iPETRO AutoFuel
FLUIDS MANAGEMENT

FUELING AUTOMATION
WIRELESS CONTROLLER FOR FUEL MANAGEMENT SYSTEMS (FMS)

- Relays information read by Vehicle RFID Tag to Fuel Management.
- Triggers fuel dispersion based on FMS decision rules.
- Multiple interface connection options available.

The HID Global iPETRO AutoFuel Wireless Controller is a device that receives data from the iPETRO AutoFuel Vehicle Tag and forwards this information to a central Fuel Management System (FMS - iPETRO Pro). The FMS software decides if and how much fuel to be dispensed based on received information and the configured business rules. The result is submitted back to the fuel pump or the Wireless Controller for execution. Using a variety of interface standards including Ethernet, RS485, RS232, Wiegand or USB, the IWC can integrate with third-party systems intended for product transfer, fueling automation or access control.

The Wireless Controller utilizes an encrypted communication channel to the iPETRO Vehicle Tag and covers a distance of up to 328 ft (100 m). Firmware upgrades are easily, possible post installation, to keep the controller up to date. Two separate relays allow triggering external devices. The iPETRO AutoFuel Wireless Controller may either be embedded into other system components at the fueling site or be mounted externally by utilizing the optional waterproof housing.
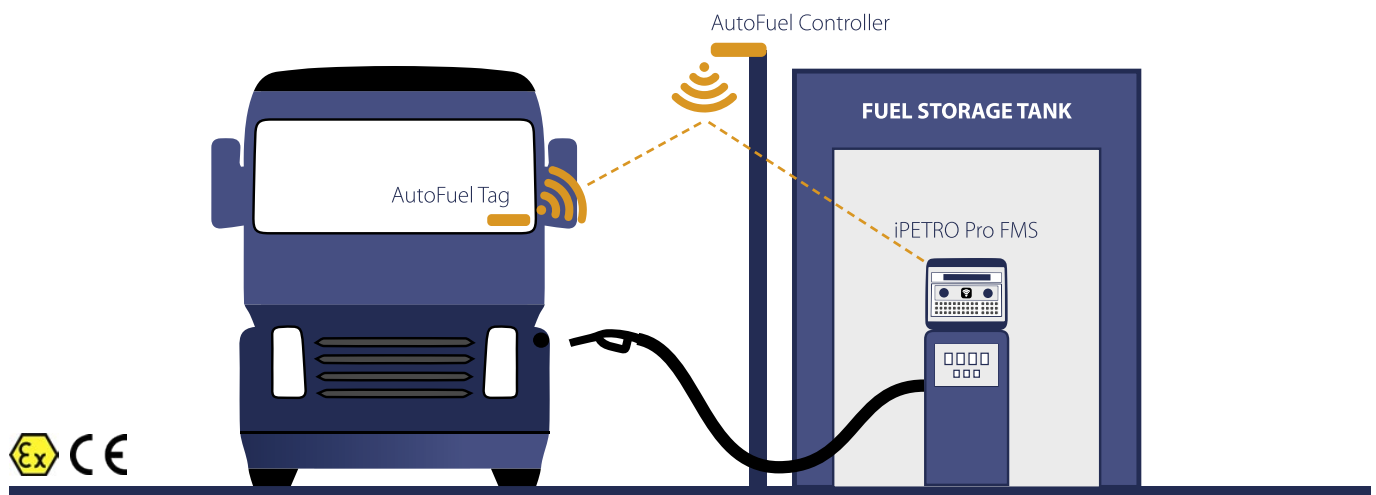
KEY TECHNOLOGY HIGHLIGHTS:

- Simple installation.
- Outdoor environment resistant housing.
- Multitude of connectivity options.
- Triggers fuel dispersion based on FMS decision.
- Encrypted communication to Vehicle and Nozzle Units.
- In-field firmware upgradeable.

TYPICAL APPLICATION AREAS:

Fueling stations for:

- Construction vehicles.
- Trucks.
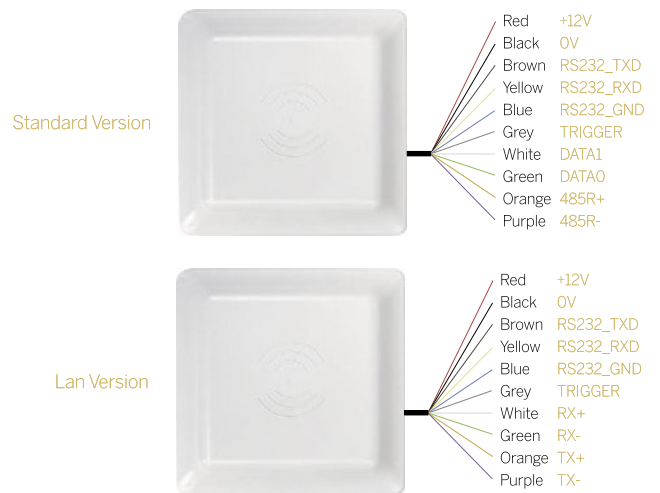- Bus coaches.
- Any other commercial fleet vehicles.

AutoFuel Controller

FUEL STORAGE TANK

AutoFuel Tag

iPETRO Pro FMS

AutoFuel
SPECIFICATIONS:

OVERALL DIMENSIONS

AF-105
227 x 227 x 60mm
1.5kg

227mm × 227mm

AF-115
450 x 450 x 120mm

450mm × 450mm × 120mm (450mm depth)

WIRING DIAGRAM

Standard Version

Red	+12V
Black	0V
Brown	RS232_TXD
Yellow	RS232_RXD
Blue	RS232_GND
Grey	TRIGGER
White	DATA1
Green	DATA0
Orange	485R+
Purple	485R-

Lan Version

Red	+12V
Black	0V
Brown	RS232_TXD
Yellow	RS232_RXD
Blue	RS232_GND
Grey	TRIGGER
White	RX+
Green	RX-
Orange	TX+
Purple	TX-
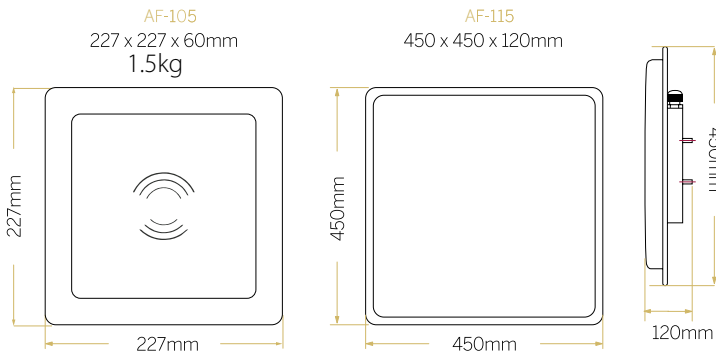
SPECIFICATIONS

Model No.	AF-105	AF-115
Working Frequency	National standard (920~925MHz), America standard (902~928MHz), or customise other frequency	
Support Protocol	ISO18000-6B, ISO18000-6C(EPC GEN2)	
Frequency Hopping	FHSS or fixed frequency set by software	
Working Way	Automatically reading card at regular time, can set reading card way	
Frequency Power	0~30dBm, be adjusted by software	
Reading Sensitivity	1~5M	5 ~ 15M
Reading Speed	Dual polarization reading	
Reading Distance	One label 64 bit ID number < 6ms	
Antenna	Build-in circular polarization antenna, gain 8dB ?build-in linear polarization antenna, gain 12dBi	
Interface	RS485, RS232, Wiegarnd34, Rj45	
Working Voltage	DC 12V	
Working Status Indication	Buzzer	
Power	1W	
Working Temperature	-20C ~ 80C	
Storage Temperature	-40C ~ 125C	
Working Humidity	20% ~ 95% (no condensing)	

iPETRO SecureFuel
FLUIDS MANAGEMENT

FUELING AUTOMATION
Nozzle Unit 2

UNIVERSAL LOW FREQUENCY RFID READERS TO FIT ON FUELING NOZZLES

- Reads vehicle tag and identifies vehicle to the Fuel Management System.
- Automatic activation and standby mode via motion sensor.
- Supports a range of standard filling nozzles.

The HID Global iPETRO SecureFuel Nozzle Unit 2 is a ruggedized, intrinsically safe RFID reader, used for Fueling Management Systems (FMS). The unique ring-mount design allows durable fixation on a wide range of fuel filling nozzles. The unit turns a filling nozzle into an RFID reader that is automatically activated when the nozzle is tilted.

The Nozzle Unit is designed to work in combination with iPETRO SecureFuel Vehicle Tag as RFID for the Fuel Management System.

As soon as the Nozzle Unit detects a corresponding vehicle tag, the tag's unique ID and required fuel information is sent via an encrypted channel to the iPETRO Pro Terminal (FMS), which decides if and how much fuel to dispense. Once the nozzle is removed from the vehicle, and the vehicle tag can no longer be read, the Nozzle Unit notifies the FMS to stop the fuel dispersion. The iPETRO SecureFuel Nozzle Unit includes a dual-color led that indicates whether the unit is operational and a tag was successfully read. The rugged housing makes the Nozzle Unit resistant to typical fueling environments and rain water. Its tamper evident removal detection feature prevents potential fuel theft.
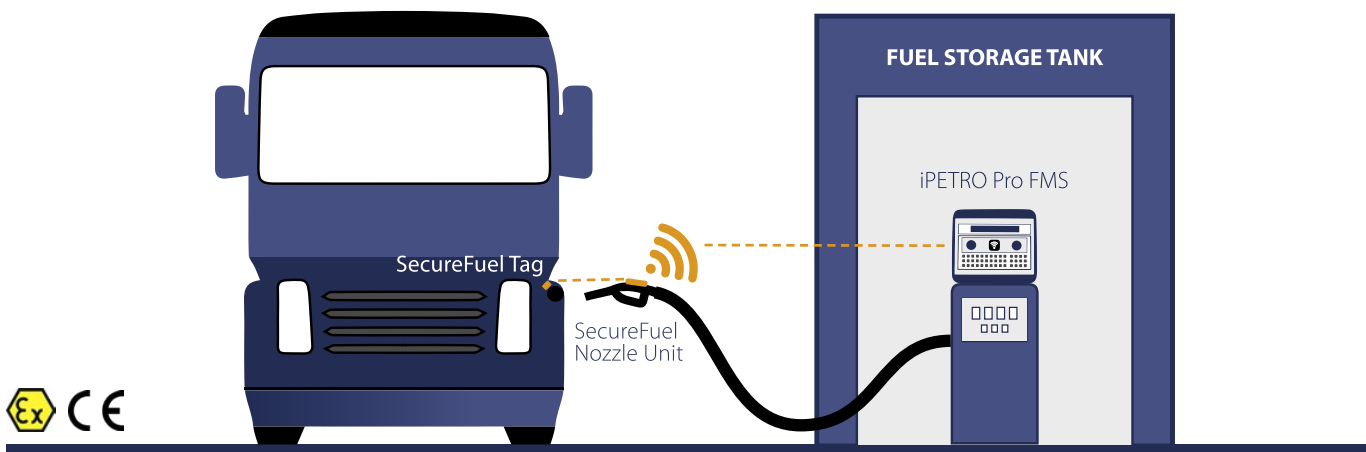
KEY TECHNOLOGY HIGHLIGHTS:

- Simple installation on various existing nozzles.
- Encapsulated, antistatic and anti-tamper design.
- ATEX / IECEx compliant.
- Multi-year battery life.
- Wireless operation incl. remote firmware update.
- Motion sensors to optimize battery life.

TYPICAL APPLICATION AREAS:
Fueling stations for:
- Construction vehicles.
- Trucks.
- Bus coaches.
- Any other commercial fleet vehicles.

FUEL STORAGE TANK

iPETRO Pro FMS

SecureFuel Tag

SecureFuel
Nozzle Unit

SecureFuel
SPECIFICATIONS:

	Nozzle Unit 2
Base Model Number	FNU900-1-1-GB-XX
ELECTRONIC	
Operating Frequency to Wireless Controller	433.92 MHz
Operating Frequency to Vehicle Tag	121kHZ – 129kHz
Max. Distance to Wireless Controller	328 ft (100m)
Power Supply	2 x 2.5 Ah Lithium Thionyl Chloride Batteries
Power Supply Lifetime	~3 years battery life @ 200 minutes per day operation
PHYSICAL	
Dimensions	3.71 x 5.17 x 2.54 in (94.4 x 131.3 x 64.6mm)
Mounting Method	Screw
Fits to Nozzle Type (different sets of fixation rings available to match target nozzle)	Elaflex, SL1 (ER 242.1T, ER 242.1, ER 242.2), Elaflex, SL2 (Vapour Recovery, ER042.1), Elaflex, ZVA Adblue (HV, LV) OPW (OPW11, OPW7H) OPW, Avance Gas + Vapour Recovery OPW, Avance, Diesel OPW, 12VW Husky (1A, VIII)
Housing Material	Glass filled Nylon (PA6)
Color	Black
Weight	8.1 oz (230g)
CHEMICAL AND MECHANICAL RESISTANCE	
Water	IP66
Withstands Exposure To	Fuel B, mineral oil, petroleum, salt mist, vegetable oil
Environmental Test Conditions	68° F (20° C), 100 h
Humidity	0 to 95% relative humidity at +104° F (+40° C) non-condensing
Drop Test	1 m (3.28 ft) drop (in packaging)
THERMAL	
Storage	-40° to +176° F (-40° to +80° C)
Operating	-13° to +140° F (-25° to +60° C)
OTHER	
Standards	ETSI 300 220, ETSI 300 330, EN 1127-1:2007, EN 1127-2:2002+A1:2008, EN 60079-0:2009, EN 50303:2000, EN 60079-11:2007, ATEX/IECEx (Ex ia IIB T4 Gb)
User Interface	Bi-color indication LED
Specialities	Tamper removal detection; custom branding
Quantity Per Box	2 pcs.
Warranty	2 years