FUELFIX energy & emissions solutions TANKS2GO

Fuelfix FMS

Measure, Control & Conserve Fuel

Fuelfix RFID Reader

Introduction

This document illustrates the assembly and pairing process for the Automatic Nozzle ID hardware along with suggested location for and fixation method for the ST1010 ceramic UHF SmartTags.

Required items

The installer will require:

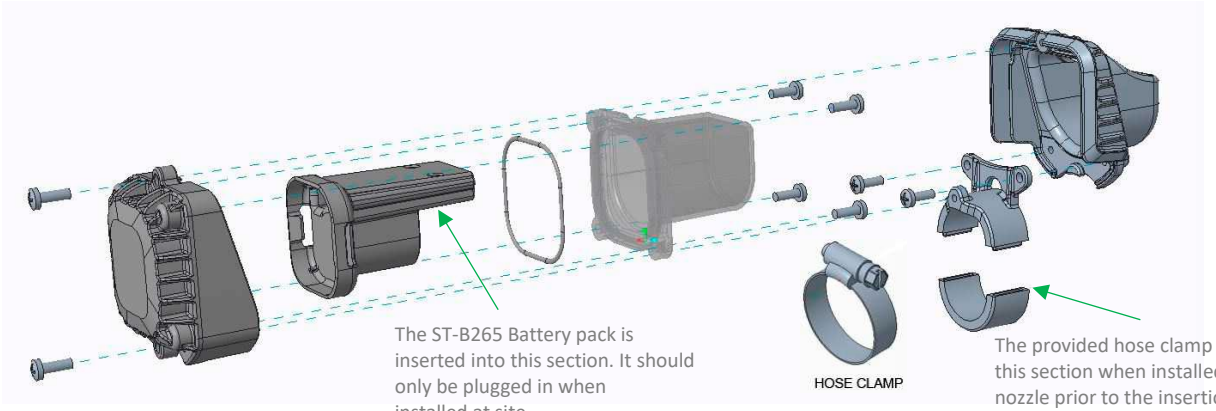
1. Phillips head screwdriver
2. Flat head screwdriver
3. Can of degreaser or similar cleaning product
4. A rag or cloth to wipe dry the area once degreased
5. 2-part epoxy (Clear, water and chemical resistant, fast set, high viscosity)
6. A SFM2055 Wireless module with an A1512 Antenna.
7. An ST1000 SmartTag Nozzle ID reader
8. At least one Ceramic ST1010 Tag.
9. A ST-B265 battery pack.
10. Appropriately sized hose clamp (Selected when ordered (ZVA25, AdBlue, OPW 1” or 3/4”))

Assembly of the Fuelfix RFID Reader (ST1000)

The Fuelfix RFID Reader (ST1000) is designed to fit securely on multiple nozzle types. The Intended nozzle type will need to be identified prior to ordering the unit.

For example, the 25mm ZVA Nozzle would require the use of the ST1000-25 to ensure the correct hose clamp and brackets are provided.

As shown below in the exploded view – the ST1000 breaks into individual sections. The installer will only need to be concerned with installing the battery, screwing the main sections together and then fitting the ST1000 to the Nozzle with a hose clamp.

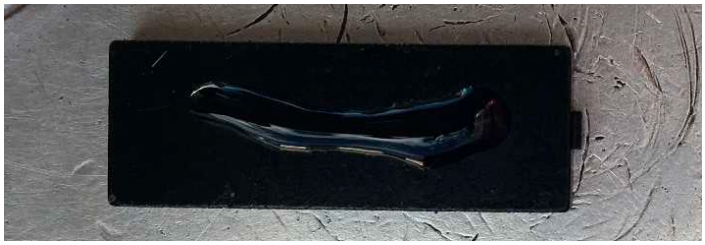


The provided hose clamp is fitted over the nozzle brackets (OPW ¾" shown) then tightened on to the nozzle, prior to the insertion of the plastic sections. The worm drive section is neatly concealed within when assembled

Fuelfix RFID Reader (ST1000) Installed on an OPW Nozzle

Installing the ST1010 SmartTags

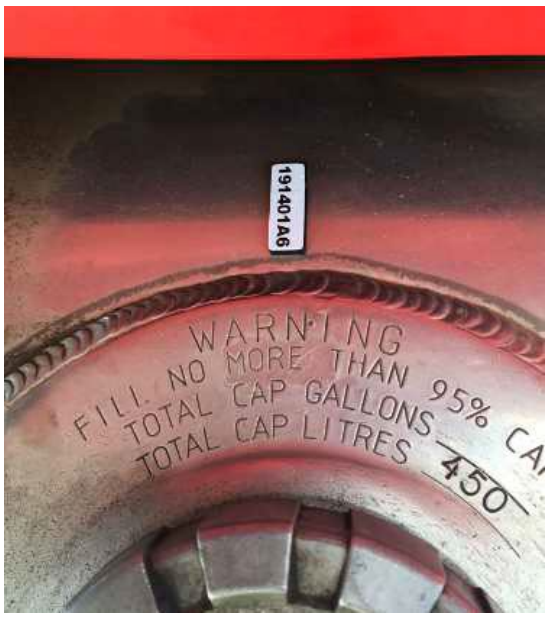
1. Degrease an area directly above the tank filler neck (Use Isopropanol or “Brakeclean” – a no residue type)
2. Wipe away the degreasing agent with a clean rag or cloth
3. Gently score the surface to which the tag is to be bonded to, increasing the potential bond strength
4. Liberally apply epoxy to the middle of the Tag.
    a. For high traffic areas where there is a chance that the tag may be kicked, it is recommended to use water/chemical resistant two-part epoxy.
    As an example, PC-Clear worked well.



5. To ensure the tag stays in place a decent amount of 2-part epoxy should be used. If coated too sparingly the tag will not remain in place. Bond strength is increased with heat.
6. Press and hold the SmartTag in place
    a. For shorter read ranges where fuel theft is a concern, keep the Tag horizontal rather than vertical in orientation. Results in 8 to 15cm read ranges. Place the tag as close to the weld line as possible without allowing it to overhang. Do not place the tag too close to the filler neck as this will reduce the read range and can impact on fingers when the cap is rotated.

    b. For installations where longer read ranges are required, affix the tag Vertically. Results in a 20 to 60cm read range. The tag should be placed above the weld line when used in this manner, or approximately 80mm above the filler neck.

When vertical, the tag can be placed below steps and cabin overhangs without a significant impact to read ranges.



Connect the ST1000 to the Fuelfix FMS

The ST1000 needs to be paired with the Fuelfix **FMS** so that communication between the two devices can be
established. To do this the following steps need to be followed

1. Ensure that the Fuelfix **FMS** has the latest compatible firmware loaded
2. The current version of software required
    a. In the Fuelfix **FMS** - **1.9.1.18** (available from the website)
    b. In the SFM2055 **– 1.4.20**
    c. In the Nozzle **– BLE: 20302 / MSP: 10216**
3. Within the Fuelfix **FMS** a SFM2055 wireless module and an A1512 Antenna must be installed.
4. On the Fuelfix **FMS**, Press and hold CLR+ENT
5. Enter 6789 ENT
6. Press 8 for Pumps, select the appropriate pump
7. Press 9 for AVID
8. Press 1 to search for a new Nozzle (to pair with the ST1000). With the assembled ST1000 in hand, give it a
1. gentle shake when prompted, a Blue LEDs should flash followed by red.
9. The system will indicate that a new Nozzle has been added.
10. Press CLR until you exit the menu system and save the changes.

Adding Tags (ST1010s) to the system

Tags may be added either via the website as normal by selecting the Vehicles tab or plant tab at the top of the screen and then selecting ADD. The tags are added as type KEY in the drop-down box.

The Tags can also be added directly at the unit using the same add vehicle or add plant menu selection as a FOB or iButton.

1. On the Fuelfix **FMS**, Press and hold CLR+ENT
2. Enter 6789 ENT
3. Press 1 for Vehicles or 2 for Plant
4. Press 1 to ADD
5. Hold the nozzle Next to the tag preferably with the tag resting on metal or already installed as the read range is better when attached to metal.

6. The Tag will then be added to the unit which will in turn send the new tag up to the website. All details against the tag will need to be added online as with any key added directly to a unit.

Understanding ST1000 light sequences

The ST1000 once woken will indicate its status with a sequence of coloured LEDS

1. Flashing **Red** LEDs – ST1000 awake, communication with the Fuelfix **FMS** & searching for tags (~6 seconds)
2. Flashing **Orange** LEDS – Found tag but waiting for user input at Fuelfix **FMS** (Odometer or driver key/code)
3. Flashing **Green** LEDs – Found tag, transaction in progress
4. Solid (Longer flash) **Red** – Transaction Paused (theft mode) or Transaction ended or Unregistered Tag
5. **Blue** & **Red** – Sleep mode being entered.

LEDs are located here – they flash through the clear section at the rear of the ST1000