DOVER®
FUELING SOLUTIONS

User's Manual

MagLink LX

M2052-EU

Revision: 1

Part Number: M2052-EU, Rev. 1
Issue Date: V

NOTE: Before you use this manual, make sure you have the most recent revision. Look at the revision of this document to make sure it agrees with the most current revision found at http://www.opwglobal.com/opw-fms/tech-support/manuals-how-to-videos. Download the latest revision if necessary.

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Section 1 Preface

Start Italiana S.r.l. has made every effort possible to see that this document is complete, accurate and updated. With every revision of the console, the related information is added to the document. Start Italiana S.r.l. reserves the right to make unannounced improvements and/or changes in the product and/or associated programs. Start Italiana S.r.l. is not liable for damages of any kind, including those resulting in the document, including typographical errors.

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Section 2 General Warnings

Carefully read the instructions in this manual before you do the installation procedures.

Only approved persons are permitted to install this equipment and configure the console.

The manufacturer is not responsible for operations that are not included in this manual.

The manufacturer is not liable in regards to competent bodies for changes to the equipment and software that are not approved.

In case of failure or defect, refer directly to an authorized service provider or manufacturer.

The manufacturer is not liable for injury and/or damage to persons and/or property and/or pets caused by the failure to obey safety instructions.

All approved personnel must know all safety requirements in this manual, the configuration manual and the user manual.

Refer directly to an approved service provider or manufacturer for questions about the operation of the equipment.

IMPORTANT: You must read and obey all safety instructions in this manual before you use this equipment.

WARNING: Incorrect use of this equipment that does not agree with the instructions in this manual can cause a risk to safety.

Section 3 Introduction

This manual was prepared in accordance with IEC 82079-1 standards. “Preparation of instructions for use - Structuring, content and presentation - Part 1: General principles and detailed requirements and according to the ATEX Directive 2014/34/EU concerning equipment and protective systems intended for use in potentially explosive atmospheres."

This manual gives all necessary information about the installation of the Maglink LX console.

IMPORTANT: This manual must be used together with the related product manuals:

- M2050-EU MagLink LX Installation Manual
- M2051-EU MagLink LX Configuration Manual

You must install the console as shown in M2050-EU MagLink LX Installation Manual, configure the console as instructed in the M2051-EU MagLink LX Configuration Manual, and use the console in the field as shown in this manual.

WARNING: This device must not be discarded with household waste. This device is labeled in accordance with European Directive 2012/19/UE concerning used electrical and electronic appliances (waste electrical and electronic equipment – WEEE).

This guideline gives the methods for the return and recycling of used electronic devices as applicable throughout the EU. To return your used device, use the return and collection systems available to you.

The battery used in this device may present a risk of fire or chemical burn if mistreated. Do not disassemble, heat above 50°C or incinerate.

The table that follows lists reference data of the manufacturer:

Data	Description
Name	START ITALIANA S.r.l.
Address	Via Pola 6 20813 Bovisio Masciago (MB) Italy
Telephone	+39 0362 1581465
Fax	+39 0362 1581464
Website	www.startitaliana.com
e-Mail	support@startitaliana.it

NOTE: The units of measurement contained in this manual refer to a specified selection by the user. Refer to the M2051-EU MagLink LX Configuration Manual for more information on how to set units of measure.

Section 4 General Description

This console is used to monitor probe levels and gives tank alarm notifications. The console can hold up to 16 on-board probes, four (4) on-board relays with six (6) inputs and an external expansion module that can hold up to four (4) expansion cards.

NOTE: A maximum of two (2) MagDirects with 8 probes each can be added.

NOTE: Each expansion card can have 8 relay outputs, 8 digital inputs or 4-20mA. These cards can be put together so that the system can have 32 relays and 0 inputs, 32 inputs and 0 relays and a mixture of both in increments of 8.

The console can interface with a site's FCC/POS through serial or Ethernet connection.

The console has a resistive type touchscreen that can be used with fingers (also with gloves), stylus pens for touchscreens and other applicable tools. To use the screen it is necessary to contact the screen and apply a light force.

The table below shows the technical characteristics of the console:

MagLink LX Technical Characteristics	
Characteristic	**Value**
Power supply	100 - 240 V~, 50-60 Hz
Consumption	15 VA
Operating temperature	(-10 - +50) °C
Relative humidity	(5 - 95)%, non-condensing
Number of probes	32 (16 probes through internal barrier and 16 probes with added MagDirect modules)
Number of ON-OFF external sensors	Up to 32
Number of ON-OFF internal sensors	6 (only when Dipswitch 2 is ON)
External relay outputs	Up to 32
Internal relay outputs	4
Lower power of the relay output	0,5 A, 33 V~, or 2 A, 30 V DC
Output power for the probes	12 V DC, 100 mA per output for each probe, connectors MR3 MR4 (up to 8 probes for each connector)
Serial communication of the probes	RS485
Host communication (management)	RS232 and TCP/IP (almost every forecourt controller have the protocol integrated)
Printer communication	RS232
Integrated web server for remote configuration, consultation, communication, and emails as well as HOST COMMUNICATION	TCP/IP
GSM modem for SMS service	1 Optional
IFSF	1 Optional
Case	Plastic
Protection	IP40
Dimensions	265 x 190 x 95 mm

4.1 Compatible Probes

The probes in the list below are compatible with the MagLink LX:

- XMT EXD 485
- XMT SI 485
- XMT RF (an RF receiver is necessary)
- DMP-IS-485

NOTE: ALL the floats used on probes have more than 10 years of life time in the fuel tanks

Auxiliary equipment that can be used with the MAGLINK LX console include:

- Expansion cards, up to 32 relays and 0 inputs, up to 32 inputs and 0 relay, and a mixture of both in increments of 8.
- Local Printer

4.2 Correct Use

Only use the MagLink LX console for use as given in this manual. The console must be installed in a safe arrea. The console includes an intrinsic safety barrier and two (2) channels (BRA-2SIP) to connect XMT-SI-485 and DMP-IS-485 probes.

The table below shows the characteristics of use of the intrinsically safe barrier contained in the console:

MAGLINK LX Features (barrier)	Description
Group (area of use)	II (Surface industries different from mines)
Category and type of potentially explosive atmosphere	(1) G
Protection mode	ia
Group of substances (gases, vapours or mists)	IIB

The specifications of use for console security and for the Barrier are given in this manual and on the product label.

IMPORTANT: Safety instructions constitute an attachment to this manual and users must acknowledge it before using the equipment.

WARNING: The Console must not be used in hazardous areas (because there is a risk of fire and explosion). The probes of the XMT-SI-485 family are installed in hazardous areas and must be connected to the Barrier contained in the console.

4.3 Incorrect Use

Incorrect and alternative uses include:

- **Resistive touch screen**: Only use fingers or special tools made for resistive touchscreens to select screen options.
- **USB and USB Port devices**: Only use this port for firmware updates, console backup and USB printer connection.
- **Serial ports**: Only use the serial ports for printer and PC connection with management programs that interface with the protocols given by Start Italiana S.r.l.
- **Network cable**: Only use the network cable connection for console configuration, and local network connections (Refer to the M2051-EU Configuration manual).

Section 5 Power ON/OFF

IMPORTANT: Only authorized/trained personnel can energize the console and must obey the manufacturer's instructions. Operation must obey the safety instructions shown in the Installation Manual (M2050-EU).

To energize the console:

1. Make sure that the power button is in the OFF position (0).
2. Connect the power cable.
3. Connect the corporate network cable, if necessary.
4. Push the power button to the ON position (1).

If the console is not configured when it is energized it will cause an alarm because it does not communicate with a tank. Push the **red arrows** up or down until you see the page "ALARM LOG." Push the **ACK** button to stop the alarm.

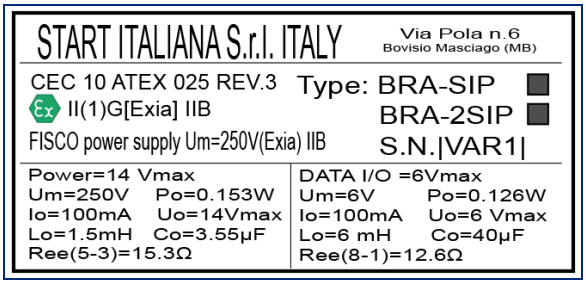
To make changes to the console configuration, refer to the MagLink LX Configuration Guide M2051-EU.

To de-energize the console, push the power button to the OFF position.

NOTE: The Maglink-LX console uses an industrial grade SD card. Safe data storage is available if there is power loss.

Section 6 Product Labels

- Name and address of the manufacturer
- CE marking with the Notified Body
- Product Name
- The "Caution" symbol (0434B of 01/2004), according to ISO 7000
- Serial number
- Year of production
- Power Supply(VAC and Hz)
- Power consumption (VA)
- Operating temperature (°C)
- Ingress protection (IP grade)
- Fuse rating
- Indication that inside there is intrinsically safe circuit



- Name and address of the manufacturer
- Equipment Type (BRA-SIP, or BRA-2SIP)
- ATEX Reference number of the certificate
- ATEX Marking: Ex II (1) G [Exia] IIB FISCO power supply UM=250 V [Exia] IIB
- Serial number
- Electrical data

Section 7 Graphical User Interface

7.1 Inventory

The Inventory page shows information related to tanks. Up to four (4) tanks can be shown on a page.

TIP: Move your finger across the display to the right to see the information for more tanks.

Tap on a tank image to get more information about that tank.

A screen will open that shows information related to the categories in the tables that follow:

Volume	
Product	Gross Product volume at the current temperature (includes the water volume)
Comp. prod	Compensated product volume temperature (at 15° C or 20° C: refer to the configuration)
Water	Current water volume
Ullage	Empty space calculated from the safe working capacity (refer to the configuration)
Capacity	The total capacity of the tank (refer to the strapping table).

Level	
Product	Current product height
Water	Current water height
Safe capacity	Refer to the configuration
Maximum height	Tank height (refer to the strapping table).

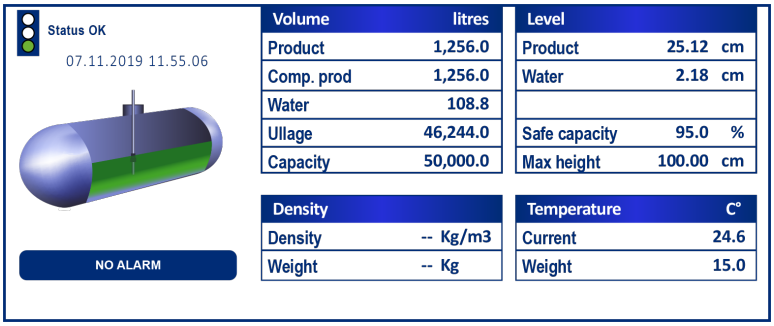
NOTE: The density data in the table that follows will show only if a Density Measurement sensor is installed.

Density	
Density	The density at current temperature
Weight	The weight of the product calculated by the measured density

Temperature	
Current	The current product temperature.
Compensated	The temperature setting that is used for volume compensation (refer to the configuration).

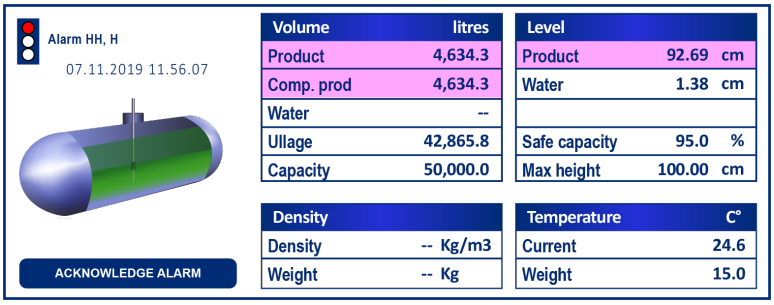
7.1.1 Status Icons

Status OK (Green) No Alarm



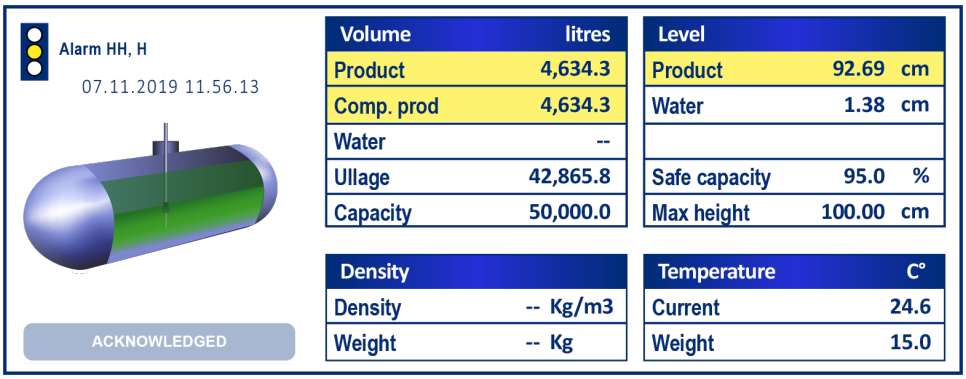
- The "Traffic Light" is green.
- There are no Alarms.
- The NO ALARM button is "grayed out."

Status Alarm HH, H (Red) In Alarm



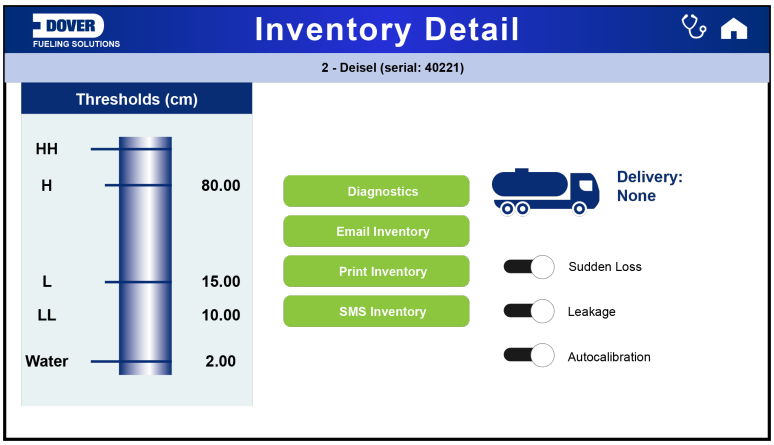
- The "Traffic Light" is red.
- The alarms are HH (High-High) and H (High).
- The color in the related fields is changed to pink.
- The “Acknowledge Alarm” button is On. Push the Acknowledge Alarm button to aknowledge the alarm in the system.

Status Alarm HH, H (Yellow) Alarm Aknowledged



- The "Traffic Light" is yellow.
- The alarms HH (High-High) and H (High) have been acknowledged
- The color in the related fields is changed to yellow.
- The ACKNOWLEDGED button is "grayed out."

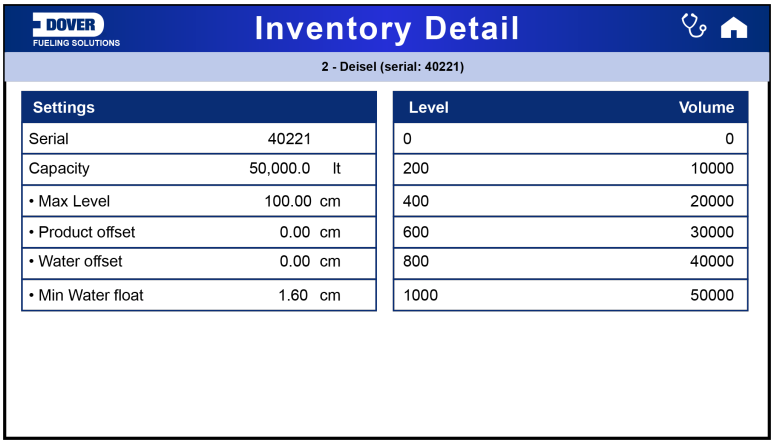
TIP: Move your finger down the display to see the next screen.



This screen shows the configured thresholds. There are four (4) action button selections:

- Diagnostic
- Email Inventory
- Print Inventory
- SMS Inventory

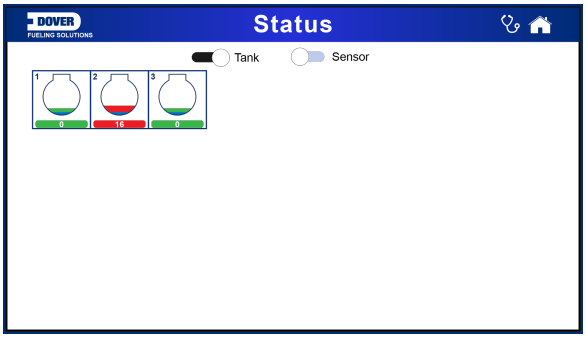
TIP: Move your finger down the display to see more tank settings and the Strapping table.



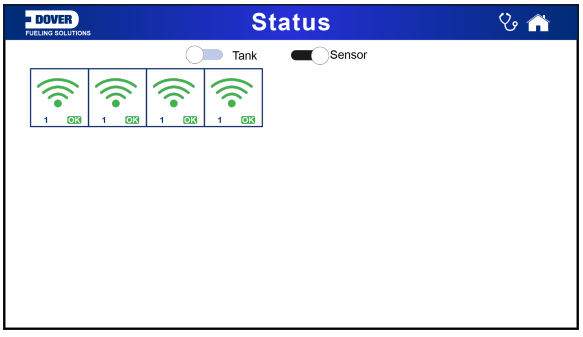
7.2 Main Menu

Push the **Home** button in the top right of the Inventory screen to go to the *Main Menu*.

7.3 Status Page



Push the **Status** icon on the *Main Menu*.The display will navigate to the "Status" screen that shows information related to the condition of the Tanks or Sensors (move the Sensor slider to the right to see the Sensor status).



The icons will show in green if there are no alarms. If a tank or sensor is in alarm, its icon will show in red.

7.4 Calendar

Push the **Calendar** icon on the *Main Menu* and the "Calendar" screen will come into view.

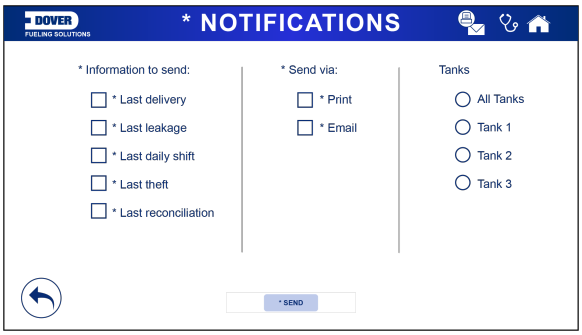
There is a group of icond along the left side of the calendar. These icons are used as filters to select what events are shown on the calendar display.

- * System Select this icon to show events related to the console.
- Tank Select this icon to show events related to tanks.
- * Sensors Select this icon to show events related to sensors.
- Select this icon to show deliveries.
- Select this icon to show alarms.
- Select this icon to show warnings.
- Select this icon to show leak tests.

Use the radio buttons along the right side of the calendar to select the applicable tanks.

Push a date box to see information for the events on that date.

7.5 Notifications



Push the **Notifications** icon on the *Main Menu* and the "Notifications" screen will come into view.

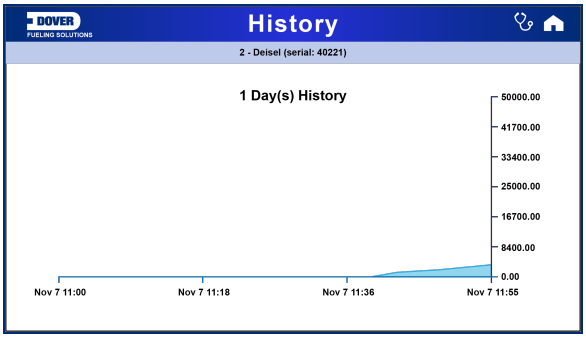
Under *Information to send*, select the applicable **type** of information to send.

Under *Send via*, select the **method** used to send the information.

Push the **SEND** button.

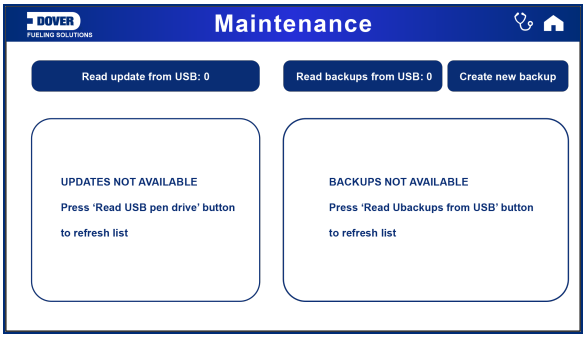
Select the **recipients** from the *prompt screen* that shows.

7.6 History



Push the **History** icon on the *Main Menu* and the History screen will come into view. The History screen shows the tank volume over a selected period.

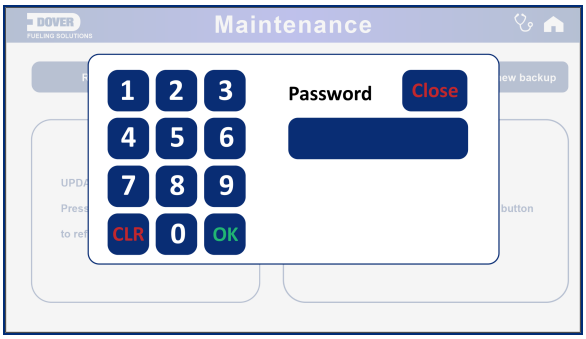
7.7 Maintenance



Push the **Maintenance** icon on the *Main Menu* and the "Maintenance" screen will come into view. In this screen you can:

- Do software updates through the use of a USB thumb drive. The user must:
  - Get the update file "lx4_new.zip" from Dover Fueling Solutions.
  - Copy it onto a USB thumb drive.
  - Put the thumb drive into the USB port on the console.
  - Push the **Read update from USB** button.
- Restore a configuration backup from a USB thumb drive:
  - Put the USB thumb drive containing the backup to the console into the USB port of the console.
  - Push the **Read backups from USB**button.

• **Create new backups** : This will make a backup of the configuration. If a USB thumb drive is put into the USB port of the console, then the backup will be stored to the thumb drive. If there is no USB thumb drive in the console, then the backup will be stored to the SD-card.

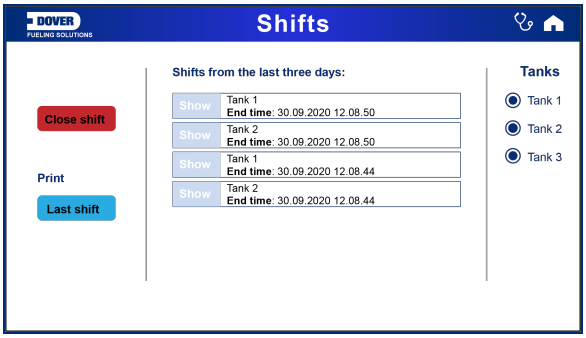


Push one of the **buttons** on the "Maintenance" screen. A 6-digit password must be entered before you can proceed.

NOTE: Note: The password is set up on the web configuration page (refer to **Passwords** in M2051-EU MagLink LX Configuration Manual.

REMINDER: Only an Admin user can set or change a password.

7.8 Shifts

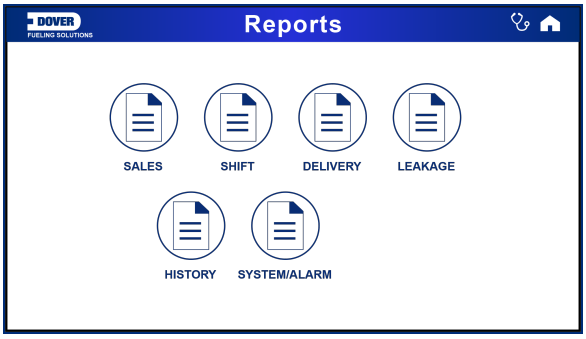


Push the **Shifts** icon on the *Main Menu* and the "Shifts" screen will come into view. The shifts from the last three days will show.

Select the **Close shift** button to manually close a shift.

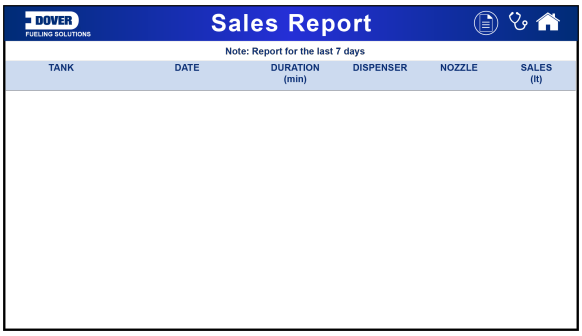
Select the **Last shift** button to send the last shift information to the connected printer.

7.9 Reports



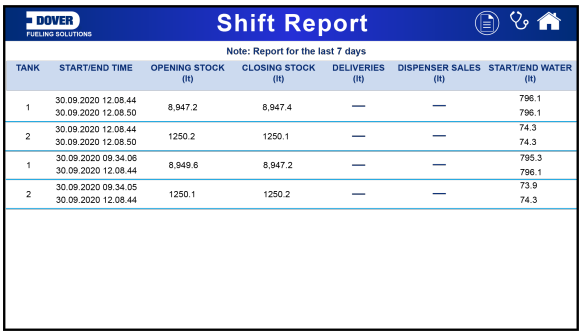
Push the **Reports** icon on the *Main Menu* and the "Reports" screen will come into view. You can make reports for the selections shown in the screen image above.

7.9.1 Sales Report



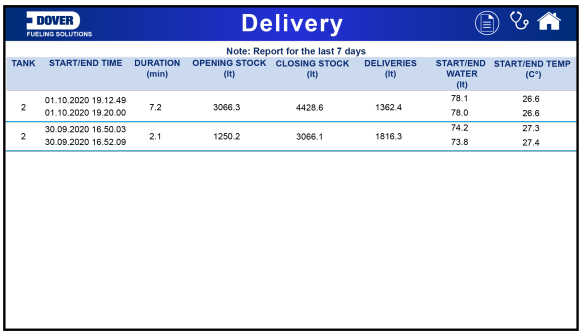
The sales report shows the daily tank sales for the last seven days

7.9.2 Shift Report



The shift report shows a full report of each shift for the last seven days. The report shows the deliveries and tank sales that occurred during the shift.

7.9.3 Delivery Report



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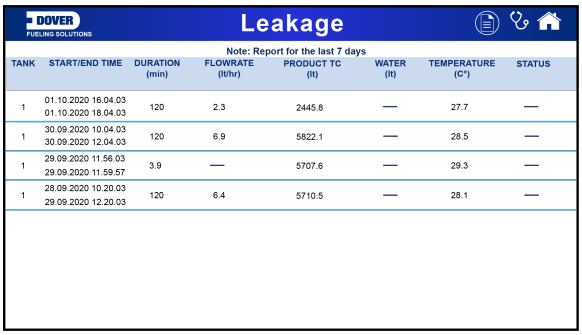
Delivery

Note: Report for the last 7 days

TANK	START/END TIME	DURATION (min)	OPENING STOCK (lt)	CLOSING STOCK (lt)	DELIVERIES (lt)	START/END WATER (lt)	START/END TEMP (C°)
2	01.10.2020 19.12.49 01.10.2020 19.20.00	7.2	3066.3	4428.6	1362.4	78.1 78.0	26.6 26.6
2	30.09.2020 16.50.03 30.09.2020 16.52.09	2.1	1250.2	3066.1	1816.3	74.2 73.8	27.3 27.4

The delivery report shows all of the tank delivery information for the last seven days.

7.9.4 Leakage Report



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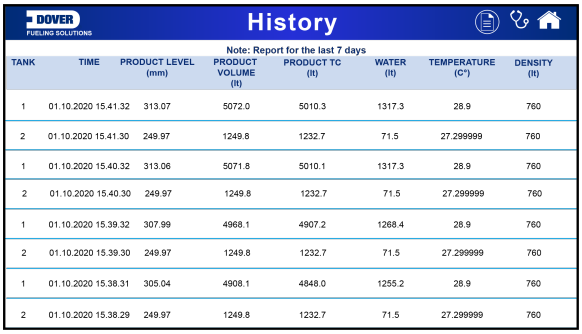
Leakage

Note: Report for the last 7 days

TANK	START/END TIME	DURATION (min)	FLOWRATE (lt/hr)	PRODUCT TC (lt)	WATER (lt)	TEMPERATURE (C°)	STATUS
1	01.10.2020 16.04.03 01.10.2020 18.04.03	120	2.3	2445.8	—	27.7	—
1	30.09.2020 10.04.03 30.09.2020 12.04.03	120	6.9	5822.1	—	28.5	—
1	29.09.2020 11.56.03 29.09.2020 11.59.57	3.9	—	5707.6	—	29.3	—
1	28.09.2020 10.20.03 29.09.2020 12.20.03	120	6.4	5710.5	—	28.1	—

The Leakage report shows all of the leak test results for the last seven days.

7.9.5 History



DOVER FUELING SOLUTIONS

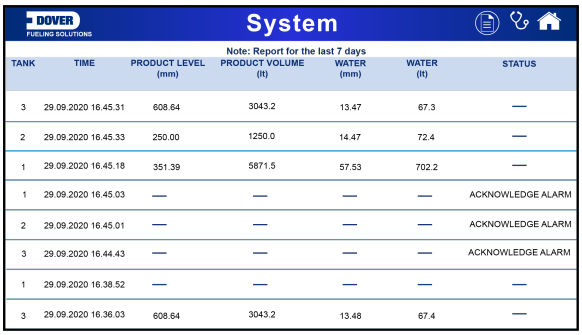
History

Note: Report for the last 7 days

TANK	TIME	PRODUCT LEVEL (mm)	PRODUCT VOLUME (lt)	PRODUCT TC (lt)	WATER (lt)	TEMPERATURE (C°)	DENSITY (lt)
1	01.10.2020 15.41.32	313.07	5072.0	5010.3	1317.3	28.9	760
2	01.10.2020 15.41.30	249.97	1249.8	1232.7	71.5	27.299999	760
1	01.10.2020 15.40.32	313.06	5071.8	5010.1	1317.3	28.9	760
2	01.10.2020 15.40.30	249.97	1249.8	1232.7	71.5	27.299999	760
1	01.10.2020 15.39.32	307.99	4968.1	4907.2	1268.4	28.9	760
2	01.10.2020 15.39.30	249.97	1249.8	1232.7	71.5	27.299999	760
1	01.10.2020 15.38.31	305.04	4908.1	4848.0	1255.2	28.9	760
2	01.10.2020 15.38.29	249.97	1249.8	1232.7	71.5	27.299999	760

The History report shows the inventory data of each tank. The console stores the inventory of every tank, for every minute.

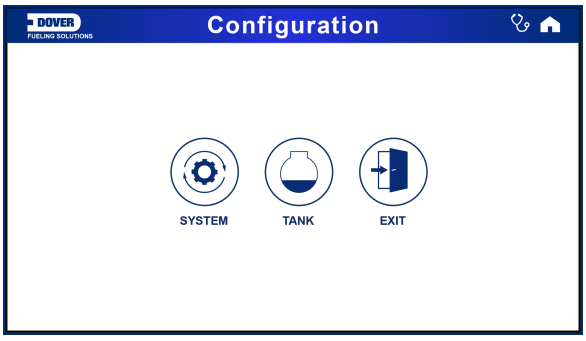
7.9.6 System/Alarms



TANK	TIME	PRODUCT LEVEL (mm)	PRODUCT VOLUME (lt)	WATER (mm)	WATER (lt)	STATUS
3	29.09.2020 16.45.31	608.64	3043.2	13.47	67.3	—
2	29.09.2020 16.45.33	250.00	1250.0	14.47	72.4	—
1	29.09.2020 16.45.18	351.39	5871.5	57.53	702.2	—
1	29.09.2020 16.45.03	—	—	—	—	ACKNOWLEDGE ALARM
2	29.09.2020 16.45.01	—	—	—	—	ACKNOWLEDGE ALARM
3	29.09.2020 16.44.43	—	—	—	—	ACKNOWLEDGE ALARM
1	29.09.2020 16.38.52	—	—	—	—	—
3	29.09.2020 16.36.03	608.64	3043.2	13.48	67.4	—

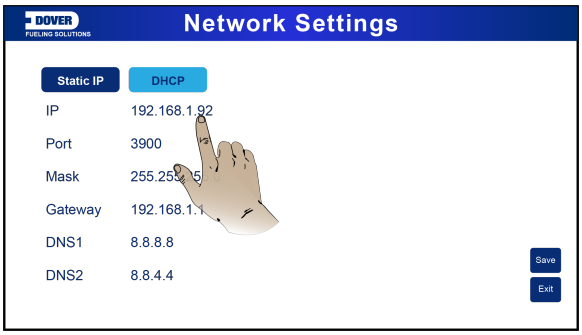
The System/Alarms report shows the alarms for the last seven days.

7.10 Configuration



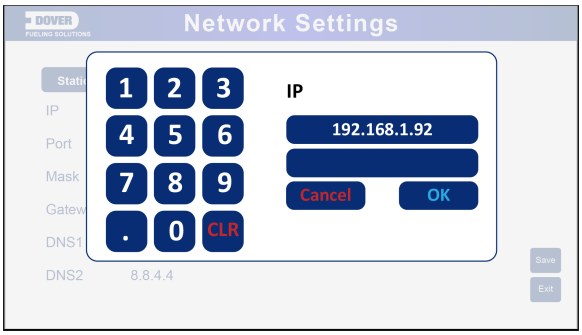
Push the **Shifts** icon on the *Main Menu*, enter your **Password** at the prompt and the "Shifts" screen will come into view.

7.10.1 System Configuration



Push the **System** icon on the *Configuration Menu* and the "Network Settings" screen will come into view.

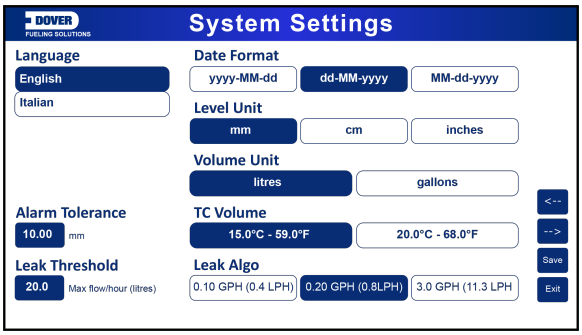
- Select a **parameter** to change. A keypad will come into view.



- Enter the new **value**.
- Click **OK** to save the value.

When you have completed all necessary changes, Click **Save**.

7.10.2 Tank Configuration

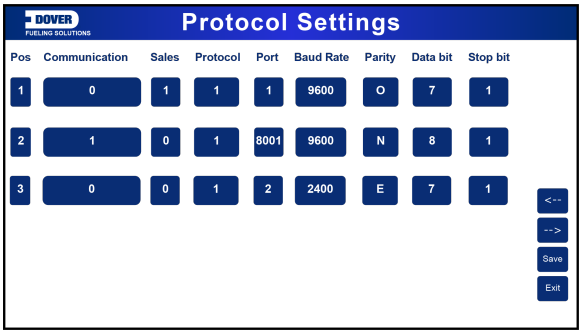


Push the **Tank** icon on the *Configuration Menu* and the "System Settings" screen will come into view.

You can make changes to Tank configuration parameters in this screen (see the image above)

When you have completed all necessary changes, Click **Save**.

Click the **-->** button to go to the "Protocol Settings" screen. You can make changes to the Serial and TCP/IP port parameters in this screen (see the image below).



Push the **Exit** button to navigate from this screen to go back to the *Configuration menu*.

Section 8 Technical Support

The best method to communicate with Technical Support personnel is to first connect the console to the Internet. The console must have a public IP Address and Ports 3000 and 22 open. Applicable data can be seen directly by Dover Fueling Solutions Technical Support personnel.

As an alternative, you can use a third-party program (such as TeamViewer 10). The console can then be connected to a remote computer used by Dover Fueling Solutions Technical Support personnel.

If access to the Internet is not available, the user must give Dover Fueling Solutions Technical Support personnel the applicable data related to the console so a debugging procedure can be done.

The procedure that follows shows the steps to send this data to Technical Support:

IMPORTANT: You must have a USB device with at least 50 MB of free space available. The USB device must be formatted to FAT32.

Connect the USB device to a PC.

Put a new folder on the USB device and give it the name **"lx-support"** (make sure you use lower case).

Eject the USB device from the PC.

Connect the USB device to the console (see General Indications for the location of the USB port on the bottom of the console).

Push the **INFO** button to get access to the applicable page.

Push **Export Log** when it comes into view on the screen. The files will be copied to the **lx-support** folder on the connected USB device.

Remove the USB device from the console.

Connect the USB device back to your PC.

Right-click the **lx-support** folder, select the **Send to** drop-down and select **Compressed (zipped) folder**.

Send the ZIP file by e-mail to support@startitaliana.it

Revisions - M2052-EU

Revision #	ECO	Effective	Software Version	Key Changes
0	1785	8/19/2020		Initial Release
1	1836	12/3/2020		Adds Settings and Shifts

NOTE: It is possible that older software versions might not support all features

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