



**Trinexsys**

## **Fuel Management & Control Systems**

*“Saving Fuel through Accurate Measurement and Reporting”*

*“Fuel Guarding Programme”*

### **INTRODUCTION**

The function of the versatile Fuel Management and Control System is to assist the manager of any operation using diesel fuel, i.e. logistics, mining, etc. in gathering fuel related data and controlling the flow of diesel within the company. This is achieved by monitoring, recording and controlling the amount of fuel dispensed at a Bowser or Commercial Filling Station.

To cover any fuel loss eventualities and other irregularities such as illegal stoppages or protection against vehicle theft and unauthorised use, the system offers visual control by placing cameras in strategic positions, e.g. fuel tanks, fuel return lines, unscheduled removal of trailer covers, drivers, etc.

### **A. THE BASIC PRINCIPLES**

#### **What makes these Programmes different?**

- Management Tool – Fully Documented Transactions
- Immediate Data Transmission to the Server
- Detailed control of Fuel Consumption
- Each vehicle can be monitored individually or as a group
- from Base Station throughout Southern Africa
- Fuel related incidences are flagged when they happen
- Can be integrated with existing in-house Programmes
- Unauthorized vehicle use resulting in engine **cut-out** (Arrest Unit)
- Various Report Systems available, or specified by client
- Integrated Tracking System available

## B. AVAILABLE PROGRAMMES

These programmes consist of four independent modules that can be combined, each with their own unique benefits and values.

- F. Bowser Fuel Control (BFC)
- G. Fuel Management Control (FMC)
- H. Fuel Consumption Control (FCC)
- I. Vehicle Access Control (VAC)



## C. REPORTS – FUEL AND STOPPAGES

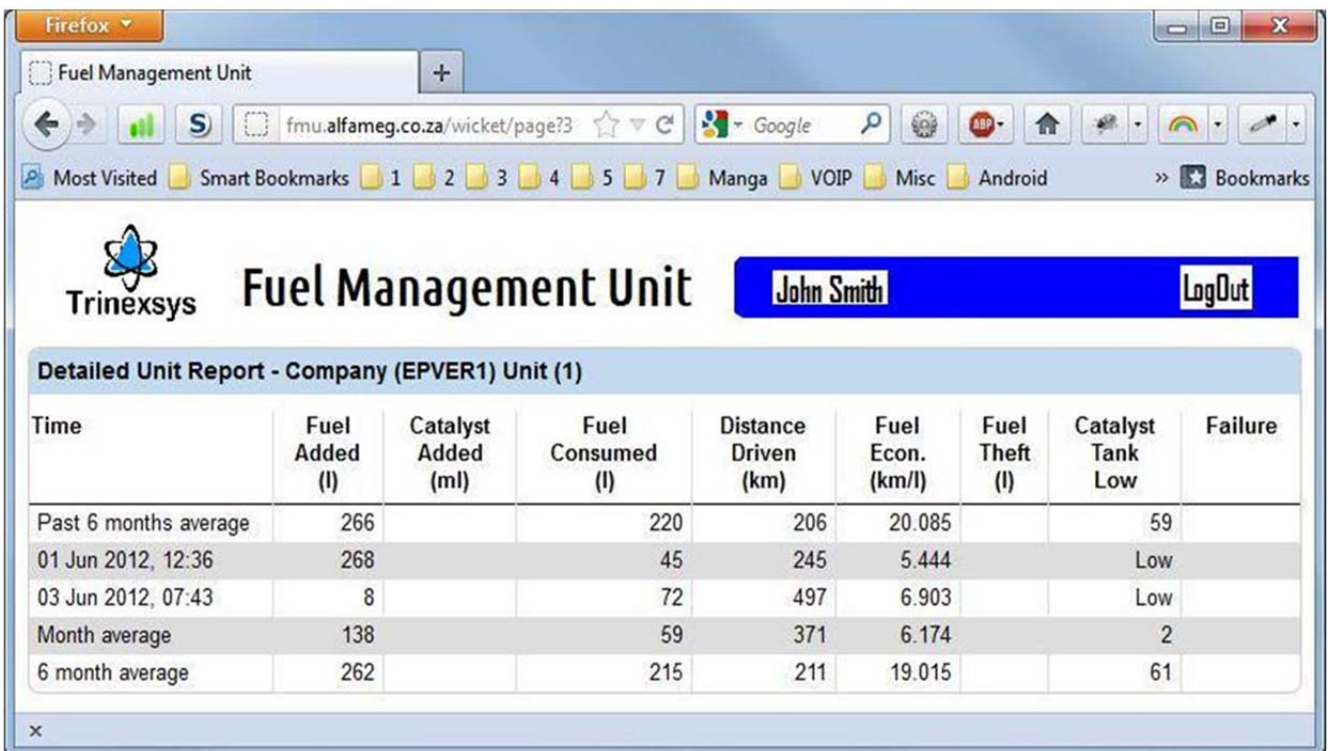
### a) Fuel Consumption

- a. Average Fuel Consumption per vehicle, per fleet and company
- b. Fuel quantity per trip, per day, per month, 6-monthly, annually
- c. Comparative consumption values before and after

### b) Stoppages - Scheduled & Unscheduled

- a. Fuel Intake (scheduled);
- b. Rest Periods (unscheduled) All stoppages are recorded
- c. Stops – length of time per stop
- d. Distance recordings in km between stoppages
- e. Unauthorized use of vehicle (optional)
- f. Camera footage (if selected)

## D. TYPICAL REPORT EXAMPLE



Time	Fuel Added (l)	Catalyst Added (ml)	Fuel Consumed (l)	Distance Driven (km)	Fuel Econ. (km/l)	Fuel Theft (l)	Catalyst Tank Low	Failure
Past 6 months average	266		220	206	20.085		59	
01 Jun 2012, 12:36	268		45	245	5.444		Low	
03 Jun 2012, 07:43	8		72	497	6.903		Low	
Month average	138		59	371	6.174		2	
6 month average	262		215	211	19.015		61	

## E. PROGRAMME ADVANTAGES

### a) What are the Benefits?

1. Completely Paperless
2. Fuel Losses are immediately reported and evaluated accurately
3. Cameras can identify/highlight loss incidences
4. Costing per trip
5. Accuracy of Fuel Measurement

### b) Comparative Values

- a. Fuel consumptions
- b. Fuel Costs
- c. Trip distances
- d. Average speeds



## F. BOWSER FUEL CONTROL (BFC)

Monitoring, recording and controlling the amount of fuel dispensed from one or more Bowsers to a fleet of vehicles. These volumes can be compared to the volumes supplied by the Fuel merchant.

### a) Fuel Bowser

- The fuel pump is fully automated complete with shut-off valve.
- The shut-off valve will open for tagged vehicles only.
- After fuelling, the shut-off valve closes.

### b) Information transmitted from Bowser to Control Station: -

- Amount of fuel dispensed (Only applicable to Tagged Vehicles)
- Final kilometre readings - will be reset for next trip  
(Applies only to vehicles equipped with an on-board controller)

## G. FUEL MANAGEMENT CONTROL (FMC)

### a) Information transmitted from a Commercial Filling Station

- Quantity of fuel in the tank before and after filling – independent probe fitted
- Km readings – independent distance sensor fitted
- Camera footage (if fitted)

### b) Information transmitted from Unscheduled Stoppages

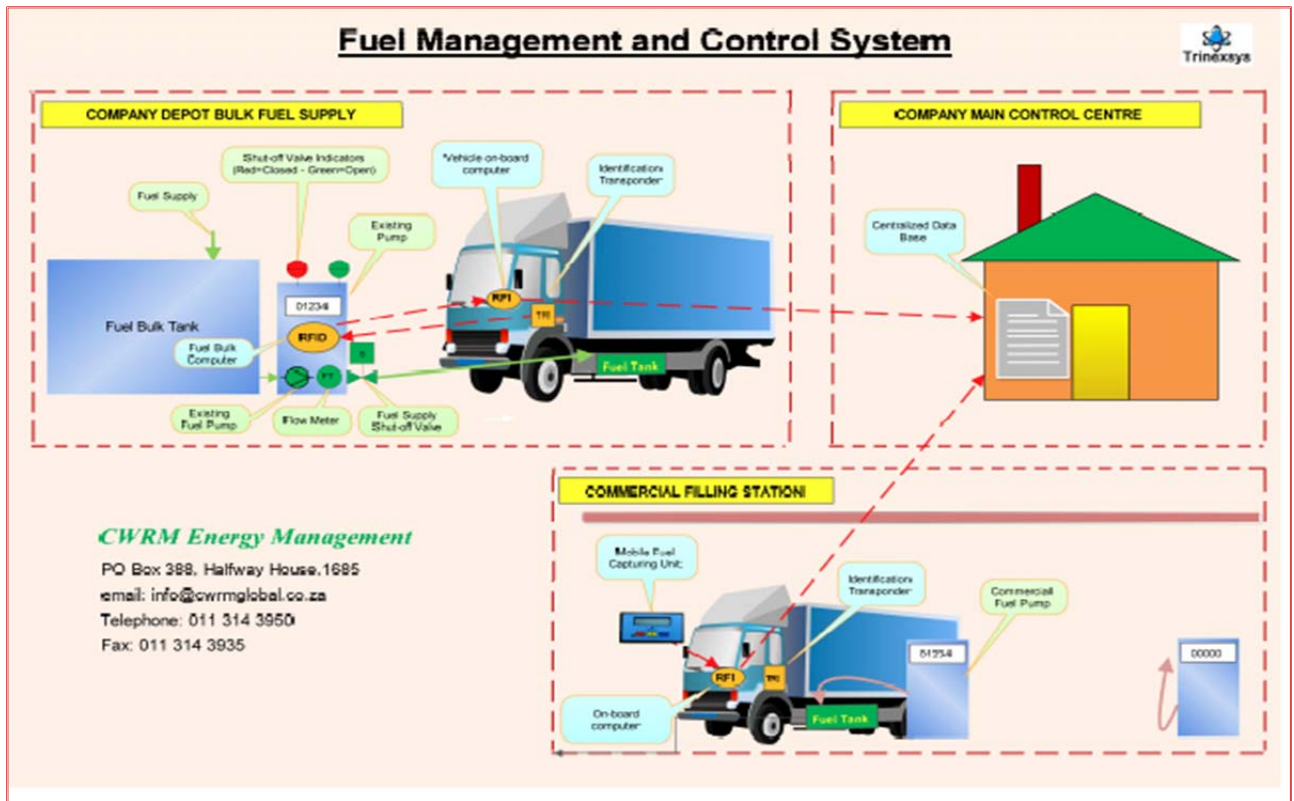
- Quantity of fuel in the tank on arrival and on departure
- Any fuel loss will immediately be flagged (by email, sms, direct transfer)
- km readings at point of stop
- Camera footage (if fitted)



### c) What are the Benefits

1. Absolute control can **expose fuel losses** and assist with prevention
2. Estimated fuel losses between 4% and 8% - to be evaluated per company
3. Warning signal when maximum vehicle fuel tank capacity is exceeded
4. Vehicle will **cut-out** when used without authorization (optional Arresting Unit)

### d) Typical Bowser and Commercial Filling Station Schematic



## H. FUEL CONSUMPTION CONTROL (FCC)

### a) Information

1. Fuel consumption improvement by adding a catalyst to the fuel
2. The FCC can either be used as a stand alone or can be integrated with an existing Fuel Management Control System (FMC).
3. It will require an additional dosing tank, pump and metering unit per vehicle.

### b) What are the Benefits?

- a. Improves fuel combustion as high as 98%, cleaner engine
- b. Improved Fuel Consumption between 8% and 12%
- c. Less Carbon in engine extends life of engine.



## I. VEHICLE ACCESS CONTROL (VAC)

This System controls vehicle movement in and out of Transport Depots, Storage, Workshops, Industrial and Mine premises or to regular access destinations.

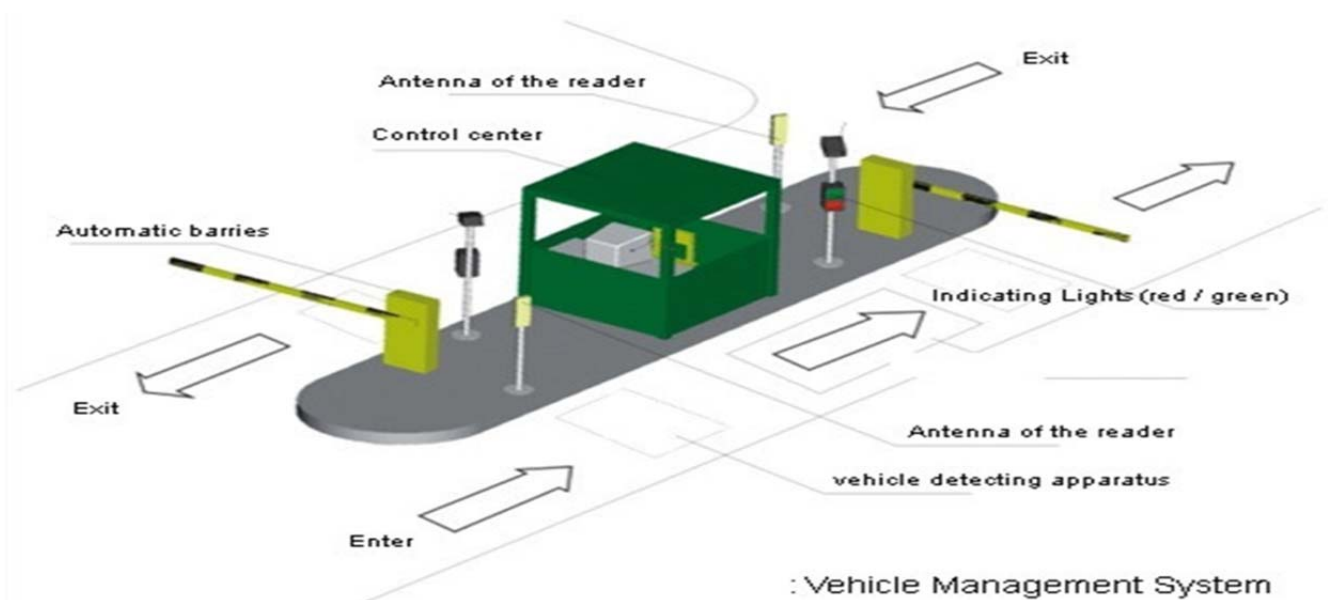
### a) Vehicles: -

- Must be registered on the company database - tagged
- Cannot enter premises unless tagged and with security clearance
- Cannot depart premises without security clearance
- Can be integrated with the full CWRM Programme
- Can be linked to other Access Control Sites within South Africa
- Can be used as notification of vehicle arrivals and departures on specialist sites
- Will be recorded c/w time and date of entry & departure

### b) What are the Benefits?

- A. Direct Security Control from Management Offices.
- B. Movement through access points is considerably faster.
- C. Can prevent load and vehicle losses through access points.

## J. VEHICLE ACCESS CONTROL SCHEMATIC



## K. FIXED MONTHLY COSTS

### a) Communication – GSM Report System

- Monitoring Flagged Incidences

### b) Hosting for GSM and Web Interface

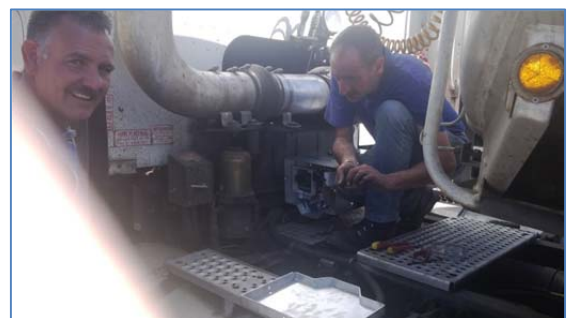
- Call Centre facility

### c) Equipment Warranty and Services

- Regular programme updates

### d) Fuel Catalyst supply

- Monitoring quantity including delivery



## L. INSTALLATION

Basic allowances have been provided in the Quotation.

**Installation can be performed by: -**

1. Dedicated sub-contractors
2. Vehicle Owners with their own Maintenance Team
3. Vehicle Maintenance Contractors

..... training will be provided by CWRM (@ 10% of the allowance)

## N. CONCLUSION

- a) Absolute Fuel Control throughout the Country
- b) Controlled unauthorized use of vehicles
- c) Report Fuel Related Incidences as they happen
- d) Assess and pin-point Fuel Losses Accurately
- e) Introduce Fuel efficiency methods
- f) Communication with all Vehicle Access Control Depots
- g) Compatible Integrated Tracking facilities available
- h) Continuous and Accurate Reports for all Vehicles



# ***CWRM Energy Management***

## **Fuel Savings and Control Programme**