INSTALLATION MANUAL

ProGauge

MAGLINK LX

Rev. 09, – April 2016

SUMMARY

1 PREFACE

Start Italiana S.r.l. has made every effort possible so that this document is complete, accurate and updated. With every revision of the console, the corresponding information is periodically 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.

2 GENERAL WARNINGS

Before working on this equipment, please be certain to carefully read the instructions in this manual.

Configuration must be performed by properly trained personnel.

The manufacturer is not responsible for any operation performed which is not covered in this manual.

Any tampering with the equipment and software relieves the manufacturer of any responsibility in regards to competent bodies.

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

The manufacturer accepts no responsibility for any injury and/or damage to persons and/or property and/or pets caused by failure to follow instructions relating to safety.

Qualified and trained staff has to know all safety requirements in this manual, in the user manual and in the installation manual.

In case of doubt concerning the operation of the equipment, refer to an authorized service provider or manufacturer directly.

	IMPORTANT: It is compulsory to consult safety instructions before using the equipment

	IMPORTANT: Improper use, not in accordance with the requirements described herein, may compromise safety

3 INTRODUCTION

The present manual has been 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.

The manual provides all necessary information about installing the Maglink LX console.

	ATTENTION: This manual must be used in conjunction with the following manuals: • Console Configuration • User Manual To use the console, you must install the console as described in this manual, configure the console as a reference manual, and use the console on the field as reference manual

The Maglink LX console complies with the requirements of Directive 2012/19/EC on waste of electrical and electronic equipment (WEEE) and hence displaying the according symbol:

	IMPORTANT: The crossed out wheelie bin symbol indicates that the product, at the end of its useful life, must be disposed of with household waste and must be brought to a collection point for electrical and electronic equipment

The following table lists reference data of the manufacturer:

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

The following table lists the symbols used in the document:

Symbol	**Description**
	ATTENTION: Important information and notes regarding operations and use considerations
	IMPORTANT: Danger to persons (including death), to property or to the environment

	ATTENTION: The units of measurement contained in this manual refer to a specific choice by the user himself/herself. You can set the measurement units in a different way (see Section 6.1 of this manual).

4 GENERAL INDICATIONS

The Maglink LX console is shipped in a cardboard box (L 320 x H 224 x D 90 [mm]) and includes the following:

- MAGLINK LX console
- Connection cable of 220 V with Schuko plug
- Check-list certifying quality control
- User manual and installation manual

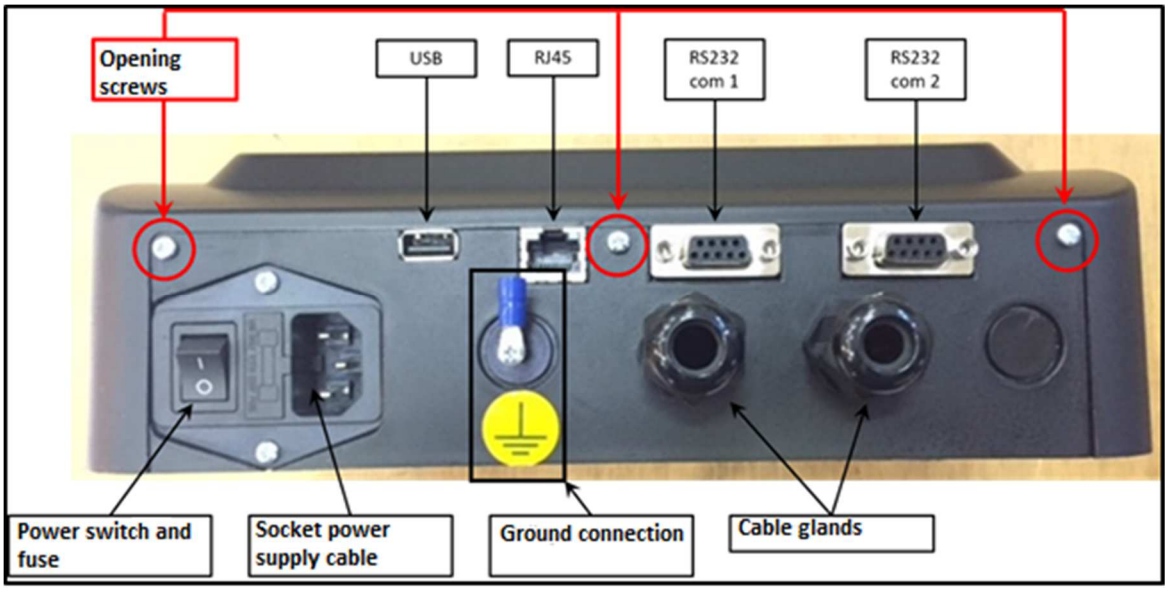
Weight of console with carton box: 1 kg.

The following image shows the console upon opening of the box:

The following table lists the principal technical characteristics of the console:

Element	Characteristic
Display	Display TFT 7 inch Dimensions 155 x 88 [mm]
Console	Dimensions • Width 267 mm • Height with cable: 215 mm • Depth 80 mm

The following image shows the lower part of the console:



The following table lists the elements in the figure:

Element	Description
USB	For firmware updates and back-up of the console (Refer to the "User Manual")
RJ45	For console configuration, and local network connections (Refer to the "Console Configuration" manual)
RS232 com 1	Serial port for connection to management systems (FCC/POS)
RS232 com 2	Serial port to a local printer connection and possibility of duplicating the Gilbarco protocol output required for DCD connections (Refer to the "User Manual")
Connections for grounding the system	For ground connections of the internal intrinsically safe barrier

4.1 Labelling and type designation

The following table lists the labels placed on the equipment:

Labelling	Description
	The labelling on the outer container contains the following data: • 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
	ATEX labelling on the outer container contains the following data: • 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

5 INSTALLATION

5.1 Preliminary warnings.

	IMPORTANT: The MAGLINK LX console is not explosion-proof

	IMPORTANT: Explosions and fires can cause damage or even death

	IMPORTANT: Flammable vapours when mixed with air can cause an explosion. Dangerous areas can occur from the presence of gases or vapours

	IMPORTANT: Do not install the console in a hazardous area

	IMPORTANT: Only use fuses of 250 V - 1 A for input power

5.2 Place of installation

You must consider that the console was not designed to withstand vibrations and extreme climatic conditions (High and low temperatures, humidity, etc.) which can damage the electrical circuits when selecting the console installation site.

	ATTENTION: Install the console in a place that is protected from moisture and water splashes
	IMPORTANT: The console must be installed in safe area

5.3 Electrical connection

The following table shows the steps necessary for the electrical connection to a 220 VAC:

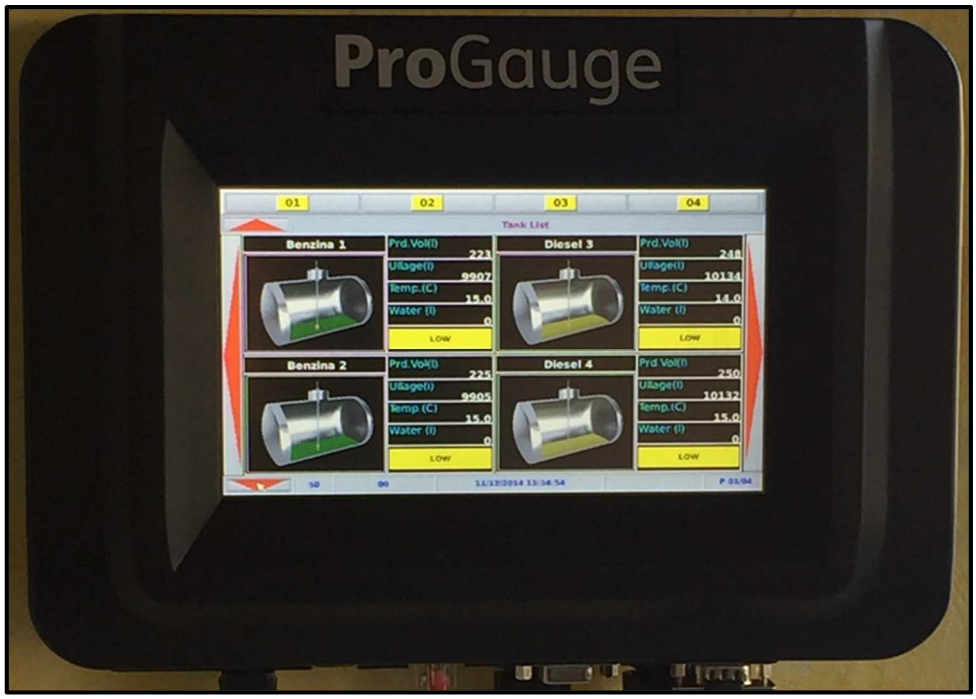
Step	Description
1	Turn off all power switches on the electrical panel
2	Connect the electrical panel and the console using the appropriate connectors
3	For power connections, use a single-phase cable, a section of which is not less than 1.5 mm^2 and one which is adequately protected. The power cord must comply with the standards IEC 60227 and IEC 60245. The cable supplied with the console already complies with regulations.
4	Make sure the power plug is connected to the ground and protected against short circuits and power surges
5	The power cord must be easily recognizable and accessible as it also has the function of removing power

	IMPORTANT: There is high voltage inside the console.

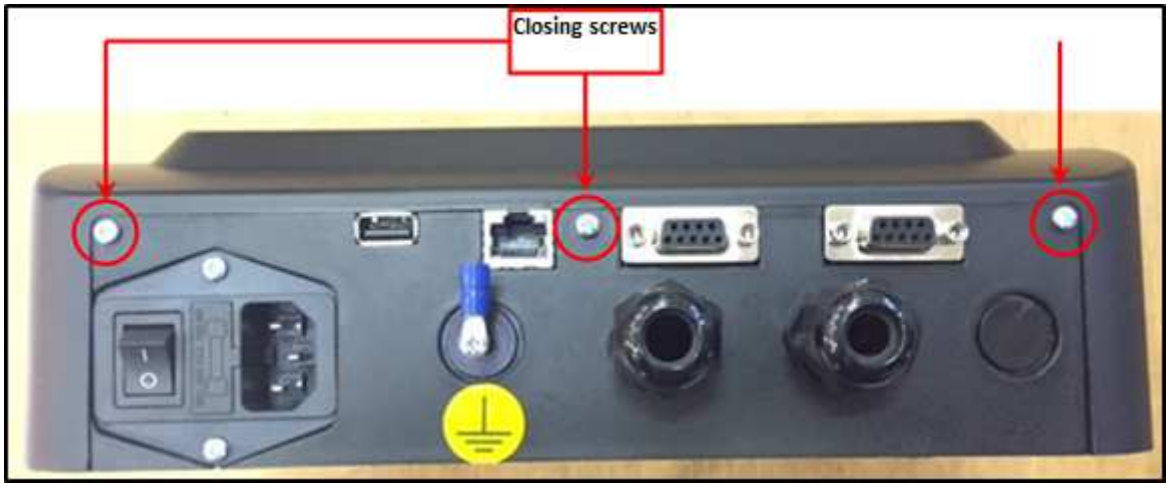
	IMPORTANT: The electrical connection procedure must be performed by trained and authorized personnel

5.4 Installation procedure

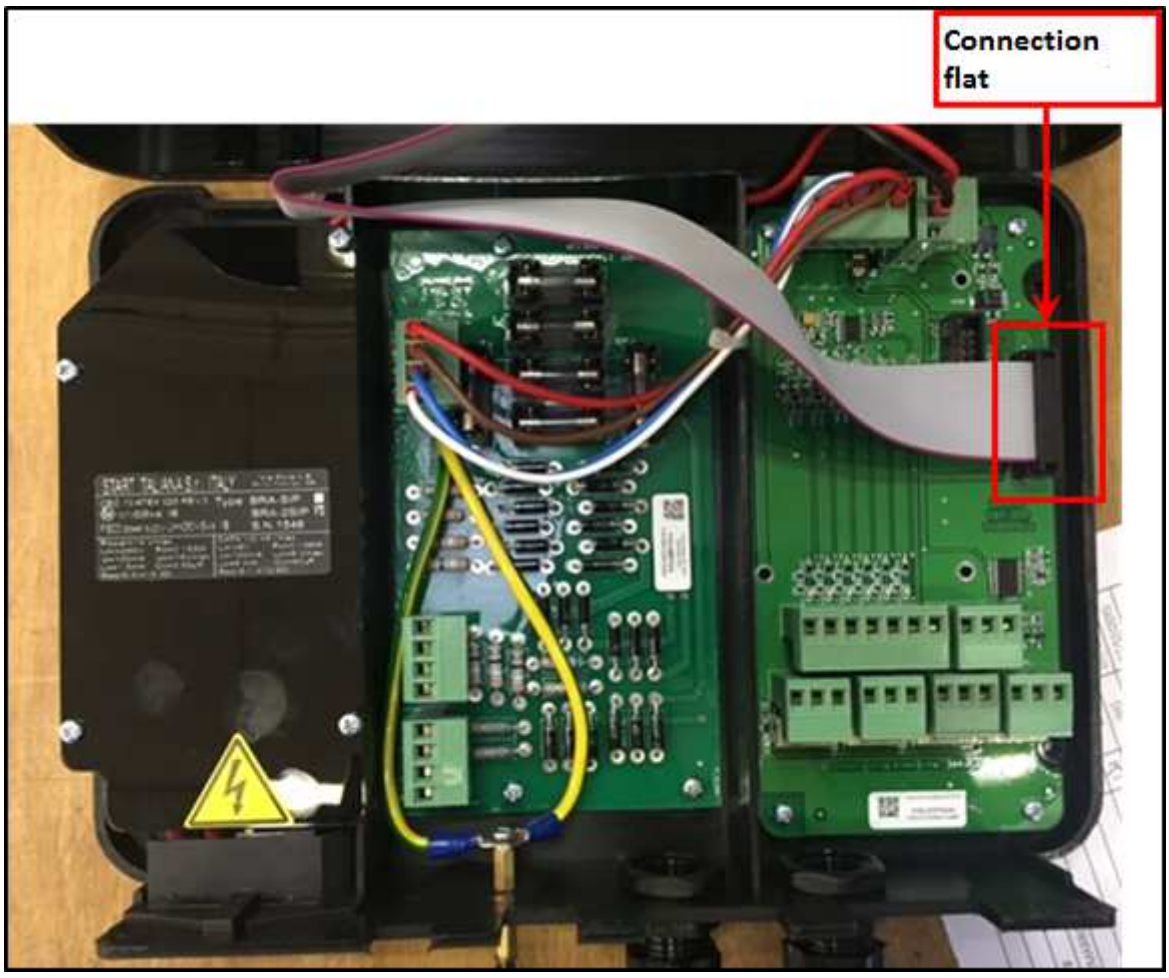
The following image shows the console attached to the wall:



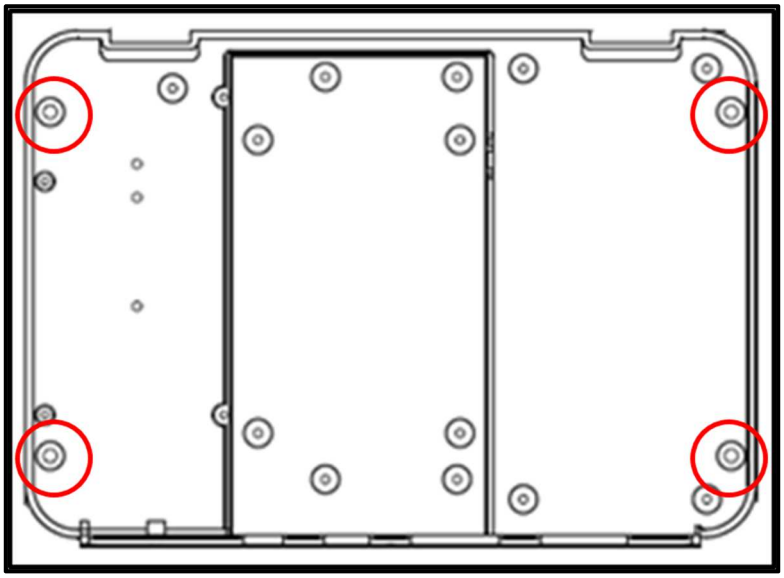
The following image shows the three mounting screws that allow console opening/closing:



The following image shows the console opened (Lift the top and disconnect the ribbon cable that connects the top and lower parts):



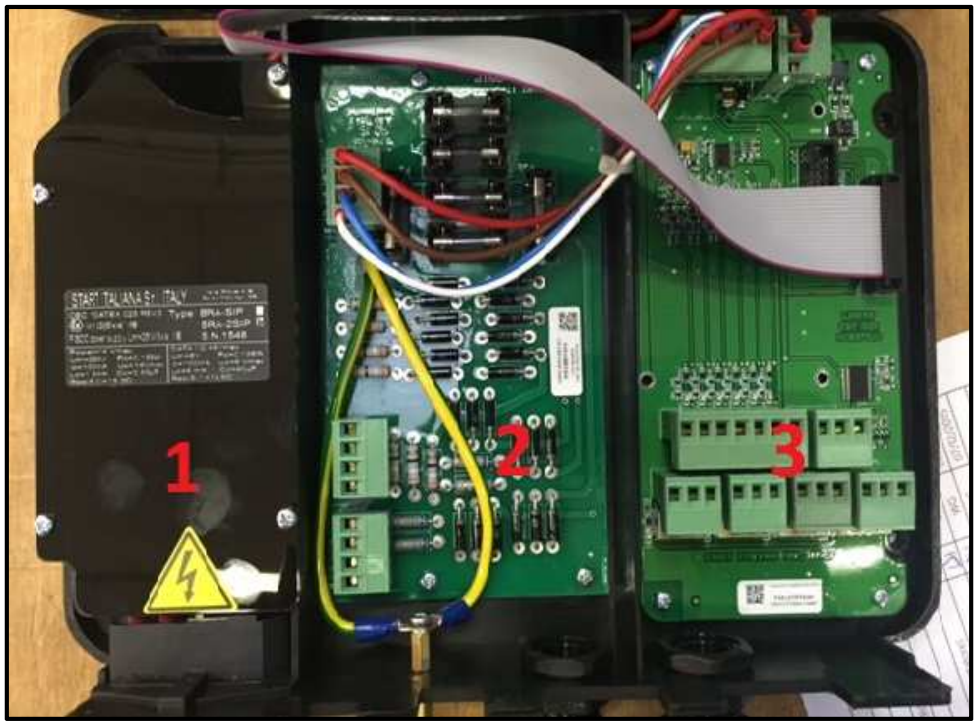
After disconnecting the ribbon cable fix the rear part to the wall (We recommend using Fischer dowels, size 6). The following image shows the mounting holes:



After attaching the console to the wall, you must run the wiring of the sensor cable to the console, as explained below.

6 MODES OF COMMUNICATION

The following image shows the open console (front panel removed as explained above):

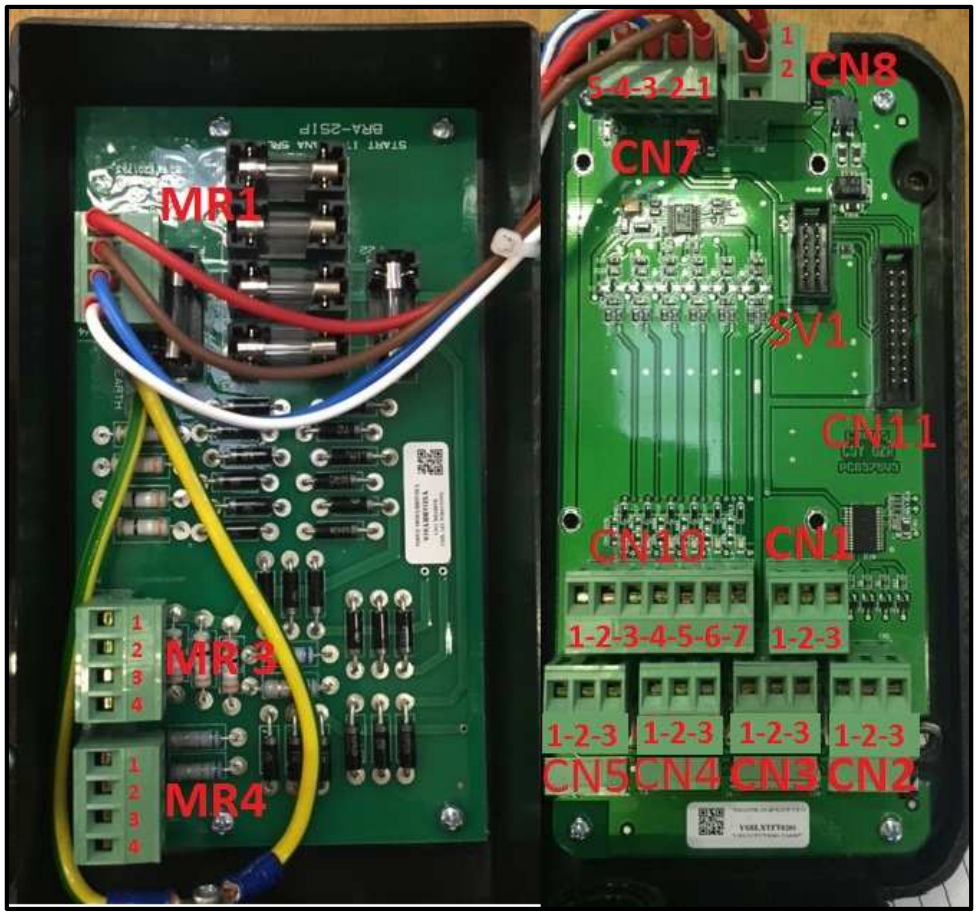


The following table lists the items at the bottom of the console:

Element	Description
1	PSU protection panel
2	BRA-2SIP barrier for connection to the probes (8+8)
3	Interface to relay

6.1 Connection to intrinsically safe XMT-SI-485 probe

The following figure shows how to connect the intrinsically safe probe (XMT-SI-485 model), on the BRA-2SIP barrier type:



The following table lists the connections shown in the figure:

Connection	Specifications
MR1	Barrier Input
MR3	Output below the safety barrier (up to 8 probes)
	Red (+ 12V) - Terminal 1
	Brown (RS485A) - Terminal 2
	Blue (RS485B) - Terminal 3
	White (-0 V) - Terminal 4
MR4	Output below the safety barrier (up to 8 probes)
	Red (+ 12V) - Terminal 1
	Brown (RS485A) - Terminal 2
	Blue (RS485B) - Terminal 3
	White (-0 V) - Terminal 4
CN7	Power output and data channel for XMT-SI-485 probes
	Not used - Terminal 5
	White (-0 V) -Terminal 4
	Blue (RS485B) - Terminal 3
	Brown (RS485A) - Terminal 2
	Red (+ 12V) - Terminal 1

In the event of installations with more than 16 probes/tanks, you must use the Magdirect connected to the console MR1 or CN7, each Magdirect carries up to 8 probes

6.2 Connecting the XMT explosion execution

The image below shows how to connect your console to an XMT probe explosion:

The XMT model explosion probes must be connected in parallel to the console and directly to the connector CN7 *without* passing through the intrinsically safe barrier.
In this case the barrier remains unused.
The following table lists the connections shown in the figure for connector CN7:

Connection	Specifications
CN7	Not used - Terminal 5
	White (-0 V) - Terminal 4
	Blue (RS485B) - Terminal 3
	Brown (RS485A) - Terminal 2
	Red (+ 12V) - Terminal 1

6.3 Connecting the RF Receiver (for XMT-SI-RF)

The image below shows how to connect your console to an RF Receiver:

The receiver connects directly to connector CN7 without going through the intrinsically safe barrier.
In this case the barrier remains unused.

Connection	Specifications
CN7	Not used - Terminal 5
	White (-0 V) - Terminal 4
	Blue (RS485B) - Terminal 3
	Brown (RS485A) - Terminal 2
	Red (+ 12V) - Terminal 1

For proper connections of the receiver, you must refer to the installation manual of the RF Receiver (Section on electrical connections).

6.4 Interface to relay diagram of connectors

The following image shows the connectors of a Maglink LX slave console:

The following table lists the console connectors:

Connector	Specifications		Connector	Specifications	
CN1	CANBUS Conn for DVD probes		CN8	Power input (13 VDC)	
	1	CANH		1	+12 V
	2	CANL		2	GND
	3	GND		3	Not used
CN2	Relay 1 connector		CN10	Digital input connector (Activated with a positive voltage)-DEEP 3 OFF	
	1	Normally Closed		1	GND (activated with a positive voltage)
	2	Common		2	Input 1
	3	Normally Open		3	Input 2
CN3	Relay 2 connector			4	Input 3
	1	Normally Closed		5	Input 4
	2	Common		6	Input 5
	3	Normally Open		7	Input 6
CN4	Relay 3 connector		CN10	Digital input connector (Activated with a positive voltage)-DEEP 3 ON	
	1	Normally Closed		1	GND (activated with a positive voltage)
	2	Common		2	Not Enabled
	3	Normally Open		3	+12 VDC (theft protection)
CN5	Relay 4 connector			4	Not Enabled
	1	Normally Closed		5	Not Enabled
	2	Common		6	Not Enabled
	3	Normally Open		7	Not Enabled
CN7	RS485 port		CN11	Main board connector	
	1	Red (+12 V)			
	2	Brown (RS485A)			
	3	Blu (RS485B)			
	4	White (-0 V)			
	5	Not used			

The following table lists the console connectors and the meaning of the different LEDs present:

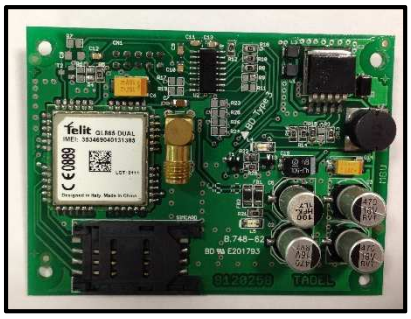
Connector	Specifications
SV1	Modem connector/IFSF (optional)
LED1	Power LED output to probe
L1	Relay 2 status LED (Lit: relay energised)
L2	Relay 3 status LED (Lit: relay energised)
L3	Relay 4 status LED (Lit: relay energised)
L9	Input 6 status LED (Terminal 7)
L10	Input 5 status LED (Terminal 6)
L11	Input 4 status LED (Terminal 5)
L12	Input 3 status LED (Terminal 4)
L13	Input 2 status LED (Terminal 3)
L14	Input 1 status LED (Terminal 2)
L19	Relay 1 status LED (Lit: relay energised)

6.5 Modem Connection

Connection of the GSM modem

Basic operations:

1. Disable the PIN code from the SIM card before insert it into the modem.
2. Insert the SIM card into the dedicated slot of the modem
3. Power on the console and wait some time to allow to the modem to connect to the GSM network. When connected the GSM signal depth will appear on the display of the console.



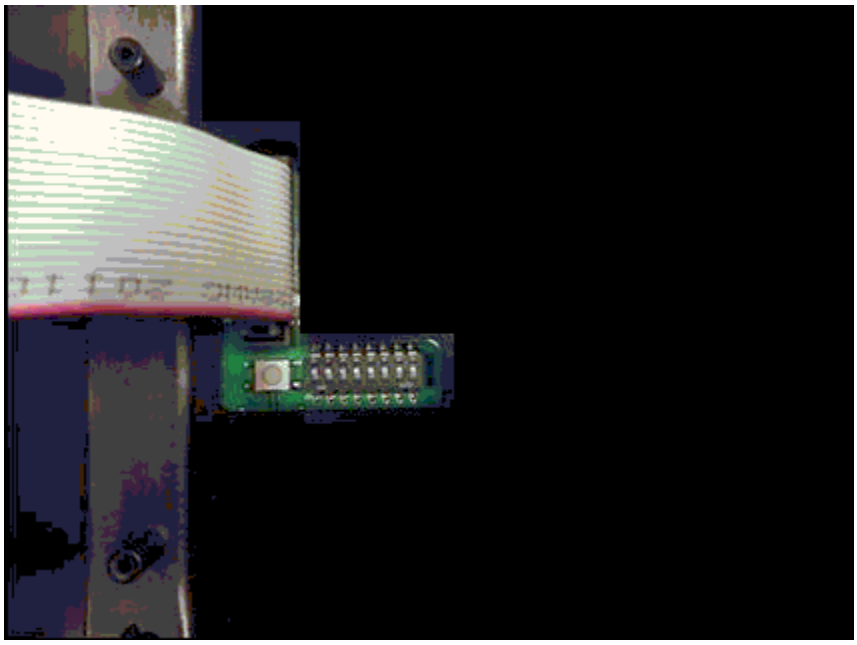
6.6 DVD connection

DVD has CAN bus communication and has to be connected to CN1
The power supply has to be bypassed through relay nr. 4 since the Maglink LX will power the DVD only when it is necessary activating or deactivating the relay nr. 4.

When DVD is configured Relay nr.4 is not available for any alarm settings

6.7 Dipswitch Configuration

The following picture shows the inside of the upper side of the console if you observe the dipswitch you can choose different configurations:



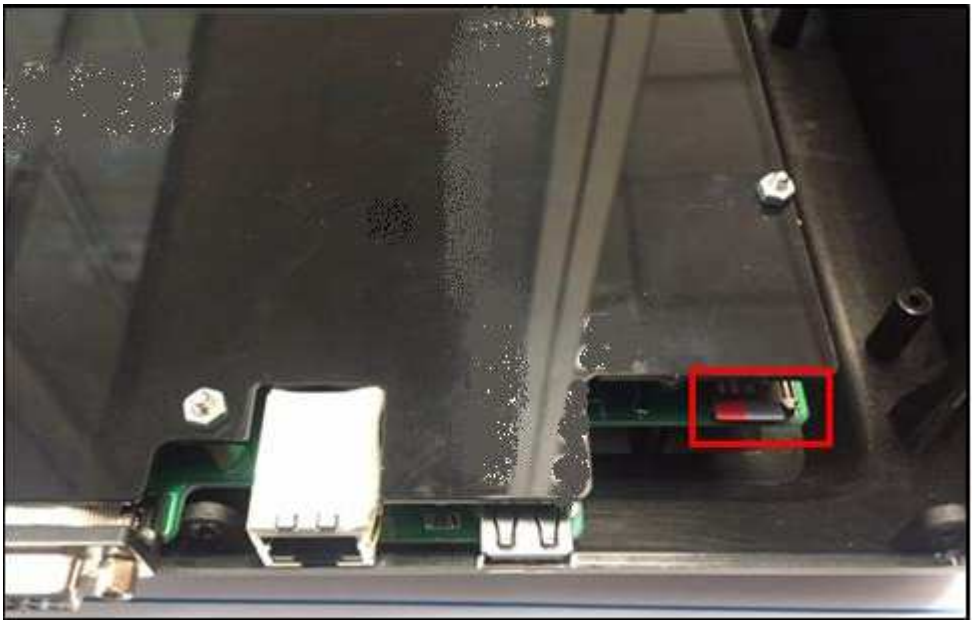
The following table shows the configuration of the dipswitch:

Dipswitch	Description
1	OFF = single Gilbarco, ON = Double Gilbarco (required for DCD connections)
2	OFF = Internal inputs not available for alarms, but are used for other control functions On = Internal inputs available for alarms
3	OFF = Automatic alarm mode off ON = Anti-theft mode (Dipsw 2 must be OFF) With 3 + 12 V DC CN10 connection Terminal and 1 0 V DC Terminal
4	OFF = Relay in normal mode, ON = Relay in reverse
6	General Reset (Turn off the console, switch to ON, turn on the console, wait for the display cursor in the top left to flash, turn off the console, switch to Off, turn on the console) ATTENTION: The general reset results in loss of all configuration data, the historical, alarms, delivery and reconciliations
7	OFF = Reconciliation deactivated, ON = Reconciliation activated

Dipswitchs not mentioned are reserved for future use

6.8 Micro SD Card

The following picture shows the inside of the upper side of the console highlighting the micro SD card, the SD card supports the operating system, firmware, configuration and a history of the console:



	ATTENTION: Do not remove the micro SD card, the console cannot work without the SD card

6.9 Closing and start up

Re-assemble the top of the console with the lower part fixed to the wall and previously wired.

Connect the power cord and turn on the console.

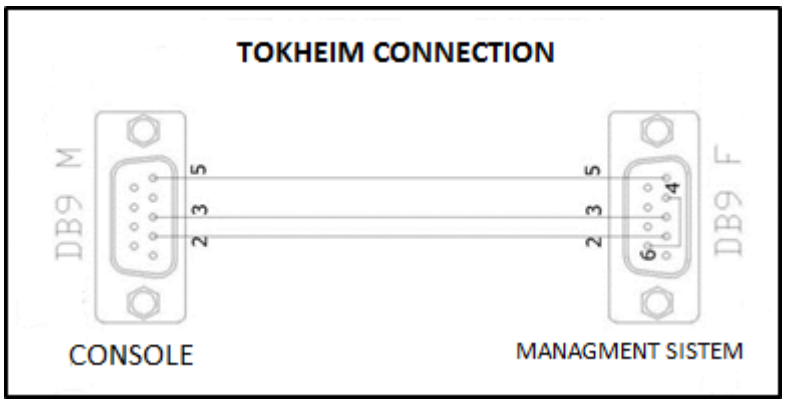
Continue with the configuration as shown in the "Console Configuration" Manual.

6.10 Connect the console to the management systems

The console can be connected via the RS232 port Com 1 on the following operating systems:

- DIALOG
- DOMS
- FUEL POS (VR350 Interface)
- GILBARCO
- ORPAK
- PIGNONE
- RETALIX
- Probe emulation

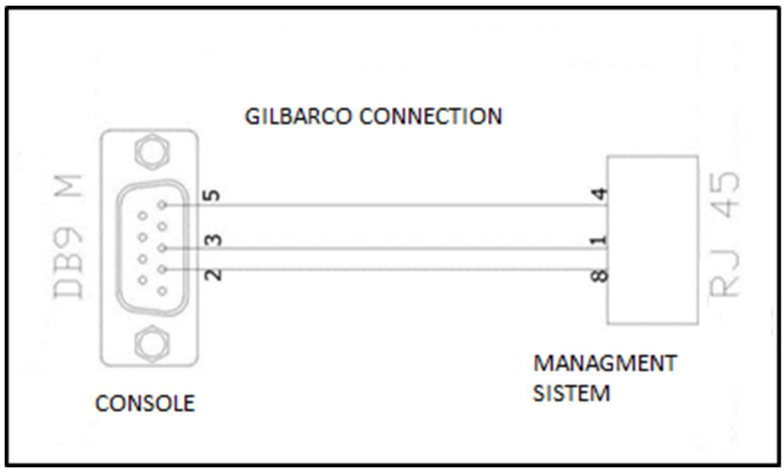
The following picture shows the connection for the DIALOG Fuel management system:



The following table lists the connection for the DIALOG Fuel management system:

Console (DB9)	DIALOG system (DB9)
PIN 2	PIN 2
PIN 3	PIN 3
PIN 5	PIN 5
---	Connect PIN 4 with PIN 6

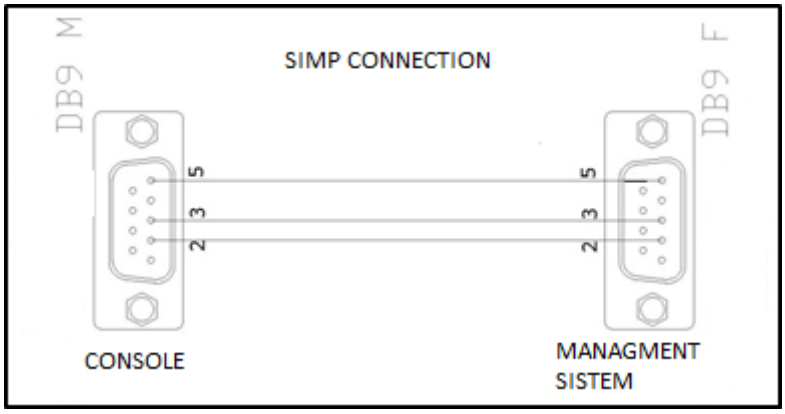
The following picture shows the connection for the GILBARCO Fuel management system:



The following table lists the connection for the GILBARCO Fuel management system:

Console (DB9)	GILBARCO system (RJ45)
PIN 2	PIN 8
PIN 3	PIN 1
PIN 5	PIN 4

The following picture shows the connection for the DRESSER management system (PIGNONE):



The following table lists the connection for the DRESSER management system (PIGNONE):

Console (DB9)	DRESSER system (PIGNONE) (DB9)
PIN 2	PIN 2
PIN 3	PIN 3
PIN 5	PIN 5

ATTENTION: It is recommended not to exceed 15 meters for serial connections between console and management system via RS232.

7 MAINTENANCE

Maintenance activities are defined and managed in accordance with EN 60079-17.

	IMPORTANT: Maintenance must be carried out only by authorized personnel or by the manufacturer

	IMPORTANT: Maintenance of electrical connections must be performed only by personnel trained and experienced (Refer to the installation manual of the console)

	IMPORTANT: The opening of the console can compromise the level of safety of the equipment, maintenance operations must only be performed by authorized personnel or by the manufacturer

	IMPORTANT: Changes to the console are prohibited unless authorized by the manufacturer

	ATTENTION: Periodically check for cleanliness and integrity of the equipment and its connections

	ATTENTION: To clean the screen and the console use a monitor/screen/TV cleaning cloth

	IMPORTANT: Do not use compressed air or liquid detergents to perform console and screen cleaning

8 SUPPORT

If you need direct assistance from a Start Italiana S.r.l. technician the best solution is to connect the console to the Internet .The console requires public IP address and port 80 opened. All data of interest to the console can then be viewed directly by Start Italiana S.r.l. staff.

An alternative is to use third-party programs (Team Viewer 7 can be downloaded form the START Web Site under the heading Assistance/Support) to allow a connection between the remote computer the console must be connected to the computer to which Start Italiana S.r.l. will connect remotely.

In the case where Internet access is not possible the user must still provide Start Italiana S.r.l. with data relating to the console for the execution of the debugging process.

The following table shows the necessary procedure steps for the provision of such data:

Step	Description
1	Provide a USB device with at least 50 MB of free space available  ATTENTION: The USB device must be formatted to FAT32
2	Connect the USB device to a PC
3	Create a folder on the USB device named "lx-support" (All in lower case)
4	Connect the USB device to the console
5	Press the "INFO" button and access the relevant page
6	Wait until the "Export Log" appears on the screen and then press it (The files are copied to your device in the console)
7	Perform a compression of the "lx-support" folder and send the ZIP file by e-mail to assistenza@startitaliana.it

9 SAFETY INSTRUCTIONS

Safety instructions are annexed to this document.

10 REVISIONS

The following table lists the revisions to the document:

Revision No.	Date	Description	Firmware Revision
01	March 2014	Issue	1.0.0
02	February 2015	Added com ports inversion	2.0.0
03	March 2015	Addition of an application description section	2.0.0
04	April 2015	Addition of a certification and notifications section	2.1.x
05	April 2015	Addition of a new test report, audit certification and notifications section	2.1.x
06	July 2015	Addition of a manual update section, information on reconciliation, shift reports, stock releases, support, program description	2.2.x
07	December 2015	Revision of the manual layout	2.3.x
08	January 2016	Revision with photos	2.2.X
09	April 2016	Modem connection	2.4.0

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