MASER

Universal Automation Solution

FLEET SMART MANAGEMENT SYSTEM

Revision 2023_05

FLEET SMART MANAGEMENT SYSTEM

Access authorization refueling monitoring management

PROCESS AUTOMATION AND FEATURES

PROCESS AUTOMATION FEATURES

- Manage access to the site/station/carwash
- Detect and identify tagged vehicles
- Identify drivers with fleet cards
- Detect and identify the vehicle's fuel tank
- Record odometer data (GPS route and fuel tank level)
- Forecourt devices management (dispensers, ATG system)
- Authorize refueling (Diesel, Petrol, LPG, CNG and LNG, Hydrogen, Electric charging)

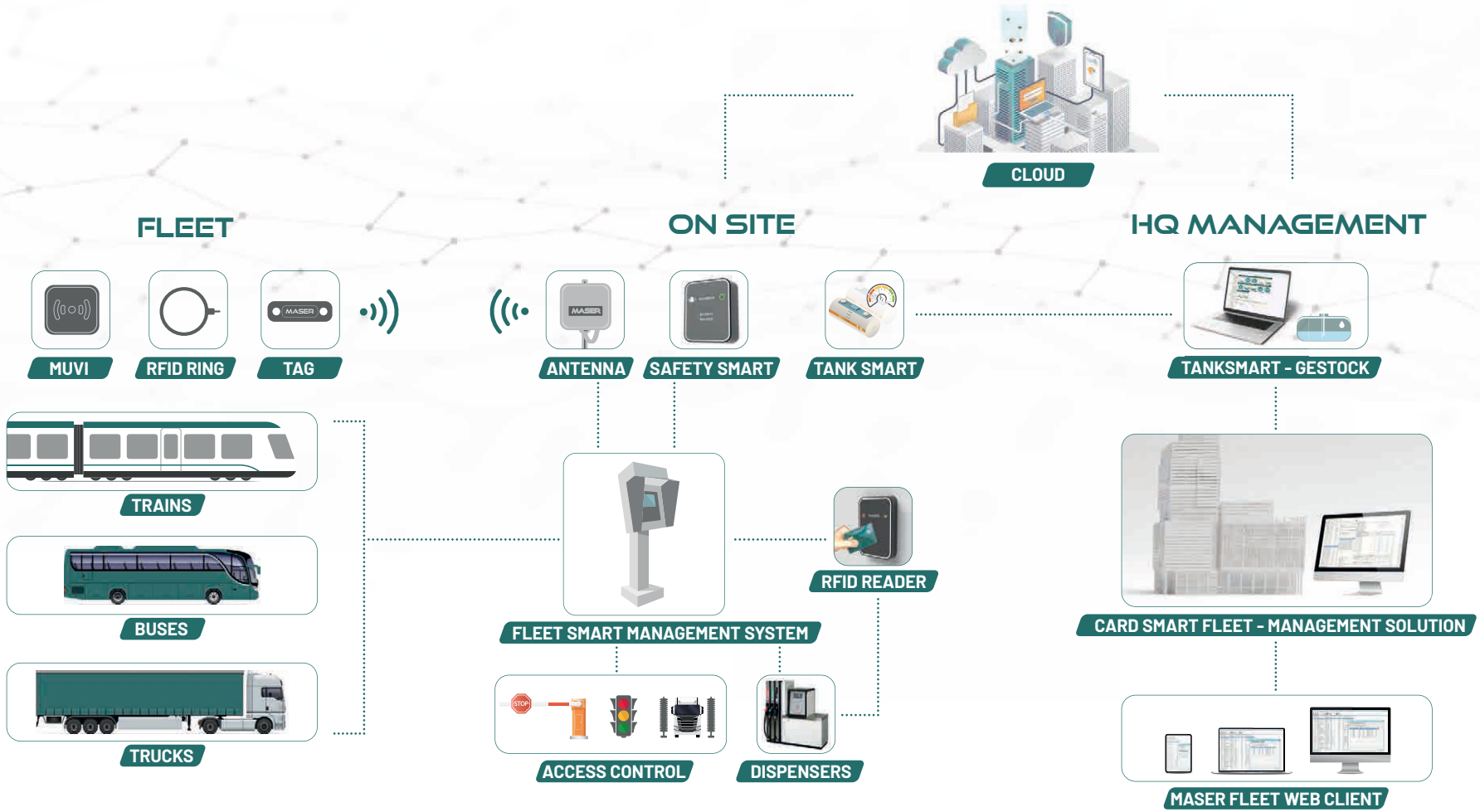
DATA MANAGEMENT FEATURES

- Manage vehicle/driver accounts (permissions, rules, stats, type of fuel, etc.)
- Local and centralized database for all transactions
- Remote (Cloud) access and control of the system

OUR CLIENTS

- Local/regional public and private transport
- Logistic and freight
- Construction
- Railroad transport
- Taxi and car service
- Institutional fleets
- Private fleets
- Waste collection

SYSTEM ARCHITECTURE OVERVIEW



VEHICLE IDENTIFICATION AND ACCESS CONTROL

PROCESS STEPS

1. Vehicle equipped with TAG approached the site (TAG allows you to uniquely identify each vehicle).
2. LUHF Antenna detects the vehicle TAG.
3. The GPSmart unit, controlling the peripheral devices, receives the TAG information and send them to the FSMS.
4. The FSMS authorizes and sends commands to the access control devices:
   - Gate control (Barriers, Traffic Lights etc.)
   - Carwash (access and execution of the wash)

HARWARE COMPONENTS

ACCESS CONTROL

VEHICLE IDENTIFICATION AND ACCESS CONTROL

COMMUNICATION PROCESS

1. The Digital ID data in the vehicle TAG is read by the UHF antenna.
2. The GPSmart unit receives the TAG data and sends them to the Access Control Manager which checks the Database.
3. The ID of the Vehicle is confirmed, and the access is confirmed OR denied.
4. The GPSmart unit and the FSMS send the instructions to the access control.

MASER FLEET WEB CLIENT

CLOUD

GPSMART UNIT

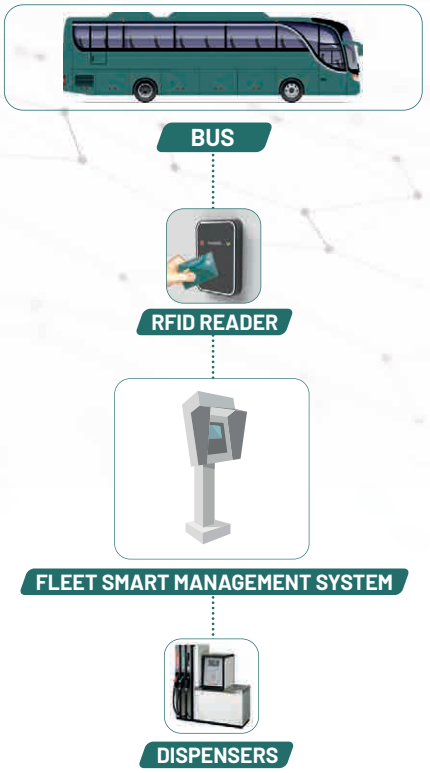
FSMS

REFUELING WITH CARD IDENTIFICATION

PROCESS STEPS

1. Vehicle with driver holding a fleet card approaches the dispensers.
2. The operator presents the fleet card to the FILL SMART RFID reader.
3. The FSMS checks the fleet card account in the database.
4. The driver is prompted to select the dispenser number, to enter vehicle odometer data and initializes the transaction.
5. The FSMS authorizes the refueling on the dispenser.
6. The driver completes the refueling and leaves the site and the dispenser send the information to the FSMS.

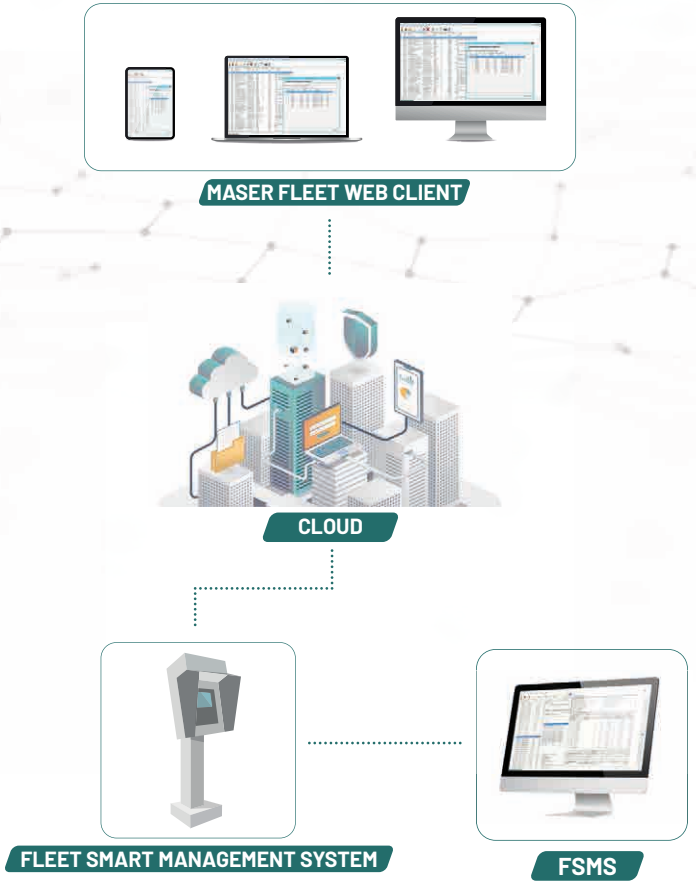
HARWARE COMPONENTS



REFUELING WITH CARD IDENTIFICATION

COMMUNICATION PROCESS

1. The FSMS reads the card.
2. The FSMS controls the digital ID of the card in the database of the Card Smart Fleet 4.0
3. After the correct match in the database, the FSMS prompt the user to add further optional data.
4. The FSMS authorizes the refueling at the dispenser.
5. The data of the transactions are sent to the database of the Card Smart Fleet 4.0 for the final registration.

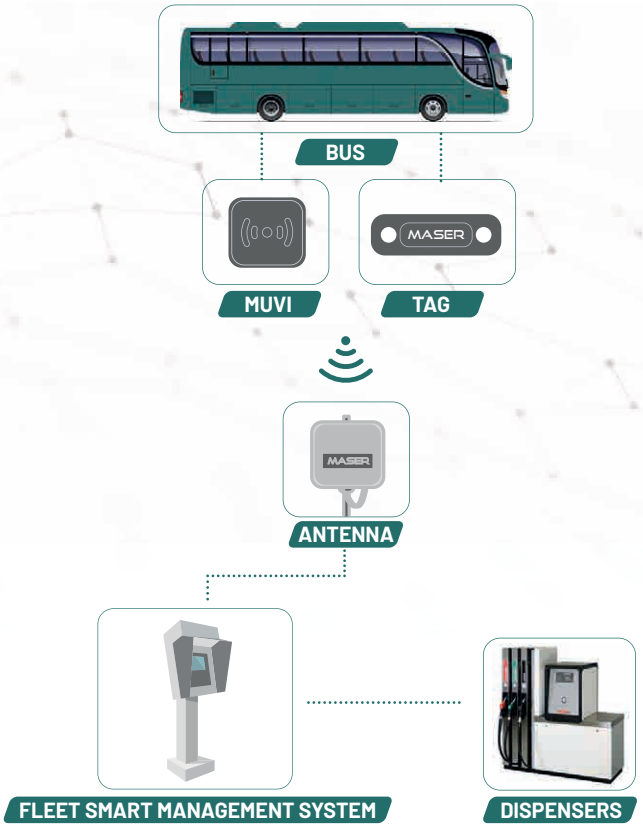


REFUELING WITH TAG AND MUVI

PROCESS STEPS

1. The vehicle equipped with TAG and MUVIapproaches the site. The TAG allows you touniquely identify each vehicle. The MUVI transmits the GPS mileage data of the vehicle. (The MUVIx extended version also transmits the fuel tank level data).
2. UHF Antenna communicates with the vehicle TAG and MUVI devices and reads the vehicle ID and MUVI GPS mileage data (fuel tank data also in the extended model).
3. The TAG ID data is verified in the FSMS database and the vehicle is identified and authorized according to the account rules and parameters (ex: fuel type and volume limits).
4. The vehicle mileage data (and fuel tank level data) is recorded in the vehicle's account in the database.
5. The dispenser is authorized and is possibile to proceed with the refueling.
6. The refueling is finished, and the vehicle leaves the site.

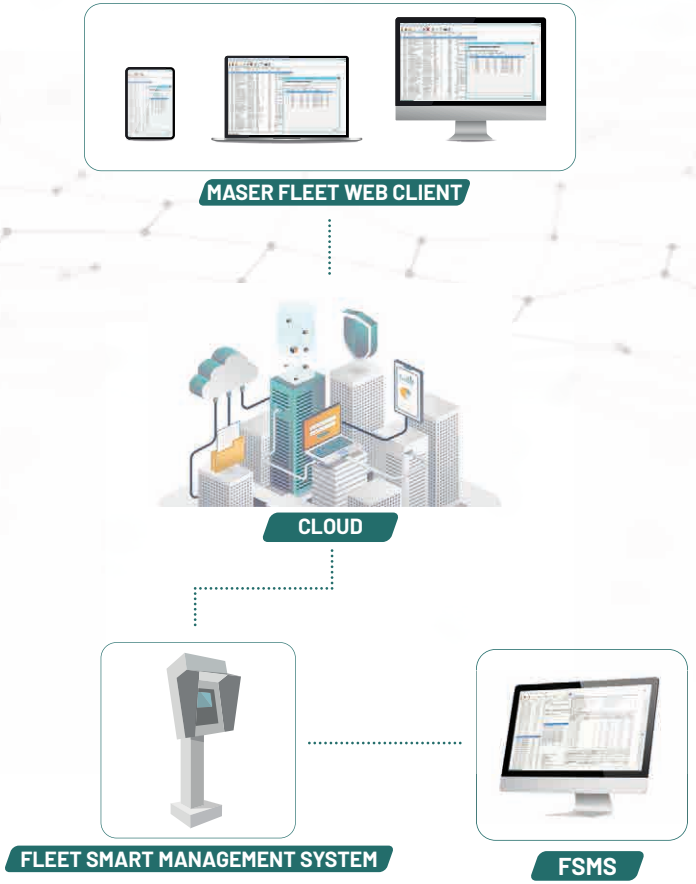
HARWARE COMPONENTS



REFUELING WITH TAG AND MUVI

COMMUNICATION PROCESS

1. The UHF Antenna reads the vehicle TAG ID data and MUVI GPS mileage data and transmits it to the FSMS.
2. The vehicle ID is checked in the database by the FSMS.
3. The FSMS records the MUVI data in the client's account in the database.
4. The FSMS authorizes the refueling.
5. After the refueling, the FSMS records the transaction data in the client account in the database.



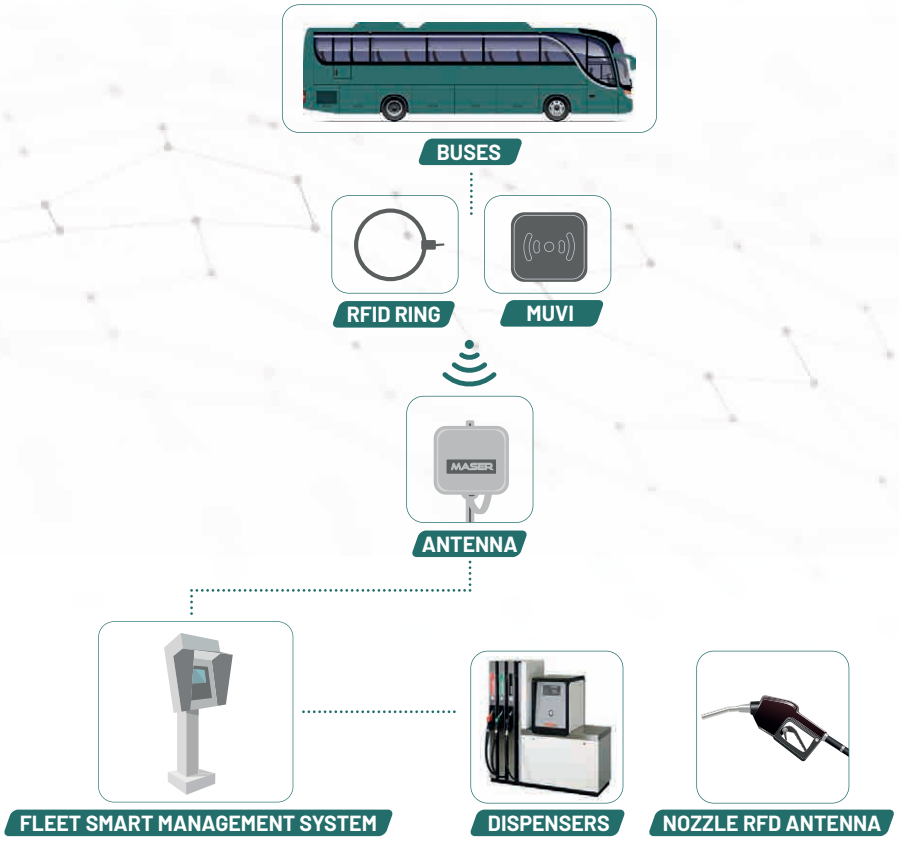
REFUELING WITH RFID AND MUVI

PROCESS STEPS

1. The vehicle equipped with RING and MUVI approaches the site.
   - The RING allows you to uniquely identify each vehicle
   - The MUVI transmits the GPS mileage data of the vehicle.

   (The MUVIx extended version also transmits the fuel tank level data).
2. UHF Antenna communicates with the vehicle MUVI device and reads the MUVI GPS mileage data (fuel tank data also in the extended model).
3. The vehicle odometer data (and fuel tank level data) is recorded in the client's account in the database.
4. The driver or attendant places the dispenser nozzle equipped with a RFID reader in the tank. The nozzle antenna communicates with the RFID ring and transmits the data to the FSMS.
5. The dispenser is authorized and is possible to proceed with the refueling.
6. The refueling is finished, and the vehicle leaves the site.

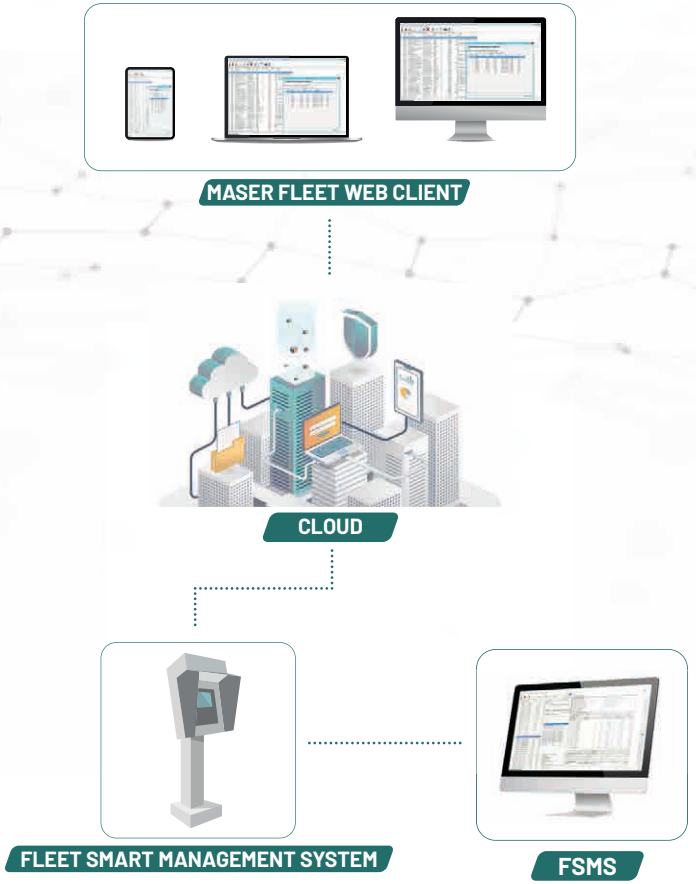
HARWARE COMPONENTS



REFUELING WITH RFID AND MUVI

COMMUNICATION PROCESS

1. The UHF Antenna reads the vehicle MUVI GPS mileage data and transmits it to the ELAB module of the FSMS.
2. The MUVI data is recorded in the vehicle account in the database.
3. The dispenser nozzle RFID reader antenna communicates with the RING and transmits the ID to the FSMS.
4. The FSMS checks the vehicle ID in the database and if this vehicle is authorized for filling with this type of fuel.
5. The FSMS authorizes the refueling.
6. The transaction data is recorded in the client account in the DB.

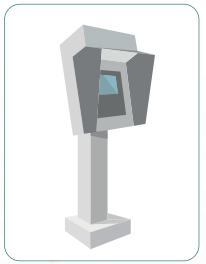


MASER "FLEET SMART" MANAGEMENT SYSTEM - LOCAL COMPONENTS

ELAB MASER MODULE: The Maser ELAB Module Manages and interfaces the RICs. (RIC interfaces between RICs 1-2-4 and the database).
GPSMART UNIT: The GPSmart unit interfaces with the "Access" Maser Management Software to control the barriers, traffic lights, panels, etc..
MASER ACCESS MANAGEMENT MODULE: Connects to the MAC terminal and to the antenna receiver.

CARD SMART FLEET 4.0 "LOCAL" SYSTEM: IThe Card Smart Fleet 4.0 is a complete system accessible from a pc/laptop/ tablet which has a dashboard to monitor all the data related to the management of the fleet. In the "**local**" version, is deputed to the manamegent of a single site.

TANKSMART "LOCAL" SYSTEM: The Maser Tanksmart system applies the best technology for the authomatic control of the fuel stock in the tanks and in the depot, with a check of the possible presence of water and of the fuel temperature. In the "local" version, is deputed to the management of a single site.



FLEET SMART MANAGEMENT SYSTEM

CARD SMART FLEET 4.0

TANKSMART

MASER "FLEET SMART" MANAGEMENT SYSTEM - NETWORK COMPONENTS

TANKSMART "NETWORK" SYSTEM: The Maser Tanksmart system applies the best technology for the authomatic control of the fuel stock in the tanks and in the depot, with a check of the possible presence of water and of the fuel temperature. In the "**network**" version, is deputed to the Centralized management of a Network of Stations/Sites.

TANKSMART

CARD SMART FLEET 4.0 "NETWORK" SYSTEM: The Card Smart Fleet 4.0 is a complete system accessible from a pc/laptop/tablet which has a dashboard to monitor all the data related to the management of the fleet. In the "network" version, is deputed to the Centralized management of a Network of Stations/Sites.

CARD SMART FLEET

SYSTEM OPTIONS

TAG It allows to uniquely identify each vehicle sufficient to authorize access to the sites and carwash etc.

UHF ANTENNA The UHFA antenna on the site is coupled with the TAG on board when the vehicle enters the area covered by the signal (cone of about 30 ° with a maximum depth of 8 - 10 meters).

RIC A UHF receiver which allows to connect from 1 up to 4 antennas. The RICs connect to the antennas to acquire the signal and process the data.

MUVI It records the vehicle GPS mileage data that can be transmitted at each passage. (The extended version MUVIx allows you to check the level of fuel in the tank and simple reconciliation of each refueling).

TANK RING AND NOZZLE ANTENNA RFID READER They provide vehicle identification and type of fuel information to the managements system to allow the refueling with the right type of fuel of only authorized vehicles.

GPSMART ripheral device management system which enables the interface between the peripheral devices and the Fleet Smart Management System.

SYSTEM OPTIONS

FILLSMART RFID Attached to the dispenser or MAC OPT the FillSmart RFID card reader allows to identify the driver/vehicle card and authorize the refueling.

TANKSMART The system which manages the monitoring of the fuel stocks both in “local” as like as in a “network”“real-time mode.

SFETYSMART An integrated and centralized system for all critical operation devices and safety systems on the sitetocentralizeall functionalalarms and alerts.

MASER

Universal Automation Solution

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