



# ForeFuel™

Automatic Vehicle Identification (AVI)  
for Fueling



FUELING YOUR BUSINESS FOR SUCCESS

## Exceptional loyalty for oil companies | Maximum savings for fleets

### SOLUTION DESCRIPTION

Orpak's ForeFuel Automatic Vehicle Identification (AVI) system powers the fastest, simplest, and secure refueling for millions of vehicles worldwide. With ForeFuel, the vehicle is the **means of payment**. An easily vehicle mounted, compact & passive RFID unit next to the fuel inlet enables immediate payment authorization when the nozzle is inserted into the fuel inlet. The result is fast refueling with no need for cash, card, or coupon payment, providing measurable value to both oil companies and commercial fleets. Vehicle data readings (e.g. odometer, engine hours) via optional unit can be obtained to detect exceptions.

ForeFuel ensures that fuel is dispensed solely to the fuel tank of the authorized vehicle whose account should be charged. Removing the nozzle and trying to fuel another vehicle immediately suspends fueling activity.

Orpak pioneered AVI fueling systems, and leads in market deployments and expertise. Our patented technology sets the standard in terms of functionality and value.

### BENEFITS

#### Oil Companies

ForeFuel provides the utmost fueling experience through simplicity and speed, and it eliminates potential misuse associated with fuel cards

- Deepens fleets' loyalty to the ForeFuel operating oil company, expanding the market share and increasing the sales volume (unlike with fuel cards, 100% of the transactions go to the ForeFuel operating oil company when fleets enjoy cost savings)
- Strengthens the brand image by leading with service innovation
- Increases station throughput by shortening fueling time and queues



#### Fleets

ForeFuel introduces significant control of fuel expenses regardless of whether fueling occurs at their sites or at a retail station.

- Clear cost saving: ForeFuel facilitates that fuel will only be dispensed to the intended tank, and the right fuel type and grade is dispensed. A 2<sup>nd</sup> authorization option (driver tag, PIN, mobile app) is available for higher level of security
- Fleet efficiency: Odometer and engine hours readings can be combined to monitor average fuel consumption, schedule maintenance, and control mileage
- Convenient operation: fleet managers can easily set limitations and restrictions



#### Most Experience

- 7,500,000 vehicles
- 35,000 stations



#### Proven Technology

- Industry de facto standard
- Patented technology



#### Flexible Business Model

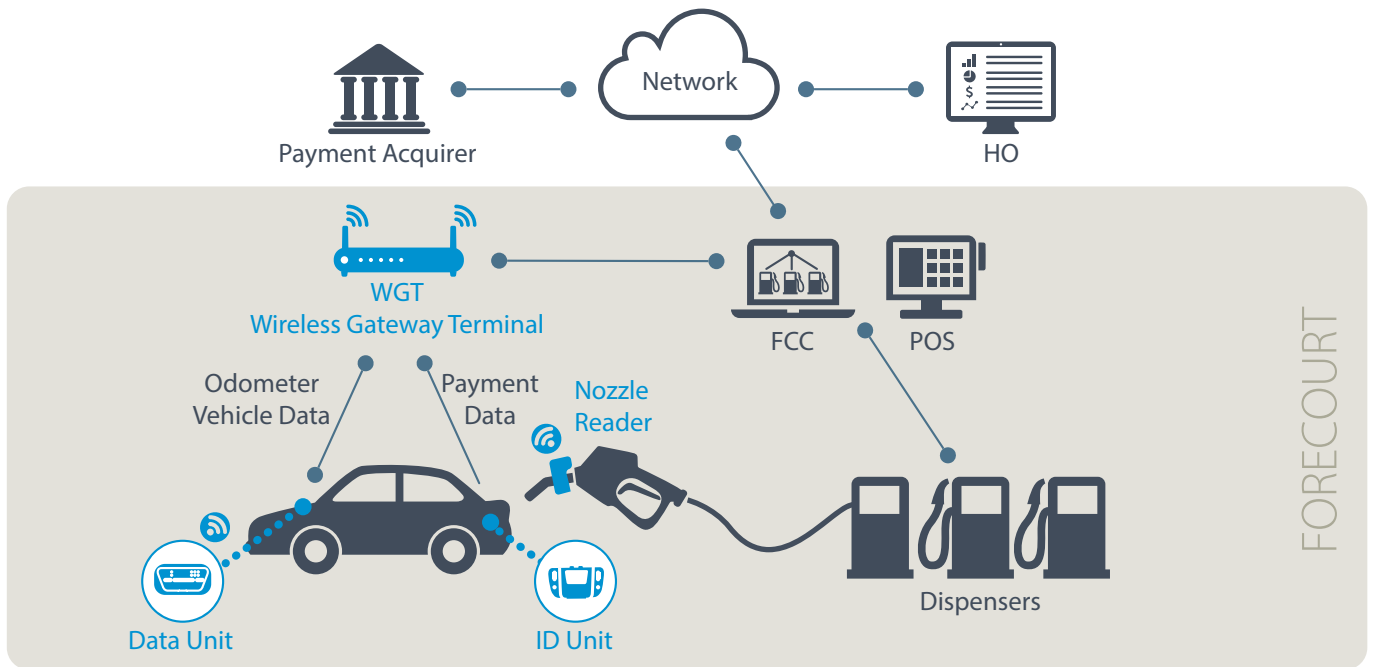
- Equipment sale
- ForeFuel as a service



#### End-to-End Solution

Fully integrated:

- ForeSite & ForeNet: retail site & card management solutions
- ForeHB: homebase management solution



## SOLUTION COMPONENTS

### Passive RFID tags

Orpak's tag consists of a secure chip which includes encrypted identification and payment information. It fits any vehicle type, having extensive experience with trucks, busses & heavy equipment. It includes sophisticated security mechanisms as: patented removal protection means, data encryption, etc.

### FuelOpass

The FuelOpass is Orpak's high runner vehicle identification device for heavy & light vehicles with a patented removal protection mechanism, as well as a variety of ring types to fit any vehicle and fuel inlet.



### NanOpass

Orpak's NanOpass is an innovative passive RFID vehicle identification tag that contains an RFID chip and antenna in one compact unit. The NanOpass is an ideal solution for light vehicles.



### Wireless Network Gateway Terminal (WGT)

Orpak's WGT completely covers the entire forecourt, connecting ForeFuel's components to the Station Controller. Its mesh topology, robustness and reliable network ensure the highest availability and strong immunity to interferences.



### Data Units

An optional compact transmitter that connects to the vehicle's on-board computer. The collected data may include odometer and engine hour readings, fuel consumption, driver behavior, and diagnostic error codes. Data is uploaded to Head Office servers for analysis to detect exceptions and reduce operational costs.



- **µDataPass:** A plug-and-play unit for private, light, and commercial vehicles that connects directly to the OBD-II connector
- **DataPass:** For heavy vehicles and trucks, connects directly to the vehicle bus or to a J1939/J1708 Deutsch 9-pin connector
- **DataPass / µDataPass Sense:** The sense version provides vehicle data's reading with contactless mechanism, which electrically isolated from the vehicle bus

### Nano Nozzle Reader

The nano Nozzle Reader (nNR) reads Orpak's RFID tags and wirelessly transmits the data to the station's automation systems for refueling authorization.



- Designed to withstand harsh environments
- Compact self-contained unit (electronics & power)
- Fits directly onto any fueling nozzle using an innovative gripping mechanism suitable for all common fuel nozzles
- Consists with removal protection mechanism that deactivate the unit immediately
- Battery operated, typically >2-3 years

# ForeFuel™ – SPECIFICATIONS

	ID	DP	μDP	WGT	nNR
<b>Dimensions (HxWxD) cm</b>	4.2 x 2.3 x 0.78 (NanOpass)	7 x 5 x 1.5	2.2 x 4 x 1.7	18 X 18.2 X 6.2 (outdoor box) 20.1 x 12.5 x 6.1 (integrated box)	4 x 8.4 x 6
<b>Wireless</b>	RFID ISO 18000-2	3dbm (2mW), IEEE802.15.4 with proprietary mesh network			3dbm (2mW), IEEE802.15.4, with proprietary mesh network RFID ISO 18000-2
<b>Frequencies</b>	RFID, 108-131 kHz	2.405-2.480 GHz			2.405-2.480 GHz RFID, 108-131 kHz
<b>Interfaces</b>		OBD-II CAN & K-LINE, J1708/J1587/J1939/FMS	OBD-II CAN & K-LINE	LAN, RS485, RS232	
<b>Operating Voltage</b>		9 - 32 VDC	9 - 16 VDC	12 - 28 VDC 100 - 240 VAC w/p.s.	3.6 VDC
<b>Operating Temperature</b>	-40° to +80°C (-40° to +176°F)	-40° to +70°C (-40° to +158°F)	-40° to +70°C (-40° to +158°F)	-40° to +55°C (-40° to +131°F)	-40° to +60°C (-40° to +140°F)
<b>IP Rating</b>	IP67			IP66 (NEMA 4X) (outdoor box)	IP67
<b>Certifications</b>		FCC, CE, cETLus, E mark	FCC, CE, cETLus, E mark, UL	FCC, CE, cETLus	ATEX Group II 1 G, Ex ia II B T3 Ga, cLCus Zone 0

*\*Specifications are subject to change without notice*

## ABOUT ORPAK

Orpak delivers comprehensive solutions to oil companies and commercial fleets, improving profitability and optimizing performance from the forecourt to the head office. Our hardware, software and services enhance the entire retail fuel network and fleet management value chains, be it the single fuel transaction, retail network optimization or business analytics. Orpak has a 25-year track record of success and innovation. Known for rapid deployment of large end-to-end projects, our field-proven products are installed in more than 35,000 service stations and 7,500,000 vehicles across 60 countries. Orpak solutions are distributed via an international network of subsidiaries and value-added partners. In 2017, Orpak joined Fortive as part of the Gilbarco Veeder-Root group.

