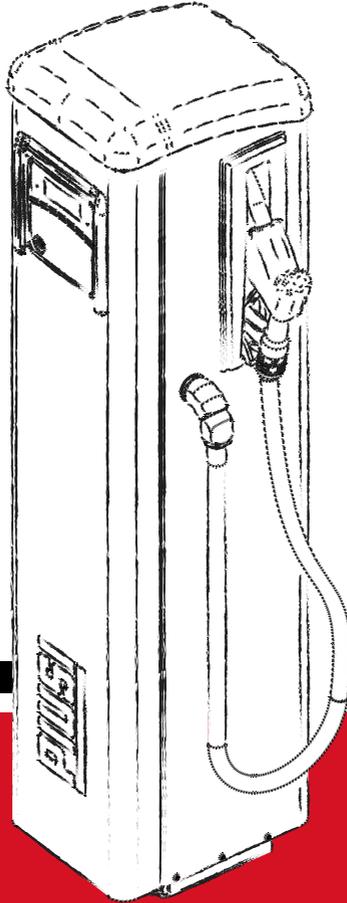


**PIUSI**<sup>®</sup>

*Fluid Handling  
Innovation*

**SELF  
SERVICE**

 **B.SMART**



**MADE  
IN  
ITALY**

Installation, use and maintenance

**EN**

**BULLETIN MO547 EN\_o2**

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# ENGLISH

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## **BULLETIN MO547**

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## 2 DECLARATION OF CONFORMITY

The undersigned: PIUSI S.p.A  
Via Pacinotti 16/A - Z.I. Rangavino  
46029 Suzzara - (MN) - Italy

DECLARES on its own responsibility, that the machine described below:

**Description: Fuel transfer pump for diesel**

**Model: SELF SERVICE B.SMART**

Serial number: see the Lot Number on the EC plate affixed to the product.

Year of construction: see the production year on the EC plate stamped on the product.

is compliant with the law provisions transposing directives:

- Machinery Directive 2006/42/EC
- Electromagnetic Compatibility Directive 2014/30/EU
- ROHS Directive 2011/65/EU
- Radio Equipment Directive (RED) 2014/53/EU

Documents are made available to the appropriate authority on request at Piusi S.p.A. Alternatively, it can be requested writing to: e-mail: doc\_tec@piusi.com. The person in charge of writing both the technical file and the conformity statement is Otto Varini as the legal representative.

Suzzara, 01/09/2020

Otto Varini  
Legal representative

## 3 GENERAL PRECAUTIONS

**Important warnings**

In order to protect workers' safety and to avoid the risk of any damage, before performing any operation, please read and become familiar with the contents of the instruction manual.

**Symbols used in the manual**

In order to signal particularly important instructions or warnings, the following symbols are used:



**ATTENTION**

This symbol indicates accident prevention regulations addressed to operators and/or other people concerned.



**WARNING**

This symbol indicates that there is a possibility of damaging the machines and/or their components.



**NOTE**

This symbol indicates useful information.

**Manual storage**

This manual must be intact and completely readable. The final users, as well as the qualified technicians authorised to installation and maintenance must be able to view it at any time.

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## 4 SAFETY INSTRUCTIONS

### CAUTION

Mains - preliminary checks before installation



You must avoid any contact between the electrical power supply and the fluid that needs to be pumped.

### Control and maintenance operations

Before any checks or maintenance work are carried out, disconnect the power source.

### FIRE AND EXPLOSION

If there are flammable liquids in the working area, flammable vapours may be present and may cause fire or explosion during station use.



To help prevent fire and explosion:

Use equipment only in well ventilated area.

Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.



Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.

Ground all equipment in the work area.

Stop operation immediately if static sparking occurs or if you feel a shock. Do not use the station until you have identified and resolved the problem.

Keep a working fire extinguisher in the work area.

### ELECTRIC SHOCK



This station must be grounded. Improper installation or use of the station may result in danger of electric shock.

Switch off and unplug the power cord after use.

### Electrocution or death



Connect only to grounded sockets.

Use only grounded cables in accordance with the applicable regulations.

Unsuitable extension leads can be dangerous.

Make sure that the plug and socket of the extension cords are intact.

Unsuitable extension leads may be dangerous.

In outdoor use, use only extensions suitable for the specific use, according to the regulations in force.

The electrical connection between the plug and socket must be kept well away from water.

Do not expose to rain. Install in a sheltered location

Never touch the plug or the socket with wet hands

Do not turn the distribution system on if the supply connection cable, important parts of the equipment - the suction/delivery tube for example - the nozzle

or the safety devices are damaged. Replace the damaged pipe immediately before use.

Before each use, check that the mains connection cable and the plug are not damaged. If damaged, have the cable and plug replaced by qualified personnel.

The electrical connection between the plug and socket must be kept well away from water.

Outdoors, use only authorised extension leads for which this use is envisaged with an adequate wire diameter in accordance with the regulations in force.

As a general rule of electrical safety it is always recommended to power the device by protecting the line with:

- circuit breaker/disconnector with a current rating suitable for the power line

- 30 mA residual current device

The electrical connection must have a ground fault current interrupter (GFCI).

Installation operations are carried out with the box open and the electrical contacts accessible. All these operations must be carried out with the unit isolated from the mains in order to avoid hazards of electrocution!

**EQUIPMENT MISUSE**

Misuse can cause death or serious injury



Do not operate the unit when fatigued or under the influence of drugs or alcohol.

Do not leave the work area while equipment is energized or in operation.  
Turn off the equipment when not in use.

Do not alter or modify the equipment. Alterations or modifications may void agency approvals and create safety hazards.

Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.

Do not twist the hose or use a stronger hose.

Keep children and animals away from the working area.

Respect all safety norms in force.

Do not exceed the maximum working pressure or temperature of the component with the lowest system rating.

See the technical specifications in all machine manuals.

Use liquids and solvents that are compatible with the wet parts of the unit. See the technical specifications in all machine manuals. Read the manufacturer's warnings for liquids and solvents. To obtain more information about the material, request the Safety Data Sheet (MSDS) from your distributor or dealer.

Check the unit every day. Repair or replace worn or damaged parts immediately with original manufacturer's spare parts only.

Make sure that the unit is classified and approved in accordance with the regulations for the environment in which it is used.

Use only the unit for its intended purpose. Contact your distributor for more information.

Keep hoses and cables away from transit areas, edges, moving parts and hot surfaces.

Do not bend or bend the hoses too much or use the hoses to pull the unit.

To avoid severe burns, do not touch liquids or equipment

**DANGER OF BURNS****Danger of smoke and toxic fluids.**

For issues arising from the treated product with eyes, skin, inhalation and ingestion refer to the safety data sheet of the fluid used.

Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

Prolonged contact with the product may cause skin irritation; during delivery phases, always wear protective gloves.

**FIRE AND EXPLOSION**



If it is necessary to dispense in areas classified as hazardous for explosion, it is forbidden to use a smartphone less than 30 cm away from the fluid at the time of dispensing.



The PIUSI B-SMART has been designed to be used with the user's mobile phone only and exclusively for connection and authentication operations and to link the user's device to the fuel transfer pump in order to perform certain operations in remote mode as described in this manual.

If the PIUSI B-SMART product is used to refill petrol or other fuel or liquid that emits flammable vapours or in any case creates potentially explosive atmospheres according to the current ATEX regulations (Directive 2014/34/EU and relative applicable national implementing provisions, including any later amendment or additions), mobile phone use while dispensing and in any case within any zone classified for ATEX purposes in accordance with the regulations in force is strictly prohibited, except in the case where the unit is regularly ATEX certified and authorised for use in the relevant area. Mobile phones must therefore remain outside this area or be switched off.

Mobile phone use when refilling the vehicle with other non-flammable liquids is in any case strongly discouraged as it can cause distractions that may prove hazardous.

PIUSI shall not be held liable in the event of damage to persons or property of the user or third parties resulting from failure to comply with the above warnings and / or any other negligent, reckless or inept behaviour of the user.

**5 FIRST AID MEASURES**

**Persons who have suffered electric shock**

Disconnect the power source, or use a dry insulator to protect yourself while you move the injured person away from any electrical conductor. Avoid touching the injured person with your bare hands until he is far away from any conductor. Immediately call for help from qualified and trained personnel. Do not operate switches with wet hands.

**NO SMOKING**



Do not smoke near the fuel transfer pump and do not use the pump near naked flames.

**6 SAFETY NORMS**

**Personal protection equipment features**

Wear personal protection equipment that is:

- suitable to the operations to be performed;
- resistant to the products used for cleaning procedures.

**Personal protection equipment to be worn**



Safety shoes;



Close-fitting clothes;



Protective gloves;



Safety glasses;

**Other equipment**



Instructional manual.

## 7 TRANSPORT, HANDLING AND UNPACKING

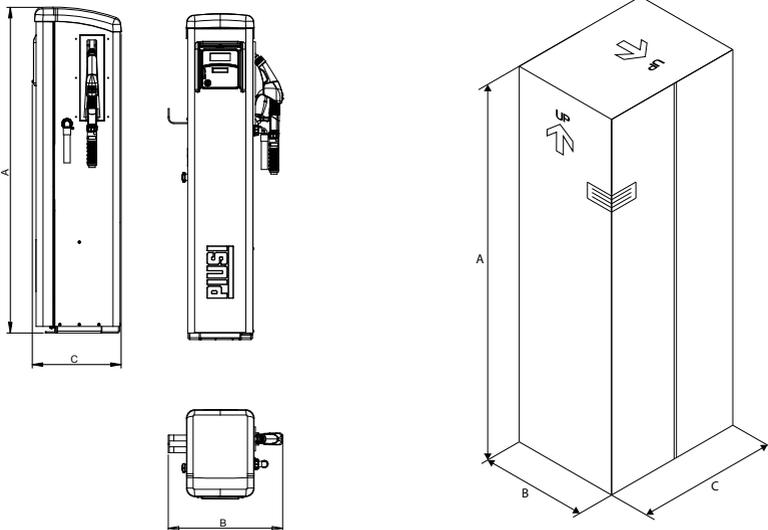
The SELF SERVICE B.SMART is shipped packaged in a non-stackable cardboard box. During storage the machine must be kept in an upright position as indicated by the graphic symbols printed on the box showing the direction of handling. Whenever the machine needs lifting, make sure all the hoisting gear and accessories (such as the rigging belts) have an adequate load bearing capacity. Mechanical handling and lifting gear must only be used by authorised and suitably trained staff. During periods of non-use, the machine, be it packed or unpacked, must be stored in an area protected against the elements (e.g. rain, humidity, direct sunlight, etc.) and dust.

The packaging carries the following indications:

- a 'THIS WAY UP' arrow;
- a label with all the information relating to the equipment (model, weight, etc.).

### 7.1 DIMENSIONS AND WEIGHTS

	STATION DIMENSIONS (mm)			PACKAGING DIMENSIONS (mm)			STATION WEIGHT (Kg)	PACKED STATION WEIGHT (Kg)
	A	B	C	A	B	C		
SELF SERVICE B.SMART	1391	491	382	1478	400	480	59.1	63.7



## 7.2 PACKAGING CONTENT/PRELIMINARY INSPECTION

**Foreword**

Use scissors or a cutter to open the cardboard box, , taking care not to damage the contents.

**NOTE**

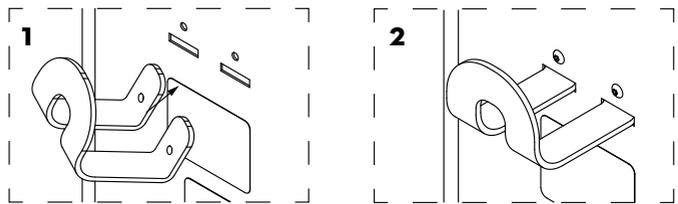


Two people must open the box completely and move the SELFSERVICE unit into a vertical position to facilitate subsequent definitive positioning. Once unpacked, the unit should always be kept in a vertical position. Put all packing elements (cardboard, wood, cellophane, polystyrene etc.) into the corresponding containers. Do not leave them in the environment or within children's reach as they are potentially dangerous. They should be disposed of according to the regulations in force in the country where the unit will be used. Check the conditions of the unit making sure that no part shows such damages as compromise safety and functionality. In case of doubt, do not start up and contact the manufacturer's technical service. Check if the accessory set is complete. At the end of the inspection, assemble the Self Service:

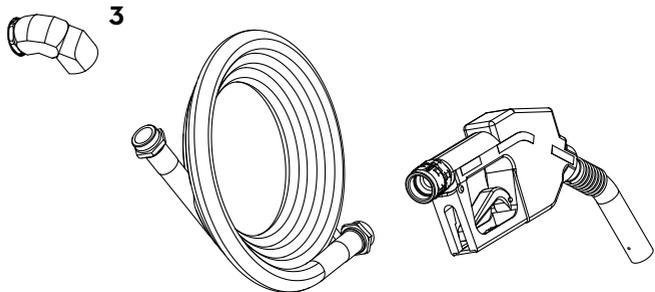
**CAUTION**



- 1 - Fit the hose support hook into the relative slots (1)**
- 2 - Tighten the screws and fix the hook in the desired position. (2).**



**3- Mount the nozzle and hose as indicated in the heading "plumbing connections".**



**NOTE**



**Use the roll of Teflon provided.**

## 8 MACHINE AND MANUFACTURER IDENTIFICATION

SELF SERVICE B.SMART stations are equipped with an identification plate attached to the frame:

- Model
- Serial number / year of manufacture
- Technical data
- CE marking
- Manual code

CAUTION



**Before installing, always make sure the type of dispensing system is correct and suitable for the available power supply (Voltage/Frequency).**

### 8.1 POSITION OF THE PLATES

On the distribution system there is an adhesive label that shows the operator the most important information. Make sure it stays on and that it does not deteriorate over time.

NOTE



**Should this situation arise, please contact our support department and arrange to have a copy of the damaged or missing plates sent back and replaced where necessary.**

Decals are the following ones:



1 - CE plate with technical data:



2 Attention plate applied to the Self Service display



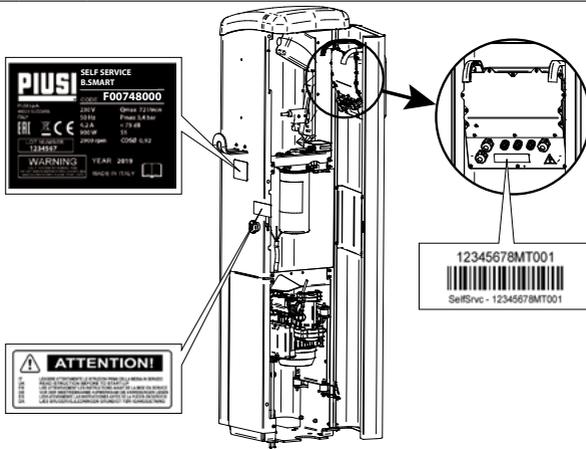
3 Corner label plate applied on the box

12345678MT001



SelfSvc - 12345678MT001

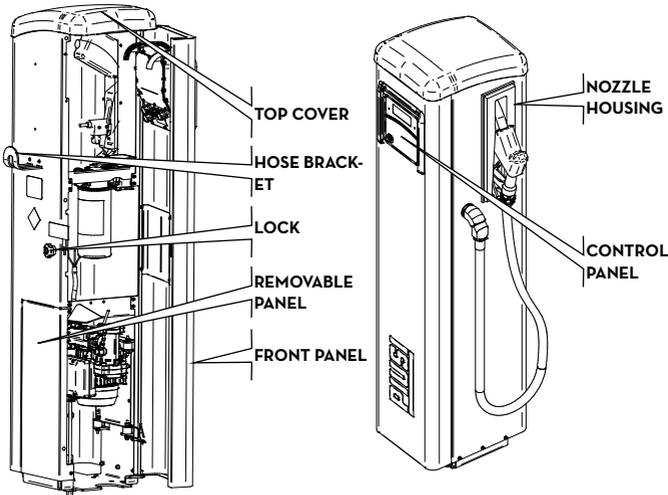
4 - Product warranty label



## 9 DESCRIPTION OF MAIN PARTS

### 9.1 BODY

The SELF SERVICE body - all versions - consists of a strong treated-steel shell, closed on top by a plastic cover and a sturdy base for attaching it to the ground. The front panel is entirely hinged to provide easy access to the internal components of the station (pump, filter, meter) and closed by a lock. The right side panel can be easily detached to allow installation and/or maintenance operations.



## 9.2 PUMPING UNIT

Unit with self-priming vane electric pump, equipped with by-pass valve. This valve allows operation for short periods even with the dispensing nozzle closed.

The motor, directly coupled to the pump body, is asynchronous, closed type (IP55 protection class according to the EN 60034-5-86 norm), self-ventilated, single-phase. An ANGULAR MESH FILTER is connected to the pump intake for easy cleaning.

See Specific manual

## 9.3 PULSER FLOW METER

The Pulser K600/3 flow meter has a high-precision oval gear measuring system designed to allow accurate fuel measurement. They consist of a sturdy die-cast aluminium structure, complete with inlet filter and are easy to maintain and reliable. For further information, please refer to the dedicated manual

## 9.4 DISPENSING NOZZLE

The dispensing nozzle supplied with SELF SERVICE B.SMART is an automatic type, with a stop device when the tank is full.

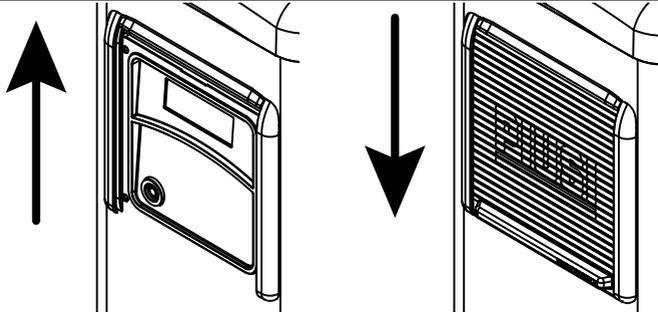
## 9.5 LEVEL INDICATOR

The level indicators to which the fuel transfer pump can be connected are only clean contacts, which are configured by WebApp

## 9.6 DISPLAY COVER

To ensure adequate protection to the panel, a damper display cover has been designed which can be lowered if necessary.

It is advisable, in very strong sunlight conditions, to keep the display cover always lowered.





## 9.7 DISPENSING MANAGEMENT SYSTEM

### FOREWORD

B.SMART is an electronic system for controlling the dispensing of fluids via smartphone.

The control system consists of:

**An electronic controller**

equipped with a BlueTooth interface (BLE 4.0 and later), a display and an interface LED that controls a dispensing pump

**An APP**

installed on a smartphone equipped with an Android operating system or Apple iOS

**A WebAPP**

namely an internet portal accessible from any PC or Tablet connected to the internet from which the entire site can be monitored

### SYSTEM FUNCTIONS

- site configuration, acquisition and management of refillings, management of refilling fuel dispensers, management of drivers, vehicles and detailed reporting of the dispensings via WebAPP accessible from any PC/Tablet, using your credentials
- Fuel dispensing using the dedicated APP: PIUSI APP, downloadable only for smartphones from Play Store and App Store, which connects to the fuel transfer pump / controller via BLE connection
- Fuel dispensing using the dedicated APP also in areas without 3/4G coverage and Wi-Fi
- Dispensing via iButton associated with the individual driver
- Possibility to remotely manage sites far from the company headquarters

As can be seen from the descriptive diagram on page 14, an example of a basic system structure is given showing the possibility of managing multiple controllers simultaneously, within the same plant

For more specific details on modes of connection and communication between controllers, please refer to the manual found in the system management WebApp.

### COMPATIBILITY WITH OPERATING SYSTEMS

The system is compatible with the following iOS versions:

- iOS10
- iOS11
- iOS12

The system is compatible with the following Android versions:

- 4.4
- 5.0 - 5.1
- 6.0
- 7.0 - 7.1
- 8.0
- 9.0

### FUEL PUMP

Composed of an electronic controller to manage fuel dispensing, equipped with:

- Numeric display
- Reader for iButton
- BLE 4.0 connection (or following)
- Status sensors for: level alarms, flow meters, positioning of the dispensing nozzle
- Pump on/off control

### CLOUD

The cloud holds the database for storing the configurations of the site and the fuel transfer pump, the drivers, the vehicle license plates and all dispensed fuel data.

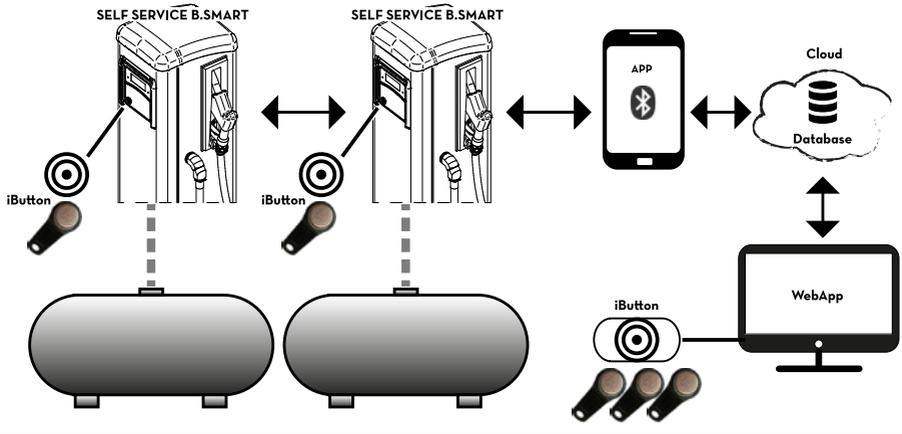
**WebApp**

Web interface used by the site manager. It has various functions: it monitors fuel dispensing cycles (who carried them out, when, from which fuel transfer pump), creates/deletes users from the site, adds/removes fuel pumps from the site. The only external device the WebApp connects to is a USB reader for iButton

**APP**

It makes several operations:

- It manages two types of users: driver and manager
- It sends commands to the fuel transfer pump and receives responses. The commands are used to perform: dispensing, calibration, updating of the fuel transfer pump firmware, downloading of updates to fuel transfer pump configuration, management of drivers or uploading to the cloud of the dispensing cycles performed by the fuel transfer pump.

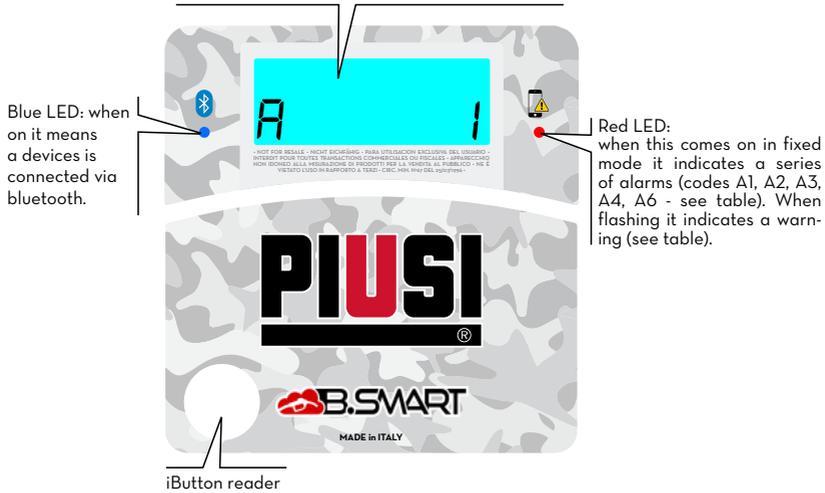


## 10 OPERATION

The fuel transfer pump is powered by a voltage ranging from 105V to 115V for models 110V 60 Hz and from 220V to 240V for models 230V 50Hz. It is equipped with a motor, 4-character backlit display, iButton reader, blue LED for Bluetooth connection and red LED for warning/alarm:

If the display has activated backlighting, it means the driver or manager has been successfully authenticated via smartphone or the driver has been authenticated by the iButton.

The display shows: firmware version installed, the value of the delivery, the time, warning or alarm code if the red LED is on, boot status for updating firmware and the percentage of firmware transferred.



**NOTE**  Red LED on - It switches on due to several factors, each time the LED lights up the display shows a code indicated by a letter A and by an incremental number. Whenever the led is on, it is not possible to dispense.

Below are the possible coded errors, with their respective resolution methods:

Coding	Description	Explanation/Solution
[ 1	<b>WARNING_MASTER_PUMP_GROUPA_LEVEL1_CONTACT</b>	Contact 1 associated with pump A of the main controller is active: red LED flashing.
[ 2	<b>WARNING_MASTER_PUMP_GROUPA_LEVEL2_CONTACT</b>	Contact 2 associated with pump A of the main controller is active: red LED flashing.
[ 3	<b>WARNING_MASTER_PUMP_GROUPA_THR1</b>	The tank associated with pump A of the main controller has reached the level 1 threshold: red LED flashing.
[ 4	<b>WARNING_MASTER_PUMP_GROUPA_THR2</b>	The tank associated with pump A of the main controller has reached the level 2 threshold: red LED flashing.
[ 9	<b>WARNING_SLAVE_PUMP_GROUPA_LEVEL1_CONTACT</b>	Contact 1 associated with pump A of the secondary controller is active: red LED flashing.
[ 10	<b>WARNING_SLAVE_PUMP_GROUPA_LEVEL2_CONTACT</b>	Contact 2 associated with pump A of the secondary controller is active: red LED flashing.
[ 11	<b>WARNING_SLAVE_PUMP_GROUPA_THR1</b>	The tank associated with pump A of the main controller has reached the level 1 threshold: red LED flashing.
[ 12	<b>WARNING_SLAVE_PUMP_GROUPA_THR2</b>	The tank associated with pump A of the secondary controller has reached the level 2 threshold: red LED flashing.

C 17	<b>WARNING_MASTER_PUMP_GROUPA_PROBE_OCIO</b>	Fault detected on the level sensors connection line. (The system allows manual dispensing)
C 19	<b>WARNING_MASTER_SLAVE_GROUPA_PROBE_OCIO</b>	Fault detected on the level sensors connection line. (The system allows manual dispensing)
C 25	<b>WARNING_CANBUS_COM</b>	Fault detected on the connection line between controllers. The system behaves as for probe alarms, allowing manual dispensing
A 1	<b>ALARM_MASTER_PUMP_GROUPA_LEVEL1_CONTACT</b>	Contact 1 associated with pump A of the main controller is active: red LED on (not flashing). Delivery not possible
A 2	<b>ALARM_MASTER_PUMP_GROUPA_LEVEL2_CONTACT</b>	Contact 2 associated with pump A of the main controller is active: red LED on (not flashing). Delivery not possible
A 3	<b>ALARM_MASTER_PUMP_GROUPA_THR1</b>	The tank associated with pump A of the main controller has reached the level 1 threshold: red LED on (not flashing). Delivery not possible
A 4	<b>ALARM_MASTER_PUMP_GROUPA_THR2</b>	The tank associated with pump A of the main controller has reached the level 2 threshold: red LED on (not flashing). Delivery not possible
A 9	<b>ALARM_SLAVE_PUMP_GROUPA_LEVEL1_CONTACT</b>	Contact 1 associated with pump A of the secondary controller is active: red LED on (not flashing). Delivery not possible
A 10	<b>ALARM_SLAVE_PUMP_GROUPA_LEVEL2_CONTACT</b>	Contact 2 associated with pump A of the secondary controller is active: red LED on (not flashing). Delivery not possible
A 11	<b>ALARM_SLAVE_PUMP_GROUPA_LEVEL1_THR1</b>	The tank associated with pump A of the main controller has reached the level 1 threshold: red LED on (not flashing). Delivery not possible
A 12	<b>ALARM_SLAVE_PUMP_GROUPA_LEVEL1_THR2</b>	The tank associated with pump A of the secondary controller has reached the level 2 threshold: red LED on (not flashing). Delivery not possible
A 28	<b>ALARM_BUFFER_FULL</b>	The dispensing buffer is full. All the dispensing operations stored in the controller must be uploaded to the cloud
A 29	<b>ALARM_INACTIVE_PUMP</b>	No pumps are active (Check system configuration on WebApp)
A 30	<b>ALARM_RTC_RESET</b>	The time has been lost. The current time must be uploaded to the controller via a smartphone
A 31	<b>ALARM_RTC_FAULT</b>	Time synchronization not possible (Contact the Service Department).
A 32	<b>ALARM_SOFT_MEMORY_DATA_FAULT(Cumulative)</b>	Corrupted memory (data can be reset from WebApp backup)
A 33	<b>ALARM_HARD_MEMORY_DATA_FAULT(Cumulative)</b>	Corrupted memory (data can be reset from WebApp backup)
A 34	<b>ALARM_VERY_HARD_MEMORY_DATA_FAULT(Cumulative)</b>	Damaged memory (contact the Service Department)

With regard to the warning/alarm logics, it should be noted that one or more controllers can be connected to the same tank, or share common level contacts as outlined in the paragraph describing the system.

In these situations, warnings and alarms from one controller will be propagated to the other controllers sharing the same resource.

For more specific details on modes of connection and communication between controllers, please refer to the manual found in the system management WebApp.

## 11 TECHNICAL CHARACTERISTICS

**INTENDED USE**

Implementation of a fluid delivery and control system for private use and not subject to special regulations such as ATEX standards for potentially explosive atmospheres.

**CAUTION**



**DO NOT INSTALL SELF SERVICE B.SMART IN POTENTIALLY EXPLOSIVE LOCATIONS ACCORDING TO ATEX DIRECTIVE.**

**MAXIMUM ELECTRICAL PARAMETER VARIATIONS**

The electrical motors installed in the dispensers can handle the following maximum variations:  
 power supply voltage +/- 5%  
 frequency +/- 2%  
 SEE THE TECHNICAL DATA TABLE BELOW

**CAUTION**



**BEFORE INSTALLING, ALWAYS MAKE SURE THE TYPE OF DISPENSING SYSTEM IS CORRECT AND SUITABLE FOR THE AVAILABLE POWER SUPPLY (VOLTAGE/FREQUENCY).**

Signal	Conditions standard	Limits	Note
<b>Power supply input</b>	220Vac - 240Vac for models 230Vac and 50 Hz	900 W - 4,2 A	The electronic board holds a PSU with switching technology which allows for a wide range of power supply voltages and frequencies. This makes the equipment very robust in the face of high voltage and tension fluctuations present in electricity distribution grids in many parts of the world.
<b>Electronic Key Interface</b>	YELLOW key (iButton): Enabling input from PIUSI electronic key	The yellow drivers' keys are registered on the PC via a software procedure so that the drivers are enabled to use one or more refuelling stations.	It is possible to configure the presence or not of said key.
<b>Level 1 contact input (only for versions where available)</b>	Clean contact or Open Collector (NPN) electronic signal. Should it be necessary to power a level sensor, 24Vdc are also available on the terminal. The maximum current available to power the sensor is 25 mA.	Approximately 1 mA to 5 Vdc will be supplied to the clean contact (or open collector).	It is possible to configure the presence or not of this signal, furthermore it is possible to configure the type of signal (normally open or normally closed for those versions where envisaged). Finally, it is possible to select the action which the main controller must perform when it receives this signal: it may simply generate an alarm on the display or completely inhibit further dispensing if Block Pump is set.
<b>Level 2 contact input (only for versions where available)</b>	Clean contact or Open Collector electronic signal (NPN). Should it be necessary to power a level sensor, 24Vdc are also available on the terminal. The maximum current available to power the sensor is 25 mA.	Approximately 1 mA to 5 Vdc will be supplied to the clean contact (or open collector).	It is possible to configure the presence or not of this signal, furthermore it is possible to configure the type of signal (normally open or normally closed for those versions where envisaged). Finally, it is possible to select the action which the main controller must perform when it receives this signal: it may simply generate an alarm on the display or completely inhibit further dispensing if Block Pump is set.



<b>Auxiliary power supply output 24 Vdc</b>	Auxiliary 24 Vdc power supply output to power external electronic devices. I <sub>max</sub> = 25 mA	The device being powered must not absorb more than 25 mA with a 24 Vdc power supply. Typically it could be a level sensor
<b>Fuses</b>	F1 (Vac power supply input) 800 mA T (delayed) F2 (motor output) 20 A T (delayed) F3 (AC/DC output) 800 mA T (delayed)	
<b>IP Protection Rating</b>	IP 55	
<b>Working temperature</b>	From -10° C to +40°C	
<b>Storage temperature</b>	From -20° C to +60°C	
<b>Humidity</b>	< 90%	
<b>Wiring distances</b>	Max pulser distance 15 m Max level sensors distance 100 m	
<b>Limits Display and Counter</b>	<p>The mobile decimal point: 0.00 -&gt; 99.99 -&gt; 999.9 -&gt; 9999</p> <p>The maximum quantity which can be dispensed is 9999 units, regardless of the unit of measure set, be it litres, gallons or pints.</p> <pre> graph LR     A[0.00] --&gt; B[9.999]     B --&gt; C[99.99]     C --&gt; D[999.9]     D --&gt; E[9999]     </pre> <p>PRESET: Maximum settable quantity 9999 litres/gallons/pints</p>	
<b>Memory storage</b>	<p>The Electronic Controller can store:</p> <ul style="list-style-type: none"> <li>- Up to 500 drivers</li> <li>- Up to 500 dispensing cycles</li> </ul>	

## 12 USE

### 12.1 INTENDED USE

**THE SELF SERVICE B.SMART FUEL TRANSFER PUMP HAS BEEN DESIGNED AS A DIESEL FILLING STATION FOR PRIVATE USE. DEDICATED APP AND WEB SERVICES MAKE IT EASY TO USE AND RETURN A SUMMARY OF ALL FUEL DISPENSING OPERATIONS.**

**CAUTION**  
Ambient conditions for use



**Ambient temperature: min. -20°C / max. +40°C**

**Relative humidity: max. 90%**

**The temperature limits indicated apply to the pump components and must be observed to avoid any damage or malfunctions.**

### 12.2 UNINTENDED USE

**CAUTION**  
Inflammable liquids and explosive atmosphere



**THE SELF SERVICE B.SMART HAS NOT BEEN DESIGNED TO COMPLY WITH THE ATEX DIRECTIVE OR TO OPERATE IN POTENTIALLY EXPLOSIVE ATMOSPHERES.**

**DO NOT INSTALL THE SELF SERVICE B.SMART IN A POTENTIALLY EXPLOSIVE LOCATION.**

**The system was not designed for dispensing of diesel, petrol, flammable liquids with flash point -55°C/131°F, or for operation in environments with potentially explosive atmosphere.**

**The use in the above mentioned conditions is forbidden.**

**CAUTION**  
Unenvisaged use



**It is strictly forbidden to use the system for purposes other than the ones indicated. Any other use different from the one for which the system has been conceived and described in this manual is considered "MISUSE". Therefore, Piusi S.p.A. shall not be held responsible for any damage caused to people, animals or to the system itself.**

### 12.3 REASONABLY FORESEEABLE MISUSE

The smartphone is an indispensable tool for SELF SERVICE B.SMART to set up and record the dispensing cycles managed by the system, but it is forbidden to use your mobile phone near the fuel transfer pump when refuelling operations are under way.

**CAUTION**



**Use your smartphone only and exclusively to connect, authenticate and link your device to the fuel transfer pump. When refilling the vehicle, even with non-flammable liquids, the use of the telephone is in any case strongly discouraged as it can cause distractions that can be dangerous.**

## 13 INSTALLATION

### FOREWORD

SELF SERVICE B.SMART can be installed outdoors. However, it is advisable to shelter it under a canopy to ensure a longer life and provide more comfort when refilling in bad weather. Installation of the fuel transfer pump must be carried out by specialised personnel and carried out according to the instructions provided in this chapter. If SELF SERVICE B.SMART is not sheltered under a canopy, a "display cover" is provided as protection for the display and keypad.

**WARNING**  
**Personnel authorised to install the device**



All installation procedures must be performed exclusively by qualified and authorised staff. They must:

Install the system in a dry and well ventilated place;

Properly install all the components necessary for the equipment to function properly;

Only use accessories that have been supplied with the system.

**CAUTION**



**The use of accessories that are unsuitable and were not provided with the system is strictly prohibited. Piusi S.p.A. shall not be held responsible for damages caused to people, things or to the environment deriving from failure to meet such instructions.**

**THE UNIT IS FOR PROFESSIONAL USE ONLY.**

**The equipment must be installed in a well lit place, in compliance with the norms in force.**

**The equipment has been designed to be used in a dry environment. If it is installed outdoors, provide adequate protective covering.**

**The motors are not explosion-proof. Do NOT install in places with explosion hazard.**

### 13.1 STATION POSITIONING

SELF SERVICE should be so positioned as to ensure:

- an easy removal of detachable panels when access to internal components is required.

- compliance with max. distances and difference in height between station and tank

- correct and safe fixing of the body to the ground on a horizontal plane.

Unit position results in the following parameters, characterizing each installation:

**Hp: priming height**

**Ls: total length of suction piping - from foot valve to station (in meters).**

Correct operation of the units requires full respect of the following limits:

**Hp max: not exceeding 3 meters**

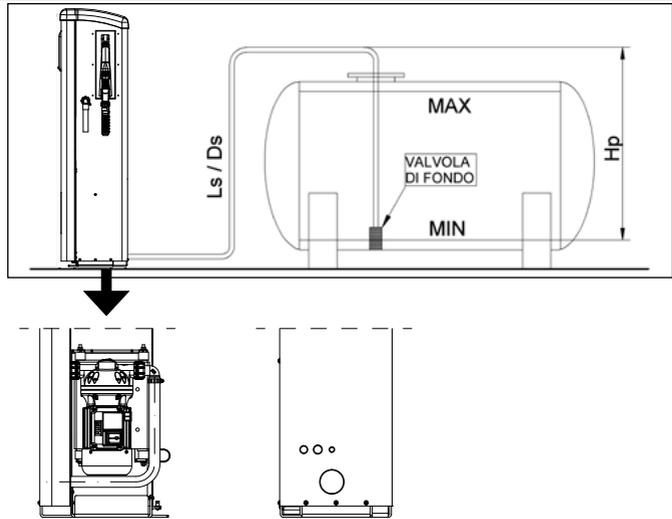
**Ls max: not exceeding 15 meters**

### 13.2 STATION FIXING

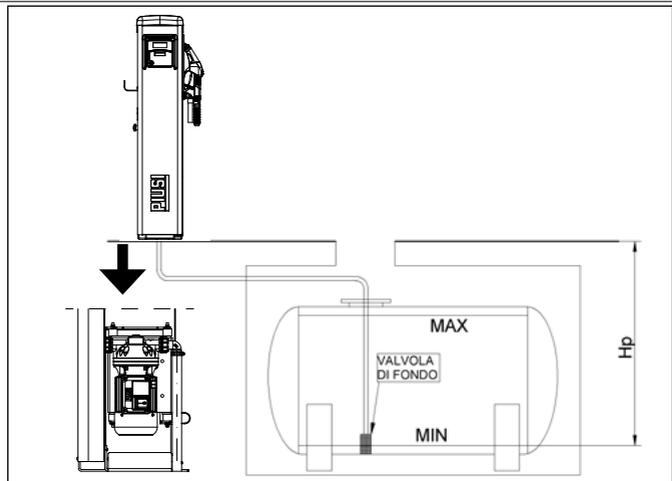
The station should be attached to the ground with screw anchors suitable for M12 screws. They must be placed as indicated in the following pictures. The same figure also shows the two possible input positions (hose axis) of the suction hose, for the two types of connection to UNDERGROUND tank or ABOVE GROUND tank.

Before fixing the unit, make sure that the bearing area for station frame is flat and strong. To facilitate SUCTION line connection, SELF SERVICE B.SMART units are equipped both with rear and BOTTOM inlets.

#### UNDERGROUND TANK

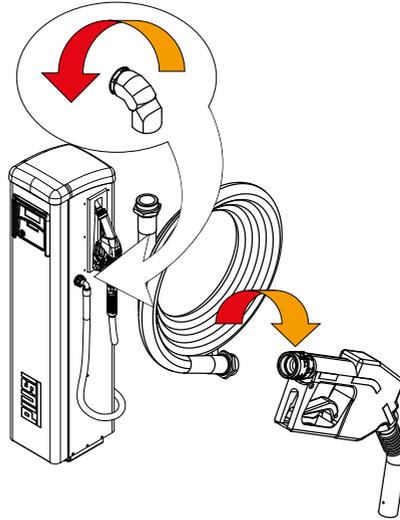


#### ABOVE GROUND TANK





**DELIVERY  
HOOK-UP  
DIAGRAM**



**Z**  
**EN**

**NOTE**



**Use the roll of Teflon provided.**

### 13.4 ELECTRICAL CONNECTIONS

**ELECTRICAL CONNECTIONS**

The electrical connections must be carried out in a workmanlike manner by specialised personnel, in full compliance with the regulations in force in the country of installation and with the instructions in the electrical diagrams in this manual.

**CAUTION**



**The SELF SERVICE B.SMART Electronic Panel is NOT equipped with circuit breakers; it is therefore essential to install upstream SELF SERVICE B.SMART an electrical power supply panel equipped with a circuit breaker / disconnecter with a current rating suitable for the electrical line and a differential switch suitable for the type of electrical load.**

**Otherwise, provide for a quick disconnection system such as a socket/plug connection to be used in the event of faults.**

**CAUTION**



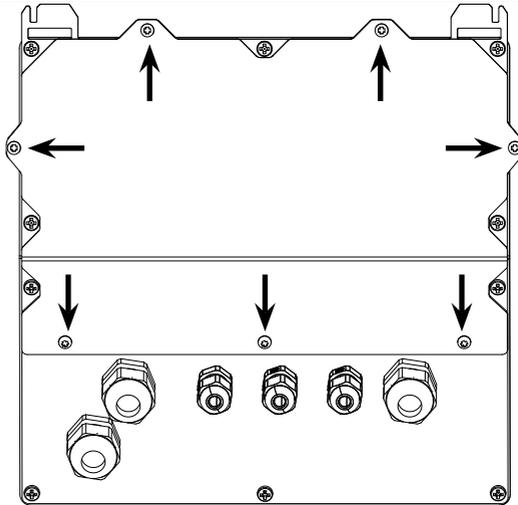
**Before accessing the electrical parts, make sure that you have disconnected all the main switches that energize the unit.**

The operations required for a correct wiring are described below:

- Opening SELF SERVICE
- Opening the rear cover of the controller
- Closing the rear cover of the controller
- Closing SELF SERVICE

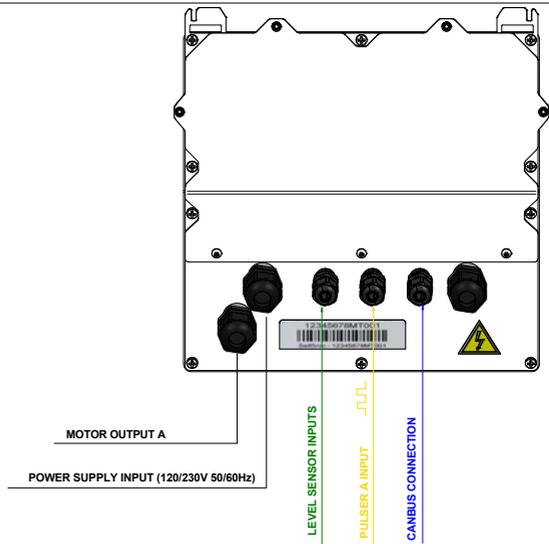
**OPENING SELF SERVICE  
OPENING THE REAR COVER OF THE CONTROLLER**

Loosen all 7 screws of the rear cover of the controller to access the compartment of the electronic boards



**CABLE GLAND CONNECTION**

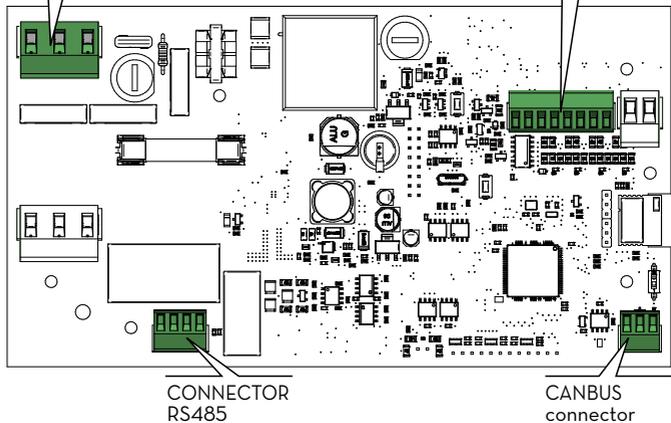
Cable gland connection: the cable glands to be used for the various signals are indicated in order to obtain an optimised cable route inside the controller. Pulser input and motor output are already wired.



Once the cover has been opened, the electronic board and its connectors are accessed:

**POWER SUPPLY CONNECTOR**  
Power supply INPUT 100/240 Vac depending on motor models - 50/60 Hz. The line must be disconnected by an electrical panel or a plug-socket assembly.

**SIGNALS CONNECTOR**  
Connector for: level 1 and 2 contact, pulser input, GND and 24 Vdc and 25 mA power supply output



**IN DETAIL:**

**1**  
**Power supply cable:** Insert the grounding wire (yellow/green sheath) into the central hole of the terminal, then phase and neutral respectively on the right and left and tighten the wire fixing screws

**Voltage values:** The electronic controller must be supplied with voltages and frequencies compatible with the motor to be driven:

If the motor is 230 V ac at 50 Hz, the controller must be supplied at the same voltage and frequency (220 V ac - 240 V ac at 50 Hz)

**CAUTION**



**the CABLE CROSS-SECTION must be chosen according to the electrical current absorbed by the motor, which is the device in which almost all the current flows.**

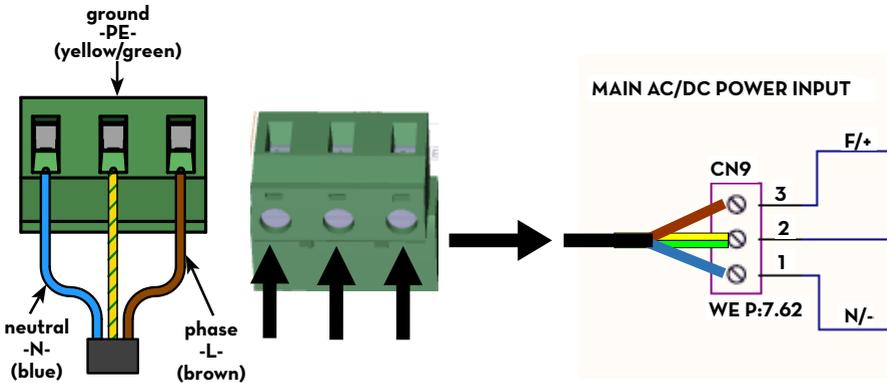
**Pay attention to the cable specifications:**

- **The signal cables and power cables used in this product must have an insulation rating of 300V or more.**
- **The power cable must have a section of AWG 16 or more**

**NOTE**



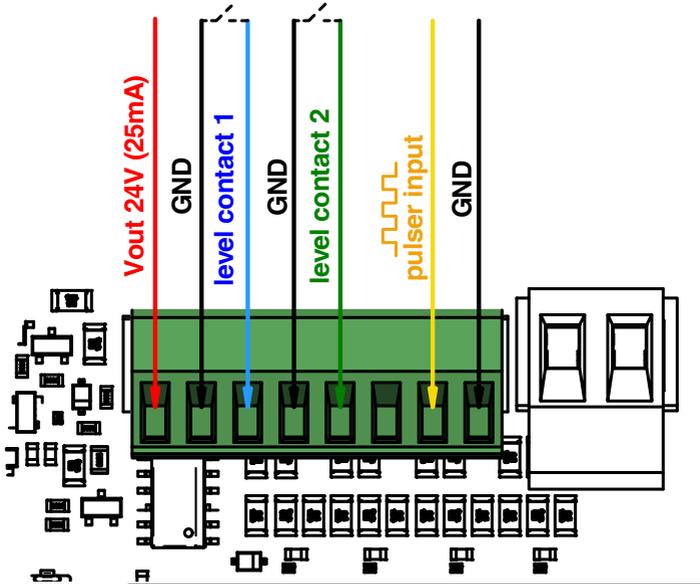
**The maximum current absorbed by the 230 V motor is 4.2 A**



**2**  
**SIGNALS connector:** Output 24 V dc and 25 mA, pulser, level 1 and 2 contact. Tighten the screws on the top of the 8-hole terminal for: level 1 contact, level 2 contact

**3**  
**LEVEL CONTACTS ELECTRICAL CONNECTION** With reference to the level 1 contact and level 2 contact, it is necessary to underline that these are configurable contacts which can be used to connect:

- level sensor 4-20mA
- level sensor 0-10V
- Clean contact (switch not necessarily connected to the level sensors inside the tank)

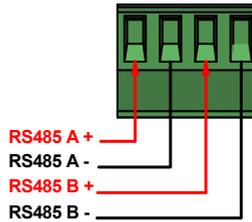


**4**  
Serial connection:  
**NOTE**



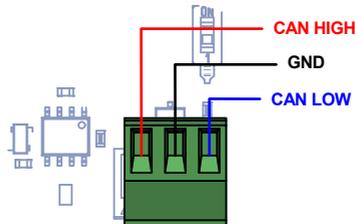
The B.Smart board has two RS485 serial communication channels. As well as the level contacts on the signals terminal board, it is possible to connect the OCIO detection system to the B.Smart board.

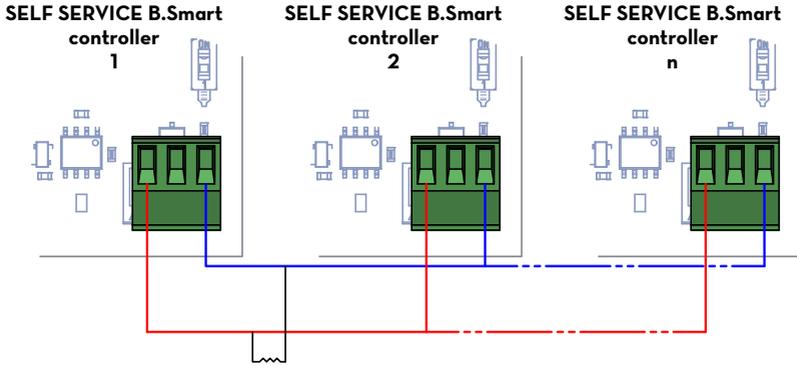
**When using OCIO 2.0 on the RS485 connector, DO NOT connect the level contacts 1 and 2 on the signals connector.**



**5**  
CANBUS connection:

The controllers can be connected to each other, via CANBUS connection. The figure shows the connector on each individual board and a small diagram showing the connection between x number of controllers.





Insert the 120 ohm resistor provided between CAN HIGH - CAN LOW and connect the resistor output wires to the terminal boards, as shown in the figure.

**CAUTION**



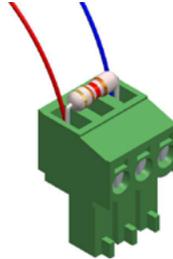
**The 120 ohm resistor must be inserted in the CANBUS line ONCE ONLY, as shown in the connection diagram.**

**NOTE**



For the CANBUS connection, it is recommended to:

- Use a cable with a characteristic impedance of 120 ohms
- The length of the connection between the various SELF SERVICE B.SMARTs must not exceed 100 m.



- 6 Closing the rear cover of the controller
- 7 Closing SELF SERVICE

Replace the cover and tighten the 7 screws

Tighten the 2 side screws

## 14 INITIAL CONFIGURATION

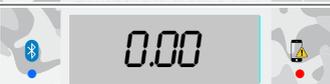
Before use, you must set up your system by connecting your SELF SERVICE B-SMART to the Smartphone App and the dedicated WebApp. This section explains all the steps required for a correct configuration.

To configure the system you need to:

- Switch the fuel transfer pump on;
- Configure the fuel transfer pump via APP;
- Configure the fuel transfer pump via WebApp.

### 14.1 SWITCHING-ON

The following is the sequence of messages given by the system during the switching-on phase

1		Display, BLUE and RED LEDs light up
2		All segments ON
		All segments OFF
3		The first part of the firmware revision index is shown (in this example r.1.00)
4		The last part of the firmware revision index (i = internal) is shown: i.00
5		The backlighting of the display and the LEDs turn off and 0.00 appears on the display

## 14.2 CONFIGURATION VIA APP AND WEBAPP

### FOREWORD

Initially it is necessary to assign the purchased SYSTEM CODE to the controller.  
To do this, your smartphone must be connected to the 3/4G or Wi-Fi network, so check the status at the bottom left of the screen:

	<b>OFFLINE</b>	OFFLINE: APP/smartphone not connected to 3/4G or Wi-Fi
	<b>ONLINE</b>	ONLINE: APP/ smartphone connected to 3/4G or Wi-Fi

1 From your smartphone, go to the Play Store or App Store and search for PIUSI APP.



The icon is: . Download and install the application.

2 Activate your smartphone's Bluetooth and GPS and open the APP. Then follow the steps described below:

On start-up the conditions of use are displayed.

Read through all the conditions of use and press ACCEPT at the bottom.

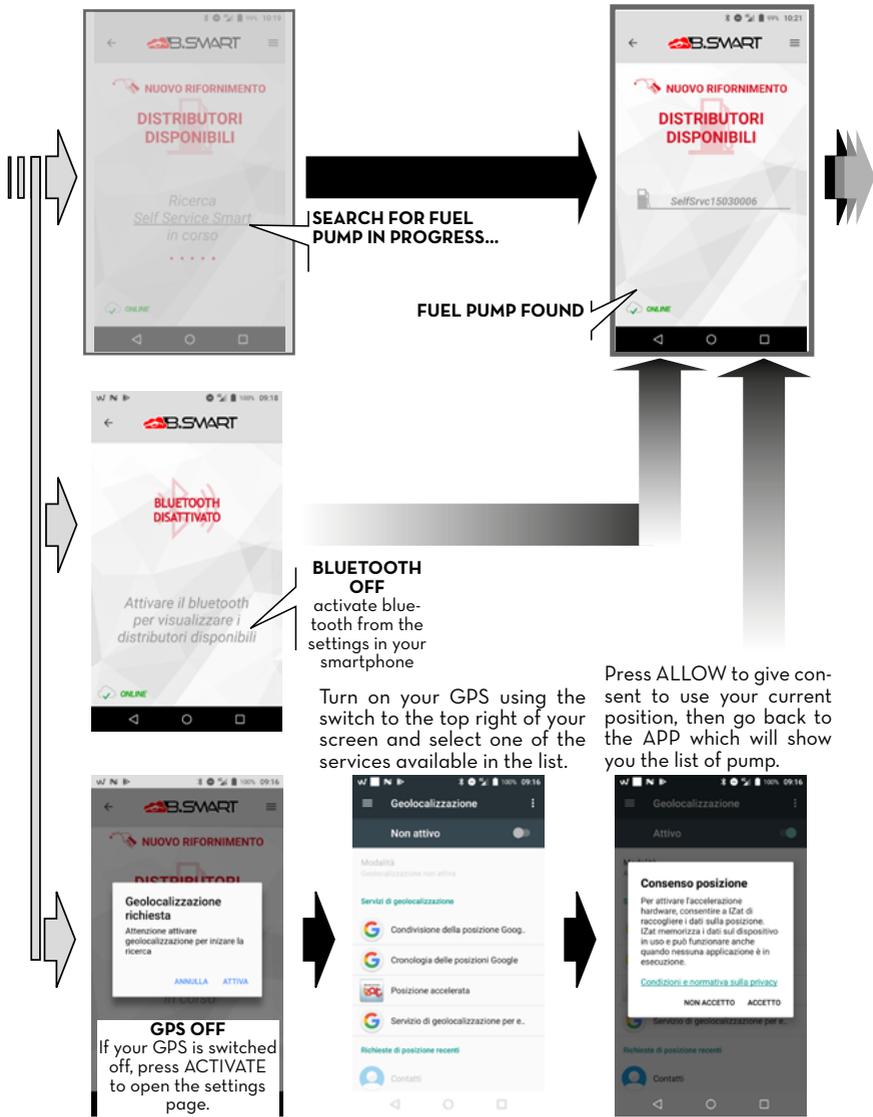
Temporary initial 'Welcome' page.

Press MANAGER

If you haven't previously done so, accept the request to use your current position by pressing ALLOW

List of pumps/dispensers within the bluetooth operating range.

**DURING THE SEARCH, THE FOLLOWING ERRORS MAY OCCUR**





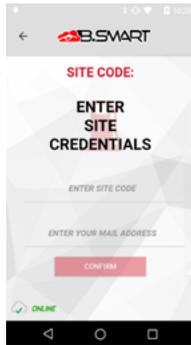
YOU WILL BE ASKED TO ENTER YOUR PIN



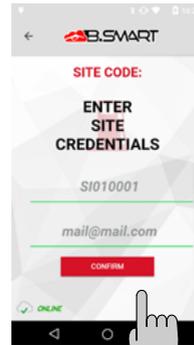
The manager PIN to enter on first installation is **123456** press **CONFIRM** to continue.



Wait for authentication to be completed.



Entering of the **SYSTEM CODE (site CODE)** and the **EMAIL** address of the portal user who activated the site is required  
**IMPORTANT: SEE REGISTRATION GUIDE (MO548)**



Enter the **SYSTEM CODE** acquired in the license and the **EMAIL** address of the portal user who registered the pump on the PIUSI portal. In this example it is: **Ute00004**



**SITE CODE** detected. Press **CONTINUE**. The system data appears on the screen.



The fuel pump is taken into cloud.

The other manager operations are shown (as well as station discovery and cloud registration)

The operations are:

- 1 - Meter calibration
- 2 - Forced synchronization of data in addition to all automatic synchronization
- 3 - Firmware updating of the electronic controller.

Press HOME to return to the APP's HOME page.

HOME page of the APP



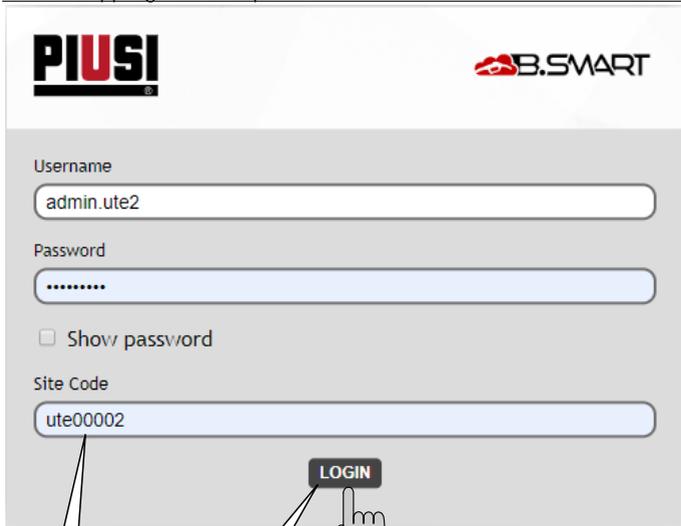
## 14.3 CONTROLLER CONFIGURATION VIA WEBAPP

### FOREWORD

**For detailed account registration instructions, see the Registration Guide (MO548)**

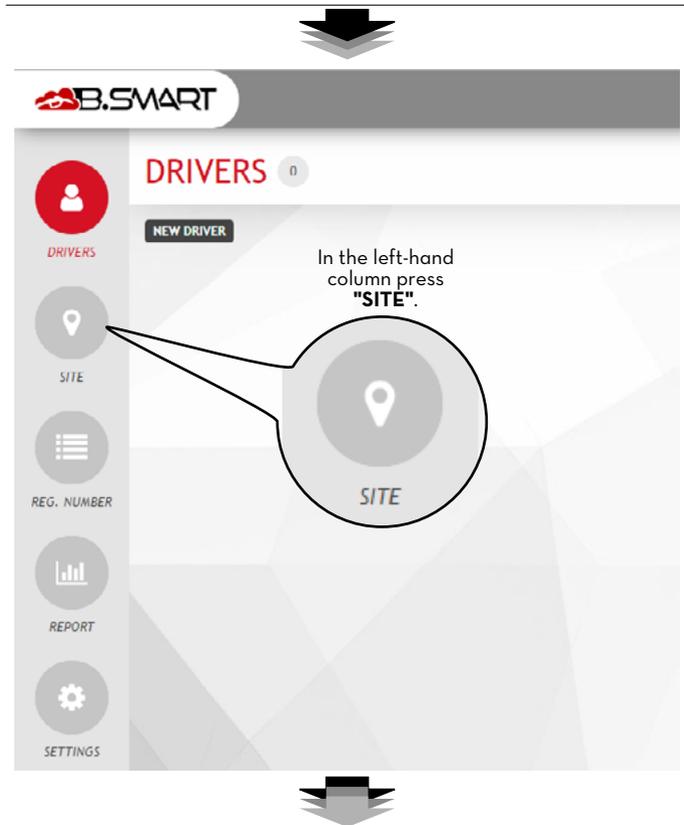
After assigning the SYSTEM CODE to the controller, you must check if the controller is present in the cloud. Then connect from your browser: Google Chrome, Microsoft Edge or Mozilla Firefox to the following link: <https://bsmart.piusi.com/>

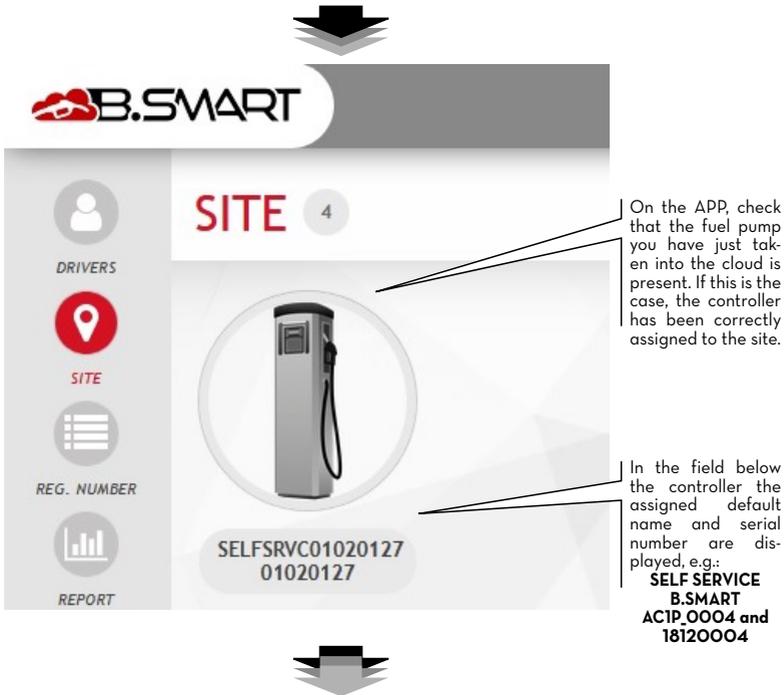
The WebApp login screen opens:



When the WebApp opens enter: username, password, and site code and then press LOGIN.







The screenshot displays the B.SMART mobile application interface. At the top, the B.SMART logo is visible. Below it, the word "SITE" is followed by a circle containing the number "4". A central image shows a fuel pump controller. Below the controller, the text "SELSRVCO1020127" and "01020127" is displayed. On the left side, there is a vertical menu with icons and labels: "DRIVERS", "SITE" (highlighted in red), "REG. NUMBER", and "REPORT".

On the APP, check that the fuel pump you have just taken into the cloud is present. If this is the case, the controller has been correctly assigned to the site.

In the field below the controller the assigned default name and serial number are displayed, e.g.:  
**SELF SERVICE**  
**B.SMART**  
**ACIP\_0004 and**  
**18120004**

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Full details of the WebApp functions (such as managing drivers, registration numbers, dispensing reports and configurations) can be found in the dedicated manual, loaded in the dedicated area of the WebApp.

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## 15 START-UP

<b>FOREWORD</b>	To have SELF SERVICE correctly started, carry out the following operations in the indicated order.
<b>ELECTRIC CONNECTIONS</b>	After connecting the unit as described in paragraph H5, SELF SERVICE can be energized by means of the general switch placed by the installer on the line, before the unit.
<b>INITIAL STARTING CONDITIONS</b>	SELF SERVICE is equipped with self-priming pump, which makes initial starting easier. In fact the suction pipe does not need to be filled completely with Diesel fuel. However quick priming can only be achieved if the pump is wet, that is if a minimum quantity of Diesel fuel is available inside the rotor chamber (this is particularly true when the difference in height between station and tank is remarkable). The pump is supplied with this minimum quantity, ready for use. If the installer believes the pump to be completely dry for any reason (long storage, for example), he shall wet the pump following a procedure at his choice.

Z  
E

### 15.1 FIRST PRIMING

<b>To prime the pump:</b>	<p>To prime the pump:</p> <ul style="list-style-type: none"> <li>- Extract the nozzle from its seat</li> <li>- <b>ACTIVATE THE DELIVERY (VIA APP, WEBAPP OR I-BUTTON KEY)</b></li> <li>- Raise the control lever</li> <li>- The pump will start immediately and continue running indefinitely until the control lever is turned to the OFF position</li> </ul>
<b>CAUTION</b>	<p> <b>Initial priming shall be carried out by qualified personnel, who will be present at all operations involved. If air comes out for over 2 minutes, STOP THE PUMP and make sure that:</b></p> <ul style="list-style-type: none"> <li>• <b>pump is not operating in dry conditions, but that a minimum quantity of Diesel fuel is available (“wet conditions”)</b></li> <li>• <b>suction pipe does not let any air in and that it is completely submersed.</b></li> <li>• <b>filters are unclogged</b></li> <li>• <b>suction and/or delivery lines are unclogged.</b></li> <li>• <b>installation has been carried out respecting the set limits (difference in height, pipe diameter and length).</b></li> <li>• <b>The release valve is closed.</b></li> </ul> <p>Continue dispensing fuel until a steady air-free flow is obtained.</p> <ul style="list-style-type: none"> <li>- Release the nozzle lever.</li> <li>- Put the nozzle back in its seat; the pump stops.</li> </ul>
<b>NOTE</b>	<p> Never start or stop the pump by turning on or off the power supply.</p> <ul style="list-style-type: none"> <li>- Prolonged contact with some liquids can cause damage. The use of goggles and gloves is recommended.</li> </ul>
<b>CAUTION</b>	<p> <b>Fluid leaks can damage objects and injure persons and cause pollution.</b></p>
<b>CAUTION</b>	<p> <b>During operation the motor may be hot: be careful.</b></p>
<b>WARNING</b>	<p> For the proper functioning of the system, allow a 20-minute stop for every 20 minutes of dispensing.</p>
<b>CAUTION</b>	<p> <b>Operation of the pump without dispensing is only admitted for periods of no longer than 3 minutes.</b></p>
<b>WARNING</b>	<p> We recommend that the pump remains switched off whenever the system is not in use.</p>

CAUTION



If ever the voltage is lagging, push the switch to the OFF position and return the nozzle to its rest position with the control lever not activated.  
 Should any sealants be used on the suction and delivery circuit of the pump, make sure that these products are not released inside the pump  
 Foreign bodies in the suction and delivery circuit of the pump could cause malfunctioning and breakage of the pump components.  
 In case of prolonged dry-running of the pump, the suction circuit may be empty and suction may become difficult. If so, fill the suction circuit.

## 16 FUEL METER CALIBRATION

Before using **SELF SERVICE B.SMART** station, **METERING ACCURACY** should be checked.

Act as follows:

- Enter a previously enabled USER PIN
- Dispense in a calibrated container
- Compare the quantity of diesel delivered with a calibrated container.

CAUTION



For a correct on accuracy it is essential to observe the following indications:

- Use a precision sample vessel with a graduated scale with capacity indication of not less than 20 litres.
  - Before checking, be sure to remove all air from the system, dispensing until a full and regular flow is obtained.
  - Continuously dispense at the maximum flow rate of **SELF SERVICE B.SMART**
  - Stop the flow by quickly closing the dispensing nozzle.
  - Reach the graduated area of the sample vessel avoiding prolonged low flow rate deliveries, rather making short dispensings at maximum flow rate.
  - Compare the indication provided by the container with the indication provided by self service B.SMART, after waiting for any foam to disappear.
- If the accuracy is NOT satisfactory, proceed with a CALIBRATION OF THE FUEL METER as indicated in the specific manual.

CAUTION



Differences of up to 1/10 litre on 20-litre dispensings are within the guaranteed accuracy of +/- 0.5%

CAUTION



For dispensings of 2 litres or less, the manufacturer does not guarantee the same metering accuracy.

## 17 DAILY USE

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All SELF SERVICE B.SMART, models guarantee restricted access only to authorized users. The SYSTEM recognizes the User's authorization through two alternative systems:

- REGISTRATION OF THE USER IN THE B.SMART APP
- Insertion of an electronic key

CAUTION



**All AUTHORIZED USERS must be properly trained and be aware of at least what is described in this chapter.**

The configurability of the B.SMART system allows the User to ENTER additional optional data (vehicle number plate, mileage, quantity to be dispensed). See DIGITAL APP manual FOR ALL DETAILS. If these options are not set, B.SMART recognizes the authorized USER and immediately enables the pump, allowing the dispensing.

CAUTION



**Enabling does not result in the immediate start of the pump; the pump is controlled by a switch (located in the nozzle housing) operated by the user.**

The pump starts (if previously enabled) as soon as the control lever is in the ON position, while it switches off as soon as the control lever is in the OFF position. No further manual action is necessary to start or stop the pump.

## 18 DRIVER ACCESS

### 18.1 FIRST DRIVER ACCESS FROM APP

#### FOREWORD

To use the APP as a driver, the manager must have created the driver profile via WebAPP, (see WebAPP manual, chapter 1, section 1.1 under ADD NEW DRIVER).

Furthermore, to do this, your smartphone must be connected to the 3/4G or Wi-Fi network, so check the status at the bottom left of the screen:



OFFLINE: APP/smartphone not connected to 3/4G or Wi-Fi

ONLINE: APP/ smartphone connected to 3/4G or Wi-Fi

Afterwards the driver can authenticate himself in the APP:

If the APP has just been installed, at first start-up the conditions of use appear

Read through all the conditions of use and press **ACCEPT** at the bottom.

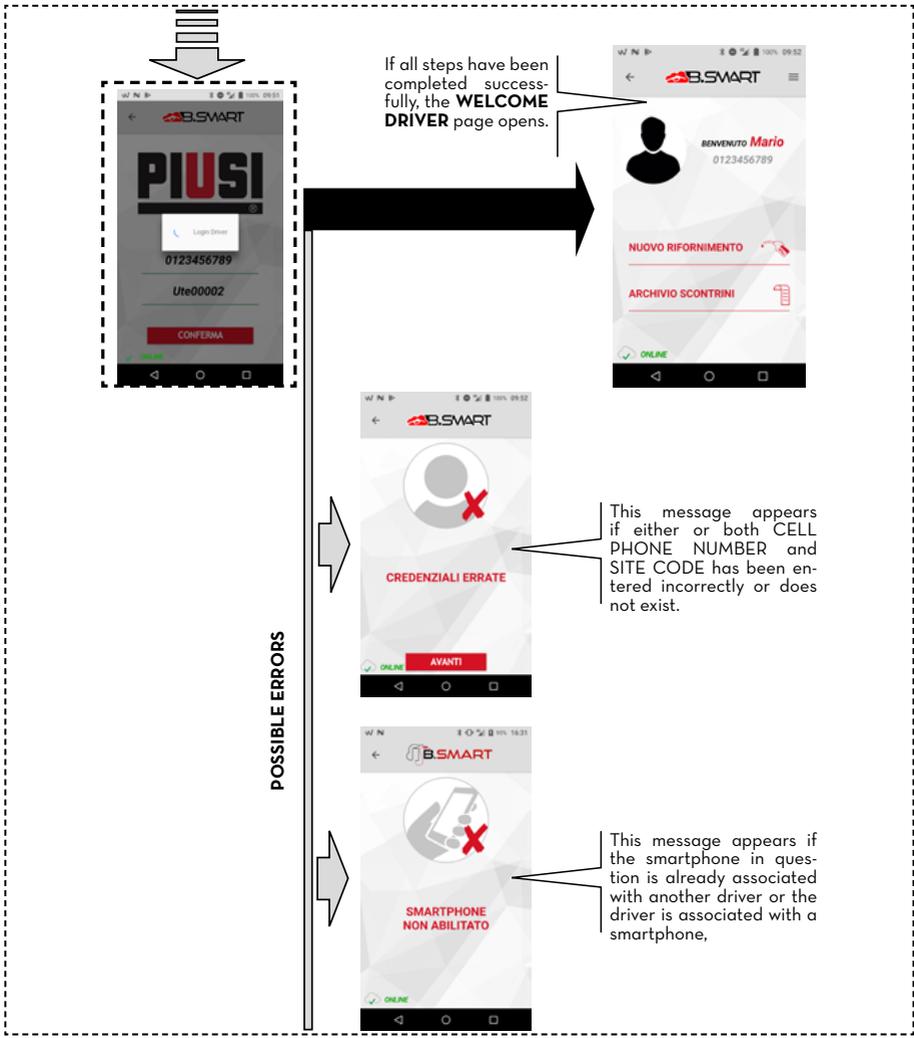
Initial 'Welcome' page.

Press **DRIVER**

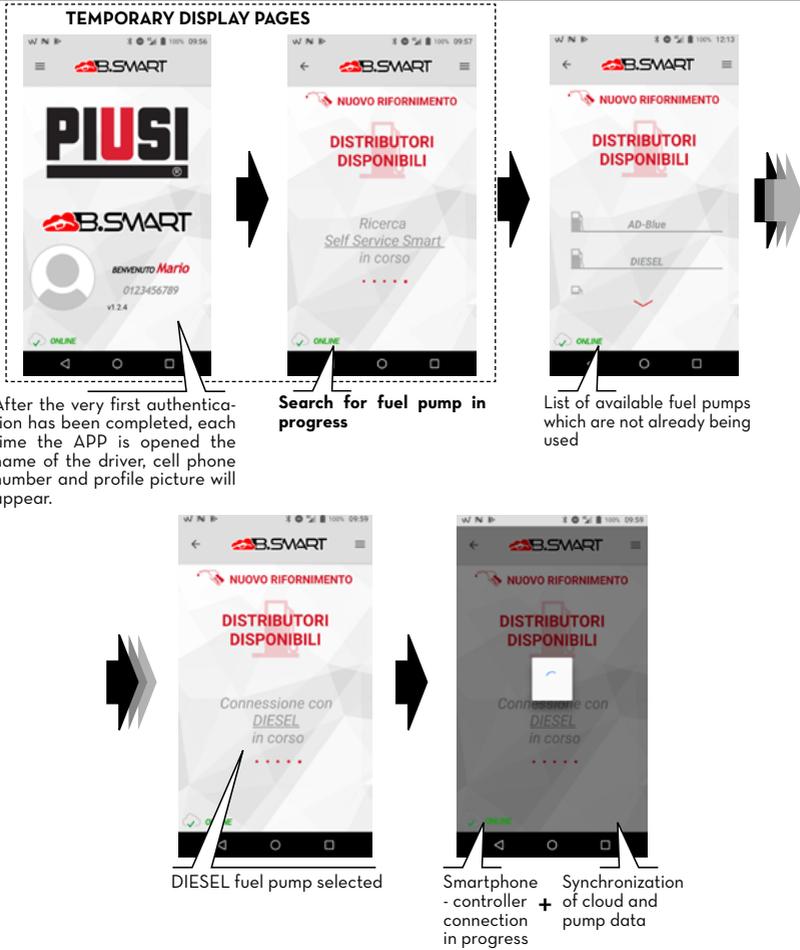
1 Enter the **SITE CODE AUTHENTICATION** (the system manager gives the code to the driver when his/her personal data is registered in the cloud)  
2 - Enter the **SITE CODE**

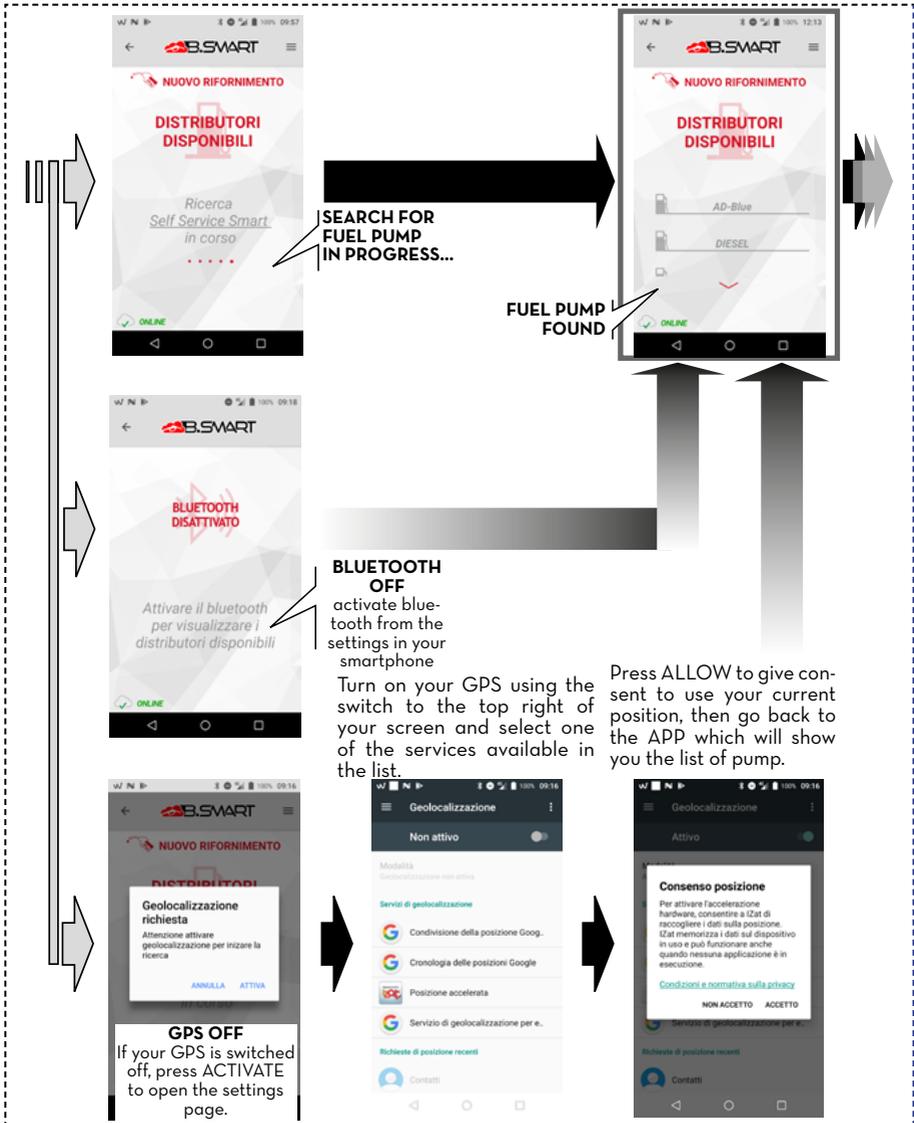
Press **CONFIRM**

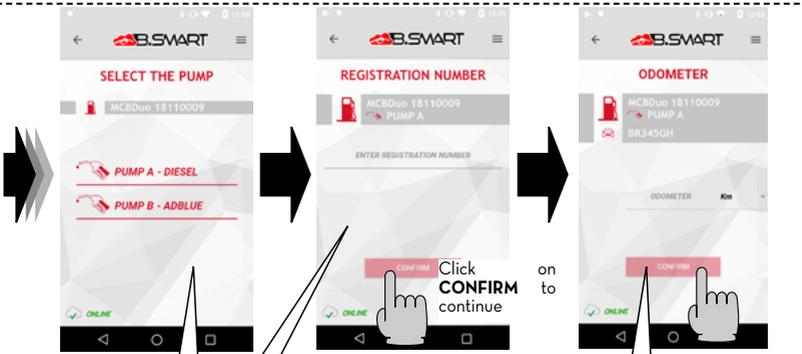
Wait for driver login to be completed.



## 18.2 DRIVER - DISPENSING VIA APP







Select the pumping unit to be used for dispensing.

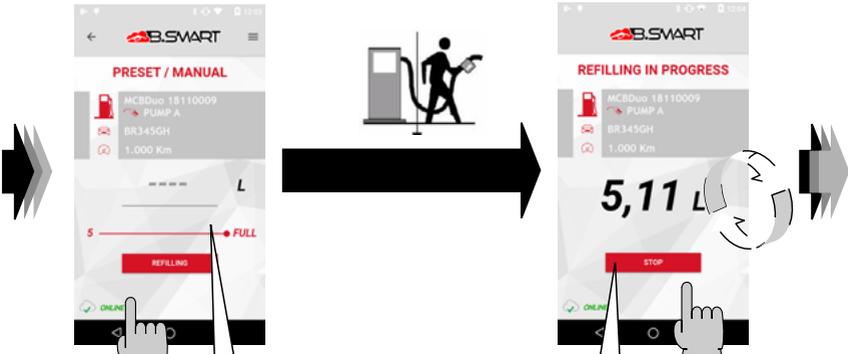
**OPTIONAL** request, decided by the manager based on how he has configured the webAPP (if he wishes this request to be made of the user or not).

Enter "Registration Number" (this could be the license plate of the vehicle using the pump or another reference code useful to the system manager)

In this example **ab123cd** is entered.

**OPTIONAL** request Enter odometer, this page appears only if the manager has enabled use of the odometer in the WebApp. In this case **1000** is entered.

Click **CONFIRM continue** on to



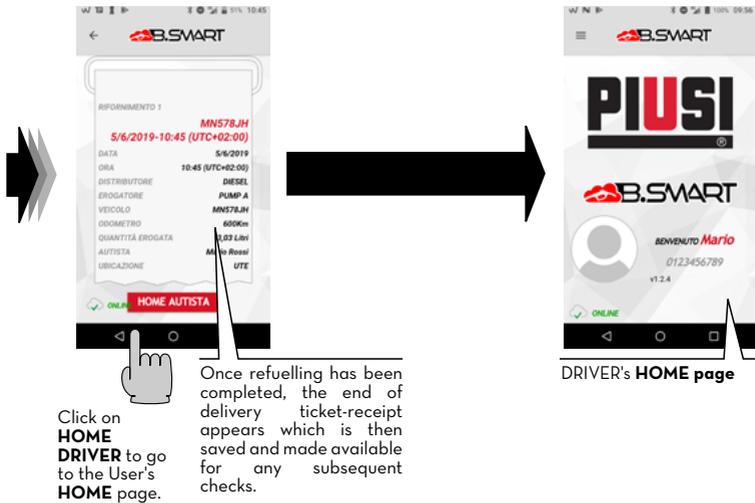
Click **REFILLING** on to continue

Enter the **PRESET** quantity to be delivered. If no value is set the tank will be filled.

Fuel delivery in progress: If a **PRESET** quantity has been entered, this quantity is shown under the meter.

Click on **STOP** to stop dispensing.

This value does not appear if the setting **FULL** has been entered.



**NOTE**



The **NEW REFILLING** procedure can be performed either **ONLINE** (smartphone connected to the **3/4G** or **Wi-Fi** network), as in the example described, and **OFFLINE**, therefore from a smartphone not connected to the **3/4G** or **Wi-Fi** network.

In the **OFFLINE** conditions, the dispensings will not be immediately uploaded to the cloud, rather as soon as that smartphone has the **APP** open in an area with **3/4G** signal, or as soon as a new smartphone connected to the **3/4G** network or **Wi-Fi** connects to the controller.

### 18.3 DISPENSING VIA USER KEY (I-BUTTON)

When the manager creates the driver he can add an electronic key (iButton) which is used to perform the access. To do this, just add the last 7 digits of the hexadecimal code associated with the key to the input of the driver's card in WebAPP (see WebApp manual, chapter "ADD NEW DRIVER").

The i-Button serves as a means of authentication to replace the smartphone. For the dispensing, simply place the iButton on the reader in the controller: authentication takes place, then you can start dispensing. Dispensings are uploaded to the cloud as soon as a smartphone with an active data connection connects to the controller.

**CAUTION**



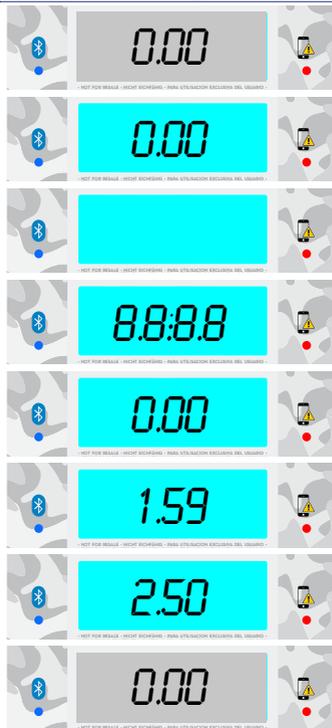
**Dispensing via the iButton key is allowed only when the procedures indicated in paragraphs 14.2, 14.3 and 18.1 have been successfully completed using a smartphone and the WebApp.**

**NOTE**



**These procedures are fundamental, as they allow the Manager to configure the system and manage its controllers while at the same time ENABLING THE DRIVER TO DISPENSE VIA A SPECIFIC CONTROLLER.**

**Dispensing via iButton is recommended only when strictly necessary in those case where it is impossible to dispense via a smartphone. This is because dispensing with iButton does not allow for direct cloud updating, thus compromising the real potential of the system.**



Driver authentication via i-Button

Dispensing start

Dispensing end

## 19 MAINTENANCE

### 19.1 ROUTINE MAINTENANCE

SELF SERVICE has been designed so as to require minimum maintenance. However the following ORDINARY inspections and maintenance operations shall be carried out regularly to ensure safety and efficiency of the station.

### 19.2 STATION MAINTENANCE

**Safety warnings**

The distribution system has been designed and built to require minimum maintenance.

Before carrying out any maintenance work, disconnect the dispensing system from any electrical power source.

During maintenance procedures, using personal protection equipment (PPE) is mandatory.

Always consider the following recommendations to use the system correctly.

Maintenance procedures must be performed exclusively by qualified personnel. Any misuse may lead to a decline in performance, danger for people and/or things, besides voiding the warranty.

**Personnel authorised to perform maintenance procedures**  
**ONCE A WEEK**

- Check that the pipe connections are not loose to prevent any leaks

- Check the pump body and keep it clean and free of any impurities

- Check that the electrical supply cables are in good condition

**ONCE A MONTH CAUTION**



**The maintenance of the electrical parts can 'be done only by qualified installer electrical or electronic.**

**Before performing any maintenance make sure to unplug the device from the power supply to turn it off and isolate it from the mains.**

**If the device is sold without cable to provide periodic verification of the circuit grounding in accordance with current regulations**

Inspect pump, pipes and the other internal components (filter and pulser). Keep them clean.

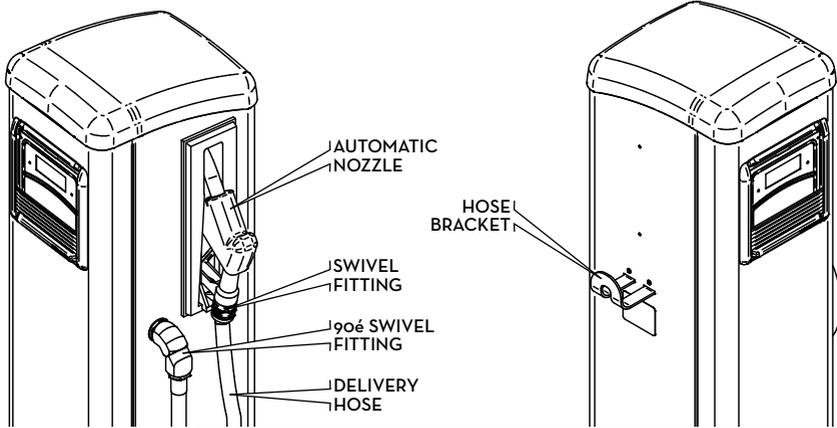
Check that no leakage is available on flanged or threaded connections and that flexible hoses do not show any damage.



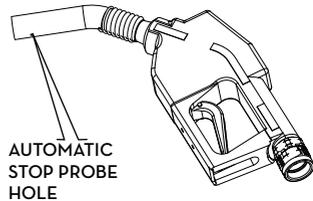
### 19.3 DELIVERY AND NOZZLE MAINTENANCE

Keep delivery hose and nozzle clean. Make sure that:

- 1 Hose does not show any damage caused by vehicle transit
- 2 Threaded connections are tightened and without any leakage
- 3 Banjo unions (at station outlet and on nozzle) turn smoothly and show no leakage



- 4 The hole in the automatic stop probe at the end of the nozzle hose (spout) is always clean.



### 19.4 FILTER MAINTENANCE

#### FOREWORD

SELF SERVICE is equipped with different filters performing different functions. Inspection and cleaning (or replacement) of each filter is extremely important to ensure:

- protection of station components (pulser, pump, nozzle);
- lasting performance (max. flow rate);
- protection of engines using fuel supplied

#### CAUTION



**Dirty or partially obstructed filters can increase pressure losses in such a way as to cause a remarkable reduction of the max. flow rate of the pump. Dirty or partially obstructed filters in pump suction line can cause a strong increase in suction vacuum which, in turn, can result in higher noise levels of the pump.**

**OPERATIONS  
PRECEDING  
FILTER DISAS-  
SEMBLY**

To facilitate operations on filters (see below), SELF SERVICE stations are equipped with:

- PAN to collect possibly spilled liquids, placed under the delivery cartridge filter.
- RELEASE VALVE, installed on suction filter

The procedures described in this paragraph should always be followed before carrying out any operations on filters. They are absolutely required to ensure safety when working and to prevent any polluting effects.

1 Close the valve placed on suction line before SELF SERVICE inlet.

**ATTENTION**



This valve, which is usually not present in tank under ground installations, MUST BE USED in tank above ground installations. The valve, which is not supplied with the station, should be fitted by the installer



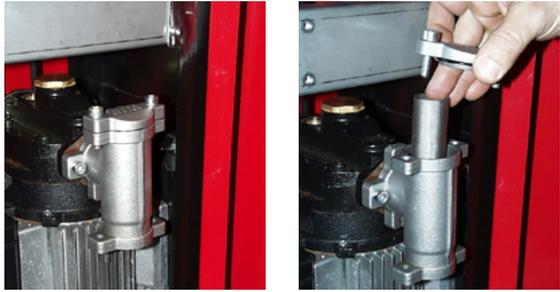
2 Put the small pipe connected with the RELEASE VALVE in a vessel and open the valve with a screwdriver.  
**BE CAREFUL: DIESEL FUEL LEAKING OUT!!**

- 3 Start the pump and deliver fuel into a container with suitable capacity. The nozzle will start supplying fuel, but thanks to the release valve the flow will decrease progressively and finally stop.
- 4 Put the nozzle back in its seat; the pump will stop.
- 5 Close the RELEASE VALVE carefully moving the pipe (connected to it) and move back to a higher position
- 6 Move the general switch of the station to OFF to prevent accidental starting during maintenance of filters.
- 7 Clean /replace filters as described in the following paragraphs
- 8 Clean collecting PAN carefully, so that possible leakages can be identified more easily.
- 9 Move the general switch of the unit to ON.
- 10 Keeping the unit front door OPEN, start the pump and deliver fuel into a vessel until a CONTINUOUS AIR-FREE FLOW is obtained. Close the nozzle WITHOUT PUTTING IT BACK IN ITS SEAT: the pump will operate in bypass mode, producing the maximum delivery pressure.
- 11 During bypass operation CHECK THE ABSENCE OF LEAKAGES ARE AVAILABLE, then put the nozzle back in its seat.
- 12 Lock station door.

### 19.4.1 SUCTION FILTER

It is placed just before the suction mouth of the pump. To inspect and clean it act as follows:

- 1 Remove filter cover after unscrewing the two screws on same
- 2 Extract basket filter;
- 3 If necessary, clean it: wash and blow it;
- 4 Put the basket filter back in the filter casing
- 5 inspect and clean the O-ring. Put cover in position and tighten the screws.



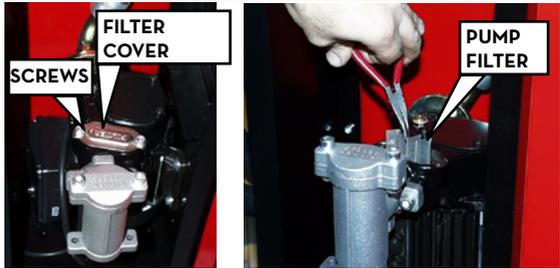
Z  
E

### 19.4.2 PUMP FILTER (available on models with PANTHER 72 pumps only)

It is installed in pump body, as a standard accessory of PANTHER pump. It is just after the suction filter, as a consequence it will not require frequent cleaning.

To inspect and clean it act as follows:

- 1 Remove filter cover after unscrewing the two screws on same
- 2 Extract net filter using pliers
- 3 If necessary, clean it: wash and blow it;
- 4 Put the filter back in pump body making sure it does not stand out of cover seat
- 5 Inspect and clean the flat seal. Put cover in position and tighten the screws.



#### CAUTION



**After a reasonable number of maintenance operations, replace the flat gasket of the cover filter.**

### 19.4.3 PULSER FILTER

The pulser filter is an additional protection which prevents foreign bodies from entering the oval gear pulser.

As it is installed after the suction filters, it does not require any regular checking and cleaning.

However, should the filter be cleaned for any reasons and/or in case of special maintenance operations, remove the pulser (if necessary) and proceed as described in PULSER MANUAL.

### 19.4.4 DELIVERY FILTER

The delivery filter is provided with a WATER-ABSORBING CARTRIDGE. It represents a fundamental element for the protection of the engines using fuel delivered by the station.

This kind of filter separates and absorbs possible water available in fuel oil. When water is absorbed, the filtering capacity is progressively reduced with a resulting increase in pressure loss (caused by the filter).

The filter **CAN NOT BE CLEANED OR REGENERATED**; after a certain operating time it **MUST BE REPLACED** to restore station performances (max. flow rate).

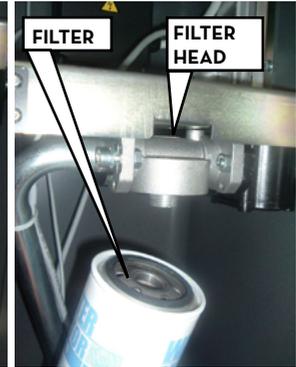
**CAUTION**



**Filter life is usually very long but it can vary remarkably depending on the quantity of water available in fuel. In case of a large quantity of water, the filter could get obstructed in a few minutes.**

To replace the filter act as follows:

- 1 Loosen head filter by means of chain tongs;
- 2 Unscrew and remove the filter from the head manually
- 3 Inspect and, if necessary, clean head thread and filter seal seat
- 4 Place a new filter (complete with seal) manually in position and screw as tightly as possible (wet the seal with Diesel fuel).
- 5 Tighten the filter (not too much) using the chain tongs.



**CAUTION**



**Some station models are equipped with DOUBLE-CARTRIDGE FILTER. Both cartridges operate simultaneously and must be replaced at the same time.**

### 19.5 EXTRAORDINARY MAINTENANCE

**CAUTION**



**The maintenance of the electrical parts can 'be done only by qualified installer electrical or electronic.**

**Before performing any maintenance make sure to unplug the device from the power supply to turn it off and isolate it from the mains.**

**If the device is sold without cable to provide periodic verification of the circuit grounding in accordance with current regulations**

1 - Firmware update via smartphone, see dedicated section in the APP manual

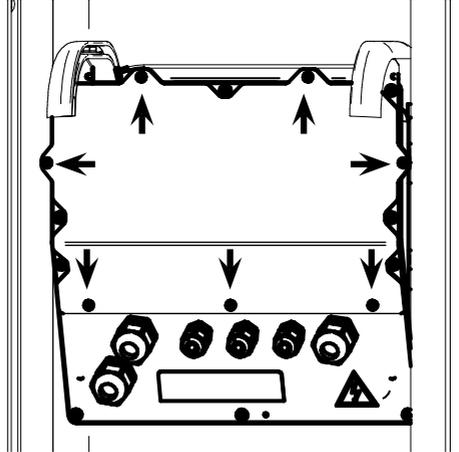
2 - Fuse control: to access the fuses it is necessary to open the unit and access the parts that are live during normal use, to operate safely disconnect the general power supply from the unit



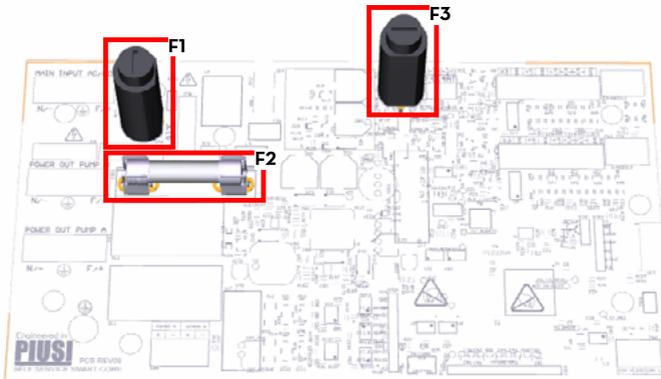
## 19.6 CHECK AND REPLACEMENT OF FUSES

For checking and replacing fuses on electronic boards:

- 1 Cut the unit off the power supply;
- 2 Open the SELF SERVICE B.SMART cover to access the controller
- 3 Loosen the screws of the metal rear cover to access the compartment of the electronic boards



- 4 Check the condition of the 3 fuses and replace them if necessary



- F1 • Power supply fuse at AC power supply input 800 mA T (delayed)
- F2 • Motor fuse 20 A T (delayed)
- F3 • Power supply fuse at AC/DC converter output 800 mA T (delayed)

- 5 Tighten the screws of the metal rear cover to close the compartment of the electronic boards and power

## 20 TROUBLESHOOTING

### 20.1 MECHANICAL AND HYDRAULIC PROBLEMS

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTIONS
<b>THE MOTOR IS NOT TURNING</b>	Lack of electric power	Set the ON/OFF switch on the pump to the ON position. Reset the external differential switch Check electrical connections
	Fuses blown	Replace fuses in the electric panel
	Motor problems	If the rotor is blocked, disassemble and check for damage or obstruction and re-assemble. Contact the customer service.
<b>THE MOTOR DOES NOT START AGAIN WITH THE NOZZLE CLOSED</b>	Supply voltage too low	Check that the supply voltage is not 5% lower than the normal V.
<b>LOW OR NO FLOW RATE</b>	Excessive suction vacuum	Lower SELF SERVICE B.SMART in relation to the level of the tank or increase the section of the pipes.
	High pressure drops in the circuit	Use shorter or larger diameter pipes
	Suction pipe resting on the bottom of the tank	Raise the suction pipe
	Low suction tank level	Refill the tank
	Air entering the suction pipe or the pump	Check the tightness of the connections and the level of the diesel in the tank
	Low motor rotation speed	Check the voltage to the motor: adjust the voltage or/and use cables with a greater section
	Check valve blocked	Clean or replace
	Tank filter clogged	Clean the filter
	Pump filter clogged	Clean the filter
	Fluid loss	Check the tightness of the connections and the condition of the rubber hoses
Flow meter chamber obstructed	Clean the flow meter chamber	
<b>INSUFFICIENT FLOW METER ACCURACY</b>	Presence of air in suction	Check the seals of the connections
	Calibration insufficient	Calibrate the flow meter
<b>THE NOZZLE TRIPS TOO OFTEN</b>	Automatic stop probe hole blocked	Clean the automatic stop probe hole from dirt and/or obstructions



## 20.2 ELECTRICAL/ELECTRONIC CONNECTIONS

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTIONS
<b>SELF SERVICE B.SMART does not switch on</b>	Lack of power DUE TO: <ul style="list-style-type: none"> <li>• Incorrect connections</li> <li>• Upstream circuit breaker in OFF position</li> <li>• Fuse on power supply interrupted</li> </ul>	Check connections Set circuit breaker to ON position Check fuse
<b>A driver with an electronic key is not recognized</b>	The electronic key has not been associated by the MANAGER  The electronic key has been damaged and is no longer recognized by the system	The system MANAGER associates the key to the driver  Change the electronic key, the system MANAGER will also have to delete the code of the old key and associate the new key to the driver via WebAPP
<b>The motor does not start</b>	It has not been connected correctly to the terminals provided  The Pulsar that emits the counting signals is not correctly connected	Check connections, or (if present) check that the position of the motor switch is in the ON position  Check connections
<b>Does not count during dispensing</b>	The Pulsar that emits the counting signals is NOT compatible with the electronics  Pulsar board damaged	The electronics are designed to receive a “clean contact” or “Open Collector” signal as input. If the input signal is an incompatible voltage signal, in addition to the malfunction the electronic board is likely to be damaged  Replace Pulsar board
<b>The counting is not accurate</b>	The system is NOT calibrated	Calibrate the system according to the procedure
<b>The counting is not accurate even after calibration or is only accurate at low flow rates</b>	The signal coming from the Pulsar is out of the ranges acceptable by the electronics	The signal received by the pulsar must be with max. frequency 300 Hz and Duty Cycle between 10% and 90%. Beyond these ranges, the system does not process the received data correctly. The system must fall within the correct ranges by interposing other electronic interface devices (contact the Technical Assistance for these particular options)

## 20.3 PROBLEMS WITH THE SMARTPHONE APP

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTIONS
<b>APP says the driver is not enabled</b>	The manager has not enabled the driver for fuel transfer pump use.	The MANAGER must enable the driver to use the fuel transfer pump via the WebAPP in the section dedicated to drivers
<b>Dispensing from smartphone is not present in the cloud</b>	Dispensing was made with the smartphone with data connection disabled or in an area with poor 2G/3G/4G coverage	Dispensing will be uploaded to the cloud as soon as the APP is opened in an area with 2G/3G/4G coverage. In the meantime it will be stored in the memory of the smartphone and also in the memory of the fuel transfer pump
<b>APP does not see the controller even though Bluetooth is active</b>	Bluetooth module on the smartphone is not compatible with the Bluetooth module in the fuel transfer pump  Fuel transfer pump being used by another driver	The Bluetooth module of the fuel transfer pump is compatible with all smartphones that feature the Bluetooth version 4.0 or later (smartphones from 2011 onwards)  The fuel transfer pump will become visible on the smartphone only when the driver who is using it has finished operations

## 21 FAQ

- 
- 1 If a driver changes smartphone, is it necessary to create a new account for that driver or can he continue to use what he already had?**
- CAUTION** 
- If the driver changes smartphone, he must notify the site manager, who will delete / reset the smartphone - driver association in the WebApp (procedure described in the manual of the WebApp, chapter "DRIVER DETAIL"). The driver can then log in from the APP installed on the new smartphone.
- After the manager has deleted the smartphone - driver association, the driver is obliged to access with a smartphone other than the previous one, because access with his credentials is prevented on the old device. To be able to access with the old smartphone, you must first access with a new smartphone, then be reset as user and finally enter with the initial smartphone**
- 
- 2 What if a driver loses his smartphone?**
- If the driver loses his smartphone, it is necessary to notify the site manager, who will immediately remove the smartphone - driver association. The procedure to be followed is the same as that indicated in question 1.
- 
- 3 What if the APP reports that the smartphone is not recognized?**
- 
- Generally it is an error shown when the driver has changed smartphone but has kept the same phone number and the site manager has not reset the user.
- In this case the driver must contact the manager and inform him of the error shown by the APP. The manager will remove the smartphone - driver association to allow the driver to login from the new smartphone. The procedure to be followed by the manager is the same as that indicated in question 1 (see also the WebApp manual, chapter "DRIVER DETAIL")
- 
- 4 When are dispensings made via iButton or smartphones without an internet connection uploaded to the cloud?**
- There are 4 cases in which the dispensings are uploaded to the cloud:
- Each time the APP is opened, if the data connection is active
  - APP open in the background and data connection active
  - Data synchronization by the manager by pressing the SYNCHRONIZATION key
  - Every time a driver connects to the controller and the internet connection of the smartphone is active
- As you can see from the list, the dispensings can be uploaded to the cloud even if your smartphone is not connected to the controller.
-



**5 What if I can't dispense via authentication with iButton?**

There are a few possible cases:

- Dispensing memory full
- Tank empty
- iButton not associated with any driver

In detail:

**Dispensing memory full and tank empty**



The red LED to the right of the controller display is on. This may indicate problems in the memory (dispensing memory full) or tank empty.

To empty the dispensing memory, synchronize with the cloud. If the problem is not solved, reset the controller

**iButton not associated with any driver**



When the iButton is placed on the reader the display does not light up

**6 What if a driver changes his phone number and keeps the same smartphone?**

If a driver changes number it is necessary to inform the manager, who will change it from the Driver's card in the WebApp (see also the manual of the WebApp, chapter "DRIVER DETAIL").



In the APP, the number is automatically updated the first time you connect to the cloud. From now on the mobile phone number will be the one to be used to access the APP.

In addition, in the case of mobile number portability between different mobile operators, it is likely that for a few days the mobile number will be the temporary one, and then the mobile number will be the same again as soon as portability is complete. In this case, during the transition period, there is no need to notify the site manager of the temporary number, you can continue to use your original telephone number.

## 22 SCRAPPING AND DISPOSAL

**Foreword**

In case the system should be demolished, its parts must be given to companies specialised in industrial waste disposal and recycling; in particular:

**Disposal of Packaging**

Packaging consists of biodegradable cardboard that can be given to firms charged with cellulose recovery.

**Disposal of Metal parts**

The metal components, both painted and in stainless steel, are usually recycled by companies that are specialised in the metal-scraping industry.

**Disposal of electrical and electronic components**

These have to be disposed by companies that are specialised in the disposal of electronic components, in accordance with the instructions of 2012/19/UE (see text of Directive below).

**Environmental information for customers in the European Community**



European Directive 2012/19/UE requires that the

equipment bearing this symbol on the product and/or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product should be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electric and electronic equipment via designated collection facilities appointed by the government or local authorities.

Disposing of RAEE equipment as household wastes is strictly forbidden. Such wastes must be disposed of separately.

Any hazardous substances in the electrical and electronic appliances and/or the misuse of such appliances can have potentially serious consequences for the environment and human health.

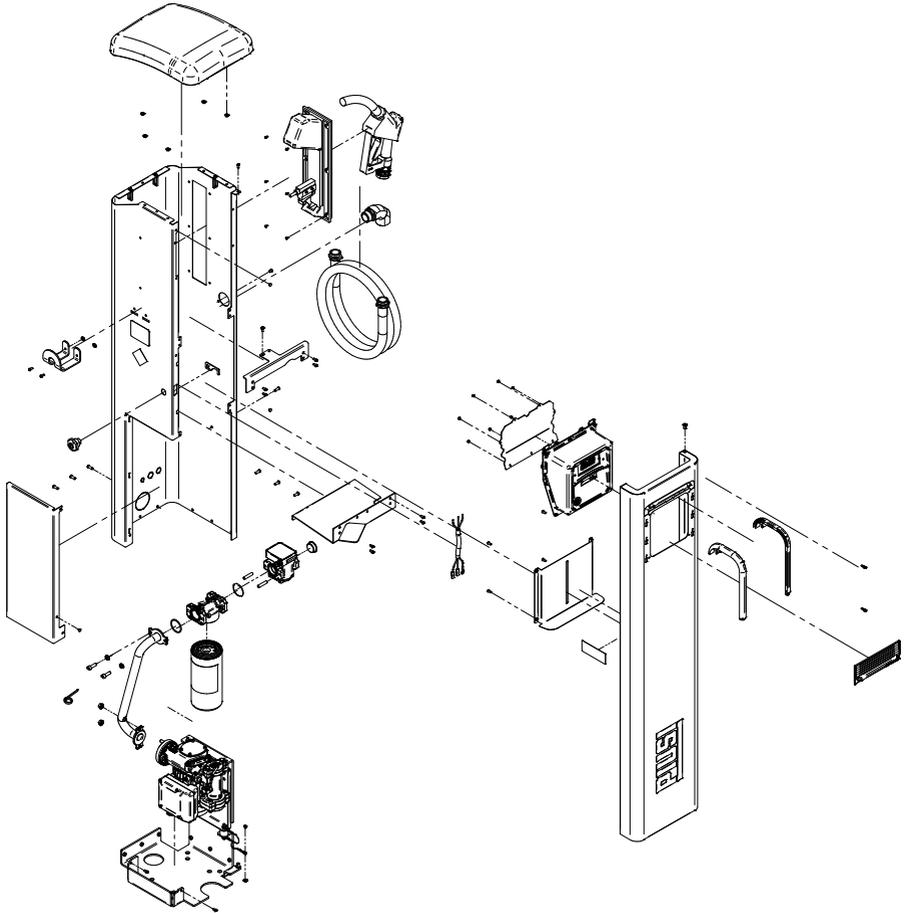
In case of the unlawful disposal of said wastes, fines will be applicable as defined by the laws in force.

**Disposal of Other parts**

The disposal of other parts such as pipes, rubber seals, plastic components and cables should be entrusted to companies specialized in the disposal of industrial wastes.

## 23 EXPLODED VIEWS

23



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**EN** This document has been drawn with great care about the accuracy of the data contained therein. However, PIUSI S.p.A. takes no responsibility for any mistakes and omissions.



*Fluid Handling  
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