 3,501.0	
FK102	G	auge Commands 🕨		AVAULABLE	DCF	3,501	0	
rk103	1			AVALABLE	D125004	0 1.000	0	
ſK104	:			AVALABLE	Densitytable1	0 1,028	0	
rK105	:	🗌 ТК106	Movement-1-Many	AVALABLE	Densitytable1	1,965	0	
ľK106	:	C TK104, TK105, TK802	Movement-1-Many	AVALABLE	Densitytable1	6,000	0	
/K107	1			AVAILABLE	Densitytable4	5.200	0	
TK109	:			(AVALLABLE)	CTLTable	6,000	0	
TK110	:			AVAILABLE	ManualCTL	6,000	0	

Figure 70 : A context menu in Group details

An Edit Movement dialog window, as seen in the figure below, opens with the movement data preloaded.

Entis	2					_
	Honeywell ENTIS		Edit Movement	_ ×		
ß					Hi Movement Ce All tanks	
	Tank Name		Source	Destination	Movement Start Level (mm)	Tar
			Tank Product Planned quantity	Tank Product Planned quantity		
æ	ТК803	: O TR	12%	16%	3,400.0	
ß	ТК910	0 D			2,417.0	
Ŀz	TK101	: O TI	Tank Product Planned quantity TK101 TCF 267.311 m ³	+ Add destination	8.115.0	
₿	TK108	: O Tr			3,501.0	
ß	TK102	: 0	+ Add source			
Gi .	ТК103	:				
	TK104	: 0				
@	ТК105	; D				
	TK106	: TP				
	ТК107	1 2				
	TK109	: 9				
	ТК110					
0			Movement name Movement-Many-1	Cancel Print Update Movement	20 rows + 1-16 of 16 K	

Figure 71 : Edit Movement with preloaded data

Using the Edit Movement Dialog Window, the user can perform the following:

- 1. If the movement is armed, edit Movement Type and Measurement.
- 2. Edit the Quantity to move, Infra Pipelines and Target Pre alerts.
- 3. Add new source object to a One to One or Many to One movement.
- 4. Add new destination to a One to One or One to Many movement.
- 5. If the source tank is in armed status, delete a source object in a Many to One movement.
- 6. If the destination is in armed status, delete a destination object in a One to Many movement.

While editing the source or destination object, any changes made in measurement, movement type, or quantity to move require the tank data to be reloaded and calculated once again.

Infrastructure Pipelines

The user can account for the volume of the transferred product in the physical pipe attached to the tanks using the infrastructure pipeline section in the source and destination object. This allows the user to visualize and report the volume of the product that may additionally be removed at the source object and the volume of the product that may additionally be added in the destination object.

Note: Infra pipes is a Movement object of type infra pipe that can be created from the Movement Objects tab in the Settings modal. The creation of movement objects is explained in the Settings section.

The infrastructure pipeline section can only be seen if the transfer object is a tank. By checking the checkbox, the user will be able to add infra pipes to the transfer object. Also, clicking on the checkbox also adds an additional row "Total Pipe Volume" tank table.



Figure 72 : Infra Pipe added in Configure Movement

Each infra pipe row has the following fields:

Pipe

The user can select the infra pipe attached to the tank from the dropdown box that lists all the Movement Objects of type infra pipe that are not already selected. Once an infra pipe is selected in source side, it will no longer be available for selection in the source side. Similarly, an infra pipe selected in destination side will no longer be available for selection in the destination side.

Capacity

Once the infra pipe is selected, the capacity input field is automatically populated with the capacity entered during the creation of the Movement Object. However, the user can make changes to the capacity.

Slack

The user can also input the slack percentage, which would be the space allowed in the infra pipe.

Fill at start

The "Fill at start checkbox" can be seen only on the source side. The user can check the box to indicate if the infra pipe should be filled during movement. If checked, the "Total Pipe Volume" row in the tank table shows the additional volume that will be taken out of the tank. The volume of the pipe is the product of the slack discounted pipe capacity and the tank's CTL. The Planned Quantity of

the transfer object is also updated, which is the sum of the delta values of the Total Pipe Volume and the Gross Standard Volume (GSV).

Entis 🧕									
= Honeywell ENT	IS	Configure Movement					_ ×		
🗄 Group View								+ New	movement 🚻 Overview 💎
Group Details	Movement N.	Source			2.11	Destination		ict Name	ETF
🕀 Tank Details		Movement Type	Measu	urement					
🙆 Gauge Commands	✓ Movement-1-1	Load Quantity to move	~		~			onTable	27-May-2022 12:45:55 A
🖄 Manual Overwrite	✓ Movement-Many								27-May-2022 12:45:55 Δ
🗠 Profiles 🖂		Pipe	Capacity (m³)	Slack (%)	Fill at start?				
Totalizers		InfraPipe_01 V	100.000	10					
E Movement									
En What If			Start	Stop	Delta				
(%) Reports		Product Level (mm)	2,000.0						
U Reports		GSV (m ³)	683.270						
🗐 Manage Tasks		Product Temperature (°C)	17.60						
Help		Reference Density (kg/m³)	850.00						
		Water Level (mm)							
		Total Pipe Volume (GSV)	0.000	89.766	89.766				
			Rel	oad Data	Calculate				
		Target Pre-alerts			~				
		Massimant	Offeret	Cataolat	Watamele				
③ Settings		Movement name Movement name	e cannot be empty			Cancel Print Ar	m Movement	20 rows +	1-2 of 2

Figure 73 : Total Pipe Volume Example

Note that only those infra pipes that have the Fill at start checkbox checked are accounted for in the Total Pipe Volume calculation. The unchecked infra pipes effectively mean that the pipe already has the product, and no additional volume is taken out of the tank.

Empty at end

The Empty at end checkbox can be seen only on the destination side. The user can check the checkbox to indicate if the content in infra pipe should be emptied at the end of the movement. If checked, the "Total Pipe Volume" row in the tank table shows the additional volume that will be added to the tank. The volume of the pipe is the product of the slack discounted pipe capacity and the tank's CTL. The Planned Quantity of the transfer object is also updated, which is the sum of the delta values of the Total Pipe Volume and the Gross Standard Volume (GSV).

Note that only those infra pipes which have the Empty at end checkbox checked are accounted for in the Total Pipe Volume calculation. The unchecked infra pipes effectively mean that the pipe content is not emptied at the end.

Honeywell ENTI	IS	Confi	aure Movem	ent					×		
Group View		Conn	garemoterie						- 0	+ Ne	w movement 11 Overview
	Movement N	Sourc	;e					Destination		ict Name	ETE
		r	HALABLE -	lank	Product Plann	ed quantity					
	✓ Movement-1-1	-	1 7%	K911	TCF 708.1	54 m ³				onTable	27-May-2022 12:4
	~ Movement-Many	Obje	ect				~				27-May-2022 12:41
		Mov	rement				~				
		Loa	ment Type		V GOV	rement	~				
Movement		Quan	tity to move								
What If		500			m ³						
			Pipe		Capacity (m ^a)	Stack (%)	Fill at start?				
			InfraPipe_01	×	100.000	10					
			InfraPipe_02	~	120.000	0					
				Ŷ							
					Start	Stop	Delta				
		Pro	duct Level (mm)		2.000.0	528.9	-1.471.1				
		GSV	/ (m³)		683.270	184.570	-498.700				
		GOV	v (m*)		685.051	185.051	-500.000				
		Pro	duct Temperatur	e (°C)	17.60	17.60	0.00				

Figure 74 : Object with multiple infra Pipes

Multiple infra pipes can be added to a source/destination object, but each infra pipe on one side can be mapped to only one object on the other side. That is when multiple infra pipes are added to a source object, each of the destination objects can only have one infra pipe each. Similarly, when multiple infra pipes are added to a destination object, each of the source objects can only have one infra pipe each.

In addition, if a source or destination object has multiple infra pipes, the same side cannot have more objects.

Advanced Movement Main screen

The Advanced Movement main screen presents movement data for multiple movements in a tabular format. Movements are organised in rows while the entities are displayed in columns. The data displayed on the grid depends on the selected view. Clicking the mouse on the column header will sort the selected column. A blue arrow on the column header will indicate that it is sorted, with the blue arrow direction indicating if the sort is ascending (up) or descending (down).

A user-definable number of columns, measured from the first column, can be identified as fixed columns. Fixed columns do not scroll horizontally. The user can select the number of rows they want to view on a page and toggle between them via the "Previous" and "Next" buttons.

The user can also filter the rows by using the "Filter" button, where they can select the column where the filter should be applied and set the parameters of filtering accordingly.

Note: Advanced Movement Main Screen is a part of Advanced movement. Hence, it will be seen only if the user has purchased an Advance movement license.

10.04							
						+ New movement 111	Overview
Movement Name	Source	Destination	Planned Quantity	Movement Status	Product Name	ETF	
/ Movement-1-1	: TK108	Train_01	100.000	ABMED	ConcentrationTable	27-May-2022 12:06:16 AM	0.000
Movement-1-Many	I ТК106	TK104, TK105, TK802	1000.000	ACTIVE	Densitytable1	27-May-2022 12:06:16 AM	0.000
Movement-Many-1	TK803, TK101	TK910	250.000	ACTIVE	TCF	27-May-2022 12:06:16 AM	575.

Figure 75 : Advanced Movement Main Screen

Opening the Advanced Movement Main Screen

- Click on the "Movement" menu item, or the "Movement" icon in the tool bar.
 □ □ □ □ □ □ □ □ □ □ □ □
- 2. The "Advanced Movement Main" screen will appear.
- 3. Movement data will appear in the table.
- 4. "Overview" is the default view that shows all the movements.
- 5. Change the View from the view dropdown.

Column width: The current size is stored whenever the user selects another view, or the window is closed.

New Movement

New Movement can be configured by launching the Configure Movement Dialog from the Advanced Movement Main Screen by clicking on the icon shown below.

neywell ENTI5							+ New movement 11	Overview
Movement Name	_	Source	Destination	Planned Quantity	Movement Status	Product Name	ETF	
V Movement-1-1	÷	TK108	Train_01	100.000	ADUED	ConcentrationTable	27-May-2022 12:06:28 AM	0.00
Movement-1-Many	÷	TK106	TK104, TK105, TK802	1000.000	ACTIVE	Densitytable1	27-May-2022 12:06:28 AM	0.00
		TK803, TK101	TK910	250.000	ACTIVE	L TCE	27-May-2022 12:06:28 AM	604
Movement-Many-1	:					1.0		
Movement-Many-1	I					1		

Figure 76 : Advanced Movement Main Screen (New Movement)

Manage Views

Movement views allow the user to customise the view that defines the columns to be displayed in the "Advanced Movement Main" screen. The first column (Movement name) is fixed.

A number of predefined views are available; it is also possible to create new views. The predefined views can be altered, but not deleted. Newly created views can be altered and deleted.

Figure 77 : Predefined Movement Views

Note: The Manage views option is also available in other screens, but that is independent from the Advanced Movement Main Screen views.

The Manage Views dialog can be launched from the Advance Movement Main Screen.

Erds	F											
	Honeywell ENTIS		Manage Views							_ ×		
											+ New movement - Hk C	Dverview 🖓
	Movement Name		All Views	New	Avaita	able Entities		Overv	iew View		ETF	Act
			View name			Entity 🗧			Entity			
	~ Movement-1-1	 TK10	Overview	0		Movement Start Level			Name	÷	27-May-2022 12:07:59 AM	0.000
	~ Movement-1-Many	TK10	Armed			Movement Target Type			Source	÷	27-May-2022 12:07:59 AM	0.000
	~ Movement-Many-1	TK80	Active			MovementDirection			Destination	÷	27-May-2022 12:07:59 AM	864.943
			Closed			Planned Volume			Planned Quantity	÷	► E	
8						Product Level	_		Movement Status	÷		
-						Quantity Left	× 1		Product Name			
						StartTime	< l		ETF	÷		
						StopTime			ActualQty	÷		
m						Target Level			Time to Target	+		
						Target Pre Alert 1			FlowRate	÷		
						Target Pre Alert 2						
						Target Pre Alert 3						
						Target Pre Alert 4						
						Timestamp 1						
									Cancel	Ok	20 rows + 1-3 of 3	

Figure 78 : Manage Views Dialog

Manage Filters

Movement Filters allow the user to customise the rows to be displayed in the "Advanced Movement Main" screen. A number of predefined filters are available; it is also possible to create new filters.

Movement Name		Source	Destination	Planned Quantity	Movement Status	Product Name		
Movement-1-1	:	TK108	Train_01	100.000	(MMED.)	ConcentrationTable	27-May-2	Armed movements
Movement-1-Many	:	TK106	TK104, TK105, TK802	1000.000	ACINE	Densitytable1	27-May-2	Active movements
Movement-Many-1	:	TK803, TK101	ТК910	250.000	ACTIVE	TCF	27-May-2	Closed movements

Figure 79 : Predefined Movement Filters

Note: The Manage Filters option available in other screens is independent of the Advanced Movement Main Screen Filters.

The Manage Filters dialog can be launched from the Advance Movement Main Screen.

End							Í
Ξ	Honeywell ENTIS		Manage Filters		_ ×		
陆						+ New movement 411	Dverview 7
	Movement Name		All Filters New	Filter Settings		ETF	Act
			Filter name	Entity Name	Set Parameters		
a	✓ Movement-1-1	 TK10	Armed movements 🛛 🕅	Movement Name	Operation Value	27-Məy-2022 12:08:24 AM	0.000
	✓ Movement-1-Many	TK10	Active movements	Source	Equal V Armed V	27-May-2022 12:08:24 AM	0.000
	✓ Movement-Many-1	TK80	Closed movements	Destination		27-May-2022 12:08:24 AM	930.292
			Historical movements	Planned Volume			
			CustomFilter	Movement Status	Þ		
-				Product Name			
				ActualQty			
				Target Level			
				Product Level			
				FlowRate			
				MovementDirection			
				Movement Start Level			
				Movement Target Type			
				Planned Quantity			
					Cancel	-	
					Cancel UK	20 rows + 1-3 of 3	

Figure 80 : Manage Filters Dialog

Movement Summary

A summary of each movement is displayed in the "Advanced Movement Main" screen in tabular format. The expand icon to the left of the Movement Name expands to display the transfers involved in that movement.

Movement Name		Source	Destination	Planned Quantity	Movement Status	Product Name	ETF	1
Movement-1-1	I	TK108	Train_01	100.000		ConcentrationTable	27-May-2022 12:12:11 AM	0.000
	:	ТК108	Train_01		AIMED	ConcentrationTable		
Movement-1-Many	1	TK106	TK104, TK105, TK802	1000.000	ACTIVE	Densitytable1	27-May-2022 12:12:11 AM	0.000
Movement-Many-1	1	TK803, TK101	TK910	250.000	ACTIVE	TCF	27-May-2022 12:12:11 AM	116.404

Figure 81 : Movement Summary line

Context Menu

Each row in the table has a vertical ellipsis menu icon to the right of Movement Name. Clicking on this button will open the context menu. From the summary line context menu, the operator can Edit Movement, Delete Movement and Generate Report. Edit Movement will be enabled if Movement is not closed. Delete Movement and Generate Report will be enabled if Movement is closed.

Movement Name	Source	Destination	Planned Quantity	Movement Status	Product Name	ETF	Ac
Movement-1-1	↓ TK108	Train_01	100.000	C TRACK	ConcentrationTable	27-May-2022 12:15:49 AM	0.000
Movement-1-Many	Edit Movement	TK104, TK105, TK802	1000.000	ACTIVE	Densitytable1	27-May-2022 12:15:49 AM	0.000
Jovement-Many-1	Generate report	TK910	250.000	ACTIVE	I TCF	27-May-2022 12:15:49 AM	499.018

Figure 82 : Summary line context menu

From the transfer line context menu, the user can start or cancel the movement. Also, once the movement is active, the user can pause and resume the movement from the same context menu.

neywell ENTIS								
							+ New movement	1 Overview
Movement Name		Source	Destination	Planned Quantity	Movement Status	Product Name	ETF	Ac
Movement-1-1	1 TK108		Train_01	100.000	ADVED	ConcentrationTable	27-May-2022 12:16:02 AM	0.000
	Б ТК108		Train_01		ARMED	ConcentrationTable		
Movement-1-Many	Cancel		TK104, TK105, TK802	1000.000	ACTIVE	Densitytable1	27-May-2022 12:16:02 AM	0.000
Movement-Many-1	; ТК803, Т	K101	TK910	250.000	ACTIVE	TCF	27-May-2022 12:16:02 AM	538.844

Figure 83 : Transfer line context menu

Note that once a movement is canceled, the movement state of the tank will be set to closed.

Entis					
	S				
Group View				+ New movement 11 Ove	rview V
🗐 Group Details	Movement Name	Source	Destination	Movement Status	Plat
🚍 Tank Details				morement otatas	
Gauge Commands	✓ Movement-1-1	TK108	Train_01	ARMED	
🖄 Manual Overwrite	∧ Movement-Many-1	TK803, TK101	ТК910	ACTIVE	
🗠 Profiles 🗸 🗸	:	ТК803	ТК910	ACTIVE	
Totalizers	1	TK101	ТК910	ARMED	
🛱 Movement					
🔒 What If					
D Reports					
🔲 Manage Tasks					
⑦ Help					
~				20 rows = 1=2 of 2	> >1
Settings				201043 + 1-2012 10 0	1 11

Figure 84 : Advanced Movement Main Screen (Many to One movement)

TOTALIZER

Totalizers offer an easy way to totalize and view the contents of a group of tanks. It totalizes the different parameters of the available tanks in a group, such as GOV, GSV, TGSV, NTSM, TOV and Available TOV..

= Honeywell ENTI	S				
Group View	GOV GSV	TGSV	NTSM	тоу	Availab
Group Details	Select a gr	roup	\sim		
🚊 Tank Details	Totalized				
Gauge Commands		Please s	select a gro	oup for	
🖉 Manual Overwrite		totauzeo	GOV		
🗠 Profiles 🗸 🗸	0		50		100
Totalizers			00		100
🛱 Movement					
🔒 What If					
🗋 Reports					
🔲 Manage Tasks					
⑦ Help					



	IS		
合 Group View	GOV GSV TGSV NTSM TOV Availal	ble GOV	
Group Details	Select a group	All tanks	×
🗮 Tank Details	Totalized	Totalized	
Gauge Commands	Please select a group for	66.98 417,902.201 m ³	
Manual Overwrite		7023.508.129 119	
🗠 Profiles 🗸 🗸	0 50 100	0 50 100	00
Totalizers		📀 1 out of 30 tanks are excluded	
🛱 Movement			
Eg What If			
Reports			
🗐 Manage Tasks			
⑦ Help			

Figure 86:Totalizer_All

How to select the Group Totalizer

Proceed as follows:

1. Click on the 'Group Totalizer' icon.





- 2. Click on the tree icon at the left site in the tool bar.
- 3. The 'Group/Tank' window will appear.
- 4. Select a *group* from the tree view. The selected group will be displayed in the tool bar.
- 5. Other groups can be selected from the combo box in the tool bar or from the '*Group/Tank*' window.

What if (tank calculator) is a predictor tool that calculates and tells us values of other parameters, based on the custom input values of points.

1. Click on What If icon from menu toolbar



Tab layout

On What-If screen, choose the desired group and tank from the drop down.

∃ Honeywell ENT	IS										
Group View	T1_GRHT V								o All tanks		
🗉 Group Details	Start Stop Delta								😑 Print		
🚍 Tank Details											
Gauge Commands	T I GPL T I I I I I I I I I I I I I I I I I I										
Manual Overwrite	18% T1_GRH	P1_D1250_888	15-NOV-2022	6:22:29 PM							
🗠 Profiles 🗸 🗸	Product			Tank			Inventory				
Totalizers	Calculation Method AST	M D1250-80 T59/60	A	Available Room	24.002.787	m ²	GRH	34.9972	m		
C Movement	Range Checking			Available GOV	5,897.213	m ³	Product Level	5.9972	m		
🔒 What If	Product Reference Temperature	20.00	°C	Low TOV	100.000	mª	Ullage	29.0000	m		
Reports	Product Thermal Expansion	0.000	10E-7/°C	High TOV	30,000.000	m ^a	тоу	5.997.213	m ³		
Manage Tasks	Reference Density	745.00	kg/m ³	Shell Capacity	34,000.000	ma	FWV	0.000	m³		
@ Help				Remaining Capacity	28,002.787	m ^a	GOV	5.997.213	m ³		
	Measured Data						Liquid Density	745.00	kg/m³		
	Gauge Level	6.0000	m	Flow			CTL	1.00000			
	Water Level	0.0000	m	Flow Rate	0.00	m³/min	GSV	5.997.213	m ³		
	Product Temperature	20.00	*C	Time to Fill / Empty	00:00:00	hhmmess	S&W	1.23	96		
	😵 Hydrometer Correction						S&W Volume	73.766	m ³		
	Sampled Density	745.00	kg/m ^a	Miscellaneous			NSV	5,923.447	m ³		
	Sampled Temperature	20.00	°C	Air Density	1.226	kg/m³	GSM	4,467,923	kg		
	Product Pressure	53.7	kPa	Ambient Temperature	12.86	°C	NSM	4,412,968	kg		
to Pattern	Reload Data							Undo	Calculate Start		

Figure 88: What – If layout

How to use What If (Tank Calculator)

- 1. Open the Tank Calculator from the toolbar of the Experion.
- 2. Select a Group/Tank
- 3. The Tank Calculator always starts up with the actual inventory data at that moment
- 4. The Start screen will pop up
- 5. All white fields are data entry fields and their contents can be modified.

E Honeywell ENTIS												
Group View	T1_GRHT \vee	a tijsert										
🗄 Group Details	Start Stop Deta											
🚍 Tank Details	Task Product Last Update TigHT PL D1220 588 15-Hov-2022 622:29 PM											
Gauge Commands												
Manual Overwrite	18%	F1_01230_000	13-1107-2022	0.22.23 FM								
🗠 Profiles 🗸 🗸	Product			Tank		Inventory						
Totalizers	Calculation Method ASTM D1250-80 T59/60 A			Available Room	24.002.787	mª	GRH	34.9972	m			
C Movement	Range Checking			Available GOV	5,897.213	m ³	Product Level	5.9972	m			
Eð What If	Product Reference Temperature	20.00	°C	Low TOV	100.000	m ³	Ullage	29.0000	m			
C Reports	Product Thermal Expansion	0.000	10E-7/°C	High TOV	30,000.000	m ^a	тоу	5,997.213	m ³			
🗄 Manage Tasks	Reference Density	745.00	kg/m³	Shell Capacity	34,000.000	m³	FWV	0.000	m ³			
() Help				Remaining Capacity	28,002.787	ma	GOV	5,997.213	ma			
	Measured Data						Liquid Density	745.00	kg/m ⁸			
	Gauge Level	6.0000	m	Flow			CTL	1.00000				
	Water Level	0.0000	m	Flow Rate	0.00	m∛min	GSV	5,997.213	m ³			
	Product Temperature	20.00	°C	Time to Fill / Empty	00:00:00	hhmmiss	S&W	1.23	96			
	8 Hydrometer Correction						S&W Volume	73.766	m ³			
	Sampled Density	745.00	kg/m ³	Miscellaneous			NSV	5,923.447	m ³			
	Sampled Temperature	20.00	°C	Air Density	1.226	kg/m³	GSM	4,467,923	kg			
	Product Pressure	53.7	kPa	Ambient Temperature	12.86	°C	NSM	4,412,968	kg			
@ Settings	Reload Data							Undo	Calculate Start			

Figure 89: What – If Start

- 6. The system will calculate other values and display them by pressing the Calculate Start button.
- 7. To restore values to real time values coming from the CIU, click on Reload Data.

E Honeyvell ENTES											
Group View	n.coert v										
E Group Detaits	Start Stop Delta										
🕀 Tarik Details											
Gauge Commands	Con Tech Product La Update										
Manual Overwrite	18% 11_GRH1	P1_D1250_888	15-Nov-2022	6:22:29 PM							
🗠 Profiles 🗸 🗸	Product			Tank			Inventory				
🗄 Totalizers	Calculation Method AST	M D1250-80 T59/60	۸	Available Room	24.002.787	m²	GRH	34.9972	m		
G Movement	Range Checking			Available GOV	5.897.213	m ^a	Product Level	5.9972	m		
En What If	Product Reference Temperature	20.00	°C	Low TOV	100.000	m ³	Ullage	29.0000	m		
🖸 Reports	Product Thermal Expansion	0.000	10E-7/°C	High TOV	30,000.000	m ³	точ	5,997.213	m ²		
E Manage Tasks	Reference Density	745.00	kg/m³	Shell Capacity	34,000.000	m ⁹	FWV	0.000	m ²		
() Help				Remaining Capacity	28,002.787	m ⁹	GOV	5,997.213	m²		
	Measured Data						Liquid Density	745.00	kg/m¹		
	Gauge Level	6.0000	m	Flow			CTL	1.00000			
	Water Level	0.0000	m	Flow Rate	0.00	m²/min	GSV	5,997.213	m ^a		
	Product Temperature	20.00	°C	Time to Fill / Empty	00:00:00	hhommosa	S&W	1.23	9/2		
	Hydrometer Correction						S&W Volume	73.766	m²		
	Sampled Density	745.00	kg/m*	Miscellaneous			NSV	5,923.447	m²		
	Sampled Temperature	20.00	°C	Air Density	1.226	kg/m³	GSM	4,467,923	kg		
	Product Pressure	53.7	kPa	Ambient Temperature	12.86	*C	NSM	4,412,968	kg		
© Settings	Reload Data							Undo	Calculate Stop		

Figure 90: What – If Reload

Note: While performing What If calculation, following entities - Reference

Density, Sample Density and Sample Temperature values can\cannot be modified based the calculation method and product code. Refer to Appendix A to know more about this relation.

REPORTS

The Reports display makes it possible to print out reports in pre-defined templates. A user can preview and print Tank Detail and Group Detail reports from this display. The tank data displayed in the reports consists of the last available measured and inventory data received from the gauge. It also displays the second level when dual gauges are connected.



Figure 91: Reports

Report Printing

The Report printing window consists of four main parts:

- The Browse Reports
- The type of report combo box
- The tank/group combo boxes
- The template combo box
Reports types

Select one of the report types from the combo box. The following Options are enabled depending of the selected report:

Group/Tank Two combo boxes used to select a group or a tank name

Template Depending on the selected type of report, the '*Template*' combo box will list the available templates

How to select Reporting

1. Click on the 'Reporting' icon or you can also select 'Reports' from the options available on left side of the screen.



Figure 92: Reporting icon

- 2. Select Tank Details or Group Details from the combo box.
- 3. Select a Template.
- 4. Click on Preview.

🛃 Print	×
General	
Select Printer	
So Black and White Secure Badge Print (redirected 2) Color Secure Badge Print (redirected 2) Fax	 Fax (redit Microsof Microsof
Status: Ready Location: Comment:	> Preferences Find Printer
Page Range All C Selection C Current Page C Pages:	x 1 🔅
Print Cance	Apply

Browse Reports

This option will be displayed on the top of the 'Reports' screen. All the saved PDF files can be selected for viewing again.

Filters

A combo box is available to select the report type, listing only the reports belonging to that report type. The calendar option allows the user to select the date range.

Browse Reports					×
Filters	List of R	eports		🛍 Delete Selec	ted
All		Туре 🗘	Filename 🗘	Created On 💲	
All Tank Details	~	Tank Details	TankDetail_20190917_073300.pdf	17-Sep-2019 7:33:02 AM	
Group Details What If		Tank Details	TankDetail_20190917_073341.pdf	17-Sep-2019 7:33:43 AM	
Delta Column					
				Cancel Open	

Figure 93: Browse Reports

Report Scheduling



This option is displayed at the bottom of the 'Reports' screen. This feature allows the user to schedule automated reports.

Task Name ScheduleReports	i -
Start at	Repeat 1 ∨ ○ Never ● Alway
Select Cycle Interval Weekly	Monthly
Monday 🗸	🖌 Tuesday 📄 Wednesda
✓ Thursday	Friday 🗹 Saturday
🗸 Sunday	All days

Figure 94: Schedule report

The user can create a task and schedule reports for different intervals like daily, weekly, monthly. The tasks created here are shown on 'Manage Tasks' screen.

Once the report is scheduled, it will get automatically generated (and saved) at the Reports path at the scheduled time.

How to schedule a report

- Choose the specifications of the report that needs to be scheduled and then click on 'Schedule Report' button.
- Make the following selections for the scheduled report.
- Task Name : This is user defined field which defines name of the task.
- Send report to the printer : User can enable if report is to be printed through configured printer.

Note: Please ensure physical printer is connected and it is configured as default printer on the current system

- Starts at : User can choose when the task execution will start.
- **Repeat :** If the task has to be executed only once, 'Never' should be selected. If it is a repeated task, 'Always' should be chosen.
- Select Cycle : User can choose the frequency of the task from below available 3 options (. It will be enabled only when repeat is chosen as 'Always')
 - **1. Interval :** User can give any interval in hh:mm, after 'start at' time this task will be executed continuously after the given interval.
 - **2.** Weekly : User can choose the days, every week this task will be executed on the provided days and time provided in 'start at'.
 - **3.** Monthly : User can choose the dates in a month, every month this task will be executed on the provided dates and time provided in 'start at'.

Schedule Report ×	Schedule Report $ imes$	Schedule Report $ imes$
Task Name ScheduleReports	Task Name ScheduleReports	Task Name ScheduleReports
Options Send report to printer	Options Send report to printer	Options Send report to printer
Start at Repeat 12 : 59 AM ∨ Never Image: Always	Start at Repeat 12 : 59 AM ∨ ○ Never ● Always	Startat Repeat _12 : 59 AM ∨ ○ Never ● Always
Select Cycle Interval Weekly Monthly	Select Cycle Interval Weekly Monthly	Select Cycle Interval Weekly Monthly
4_hh30 _mm	 Monday Tuesday Wednesday Thursday Friday Saturday 	1 2 3 4 5 6 7 8 9 10 11 12 13 14
	Sunday All days	15 16 17 18 19 20 21 22 23 24 25 26 27 28
		29 30 31
Cancel Schedule	Cancel Schedule	Cancel Schedule

Figure 95: Schedule report screens

Templates

The format of a printout is defined by templates. ENTIS supports following templates:

- Tank Detail
- Group Detail Crudes, CTL, General Product, Inventory, Measured
- What If
- Delta Column

Report Templates

Example of a group detail printout.

			Group: Trans	sferGorup		Group Det	ail Report - Crudes			Print da Print tir	ite: ne:	09- 10:52 AM U	-Jun-2021 JTC-08:00
	Honey	well	Customer: C Site: Site Na	ustomer name me		aroup boo				D	ST:	Pa	On age 1 of 1
Tank Name	Product Name	Product Level	TOV	Water Level	Water Volume	Product temp.	Ref. VCM density	Ref. temp.	GSV	S&W	NSV	Total Mass	Air/ vac.
		mm	m³	mm	m³	°C	kg/m³	°C	ma	%	mª	ton	
TK501	TCF	16,753.0	840.792	U#	0.000	29.39	U# TCF method	- 15.00	828.693	0 8	328.693 🟉	U#	in vacuum
TK502	TCF	16,725.0	839.385	U	0.000	25.54	U# TCF method	- 15.00	830.538	0 8	330.538	U	in vacuum
TK503	TCF	16,782.0	2,982.944	ue	0.000	30.86	U# TCF method	- 15.00	2,935.635	0 2,9	35.635	U	in vacuum
TK504	TCF	16,753.0	2,984.442	U	0.000	28.31	U# TCF method	- 15.00	2,944.719	0 2,5	44.719	U#	in vacuum
TK505	TCF	16,697.0	2,970.445	U	0.000	28.48	U# TCF method	- 15.00	2,930.403	0 2,5	30.403	U	in vacuum

Totals				[Legend		
	TOV	10,618,008.000	m ³	?		Data is actual and approved	"F"	Data is in fail
	Water Volume	0.000	m ³	?	-8-	Data is manually overwritten	"К"	Data is not scanned
	GSV	10,469,988.000	m³	?	"S"	Data is stored and not approved	-	Data is over range
	NSV	10,469,988.000	m ³	?	·#*	Data is not approved	\sim	Data is under range
	TNSM	0.000	ton	?	"?"	Data has reduced accuracy and is not approved	"U"	Data is uninitialized
							manually	S&W, Liq/Vol Ratio and Molar Weight are always entered

Figure 96: Group detail report

Tank Details

Example of a tank detail printout.

Honeywell		Customer						
Tank Detail Repo	ort	Date 15 Nov 2	0022 06-52 DM LITC+00-00					
Tank TK101		發 Not Legal Metrology Approved						
Product								
Product Calculation Method	1250 ASTM D1250-80 T5/6 B	Reference Density Concentration	● kg/m ³					
Range Checking		TCF						
Thermal Expansion	0.000 0 10E-7/°C	DCF						
Measured Data								
Gauge Status	Measuring level	Product Temperature	20.00 🔍 🕐 °⊂					
Gauge Level	6,480.0 🔘 🤀 mm	Sampled Density	U kg/m ³					
Gauge 2 Level	•	Sampled Temperature	20.00 🕖 🤀 °⊂					
Water Level	U mm							
Product Pressure	U kPa							
Vapor Room								
Pressure		Liq/Vol Ratio						
Temperature	12.86 🔾 🔀 °C							
Tank								
Movement Status	Available	Take Off Height						
Movement Direction		Zone 2 High						
Percentage Filled	47 %	Zone 2 Low						
Available Room	580.090 🔘 🤀 m³	Shell Capacity	1,100.000 🔘 🗌 m³					
Available GOV	() () m ³	Remaining Capacity	_					
Low TOV	7.143 🔘 🗌 m³	High TOV	1,096.237 🔘 🗌 m³					
Roof weight		Support Height						
Flow								
Flow Rate	-160.0 🕎 m³/hr	Time to Fill/Empty	00:00:00 hh:mm:ss					
Miscellaneous								
Air Density	1.226 🕖 🤀 kg/m³(air)	Ambient Temperature	12.86 🗌 🤁 °C					
Inventory								
GRH	21,000.0 💮 🤀 mm	NSV	() () m ³					
Product Level	6,480.0 🔵 🤀 mm	GSM	🛈 🧭 ton					
Ullage	14,520.0 🕖	NSM	U 🤀 ton					
TOV	516.147 🔘 🤀 m³	WCF	00					
FWV	○ ⊕ m³	NSW	U 🤀 ton					
CTSh		GSW	U 🤀 ton					
GOV	516.147 🕖 🤀 m³	Liquid Density	U H kg/m ³					
CTL	0.00000 🔾 🤀	GSV	U Ø m ³					
S&W	1.10 🕲 🔾 %	S&W Volume	U ⊕ m³					
Mass Concentration		Volume Concentration						
Roof Immersion Co	ompensation							
RIC Mode	Weighing method	RIC Volume	() () m ³					
Average Roof Offset	() () mm							
Data is manually overwritte	en	Data is over range						
S Data is stored		Data is under range						
Data has reduced accuracy	v	No data available (Data is	not displayed)					
B Data is in fail		Data is valid (Data is displa	aved)					
🔞 🗍 Data is not scanned		Data is not approved	4 · · ·					
Data is uninitialized		S&W, Liq/Vol Ratio and Molar Weig	th are always manually entered					

Figure 97: Tank detail

Delta Column

			Group: Tr	ansferGor	up				P	rint date:	11-Jun-2021
	Honeyy	vell	Customer	: Custome	r name	Delta	Column R	eport	P	rint time: DST:	7:35 AM UTC-08:00 On
	·		Site: Site	Name							Page 1 of 1
Tank	Product	Start	Delta	Start	Delta	Start	Delta	Start	Delta	Start	Delta
Name	Name	Level	Level	TOV	TOV	GSV	GSV	TNSM	TNSM	Date & Tim	e Date & Time
		mm	mm	m³	m³	m³	m³	ton	ton	Abs Time	Rel Time
TK501	TCF	17,632.0	-13,090.0	884.938	-656.931	870.602	-640.703	U		09-Jun-2021 11:12:41 AM	1 days, 20 hours, 22 minutes
TK502	TCF	17,660.0	-13,118.0	886.344	-658.337	873.838	-644.030	U		09-Jun-2021 11:12:44 AM	1 days, 20 hours, 22 minutes
TK503	TCF	17,688.0	-13,231.0	3,143.023	-2,337.482	3,105.621	-2,292.588	U		09-Jun-2021 11:12:46 AM	1 days, 20 hours, 22 minutes
TK504	TCF	17,717.0	-13,317.0	3,154.957	-2,354.625	3,104.730	-2,297.915	U		09-Jun-2021 11:12:49 AM	1 days, 20 hours, 22 minutes
TK505	TCF	17,887.0	-13,374.0	•••••	F	******	F	••••• F		09-Jun-2021 11:12:51 AM	1 days, 20 hours, 22 minutes

Figure 98: Delta column report

What If ..

Example of a What If .. printout.

Honeywell		Custo	omer		
What If Report Tank TK101		Date	15-Nov-2022	06:42 PM UTC+	00:00
Product					
Product Calculation Method Range Checking Reference Temperature	1250 ASTM D1250-80 T5/6 On 15.55 °C	Thern TCF DCF	nal Expansion	0.000	10E-7/°
Reference Density (ka/m³	Start	800.00	Stop 800.00	Delta	0.00
Management Data					
Hydrometer Correction	Off				
	Start		Stop	Delta	
Gauge Level (mm) Water Level (mm)		4,020.0	4,020.0		0.0
Product Temperature (°C) Sampled Density (kg/m ³)		20.00	20.00		0.00
Sampled Temperature (°C	.)	20.00	20.00		0.00
Vapor Room					
	Start		Stop	Delta	
Temperature (°C)		12.86	12.86		0.00
Tank					
Low IOV Zone 2 High Roof weight Take Off Height	7.143 m³	High Zone Supp Shell	TOV 2 Low ort Height Capacity	1,096.237	m ³
	Start		Stop	Delta	
Available Room (m³) Available GOV (m³)		773.281	773.281		0.000
Flow					
	Start		Stop	Delta	
Flow Rate (m³/hr) Time to Fill/Empty (hours))	-8,878.0	-8,878.0	Detta	0.0
Miscellaneous					
Air Donaity (kg (m³(air))	Start	1.226	Stop	Delta	0.000
Ambient Temperature (°C)		12.86	12.86		0.00
Inventory					
			6 1-1		
GRH (mm)	Start	21 000 0	21 000 0	Delta	0.0
Product Level (mm)		4,020.0	4,020.0		0.0
Ullage (mm)		16,980.0	16,980.0		0.0
FWV (m ³)		322.950	322.950		0.000
GOV (m ³)		322.956	322.956		0.000
CTL GSV (m ³)					
S&W (%)		1.10	1.10		0.00
S&W Volume (m ³)					
NSV (m ³) GSM (top)					
NSM (ton)					
NVM (ton)					
WCF GSW (top)					
NSW (ton)					
GVM (ton)					
NTSM (ton) NTSW (ton)					

Figure 99 - What if .. report

The Export feature enables exporting tank data in the Group Detail screen to a CSV file which can be visualized with a spreadsheet application like Microsoft Excel.

Exporting Tank Data

1. In the Group Detail screen, click on the delta column header (three vertical ellipses) and select the 'Export' option from the context menu.

🔓 Group View										iti Ma	ss [o mover	mentgroup ㅠ ①
Group Details	Tank Name		Product Name	Produc	ct Level (mm)	Reference Density (lb/ft*)	Product Code		NSM (kg)	NVM (kg)		NTSM (kg)
🚍 Tank Details	▶ TKR57	Start Delt	a Group antrationTable	0	10,450.0	887.100	-	G	******		G	
Gauge Commands	▶ TKR58	Stop Delta	tytable1	0	10,450.0	913.546	2	0	11.064.382		0	11.064.382
🖉 Manual Overwrite	▶ TKR60	Export	tytable1		16.350.0	913.546		G			0	
\succeq Profiles \lor	▶TKR62	:	Densitytable1	0	11,400.0	913.546	-	0	12,058,882		0	12,058,882
🖻 Totalizers	▶ TKR63	1	Densitytable2	0	10,500.0	892.603	-	0	11,258,027		0	11,258,027
🔒 What If	▶ TKR68	1	Densitytable1	0	11.450.0	913.546	÷	0	12.231.466		0	12.231.466
Reports	▶ TKR69	;	Densitytable2	۵	10,450.0	892 603		0	11.070.735		0	11,070,735
🗐 Manage Tasks	▶ TKR70	1	Densitytable2	0	11,450.0	892.603	2	0	12,141,794		0	12,141,794
⑦ Help	▶TKR71	1	Densitytable1		16,275.0	913.546	-	0	80.812.538		0	80,812,538
	▶TKR72	i	Densitytable2		15.313.0	892.603		0	67.712.233		0	67.712,233
	▶TKR73		ConcentrationTable		16,250.0	887.100		0	*****		Ø	******
	▶TKR74	1	ConcentrationTable		15,313.0	887.100	5	G	******		G	******
	▶TKR75	i	Densitytable1		15.250.0	913.546	-	0	39.228.371		0	39.228.371
	▶TKR76	1	Densitytable2		16,225.0	892,603	а. С	0	40.497.510		۲	40,497,510
	▶TKR77	1	ConcentrationTable		15,377.0	887.100	-	0	*****		G	*****
	▶TKR78	:	Densitytable2		15,313.0	892.603		0	109.238.713		0	109.238.713
	▶ TKR80	1	Densitytable1		15,377.0	913,546	-		71.100.113			71.100.113
Settings										50 rows 👻	1< <	1-19 of 19 > >1

Figure 100 : Export option in group detail

2. From the Export modal that pops up, configure the group and view from the drop down options.

Group View					Export	Export ×		t¶ Mass ☐o movement group							
Group Details	Tank Name	e E	Product Name	Product Leve	Export For	Export Format			NSM (kg)	NVM (kg)	,	NTSM (kg)			
🗎 Tank Details	▶TKR57	;	ConcentrationTable	0		~		Ø	11.361.379		0	11.361.379			
ව Gauge Commands	▶ TKR58	:	Densitytable1	0	Select Gro	up		0	11.142.131		0	11.142.131			
🖄 Manual Overwrite	▶ TKR60	1	Densitytable1		Select View	v		G	*****		G	******			
🗠 Profiles 🛛 🗸	▶TKR62	1	Densitytable1	0	Mass	~		0	12.151.612		0	12.151.612			
] Totalizers	▶ TKR63	1	Densitytable2	0	Sc	hedule Export		0	11.196.234		0	11.196.234			
) What If	▶ TKR68	:	Densitytable1	0	T I			Ø	12.146.077		0	12.146.077			
] Reports	▶ TKR69	:	Densitytable2	0		Lancel		Ø	10.993,165		0	10.993,165			
Manage Tasks	▶TKR70	:	Densitytable2	0	11.450.0	892.603		0	12.053.880		0	12,053,880			
2 Help	▶TKR71	1	Densitytable1		16.275.0	913 546	-	Ø	80.992.499		0	80.992.499			
	▶TKR72	1	Densitytable2		15.282.0	892 603		Ø	67.742.655		0	67,742,655			
	▶ TKR73	:	ConcentrationTable		16,275.0	887.100	-	G			0	******			
	▶TKR74	1	ConcentrationTable		15,218.0	887.100	1	G	*****		G	******			
	▶ TKR75	1	Densitytable1		15.250.0	913.546		Ø	39.330,318		0	39,330,318			
	►TKR76	:	Densitytable2		16.250.0	892.603		Ø	40.670.887		0	40.670.887			
	▶TKR77	:	ConcentrationTable		15.345.0	887.100	-	G	*****		G	*****			
	▶ TKR78	:	Densitytable2		15.218.0	892.603		0	108.103.511		0	108.103.511			
	▶ TKR80	:	Densitytable1		15.345.0	913.546	-		70.660.414			70.660.414			

Figure 101 : Export modal

3. Click on Export. The exported csv file is saved in the Export path.

Scheduling Export

This feature allows the user to schedule automated exports. The user can create a task and schedule exports for different intervals like daily, weekly, monthly. The tasks created here are shown on 'Manage Tasks' screen.

Once the export is scheduled, it will get automatically generated (and saved) at the Export path at the scheduled time.

How to schedule an export

• In the Group Detail screen, click on the delta column header (three vertical ellipses) and select the 'Export' option from the context menu. Select the group and view for which export needs to be scheduled.

= Honeywell ENTIS											
🚡 Group View					Export ×				∰ Mas	ss 🛛 a mover	mentgroup 🟹 🛈
Group Details	Tank Name		Product Name	Product Leve	Export Format	roduct Code		NSM (kg)	NVM (kg)		NTSM (kg)
🛱 Tank Details	▶TKR57	1	ConcentrationTable	0	say V		G			Ø	
Gauge Commands	▶ TKR58	3	Densitytable1	0	All tanks V	100	0	10,872,356		0	10,872,356
🖄 Manual Overwrite	▶ TKR60	1	Densitytable1		Select View		G	******		G	******
\succeq Profiles \lor	▶TKR62	1	Densitytable1	0	Mass 🗸		0	11.854.454		0	11,854,454
Totalizers	▶TKR63	1	Densitytable2	0	Schedule Export	-	0	11,064.552		0	11.064,552
🕞 What If	▶ TKR68	1	Densitytable1	0	Task Name		0	12,006.939		0	12.006.939
B Reports	▶ TKR69	- 8	Densitytable2	0	Export01	-	0	10.862,531		0	10.862,531
🗐 Manage Tasks	▶TKR70	1	Densitytable2	0	Start at Repeat		Ø	11.916.914		0	11.916.914
Heln	▶TKR71	1	Densitytable1				0	95,426,719		0	95,426,719
	▶TKR72	1	Densitytable2				G			G	
	▶TKR73	1	ConcentrationTable				G	*****		Ø	******
	▶TKR74	8	ConcentrationTable				0	******		0	******
	▶TKR75	1	Densitytable1			-	0	49,795,122		۲	49,795,122
	▶ TKR76	1	Densitytable2				Ø	48,288,390		0	48,288,390
	▶TKR77	1	ConcentrationTable			-	0	******		Ø	******
	▶TKR78	1	Densitytable2		Cancel Schedule		0	138,666.058		0	138,666,058
	▶ TKR80	1	Densitytable1		10.110.0 013.040			90,218,084			90.218.084
Settings									50 rows 👻	IC C	1-19 of 18 > >

• Enable the Schedule Export toggle.

Figure 102 : Scheduling export

- Make the following selections for the scheduled export.
- Task Name : This is user defined field which defines name of the task.
- Starts at : User can choose when the task execution will start.
- **Repeat** : If the task has to be executed only once, 'Never' should be selected. If it is a repeated task, 'Always' should be chosen.

- Select Cycle : User can choose the frequency of the task from below available 3 options . It will be enabled only when repeat is chosen as 'Always'
 - 1. **Never** : User can opt for scheduling the export only once without repeating it.
 - 2. **Interval** : User can give any interval in hh:mm, after 'start at' time this task will be executed continuously after the given interval.
 - 3. **Weekly** : User can choose the days, every week this task will be executed on the provided days and time provided in 'start at'.
 - 4. **Monthly** : User can choose the dates in a month, every month this task will be executed on the provided dates and time provided in 'start at'.

Export ×	Export ×	Export ×						
Export Format	Export Format							
.csv 🗸 🗸	.csv 🗸	.csv 🗸 🗸						
Select Group	Select Group	Select Group						
All tanks 🖂	All tanks 🗸 🗸	All tanks 🗸						
Select View	Select View	Select View						
Mass 🗸	Mass 🗸	Mass \vee						
Schedule Export	C Schedule Export	C Schedule Export						
Task Name	Task Name	Task Name						
Export01	Export01	Export01						
Start at Repeat 12:59 AM ∨ Never Always Select Cycle	Start at Repeat 10 : 10 AM ∨ ○ Never ● Always Select Cycle	Start at Repeat 10 : 10 AM ∨ ○ Never ● Always Select Cycle						
Interval Weekly Monthly	Interval Weekly Monthly	Interval Weekly Monthly						
_5_hh_10_mm	Monday Tuesday Wednesday	1 2 3 4 5 6 7						
	🗌 Thursday 🗹 Friday 🗌 Saturday	8 9 10 11 12 13 14						
	Sunday All days	15 16 17 18 19 20 21						
		22 23 24 25 26 27 28						
		29 30 31						
Cancel Schedule	Cancel Schedule	Cancel Schedule						

Figure 103 : Scheduling export screens

• Click on the Schedule button.

Once a Gauge Command/Reporting/Export task is scheduled, users can view the list of tasks on this window.

Users can edit the schedule of the tasks and - if needed - tasks can also be deleted from here.

Honeywell ENTI				
Group View	Manage Tasks			
🗐 Group Details	Task Name	Туре	Edit	Delete
🚍 Tarik Details	GaugeCommand01	Gauge Command	8	в
Gauge Commands	Report01	Report	8	
Annual Overwrite				
🗠 Profiles 🗸 🗸	Export01	Export	8	
Totalizers				
🕞 What If				
🗎 Reports				
🗉 Manage Tasks				
() Help				
Settings			30 rows 💌 🖂	< 1-3 of 3 > >

Figure 104: Manage Tasks

• User can open the Manage Tasks screen by clicking on 'Manage Tasks' icon from the experion toolbar or by clicking on the navigation menu on the left.



• The display will show the list of tasks scheduled, with their task name, type (Reporting/Gauge Commands), and Edit and Delete buttons.

How to edit/delete a task

1. Click on the edit button in front of the task. A scheduling screen will popup.

🔒 Group View	Manage Tasks			
Group Details	Task Name	Туре	Edit	Delete
🚍 Tank Details	GaugeCommand01			8
Gauge Commands		Edit Task ×		
🖄 Manual Overwrite	reportui	Task Name		
$[\simeq$ Profiles \sim	Export01	GaugeCommandU1		8
Totalizers		Start at Repeat 12 : 59 AM ∨ ○ Never		
🕞 What If		Select Cycle		
Reports		Interval Weekly Monthly		
🔝 Manage Tasks		_1_bh_0_mm		
(i) Hedp		Carcol		
Settings			30 rows 👻 <	< 1-3 of 3 > >

Figure 105: Scheduling screen

- 2. Change the details of the schedule and click **OK**. The task will be updated.
- 3. To delete, click on the delete button in front of the task. A confirmation dialog will pop up.

= Honeywell ENT	IS			EN 🌐
🔓 Group View	Manage Tasks			
E Group Details	Task	Туре	Edit	Delete
拱 Tank Details	ReporTask01	Report	ß	
Gauge Commands	GaugeCommandTask01	Confirmation × Gauge Command	ß	Û
🖄 Manual Overwrite		Are you sure you want to continue?		
\succeq Profiles \checkmark				
🖹 Totalizers		No Yes		
🔒 What If				
🗍 Reports				
🔲 Manage Tasks				
⑦ Help				
Settings				
	Previous	Page 1 ct 1 20 rows		

Figure 106: Confirmation Dialog

4. Click on **Yes** to delete the task.

HELP

HELP

This Display opens the 'ENTIS User Guide'.



Figure 107: Help

How to select Help

1. Click on the 'Help' icon from the toolbar.



- 2. You can also select 'Help' from the options available on left side of the screen.
- 3. On clicking either of the 2 options, the 'ENTIS User Guide' opens on the right panel of the ENTIS screen.

SETTINGS

General

Clock Synchronization

The master clock feature synchronizes the ENTIS application and CIU clocks, with the ENTIS clock serving as the master. See figure 65.

Having the ENTIS and the CIU clocks synchronized helps ensure that timestamps on alarms, events and operational data are consistent.

Product colors

The switch allows users to enable custom colors for products. If not enabled, default colors will be used, which are the flow rate moving colors. Once enabled each product will have an associated color which can be customized. The product names for color coding are not casesensitive. The product colors table can be seen in figure 65.

Settings		×
General CIU Status Alarms Manage Files Reports Movement Objects	Clock Synchronization The master clock feature synchronizes Having the ENTIS and the CIU clocks b O Synchronize clocks Product colors O Use a synchronize sense set of clock interfe	the ENTIS application and CIU clocks, with the ENTIS clock serving as the master. e synchronized helps ensure that timestamps on alarms, events and operational data are consistent.
	Available Products 🗘 Tef	Color #707070
		Cancel

Figure 109 Settings modal General section

The user can also set the RGB or HEX color for that product by clicking on the '+' as shown in Figure 66.

Settings			×
General CIU Status Alarms Manage Files Reports Movement Objects	Clock Synchronization The master clock feature synchronizes the ENTI Having the ENTIS and the ClU clocks be synchro Synchronize clocks Product colors Cluse custom product colors instead of me	Sapplication and CIU clocks, with the ENTIS clock serving as the master. Inited helps ensure that timestamps on alarms, events and operational data are consistent wing direction colors.	nt
	Available Products \$	Color #707070	
	##0707070 112 112 112	Cic i	xse
-	Cancel Ok	Cancel Ok	tion

Figure 110 Settings modal General section custom Product Color

CIU Status

The CIU Status section shows a table with the configured CIU's and CIU pairs. Inside table there are five columns that display:

- CIU name. Any configured text.
- Type. Its either Primary or Secondary.
- IP address. Numeric digits separated by dots.
- Status. Its Active, Passive or Fail.
- Health. Icon will be green, yellow or red.

For CIU pair there is sixth column that contains a button to switch over. If one of the CIU's is in failure the switch over will be automatic. Otherwise, the user can switch a CIU with its second CIU manually with a help of this button. See figure 67.

Settings						×
General	CIU Name	Туре	IP Address	Status	Health	
CIU Status Alarms	CIU888R	Primary	10.79.213.171	Active	ø	
Manage Files						
Reports Movement Objects						
					Cancel	ok Activa

Figure 111 Settings modal CIU Status section

Alarms

Age Alarms

The system periodically checks the tank record time stamps against the system clock. If the difference exceeds a predefined value, an AGE alarm is generated. Aging values are checked on a per tank basis, so AAL's are generated for each tank separately. Form can be seen in figure 68, left side.

Foreground

A foreground age alarm is generated

Background

A background age alarm is generated

Deviation Alarms

The deviation alarm is an alarm that will be raised when Product level 1 and Product Level 2 on a tank deviate from each other. The deviation alarm is only applicable on tanks with dual gauges. With the switch you can enable or disable the deviation alarm for all tanks that have dual gauges.

Difference value

The difference value is the absolute value difference between Product Level 1 and Product Level 2. The difference alarm will only occur if both gauges are measuring level and are not in a failed state.

Unplanned Flow Alarms

The unplanned flow alarm is an alarm that will be raised when there is flow, but no flows are configured. Form can be seen in Figure 112 on the right side. There are three types.

- 1. Volume
- 2. Level
- 3. Mass

Overwrite Setpoint: The setpoint for an unplanned flow alarm can be manually configured using the **Overwrite Setpoint** field. When this field is left blank and the alarm is enabled by clicking **Ok**, the current measurement value (based on the alarm being configured) will automatically be used as the setpoint.

Current Setpoint: The **Current Setpoint** field displays the setpoint at which the unplanned flow alarm will be triggered.

Hysteresis: The **Hysteresis** field can be configured to prevent alarms from being raised if the currently monitored measurement (Volume, Level, or Mass) falls within the +/-hysteresis value from the current setpoint.

Volume Based Alarms

This can be used to configure an unplanned flow alarm based on volume. When the setpoint is not overwritten, the current TOV value will be used as the current setpoint.

Level Based Alarms

This can be used to configure an unplanned flow alarm based on level. When the setpoint is not overwritten, the current product level value will be used as the current setpoint.

Mass Based Alarms

This can be used to configure an unplanned flow alarm based on mass. When the setpoint is not overwritten, the current TNSM value will be used as the current setpoint.

General	Tanks (14)		G All tanks	Unplanned flow al	arms		
CIU Status	Tank 🗘		Status 🗘	Volume base	ed alarm		
Alarms ^	TK4200	Volume/Lovel/Mass/Weight	AVAILABLE	Current Setpoint	Overwrite Satpoint	Threshold	
General Alarms	TK4201		ARMED		942	0)	m*
Unplanned Flow Alarms	TK4202		ACTIVE	C Level based	alarm		
File Management	TK4203	Volume/Level/Mass/Weight	CLOSED	Current Setpoint	Overwrite Setpoint	Threshold	
Reporting	TK4204	Volume/Level/Mass/Weight	AVAILABLE	17.9350 m	m	0	. 11)
	TK4205		ACTIVE	Mass based	alarm		
	TK4206	Volume/Level/Mass/Weight	AVAILARLE	Current Setpoint	Overwrite Setpoint	Threshold	
	TK4207	Value of sectors in the sector of the	ARMED			0	
	TK4208		ARMED	Weight base	d alarm	Thursday	
	ТК4209	Volume/Level/Mass/Weight	AVAILABLE	6.789.845.123 Int		0	
	TK4210	Valume/Level/Mass/Weight	CLOSED				
	TK4211		ADMED				
	TK4212	Volume/Lovel/Mass/Weight	AVAILABLE				
	TK4213	Volume/Level/Mass/Weight	AVAILABLE				

Figure 112 Settings modal unplanned flow alarms section

Manage Files

ENTIS generated files can be cleaned up/deleted after a defined number of days in the below configuration.

There are three sections in Manage Files:

- 1. Report
- 2. Movements
- 3. Profiles

1. Reports

For LM/Other reports, customers can define the number of days which files can be removed from Entis. By default, a minimum of 60 days is applied.

2. Movements

For Closed Movements, customers can define the number of days after which closed movements will be automatically cleaned up by Entis. By default, 1 day is applied and a maximum of 30 days can be configured.

3. Profiles

All profile data will be removed from Entis based on defined days.

Enable/Disable auto cleanup will remove files from Entis automatically based on the days configured. The Setting configure window is shown in the figure.

🔮 Station - Defaul	t - Entis(Entis.html)					
ENTIS STATION	EDIT VIEW CONTROL ACTION	CONFIGURE HELP				
) ☆ A & @ □ □ □ □ 0 0 - % 2 00 △ マ 🗸 0 0, 30% - Command				
Entis	538					
	Cienteriat	Reports				
∃ Hone	CIU Status	I M Benorts (minimum 60 days)	60	davs		
🗐 Group	Alarms \lor			days	-0	nks
🚍 Tank D	Manage Files	Other Reports	60	days		
	Reports	Auto Classiu				
Gauge	Movement Objects	Auto cleanup		_		
🕅 Manua		Movements				
🗠 Profile		Closed Movements(maximum 30 days)	2	days	0	
🖹 Totaliz		Closed movements will be auto cleaned			0	
🛱 Moven		Profiles				
E What I		All Files	10	days		
🗍 Report		Auto Cleanup			-3	
🔲 Manag						
() Help						
Setting			Activata	Window	115	

Figure 113 Settings modal Manage Files section

Reports

User can set the customized 'Customer Name', 'Site Name', and upload a 'Customer Logo' in settings modal reports section as shown in Figure 98: Delta column report. This information will be reflected in the Reports header.



Figure 114 Settings modal Reports section

Movement Objects

ENTIS offers the feature of creating movement objects, and it is available as a part of the Infrastructure pipeline license. The Movement Objects Tab cannot be seen if the user does not have the license.

These objects include Pipe, Truck, Train Truck, Ship, Other. Movement objects can be used during movement configuration as a transfer object (only available with Advance Movement). Infrastructure pipe is a special movement object which is used to connect two tanks, and it cannot be selected as a transfer object.

Creating a movement object

To create a movement object, perform the following steps:

- 1. Go to Settings.
- 2. Select Movement Objects, click on New.
- 3. Select the **Object Type** (1) and enter the details of the object. Capacity is not a mandatory field as it can be modified at the time of movement configuration.



Figure 115: Movement object creation

- **Object Name** (2): The name of the object.
- **Product** (3): This is the product type to be stored in the object.
- **Measurement** (4): This is the measurement of the product (GOV, TOV, GSV, etc.).
- **Capacity** (5): This is the capacity of the object. It is not mandatory to set the capacity. It can be set during movement configuration.
- **Comments** (6): Operator can use this field to store additional details about the movement object.
- 4. Click Ok.

Note: The difference between *Infra Pipe* (infrastructure pipe) and *Pipe* (external pipe) is that infrastructure pipe is used to connect two tanks, whereas external pipe is the container to / from which the transfer is taking place. Infrastructure pipe can only be selected for tank-to-tank transfer.

Selection of Movement objects

- 1. Select **Configure Movement** for the tank you want to configure a movement.
- 2. On the **Configure Movement** screen, click on the **Preset** icon and select the movement objects from the drop-down under **Preset Name**.
- 3. Fill the fields as required.

Settings

Honeywell ENTIS			
Group View	Configure Movement	_ ×	H Default O All tanks
E Group Details	Source	Destination	TK4211 gasoline
Tank Details Tank Details Control C	Preset Product Planned quantity Train1 100.000 m*	+ Add destination	Product Level 8.385 m Product Temperature
Manual Overwrite	Dilect		€ 6.28 °C
🗠 Profiles 🗸 🖸 🖡			@ 852.20 kg/m ³
🖹 Totalizers	Image: Contract of the second secon		
E: Movement	Preset name		
Es What If	Movement		L⊟ 0% TK_4
C Reports	Movement Type Measurement		TCF
Manage Tasks Prod	Load V GOV V		Product Level
Help Prod	Quantity to move		Product Temperature
0	3 100 m ^s		G ****** 15
Refe	Press the Save button		Reference Density
	Delete Cancel Save		0 0.2000 to osga
	-†-Add source		
TCF	Movement name Movement1	Cancel Print Arm Movement	te Vandows
C Cattlana		6010.5	Product Level
Cy seconge	•••••• m 0.0563 m 0.2965 m	O 0.0620 m O ****** m	@ ****** m

Figure 116: Movement object selection

Note: Infrastructure pipes are not available for selection under the "Preset" option. There is a separate section in the manual explaining how to select infrastructure pipes.

HOT STANDBY & REDUNDANCY SUPPORT ENTIS

When ENTIS is licensed and configured for redundancy, after the occurrence of a server failure, the second system will automatically take over the lost functionality of its counterpart to become the primary.

The user can also perform a manual switch over using the Server Redundancy display in Station.

How to perform a manual switch over

Proceed as follows:

1. Login with an account with mngr role access.

Station Logon	×
Please type your password. Password:	OK Cancel

2. Select: View | System status | Server redundancy

	>-ə ai∎ + -		Zoom to the Command					
Server Bedundansy								
						_	_	
Server Redundancy								
STATUS	ADVANCED							
Server locations				Sector links	Synchronize	θ		
Server	Current state	Link status	Synchronization details		Action			
Active Server Location	- Server Location 0				Failover			
Server-A [Primary]	🥥 Running							
📀 Sene: B	 Running Synchronized 	🥥 Link O	Last synchronized on 28-11-2019 13:54:56					
	25-Nov-18 11:08:37 Se	rver Location 0 R	edundant COMMS U 08	[SERVER_102] Serve	r B Link 0 (LNK00) Fai		Activate Window Go to Settings to activ	75 ate Windows.
	Server Redundancy STATUS Server locations Server Active Server Location © Strain-A (Primary) © Server D	Server Redundancy STATUS ADVANCED Server locations Server Current state Active Server Location - Server Location 0 Scruci-A gromary @ Running @ Server D @ Running @ Server D @ Running @ Synchronized	StATUS ADVANCED StATUS ADVANCED Server locations Server Current tate Link status Active Server Location - Server Location 0 Scruci-A primary Scruci-A primary Scruci-A primary Control Cont	STATUS ADVANCED Server locations Server Server location Link status Synchronization details Active Server Location - Server Location 9 Running Running Link 0 Link 0 Server D Server D Running Link 0 Link 0 Link 0/01/01/01/01/01/01/01/01	STATUS ADVANCED Server locations Ferver Current table Link status Synchronization details Active Server Location - Server Location 0 Server Brinnary Server B Running Server B Running Synchronized Link S Link S Link S Link S Link S Server Location 0 Server B Running Server B Server	Startus ADVANCED Server locations Benter Content table Server location - Server Location 0 Pattore Server B Running Server B Running Server B Server B Server B Running Server B Server B Server B Running Server B Server B Lot server B Lot server Location B Server B Rever B Server B	Starue ADVANCED Server locations Variations Server location - Server Location 0 Pattorer Server location 0 Running Server location 0 Server location 0 Server location 0 Running Server location 0 Running Server location 0 Server location 0 Server location 0 Running Server location 0 Server location 0 Server location 0 Server location 0 <th>Starts ACMARCED Server locations Init tables Synchronization debils Action Server location - Server Locat</th>	Starts ACMARCED Server locations Init tables Synchronization debils Action Server location - Server Locat

- 3. Make sure the Primary and Secondary are synchronized⁽¹⁾.
- 4. Press **Failover**.

Hot Standby & Redundancy Support

ation - Entis - Server RedundancuisysServersRedSt	its.htm)								
)•0 aĭ∎ ▲	ע א ט <i>מ</i>	Zoom To Fit + Command					
over to BACKUP ?								Yes	No
System Status	Server Redundancy								
	STATUS	ADVANCED							
System Hardware									
	Server locations				Switch links	Synchronize	0		
	Server	Current state	Link status	Synchronization details		Action			
				.,					
	Active Server Location	- Server Location 0				Failover			
	Server-A	Dunning							
	[Primary]	- rooming							
perational Security									
	Server-B	Running	🥥 Link 0	Last synchronized on					
		Synchronized		20-11-2019 13:04:00					
								Activate W	indows
								Go to Settings	to activate Windows.
nomil i l'anni i l'anni	2011. 40. 40.01.01	20-Nov-19 11:09:37 S	erver Location 0	Redundant COMMS U 00	[SERVER_102] Server B	Link 0 (LNK00) Fa	alled		

5. Press the **Yes** button (top right).

The redundant failover function is provided by Experio. Please refer to the Experion manual for all details related to this function.

Hot Standby & Redundancy Support (CIU 888)

ENTIS can be enhanced for use in critical applications with hot standby and redundancy support. Redundancy support can cover the unlikely event of a network failure, providing sustained and reliable data to your management system. After the occurrence of an error, the second system will take over the lost functionality. Following the switchover, all gauge data will be rescanned and recalculated to ensure the reliability of data.

The operator can also perform the switch over manually, after reviewing on the health status of the CIU 888. As shown in Figure 111 Settings modal CIU Status section.

How to Perform Manual Switch Over

Proceed as follows:

- 1. Click on the 'Settings' button on the left bottom of the screen. In settings modal navigate to 'CIU Status'.
- 2. The CIU Status window will show the status of the CIU 888 with the following fields:
 - CIU Name
 Name of the CIU 888
 - Type Primary/Secondary
 - IP Address The IP Address of the CIU
 - Status Active/Passive
 - Health Green if CIU is up and healthy, Red if network failure ; Yellow if health is less

than and more than 0

- Switch Over
 Button for manual switch over
- 3. Click on the 'Switch Over' button. The Passive member will become Active and the Active member will become Passive.

CONFIGURE ALARMS

Alarms are primarily used to notify operators of conditions that might call for intervention. Alarms for standard points are specified when you configure your points in Quick Builder. The standard points of tanks for which alarms can be configured are given in the table below.

Point	Description
_DObs	The sampled density
_ProductLevel	The product level in the tank.
_GaugeLevel	The gauge level in the tank.
_Gauge2Level	The secondary gauge level in the tank.
_ProductTemp	The product temperature
_VapRoomPress	The product vapor pressure
_VapRoomTemp	The product vapor temperature
_WaterLevel	The water level in the tank
_WaterVol	The water volume
_ProductDRef	The reference density for the product in the tank.
_FlowTOV	The Total Observed Volume(TOV) of the product per time unit.
_GOV	The Gross Observed Volume(GOV). The GOV is the total volume of all petroleum liquids and sediment and water, excluding free water, at observed temperature and pressure
_GSV	The Gross Standard Volume(GSV). The GSV is the total volume of all petroleum liquids and sediment and water, excluding free water, corrected by the appropriate volume correction factor (VCF = CTL) for the observed temperature and API gravity, relative density, or density to a standard temperature, and corrected by the applicable pressure correction factor (CpI) and meter factor.
_NSM	The product volume weight.
_TGSV	The Total Gross Standard Volume(TGSV).
_TNSM	The product plus vapor volume weight.
_TOV	The Total Observed Volume(TOV)
_GAL	Gauge Alarm
_AALB	Age Alarm Background
_AALF	Age Alarm Fore ground
_MovingStatus	The level moving status
_TCAL	Tank CRC Alarm
_DAL	Deviation Alarm between Product Level 1 and Product Level 2 on a tank
_UFLAL	Unplanned Flow Level Alarm
_UFVAL	Unplanned Flow Volume Alarm
_UFMAL	Unplanned Flow Mass Alarm
_PAT1, _PAT2, _PAT3, _PAT4	Target Pre Alert 1-4

Table 5: Configuration Alarms

How to configure Alarms

To configure an alarm for a point of a tank, follow the steps given below.

 Type the point name prefixed with the tank name in the Command text box on top right corner of the station. For example, if an alarm must be configured for the _ProductLevel for tank TK101, the tank name should be prefixed with the tank name as shown below.



Press F12. This opens the point configuration screen as shown below.

Station - Default - Analog Point Detail:TK101_PRO	DUCTLEVEL - sysdtlana.htm(sysdtlana.htm)							- 6 ×				
ENTIS STATION EDIT VIEW CONTROL ACTIV	ON CONFIGURE HELP											
		9 0 · 5 28 MI 4 🗸 🗸	🕺 🕲 🔍 Zoom To	Fit - Command TK101_ProductL	rvel							
Analog Point Detail	/Assets/EntisAsset/TK101_Pro	oductLevel										
TK101_ProductLevel	GENERAL SCANNIN	G ALARMS	HISTORY	AURLIARY								
The product level in the	Range											
tank	Units:	mm										
	100%:	999999.90										
	0%:	-999999.90										
999999.90	Bias and scaling											
	Enable additional PV bias and scalin	Enable additional bias and scaling PV = PV Field Value * Scale + Blad										
	Bias:	0.00										
	Scale:	1.00										
mm	Services											
	Scanning and control enabled											
	Alarms enabled											
	 Journal only option 											
-999999 90	Manual PV											
	Field value:	3010.00 mm										
	Displays											
X	Associated display:											
	Algorithms											
SP 0.00 EU	PV algorithm:	0	Performing Detail (or do	uble clicking) on the Algorithm No.								
BV 3010 00 EU	Action algorithm:	0	will callup the Algorithm	Configuration Page								
3010.00L0												
OP 0.00 %	Performing Detail (or double clicking) o	m the PV, SP, OP or MD will callup detail	is from the controller									
	(where the controller interface supports	this)										
		10-Jun-21 09:52:3	EntisAsset TK804	AALB ALARM U 00 Back	around age alarm BACK GND							
Honeywell Experion		2 🛆 ALARM	SYSTEM	E MESSAGE			Stn01	2 Oper				

Figure 117: Configuration screen

2. Under the Range setting:

GENERAL	SCANNING	ALARMS	HISTORY			
Range						
Units:		mm				
100%:		999999.90				
0%:		-999999.90				
Bias and scaling	3					

a. Change the 0% and 100% value to the desired valid range for the point to a required physical limit for the specific data point type and tank combination

b. Press ENTER to confirm change

Note: This is only required to be done once per point and is important as it controls the deadband and unreasonable value alarm settings.

3. Click on the Alarms Tab.

🕵 Station - Entis - Analog Point Detail:T811_cProd	uctLevel - sysdtlanaalarms	s. htm(sysDtlAnaAlarms. htm	0								- 8
·미유요안보안면용명()	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~)•ຍ ≊∎	• • ~ × 0	Q						
Analog Point Detail	/Asse	ts/EntisAsset/T8	11_cProductLev	rel							
811_cProductLevel	GENER	RAL	SCANNING	ALARMS	HIS	TORY	AUXILIARY				
he product level in the	PV Lir	mit Alarms									
ank.	AI 1	туре	Limit	On Delay (sec)	Off Delay (sec)	Phonty	supprionty	Deadband			
	AL 2	-	0.00	G	0	Journal -	0	1.0			
	AL3	-	0.00	0	0	Journal *					
1000.00	AL4		0.00	9	0	Journal 👻					
	AL5	· ·	0.00	G	0	Journal 👻	0				
-	AL6	-	0.00	0	0	Journal 👻	0				
	AL7	-	0.00	G	0	Journal -	0				
m 🛌	AL8	-	0.00	Q	0	Journal	0				
	Unreas	onable Value Alarm:		C	0	Urgent -	0				
-											
	Contr	ol Fail Alarms				Priority	Subpriority				
-1000.00	PV Con	ntrol Fail Alarm:				Urgent 👻	0				
	Control	Timeout:				Nil 👻					
	Control	Deadband:				1.0 -	6				
<u> </u>	Extern	nal Change Alam	ns								
	D PV		Setpoint	Output	Mode						
	□A1		A2	A3	A4						
6P 0.00 E	EU										
O.00 E	U Alam	Message	Г	0	Define Alarm Messa	ages					
0.00 9	6										
	7										
	<u> </u>									Activate Windows Go to Settings to activate	Windows.
		12-Aug-19 11	:02:57 Entis_SER	1 License Servic	e License Change	e U 15 New license	113521 version 1	1 requires a restart or failover t	o be activated		

Figure 118: Alarm Configuration screen

- 4. Fill in the details of the alarm for the selected point of the tank (each time press ENTER to confirm changes).
 - a. Type: PV HH,H,L,LL
 - b. Limit: Setpoint at which it triggers
 - c. Priority: Journal (off) Urgent (highest priority)
 - Deadband: Select the % deadband that prevents alarm from de-activating again until this deadband is exceeded

Note: Deadband % is based on the configured valid data range of the point. Thus, if left at default, 1% of -1000 to 1000m = 20m deadband around alarm setpoints. This is why it is important to set the range to realistic limits of the specific tank.

For more details on how to configure alarms, and to understand the parameters such as Type, Limit, On Delay etc. please refer to the "**About alarms and events for standard points**" section in the Experion Server and Client configuration guide, EHDOC-X127-en-511C.

VIEW ALARMS

The Alarms View in Station provides details about each alarm, such as the Date and time when it has occurred, the asset location, source, condition, priority etc.

Display Layout



Figure 119: View Alarms

How to view Alarms

To view the Alarms page, go to the View menu and click on the Alarms item.

Alternatively, it can be accessed by clicking the Alarms icon an the tool bar or the Display Alarm Summary icon flashing in red on the status bar.

Entis_	SER1	License	S
	Δ Α	LARM	

٠	Station - Entis - Alarm Summary(sysAlarmSummary.htm)												
EN	ENTIS STATION EDIT VIEW CONTROL ACTION CONFIGURE HELP												
固		19146	ם D ⑦ /ホ /∠			- > ・ 5	∭ m ▲ ▼ ✓ × (୯) Q Zoom To Fit	- Command				
A	Alarms												
L	ocation 👻	View: (all a	larms) * ~										
	Date & Time	*	Location Tag		Condition	Priority	Description	Trip Value	Live Value	Units			
	9/17/2019 5:32	2:53	EntisAsset	T811_GAL	ALARM	H 00	The gauge level alarm	FAIL	FAIL				
	9/17/2019 5:32	2:47	EntisAsset	T854_GAL	ALARM	H 00	The gauge level alarm	FAIL	FAIL				
	9/17/2019 5:32	2:46	EntisAsset	T973_GAL	ALARM	H 00	The gauge level alarm	FAIL	FAIL				
	9/17/2019 5:32	2:46	EntisAsset	T811W_GAL	ALARM	H 00	The gauge level alarm	FAIL	FAIL				
	9/17/2019 5:32	2:46	EntisAsset	T970_GAL	ALARM	H 00	The gauge level alarm	FAIL	FAIL				
	9/17/2019 5:32	2:46	EntisAsset	T954_GAL	ALARM	H 00	The gauge level alarm	FAIL	FAIL				
	9/17/2019 5:32	2:45	EntisAsset	T811E_GAL	ALARM	H 00	The gauge level alarm	FAIL	FAIL				
1	9/17/2019 5:18	8:52	EntisAsset	TK007_cProduct	PVLL	U 00	The product level in the tank.	2.07	2.07				
A	9/17/2019 5:18	8:05	EntisAsset	TK007_cProduct	PVLO	H 00	The product level in the tank.	2.07	2.07				

Understanding the Alarms View

This screen has the following columns.

1. Priority of the Alarm with a visual icon.

This column shows the alarm's state in symbolic way with a Yellow

triangle or Red square with an exclamation mark in it. This represents the priority of the alarm, whether it is a critical, a high, a medium or a low alarm.

2. Date & Time

Date and Time when the alarm was raised.

3. Location Tag

Location of the Alarm. For ENTIS, it is generally ENTISAsset. Alarms can be filtered based on location.

This location filter is available above Date & Time column.

4. Source

The point or device that caused the alarm. If the point ID is too long to be fully displayed in the alarm summary, it will be truncated.

To see the full name, place the mouse pointer over the partial point ID to display the full point ID.

5. Condition

The alarm condition.

6. Priority

The priority of the alarm as listed below. The prefix letter indicates the general priority as listed below.

- Critical
- Urgent
- High
- Low

If a number follows the letter, it represents the relative priority within the general priority. For example, Urgent alarms can vary from U15 (most urgent) to U00 (least urgent).

7. Description

A description of the alarm. If the description is too long to be fully displayed in the alarm summary, it is truncated. To see the full description place the mouse pointer over the partial description to display the full description.

Description is available in the language choosen by the user.

Atarins						
Location 🗸 View: (all a	alarms)-				🗟 Clear All Filte ^O Reset View	ᄐ▤◧▯▤◴▤◓炎
Date & Time 🔹	Location Tag	Source	Condition	Priority	Description	Trip Value 🛛 🔺
6/9/2020 15:37:58	ENTISASSET	T318_AALB	ALARM	U 00	Achtergrondleeftijd alarm	BACK_GND
6/9/2020 15:37:58	ENTISASSET	T318_AALF	ALARM	U 00	Voorgrond leeftijd alarm	FORE_GND
6/9/2020 15:37:57	ENTISASSET	T316_AALB	ALARM	U 00	Achtergrondleeftijd alarm	BACK_GND
6/9/2020 15:37:57	ENTISASSET	T316_AALF	ALARM	U 00	Voorgrond leeftijd alarm	FORE_GND
6/9/2020 15:37:57	ENTISASSET	T314_AALB	ALARM	U 00	Achtergrondleeftijd alarm	BACK_GND
6/9/2020 15:37:57	ENTISASSET	T314_AALF	ALARM	U 00	Voorgrond leeftijd alarm	FORE_GND
6/9/2020 15:37:54	ENTISASSET	T305_AALB	ALARM	U 00	Achtergrondleeftijd alarm	BACK_GND
6/9/2020 15:37:54	ENTISASSET	T305_AALF	ALARM	U 00	Voorgrond leeftijd alarm	FORE_GND
6/9/2020 15:37:54	ENTISASSET	T308_AALB	ALARM	U 00	Achtergrondleeftijd alarm	BACK_GND
6/9/2020 15:37:54	ENTISASSET	T308_AALF	ALARM	U 00	Voorgrond leeftijd alarm	FORE_GND
6/9/2020 15:37:52	ENTISASSET	T343_AALB	ALARM	U 00	Achtergrondleeftijd alarm	BACK_GND
6/9/2020 15:37:52	ENTISASSET	T343_AALF	ALARM	U 00	Voorgrond leeftijd alarm	FORE_GND
6/9/2020 15:37:50	ENTISASSET	T338_AALF	ALARM	U 00	Voorgrond leeftijd alarm	FORE_GND
6/9/2020 15:37:50	ENTISASSET	T341_AALB	ALARM	U 00	Achtergrondleeftijd alarm	BACK_GND
6/9/2020 15:37:50	ENTISASSET	T341_AALF	ALARM	U 00	Voorgrond leeftijd alarm	FORE_GND
6/9/2020 15:37:50	ENTISASSET	T339_AALB	ALARM	U 00	Achtergrondleeftijd alarm	BACK_GND
6/9/2020 15:37:50	ENTISASSET	T339_AALF	ALARM	U 00	Voorgrond leeftijd alarm	FORE_GND
6/9/2020 15:37:49	ENTISASSET	T335_AALB	ALARM	U 00	Achtergrondleeftijd alarm	BACK_GND
6 /9/2020 15:37:49	ENTISASSET	T335_AALF	ALARM	U 00	Voorgrond leeftijd alarm	FORE_GND

8. Trip value

The value that triggered the alarm.

9. Live value

The current value. This value is continually updated. If the Format live value in Alarm Summary using PV Format setting in the Summary Displays tab of Server Wide Settings is enabled, live values in the Alarm Summary will be shown in the format configured for point parameter values. For information, see "Configuring precision values for point parameters." Alternatively, two decimal places will be shown.

10. Units

The unit that the value represents, for example ml/s. Please refer Operators guide available in Help menu or Server and Client configuration guide in Experion HS in Start Menu for more details on viewing the Alarms and understanding them in detail.





The alarms can also be transported to the recipients via the available SMS & Email option in Experion HS. The configuration for these can be obtained from "Configuring Alarm Paging" section in Sever & Client Configuration Guide in Experion HS in the Start Menu as shown in the above figure.

EVENTS

Viewing Events

Every event, such as a point status change or an operator action, is stored in an event database. The event database stores events for a specified period. Using Event archiving, you can archive these events to a network file server or to a disk where they can be stored for future retrieval and reporting. For information on archiving events or restoring events from archive, see the Experion Operator's Guide, EHDOC-XX80-en-510A.

Station - Default - Event !	Summary(sysEventSummary.ht	(m)	i i					-	& ×
			- 😘 \mid 😂 🔠 🖾 🗢 🛹 🖋 🕲 🕄 🖉 Zoom To Fit	Command					
Evento									
Events									
									2
									-
							Filerep #11 replicating.		
							ENTIS Application service: Service started.		
							ENTIS Application service: Node process started with id 1580		
							The Legal Metrology seal is applied.		
							The Legal Metrology seal has been broken by a license update.		
							ENTIS Application service: Service started.		
							ENTIS Application service: Node process started with id 13764		
							The ENTIS Reporting service has started.		
							The Legal Metrology seal is applied.		
							The Legal Metrology seal has been broken by a license update.		
6/9/2021 13:17:33									
6/9/2021 13:17:33									
			OPC Integrator						
									-
Matching events:	32000						■ Pause	II. Generate Event	
			In-21 12:23:38 ENTISServer ENTISServer COM	MS U 00 Client	Data Services Ho	ost: Connection lost	to localhost		
Honeswell		10-Jun-21 09:40:00	ZA ALARM IN SYSTEM	IFT MESSAG		2 ALERI	desktop-toin4of Stn01	🗶 Mngr	

How to view events

To view the events summary in Experion station, navigate to

View ->Events->Event Summary menu option on Experion Station as shown in the picture below.

🧕 Station - Default - Entis(Entis.html)														
ENTIS STAT		DIT	VIEW		CONTROL	ACTION	со	NFIC	SURE	н	ELP			
6 🗉 🕀	0	최년	Q	De	etail		F12	2		\boxtimes	ß			8
			ß	As	sociated Di	splay	F2							
= Hon	evwel		3	Re	eload Page									
_ 11011	cynici			AI	arms		F3							
🔓 Grou	p View			М	essages									
_				AI	erts			Þ.						
🗉 Grou	p Deta	ils		Di	isplays					:				
		_		Eq	quipment					÷.,				
🕀 Tank	Detail	S		Ba	atches									TCE
	Procedures						•		TO					
📿 Gaug	je Com	imai		Activities									Dens	
FA				Uı	nit timeline									
🗠 Man	ual Ove	erwr		Ev	rents			E١	/ent !	Summ	ary		D12	
l.c. n. c				Gr	roups				S(OE SI	umma	ny		_
	les			Message Pad				Event Archiving						
🖸 Total	izore			Reports										
	12615			_ 5у с.,	stem Status								TOP	
🔒 What	t If			зу Tre	ends		ſ					÷		DCF
					now Full Par	18								DIO
🗋 Repo	orts			51	low run rug	<i>j</i> c						1		DIZ
	🔲 Manage Tasks				ТК108						:		Conc	
ii=i Mana														
					TK109			:						CTLI
C notp	Help				TV1	10								Man
					IKI	10								wan

Figure 120: View Events

Understanding Events View

The Events summary is shown in tabular format with the following columns.

1. Date & Time

The time and date at which the event was received.

2. Location

The tag name of the asset to which the point or device belongs.

3. Source

The point or device that caused the event. If the point ID is too long to be fully displayed in the event summary, it is truncated. To see the full name, place the mouse pointer over the partial point ID to display the full point ID.

4. Condition

The event condition.

5. Action

The action, either operator or system generated.

6. Priority

The priority of the event. The prefix letter indicates the general priority:

- Urgent
- High
- Low
- Journal

If a number follows the letter, it represents the relative priority within the general priority. For example, Urgent events can vary from U15 (most urgent) to U00 (least urgent).

7. Description

A description of the event.

If the description is too long to be fully displayed in the event summary, it is truncated. To see the full description, place the mouse pointer over the partial description to display the full description.

Description is available in the language choosen by the user.
Events

Events						
Location 🚽 🛝	/iew: (all recent ev	vents with live updates)▼				
Date & Time	Location Tag		Condition	Action	Priority	Description
6/9/2021 9:17:13	EntisAsset	TK101_GOV	ENABLE		J 00	The Gross Observed Volume is total volume of all petroleum liqu
6/9/2021 9:17:13	EntisAsset	TK101_FlowTOV	ENABLE		J 00	The Total Observed Volume (TOV) of the product per time unit
6/9/2021 9:17:13	EntisAsset	 TK101_ProductDRef	ENABLE		J 00	The reference density for the product in the tank
6/9/2021 9:17:13	EntisAsset	TK101_WaterVol	ENABLE		J 00	The water volume
6/9/2021 9:17:13	EntisAsset	TK101_WaterLevel	ENABLE		J 00	The water level in the tank
6/9/2021 9:17:13	EntisAsset	TK101_VapRoomTemp	ENABLE		J 00	The product vapor temperature
6/9/2021 9:17:13	EntisAsset	TK101_VapRoomPress	ENABLE		J 00	The product vapor pressure
6/9/2021 9:17:13	EntisAsset	TK101_ProductTemp	ENABLE		J 00	The product temperature
6/9/2021 9:17:13	EntisAsset	TK101_ProductLevel2	ENABLE		J 00	The product level in the tank
6/9/2021 9:17:13	EntisAsset	TK101_ProductLevel	ENABLE		J 00	The product level in the tank
6/9/2021 9:17:13	EntisAsset	TK101_DObs	ENABLE		J 00	The product density
6/9/2021 9:17:13	EntisAsset	TK101_TCAL	ENABLE		J 00	Checksum calculated over tank related parameters by the CIU
6/9/2021 9:17:13	EntisAsset	TK101_GAL	ENABLE		J 00	The gauge level alarm
6/9/2021 9:17:13	EntisAsset	TK101_EXT	ENABLE		J 00	Position of gauge external contacts.
6/9/2021 9:17:13	EntisAsset	TK101_Common	ENABLE		J 00	Common data or remaining Entis Pro confirm tank record entities
6/9/2021 9:17:13	EntisAsset	TK101_DAL	ENABLE		J 00	Product Level Difference alarm
6/9/2021 9:17:13	EntisAsset	TK101_AALF	ENABLE		J 00	Foreground age alarm
6/9/2021 9:17:13	EntisAsset	TK101_AALB	ENABLE		J 00	Background age alarm
6/9/2021 9:17:13	EntisAsset	TK110	ENABLE		J 00	Tank TK110
6/9/2021 9:17:13	EntisAsset	TK110_VolumeLeft	ENABLE		J 00	Movement volume left
6/9/2021 9:17:13	EntisAsset	TK110_TransferredVolume	ENABLE		J 00	Movement transferred volume
6/9/2021 9:17:13	EntisAsset	TK110_TimeToTarget	ENABLE		J 00	Time for the movement to complete.
6/9/2021 9:17:13	EntisAsset	TK110_PAT4	ENABLE		J 00	Movement pre-alert 4
6/9/2021 9:17:13	EntisAsset	TK110_PAT3	ENABLE		J 00	Movement pre-alert 3
6/9/2021 9:17:13	EntisAsset	TK110_PAT2	ENABLE		J 00	Movement pre-alert 2
6/9/2021 9:17:13	EntisAsset	TK110_PAT1	ENABLE		J 00	Movement pre-alert 1
6/9/2021 9:17:13	EntisAsset	TK110_TargetLevel	ENABLE		J 00	Movement target level
6/9/2021 9:17:13	EntisAsset	TK110_QuantityTransferred	ENABLE		J 00	Movement quantity transferred
6/9/2021 9:17:13	EntisAsset	TK110_QuantityLeft	ENABLE		J 00	Movement quantity left
Matching events:	3200	D				

8. Value

The value of the event.

9. Units

The unit that the value represents, for example ml/s.

10. Operator

The logged in Operator.

Please refer **Operators guide** available in Help menu or **Server and Client configuration guide** in **Experion HS Pdf collection** in Start Menu for more details on viewing the Events and understanding them in detail.

HISTORICAL AND REALTIME TRENDING

Pre-Configured ENTIS Trends for Experion points

ENTIS comes with some tank data preconfigured for viewing as trends.

- To View the Pre-configured ENTIS trends:
- 1. Navigate to View -> Equipment Menu item.
- 2. Click on the tank name link to navigate to the equipment tank detail view.

Assets * Tanks *					
iks (72)					
Name	 Level 3007 ♦ 	Temp 3009 0	TOV 3015 0	Product 0	Mass 3017
10(26	70.000	27.85	9350.000	OIL	0.0
TK26	16.943	15.86	16943.000	OIL	0.0
7)(27	14.896	27.56	14896.000	OIL	0.0
TK20 ExcH1-Server/TK27	10.920	31.97	10920.000	OIL	0.0
TK29	15.340	10.45	15340.000	OIL	0.0
TKS0	14.265	15.15	14285.000	Crudeoil	0.0
7631	15.873	27.05	15873.000	OIL	0.0
7632	12193	28.13	12193:000	OIL	0.0
DK33	15.600	26.70	15600.000	OIL	0.0
TK34	12.485	33.33	12485.000	Desit 34	6.0
1835	10,280	14:96	10280.000	OIL	0.0
TK36	11.351	16.38	11351.000	Des/136	0.0
10(37	14.480	24.03	14480.000	Desit37	0.0
TK38	10.563	37.88	10563.000	Desil38	0.0
7830	7.458	16.94	7458.000	OIL.	4993735.0
splay 15 v items				Rows 💽 🛛 4	1 3 4 5 +

3. Click on the Trends icon to navigate to the trend view

g TK27 (Tanksin-Assets	1					t v ^ - W	• *
						1999.0	namaters to
Measured parameters (4)		Calculated parameters (7)		Tank Info (2)			
Product lavel (m)	14.896	(m) VOT	14896.000	Tank name	TK27		
Product level 2 (m)	0.000	Water volume (m?)	0.00	Product name	OL		
Product temperature Http:	27.50	GOV (m ^a)	14896.00				
/apour mom		Bet, density (kg/m²)	0.00				
pressure (aPa)	0.00	GSV (m ⁹)	0				
Vater Bottom (1)		Total mess (kg)	0.000				
Water lavel (m)	0.000	Flaw (mVmin)	168.37				
		Available Volumes (1)					
Lab Density (1)		Available room (m ¹)	0				
(its: density (kg/m²)	0.0						

4. The Trend data is Viewed as per the below Tank Parameters



5. The top right title bar of the trend graph contains icon to set tank parameters table in left or bottom orientation or hide parameters.

Station - Default - 1927: Tank TrendbysEquipment.Html			- * 1
ENTIS STUDION EDIT VIEW CONTROL ACTION CONFIG			
2000-0255560000000		V X O Q 2000 to Fit + Command	
[]] TK27 (TanksinAssets)			1
			Tank TK27
Post Algebra	 Individual scales Their period Sisci interval 		E C
1 O 🛛 TIQ7_dProduct.evel			
2 🗧 😥 TK27_Product.eveQ			
3 🗧 🖉 TIQ7_05V			
4 💿 😥 TIQ7_cPreductDifted			
5 🕒 🗹 TK27_FlowTOV			
6 🛑 🗹 TK27_GOV			
7 🕒 😥 11/27_10/1V			
8 🖸 🗹 TIG7_TotaMass		• •	
9 😑 😥 TH27_TOV 🔢		 12.85 	
10 😑 🗹 TK27_CD086			
11 🔮 😥 TK27_cProductTemp			
12 🔵 🗹 TK27_cVapRoomPress			
13 🔮 😥 TIG7_cVapRoomTemp		108.37	
14 🕒 😥 TK27_cWaterLevel			
15 🔵 😥 TK27_cWaleeVol		14.3	
10 🗆 - té	23.35 AM 10.30 00 AM 10.40 00 AM 10	44 34 AM 10 50 00 AM 11 00 00 AM	11.10.00 AM 06/12/2010 11 23 35 AM (61)
V O 🗆 -		••	
9 - O - O		10.53 AM 11.20 M	Activate Windows ^{13,44} 🔊 🕛

- 6. From the title bar:
 - a. The trend interval and period can be selected.
 - b. Pause the trend for analysis purpose
 - c. Auto scale to point range, engineering unit
 - d. Hide parameters or select from different tank.
 - e. Custom range can be entered

- 7. Export the current view data
 - a. Select any trend line and press Ctrl+C to copy to clipboard
 - b. Paste into a text file or Excel workbook

Experion Trends

Using Experion trends, a user can view the historical or real time value trends of points. A trend display shows changes in point parameter values over time.

Trends can display data in several ways, including:

- Line graphs (the default)
- Bar graphs
- Numerical list of historical data
- X-Y plot of the value of one point against another (that is, one point on the x-axis and the other on the y-axis).

Each trend is identified by a number, and generally has a descriptive title.

How to create/view Trends

1. Click on View then go to Trends.



Figure 121: Trends

2. Make sure that the logged-in user has the MNGR or ENGR security level.

Station - Entis - Tren ENTIS STATION EDI	d Summary(sysTindSummary.htm) T VIEW CONTROL ACTION	CONFIGURE HELP								- 8 ×
60840	FREBQ *			> ≦ W ▲ - √ ×	🖒 Q. Zoom To Fit 🔹 Command					•
Ξ Trends			_			_				
		Trend		Title	Туре	Sample Interval				
		1	Tank1 Level		Standard	1 minute	•	θ		
		2			Standard	1 minute				
		3			Standard	1 minute				
		4			Standard	1 minute				
		5			Standard	1 minute				
		6			Standard	1 minute				
		7			Standard	1 minute				
		8			Standard	1 minute				
		9			Standard	1 minute				
		10			Standard	1 minute				
		11			Standard	1 minute				
		12			Standard	1 minute				
		13			Standard	1 minute				
		14			Standard	1 minute				
		15			Standard	1 minute				
		16			Standard	1 minute				
		17			Standard	1 minute				
		18			Standard	1 minute				
		19			Standard	1 minute				
		20			Standard	1 minute	-			
						Contaura Tanada				
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									A	
									Activate Wind Go to Settings to a	OWS ctivate Windows
			12-Aug-19 11:02:57	' Entis SER1 License Se	rvice License Change U 15 New	license 113521 versio	n 1 requi	res a restart or failover to be activated	i	
linneprosil	Experion	1	7-Sep-19 03:10:35	ALARM	SYSTEM IN	IESSAGE	ALERT	entissity	Stn01	Mngr

3. Click on **Configure Trends**.

Figure 122: Configure Trends

4. Fill in the custom details, click on **Options**. Select color scheme Point Id (via the Point Browser window).



Figure 123: Select the point

Choose the parameter to be displayed in the trend from the dropdown. Then click on view trend.



Figure 124: Select the parameter

Historical and Realtime Trending

View the current value of the point in the Current value column. The trend will be available on the graph screen.



Figure 125: View Trend

View historical trends

Users can view historical trend by changing the date and time. The display will show historical trends if the trend was created and was running at the selected times.

To change the period on the trend you are viewing

- 1. In the Period box, select the period you want to see on your trend.
- 2. Click the Time selector and choose the required position of the selector.
- 3. In the Date box, type or select the desired date.
- 4. In the Time box, type the desired time and press ENTER.



Figure 126: Historical Trend

To have the ENTIS data available for Experion to handle alarms, trending and other SCADA needs, ENTIS publishes the acquired and processed data to Experion SCADA points.

For each tank ENTIS allocates 42 SCADA points. Per CIU 4 SCADA points get added which Experion HS processes to update the alarms on connectivity and hot stand by status of the CIU 888's ENTIS connects to.

ENTIS SCADA Points are shown in below table:

The following points will be available from ENTIS R122.1.

Each CIU takes 4 SCADA Points:

Entity	SCADA Point name	Param	Link Type	Value Type	HISTLOW	Point description
CAL	[Controller]_CAL	OP				The communication alarm from ENTIS system to CIU
CCAL	[Controller]_CCAL	OP				The checksum status from ENTIS system to CIU is wrong
SSAL	[Controller]_SSAL	OP				The scan process fail status from Entis system
HAL	[Controller]_HAL	OP				CIU 888 Hot Standby Alarm

Table 6 : SCADA Entities

The next table show the 41 points for which most of them contain a user defined parameter which holds the SV (Status/Validity) value.

Entityl D	Entity	SCADA Point name	Param	Point description
933	AALB	[Tank]_AALB	OP	Background age alarm
932	AALF	[Tank]_AALF	OP	Foreground age alarm
939	DAL	[Tank]_DAL	PV	Product Level Difference alarm
250	DObs (calculated)	[Tank]_DObs	A1	The product density
251	DObsStatus	[Tank]_DObs	Status	The product density
74	FlowTOV	[Tank]_FlowTOV	A1	The Total Observed Volume (TOV) of the product per time unit
99	FlowTOV	[Tank]_FlowTOV	Status	The Total Observed Volume (TOV) of the product per time unit
931	GAL	[Tank]_GAL	StateStringP V	The gauge level alarm
58	GOV	[Tank]_GOV	A1	The Gross Observed Volume is total volume of all petroleum liquids,sediment,wat er excluding free water at observed temp and pressure
59	GOVStatus	[Tank]_GOV	Status	The Gross Observed Volume is total volume of all petroleum liquids,sediment,wat er excluding free water at observed temp and pressure

60	GSV	[Tank]_GSV	A1	The Gross Standard Volume is total volume of all petroleum liquids,sediment,wat er excluding free water corrected by appropriate CTL
61	GSVStatus	[Tank]_GSV	Status	The Gross Standard Volume is total volume of all petroleum liquids,sediment,wat er excluding free water corrected by appropriate CTL
1060	MovementStartLeve	[Tank]_MovementStartLe vel	A1	Movement start level
1062	MovementStatus	[Tank]_MovementStatus	OP	The tank movement function status
3	MovingStatus	[Tank]_MovingStatus		The Tank level moving status alarm
68	NSM	[Tank]_NSM	A1	The Nett Standard Mass of the product (NSM)
69	NSMStatus	[Tank]_NSM	Status	The Nett Standard Mass of the product (NSM)
1068	PlannedQuantity	[Tank]_PlannedQuantity	A1	Movement planned quantity
1070	PlannedVolume	[Tank]_PlannedVolume	A1	Movement planned volume
30	ProductDRef	[Tank]_ProductDRef	A1	The reference density for the product in the tank
31	ProductDRefStatus	[Tank]_ProductDRef	Status	The reference density for the product in the tank

198	cinnage	[Tank]_ProductLevel	A1	The corrected product level in the tank
199	cInnageStatus	[Tank]_ProductLevel	Status	The corrected product level in the tank
40	GaugeLevel	[Tank]_GaugeLevel	A1	The product level in the tank
41	GaugeLevelStatus	[Tank]_GaugeLevel	Status	The product level in the tank
2603	Gauge2Level	[Tank]_Gauge2Level	A1	The secondary gauge level in the tank
2604	Gague2LevelStatus	[Tank]_Gauge2Level	Status	The secondary gauge level in the tank
44	ProductTemp	[Tank]_ProductTemp	A1	The product temperature
45	ProductTempStatus	[Tank]_ProductTemp	Status	The product temperature
1072	QuantityLeft	[Tank]_QuantityLeft	A1	Movement quantity left
1074	QuantityTransferred	[Tank]_QuantityTransferr ed	A1	Movement quantity transferred
1076	TargetDirection	[Tank]_TargetDirection	A1	The direction of movement for the tank
1078	TargetLevel	[Tank]_TargetLevel	A1	Movement target level
1080	PAT1	 [Tank]_PAT1	OP	Movement pre-alert
1082	PAT2	[Tank]_PAT2	OP	Movement pre-alert 2
1084	PAT3	[Tank]_PAT3	OP	Movement pre-alert 3

1086	PAT4	[Tank]_PAT4	OP	Movement pre-alert 4
9362	TCAL	[Tank]_TCAL	OP	Checksum calculated over tank related parameters by the CIU
66	TGSV	[Tank]_TGSV	A1	The Total Gross Standard Volume (TGSV)
67	TGSVStatus	[Tank]_TGSV	Status	The Total Gross Standard Volume (TGSV)
1000	TimeToFill	[Tank]_TimeToFill	A1	The time to fill the tank
1088	TimeToTarget	[Tank]_TimeToTarget	A1	Time for the movement to complete.
72	TNSM	[Tank]_TNSM	A1	The Total Net Standard Mass of the product (TNSM)
73	TNSMStatus	[Tank]_TNSM	Status	The Total Net Standard Mass of the product (TNSM)
54	τον	[Tank]_TOV	A1	The Total Observed Volume (TOV)
55	TOVStatus	[Tank]_TOV	Status	The Total Observed Volume (TOV)
1090	TransferredVolume	[Tank]_TransferredVolum e	A1	Movement transferred volume
941	UFLAL	[Tank]_UFLAL		Unplanned flow level alarm
942	UFVAL	[Tank]_UFVAL		Unplanned flow volume alarm
48	VapRoomPress	[Tank]_VapRoomPress	A1	The product vapor pressure

49	VapRoomPressStat us	[Tank]_VapRoomPress	Status	The product vapor pressure
46	VapRoomTemp	[Tank]_VapRoomTemp	A1	The product vapor temperature
47	VapRoomTempStat us	[Tank]_VapRoomTemp	Status	The product vapor temperature
1092	VolumeLeft	[Tank]_VolumeLeft	A1	Movement volume left
42	WaterLevel	[Tank]_WaterLevel	A1	The water level in the tank
43	WaterLevel	[Tank]_WaterLevel	Status	The water level in the tank
264	WaterVol	[Tank]_WaterVol	A1	The water volume
265	WaterVol	[Tank]_WaterVol	Status	The water volume

The next table show the 42nd SCADA Point of a tank which contains the remaining values published as User Defined Parameters of a point named [Tank]_Common:

EntityID	Entity	SCADA Point name	Param
933	AALB	[Tank]_Common	AALB
932	AALF	[Tank]_Common	AALF
103	AmbientTemperature	[Tank]_Common	AmbientTemperature
104	AmbientTemperatureStatus	[Tank]_Common	AmbientTemperatureStatus
75	AvailableRoom	[Tank]_Common	AvailableRoom
100	AvailableRoomStatus	[Tank]_Common	AvailableRoomStatus
76	AvailableTOV	[Tank]_Common	AvailableTOV
101	AvailableTOVStatus	[Tank]_Common	AvailableTOVStatus
53	BackgroundTimeStamp	[Tank]_Common	BackgroundTimeStamp
935	CCAL	[Tank]_Common	[ENTISTANKCONTROLLER]_C CAL

		-	
298	Concentration	[Tank]_Common	Concentration
299	ConcentrationStatus	[Tank]_Common	Concentration
262	CTL	[Tank]_Common	CTL
263	CTLStatus	[Tank]_Common	CTLStatus
107	CTSH	[Tank]_Common	CTSH
108	CTSHStatus	[Tank]_Common	CTSHStatus
939	DAL	[Tank]_Common	DAL
38	DisplacerPosition	[Tank]_Common	DisplacerPosition
39	DisplacerPositionStatus	[Tank]_Common	DisplacerPositionStatus
37	EXT	[Tank]_Common	EXT
940	FlowDirection	[Tank]_Common	FlowDirection
52	ForegroundTimeStamp	[Tank]_Common	ForegroundTimeStamp
931	GAL	[Tank]_Common	GAL
2600	Gauge2Status	[Tank]_Common	Gauge2Status
6	GaugeStatus	[Tank]_Common	GaugeStatus
226	GRH	[Tank]_Common	GRH
227	GRHStatus	[Tank]_Common	GRH
300	GSM	[Tank]_Common	GSM
301	GSMStatus	[Tank]_Common	GSM
302	GSW	[Tank]_Common	GSW
303	GSWStatus	[Tank]_Common	GSWStatus
88	HydrometerCorr	[Tank]_Common	HydrometerCorr
154	HydrometerCorrStatus	[Tank]_Common	HydrometerCorrStatus
198	Innage	[Tank]_Common	Innage
199	InnageStatus	[Tank]_Common	InnageStatus
64	LiqInVap	[Tank]_Common	LiqInVap

65	LiqInVapStatus	[Tank]_Common	LiqInVapStatus
25	MassCalcType	[Tank]_Common	MassCalcType
141	MassCalcType	[Tank]_Common	MassCalcTypeStatus
70	MassVap	[Tank]_Common	MassVap
71	MassVapStatus	[Tank]_Common	MassVapStatus
3	MovingStatus	[Tank]_Common	Tank_MovingStatus
62	NSV	[Tank]_Common	NSV
63	NSVStatus	[Tank]_Common	NSVStatus
238	NSW	[Tank]_Common	NSW
239	NSWStatus	[Tank]_Common	NSWStatus
1066	OtherTankId	[Tank]_Common	
260	ProductTC	[Tank]_Common	ProductTC
261	ProductTCStatus	[Tank]_Common	ProductTCStatus
32	SedAndWater	[Tank]_Common	SedAndWater
143	SedAndWaterStatus	[Tank]_Common	SedAndWaterStatus
191	SedAndWaterVolStatus	[Tank]_Common	SedAndWaterVolStatus
2	TankStatus	[Tank]_Common	TankStatus
936	TCAL	[Tank]_Common	TCAL
	TNSW	[Tank]_Common	TNSW
	TNSWStatus	[Tank]_Common	TNSWStatus
118	TObs	[Tank]_Common	TObs
119	TObsStatus	[Tank]_Common	TObsStatus
196	Ullage	[Tank]_Common	Ullage
197	UllageStatus	[Tank]_Common	UllageStatus
304	VaporWeight	[Tank]_Common	VaporWeight
305	VaporWeightStatus	[Tank]_Common	VaporWeightStatus

140	VolumeCorrections	[Tank]_Common	VolumeCorrections
306	WCF	[Tank]_Common	WCF
307	WCFStatus	[Tank]_Common	WCFStatus

The following points were available in R121.1 but for various reasons not available in R130.1 anymore.

EntityID	Entity	SCADA Point name	Param
200	Alarms	[Tank]_Common	Alarms
	CAL	[Tank]_Common	CAL
	CIUPGeneralConfigurationCRC	[Tank]_Common	CIUPGeneralConfigurationCRC
	CombinedVolumeCorrections	[Tank]_Common	CombinedVolumeCorrections
	CommAndConfStatus	[Tank]_Common	CommAndConfStatus
-	DynamicTankStatus	[Tank]_Common	DynamicTankStatus
-	FlowStatus	[Tank]_Common	FlowStatus
-	MassAndVolumeCorrections	[Tank]_Common	MassAndVolumeCorrections
94	TankConfigurationCRC	[Tank]_Common	TankConfigurationCRC

Note: Since ENTIS R121.2 some points have been renamed. In most, the leading character c has been removed e.g. cProductLevel is now presented as ProductLevel. For more details on all changes, see the ENTIS Software Change Note (ETDOC-X616-en-R130.1) included in the installation media of ENTIS.

Appendix A: Calculation Method Relation With Entities

In the case of Manual Overwrite and What If calculation, it is important to understand that the entities- Reference density, Sample density, Sample temperature and Liquid density can be classified as 'Inputs', 'Outputs' or 'None' depending on the Calculation method.

For Manual overwrite and What If calculation, the above Entities classified as

- 1. 'Inputs' can be edited.
- 2. 'Outputs' cannot be edited

Calculation Method	Product Code	Input/Output direction				
		Reference Density	Sample Density	Sample Temp.	Conc. %	Liquid Density (@ Tprod)
API Ch 11.1-04 T23/24	A,B,C,D	output	input	input	none	output
API Ch 11.1-04 T53/54	A,B,C,D	output	input	input	none	output
API Ch 11.1-04 T5/6	A,B,C,D	output	input	input	none	output
API Ch 11.1-04 T59/60	A,B,C,D	output	input	input	none	output
API Ch 11.2.4-07 T23/24	A,B,C,D,E	output	input	input	none	output
API Ch 11.2.4-07 T53/54	A,B,C,D,E	output	input	input	none	output
API Ch 11.2.4-07 T59/60	A,B,C,D,E	output	input	input	none	output
ASTM D1250-80 T23/24	A,B,C,D	output	input	input	none	output
ASTM D1250-80 T53/54	A,B,C,D	output	input	input	none	output
ASTM D1250-80 T5/6	A,B,C,D	output	input	input	none	output
ASTM D1250-80 T59/60	A,B,C,D	output	input	input	none	output
ASTM D1555M-2016	BEPX	output	none	none	none	output
ASTM D1555M-2016	14-17 (CH1, CH2)	output	input	input	none	output
ASTM D1555-2016	BEPX	output	none	none	none	output
ASTM D1555-2016	14-17 (CH1, CH2)	output	input	input	none	output
ASTM D4311-04 T1	none	input	none	none	none	output
ASTM D4311-04 T2	none	input	none	none	none	output
ASTM D4311-15	none	input	none	none	none	output
ASTM D4311-83/90 T1	none	input	none	none	none	output
ASTM D4311-83/90 T2	none	input	none	none	none	output

3. 'None' should not be edited.

ASTM D4311-96 T1	none	input	none	none	none	output
ASTM D4311M-15	none	input	none	none	none	output
ASTM IP-52 T23/24	A,B,C,D,E	output	input	input	none	output
ASTM IP-52 T53/54	A,B,C,D,E	output	input	input	none	output
Concentration	none	output	none	none	input ¹	output
CTL Table	none	output	input	input	none	output
DCF method	none	input/output	input	input	none	output
Density Table	none	output	none	none	none	output
Manual entry of CTL	none	input/output	none	none	none	output
No GSV calculation	none	none	none	none	none	output
TCF method	none	output	none	none	none	output
EN15940(2019)	none	output	input	input	none	output
NBR15639(2016)	none	input/output ²	input ³	input	input/output ⁴	output
SGS(2021)	Ammonia	output	input	input	none	output

Reference Density Overwrite

In some cases, according to standards, Reference Density is shown as an output. In order to enter/change the Dref value, a indirect entry can be made using Sampled Dentisy and Sampled Temperature.

ENTIS will automatically do this input of the Reference Density:

- Sample Density = Desired Reference Density
- Sample Temperature = Reference temperature (Tref)

This is applicable to the following calculation tables:

- 2) When reference density is input, concentration input is ignored. When mass concentration is input, reference density is output.
- 3) When no reference density or mass concentration is input, sample density and temperature can be input to calculate reference density, mass, and volume concentration.
- 4) When no reference density or mass concentration is input, sample density and temperature can be input to calculate reference density, mass, and volume concentration.

Concentration input can be in mass or volume percentage, depending on the definition of the custom concentration table loaded.

- API Ch 11.1-04 T5/6
- API Ch 11.1-04 T23/24
- API Ch 11.1-04 T53/54
- API Ch 11.1-04 T59/60
- ASTM D1250-80 T5/6
- ASTM D1250-80 T23/24
- ASTM D1250-80 T53/54
- ASTM D1250-80 T59/60
- API Ch 11.2.4-07 T23/24
- API Ch 11.2.4-07 T53/54
- API Ch 11.2.4-07 T59/60
- ASTM IP-52 T23/24, ASTM IP-52 T53/54
- EN15940(2019)
- SGS(2021)
- NBR15639(2016)

Appendix B: User Level Restrictions

The created users' roles and level can be set when in Manager level in Experion Station. These roles (levels) will define which features of ENTIS and Experion are accessible.

The following table lists these restrictions for the features and pages relevant to ENTIS.

Role Level	Enabled Pages	Disabled Pages	Disabled functions	Enabled functions
View Only	 Group View Tank Detail Group Detail Movement Main Profiles – View Totalizers Reports Help Alarms view Trends view 	 Gauge commands Manual overwrite Profiles - Create Whatif Manage tasks 	 Edit Deltas Manage Views Manage Groups Manage Filters Edit Totalizers Delete Files Create Reports Schedule Tasks Edit Settings Edit Settings Edit Settings Alarms Edit Tank Comment Export data Movement Actions Movement Config Experion Alarms Experion Trends create Experion Settings 	
Ack Only	*Same as View Only	*Same as View Only	*Same as View Only	*Same as View Only
Operator	 Group View Tank Detail Group Detail Gauge commands Manual overwrite Profiles - Create Whatif Manage tasks Movement Main Profiles – View Totalizers Reports Help Experion Alarms view Experion Trends view 		 Edit Settings Delete Files Experion Alarms Experion Server Settings 	 Edit Deltas Manage Views Manage Groups Manage Filters Edit Totalizers Create Reports Schedule Tasks Edit Settings Alarms Edit Tank Comment Export data Movement Actions Movement Config Experion Trends create
Supervisor	*Same as Operator	*Same as Operator	Experion Server Settings	 Edit Deltas Manage Views Manage Groups Manage Filters Edit Totalizers

				 Create Reports Create Reports Schedule Tasks Edit Settings Edit Settings Alarms Edit Tank Comment Export data Movement Actions Movement Config Experion Alarms Experion Trends create
Engineer	*Same as Supervisor	*Same as Supervisor	*Same as Supervisor	*Same as Supervisor
Manager	*Same as Engineer	*Same as Engineer		 Edit Deltas Manage Views Manage Groups Manage Filters Edit Totalizers Delete Files Create Reports Schedule Tasks Edit Settings Edit Settings Edit Settings Edit Tank Comment Export data Movement Actions Movement Config Experion Alarms Experion Server Settings

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For service-related questions, contact:

Technical Assistance Centre Phone: +31152701246 E-mail: <u>HFS-TAC-SUPPORT@honeywell.com</u>

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