

**UDOKA BESTMAN  
INTERNATIONAL LIMITED**



Company**PROFILE**



DISTRIBUTOR OF  
**SPEED LIMITING  
DEVICE**



## SPEED LIMITING DEVICES

The Speed Limiting Device is a 'governor' used to measure and regulate the speed of vehicles.

It is a method of onboard speed restrictions to prevent the machine from exceeding the prescribed speed (on a flat road, in still air, with a rider of standard height and weight).



## FRSC LAWS

- The Federal Road Safety Corps (FRSC), endowed with a statutory duty under the Federal Road Safety Act of 2007 to ensure the existence of safer roads and reduction on high rates of mortality caused by crashes on the road resulting high speed from vehicles and subsequent administration of penalties to defaulters.
- The enforcement of these speed limits is said to be targeted at vehicles starting from commercial ones across the country to address the menace of excessive/over speeding on our roads.
- It was discovered that speed-induced road traffic crashes accounted for 50.8 percent of reported road traffic crashes and that commercial vehicles accounted for about 30 percent of road traffic crashes and about 40 percent of its fatalities.
- World Health Organization (WHO) and the Global Road Safety Partnership, in a publication Speed Management (A Road Safety Manual for Decision Makers and Practitioners), recommended that speed limits be introduced in every country as part of the global strategy to cut down road fatalities.
- The approved maximum speeds for various categories of vehicles on the express and highway roads respectively include the following.

TAXIS & BUSES		TRAILERS & TANKERS		TOWING VANS	
Express 90km/h	Highway 60km/h	Express 60km	Highway 60km	Express 45km	Highway 45km





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## ABOUT UDOKA BESTMAN

**Udoka Bestman** is an indigenous limited liability company incorporated with the Corporate Affairs Commission on the 15th of November, 1996 and has enjoyed management by Engineering and Business professionals. UBIL is entrenched with a vision of providing quality product and services that exceed the expectations of our clients.

It is a company with high level of international support, repute and profile which has enjoyed collaboration and partnership with other firms to provide services in the aspect of safer roads and longer lives in various countries and thus, its approval by the Federal Government to be a major vendor in the implementation of this policy



## WHY UBIL

- In addition to the track records of our involvement in this area of Speed Limiting devices, over the past few years we have developed superior transport technology in fleet management, fuel management, vehicle security, speed limiters and controllers.
- Our high-tech solutions have helped to lower the number of auto theft cases, minimize damage to vehicles and improve vehicle efficiency by controlling fuel and oil consumption in all sizes of vehicles and equipments.
- UBIL standard products have added value to numerous commercial enterprises, as well as private homes and businesses, while enhancing safety on roads and expressways across Africa. With regards to the standard and quality of our products, we have extended a warranty period to 12 months (1 year), a gesture not regularly found to exist with other companies.
- UBIL system's Fire Ball controlled technologies is featured in all our speed limiter models and ensures that your motor speed doesn't exceed regulatory limits, all without compromising your vehicle's performance





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### UBIL SPEED LIMITERS

- UBILSL is a complete speeding limiting and vehicle tracking solution, a dream combination for every transport/fleet Manager. Our UBILSL device comes with an in-built vehicle tracking capabilities through GSM/GPRS and a speed limiter.
- The device was designed to provide the user with the maximum number features and functions, but with minimal installation effort. The electronics are enclosed in a strong and durable Aluminum extrusion to protect it from vandalism.
- In collaboration with our international partners, UBIL's research and development unit has created a range of products tailored for the unique needs of our local clientele, notably: theft reduction for private and commercial establishments, vehicle and general security devices and other integrated management systems.
- Our UBILSL system provides real-time tracking systems that work via mobile app or through an online fleet management system. It has a GSM modem onboard which will send speed violation and accelerometer events to a server.
- UBILSL systems have a three axis accelerometer on board. The accelerometer continuously monitor for harsh acceleration, harsh braking, harsh turning and accidents. If any of these events occur during a trip, it gets recorded with the speed and position. Each record contains the following data: Time stamp (Date and Time, UBILS longitude, UBILS latitude, current speed, ignition status, number of UBILS satellites ( if available), speed from speed pulser, trip duration and accelerometer events.



### UBILSL FEACTURES

Its features include:

- Tracker
- A digital speed limiter
- Power supply that can withstand all automotive specifications
- A buzzer to give audible feedback to the driver
- Detection of harsh acceleration, braking and turning.





- USB Master Port and Printer
- Data Logger
- Speed warning
- Double speed detection sensor
- Strong aluminum enclosures to protect the electronics from malicious attacks
- Real time clock with backup power for always accurate time stamps in trip data
- iButton Reader for the driver ID
- Analogue speed limiter for certain types of vehicles
- Event capacity: 360 Hours

### CONCLUSION (UBILSL)

- Clearly, speed limiters have several potential safety benefits. They reduce the top speed of vehicles to a pre-set limit. Although this may reduce overall crash risk, it is likely to lessen the severity of the crash.
- Speed limiters also reduce speed variability, thereby reducing lane change and deceleration maneuvers. Speed limiters have also been proven to reduce approach speeds at intersections, curves and roundabouts.
- However, there are also potential benefits beyond safety. Higher speeds are less fuel efficient. Speed limiters have been proven to be fuel efficient and could lead to substantial fuel savings.

### RECOMMENDATION (UBILSL)

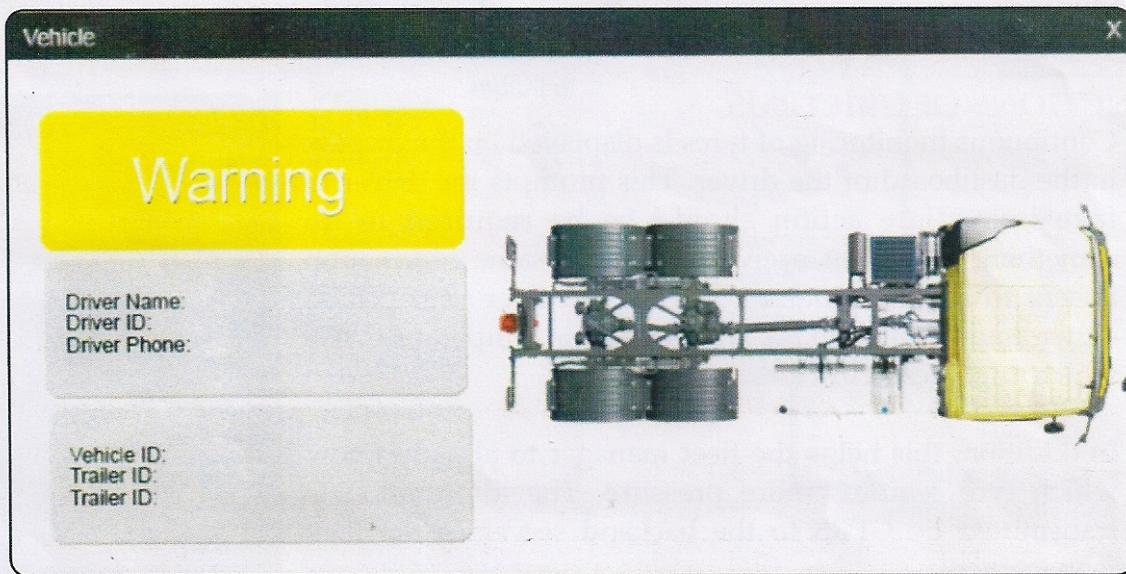
- Similarly, less fuel consumption means a reduction in greenhouse gas emissions and longer tyre life. Industry experts estimated that speed limiters can produce a 10% to 15% cost reduction when limiting speeds to about 60mph, with most of the savings coming from fuel, tyres and primary maintenance.
- Finally, it is highly recommended that the Corporation adopts and execute the implementation of the speed limiters policy in a shortest possible time so as to reduce to the barest minimum other unsolicited damages and expenses that may arise. It will also be very necessary to engage highly efficient systems like the UBIL system that has additional values such like the tracking device and its cost effective. UBIL will provide technical and managerial services which requested or fall due.





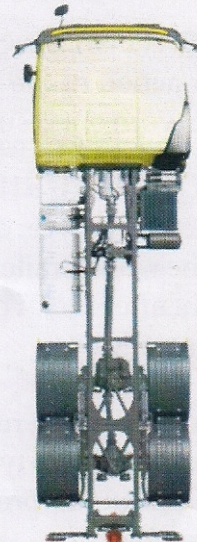
### UBILTPMS

- UBILTPMS stands for UBIL Tire Pressure Monitory System
- It is an electronic system used to provide pressure and temperature information for tyres of a truck/ trailer/ cars to the driver.
- UBILTPMS has been a common feature in major branded vehicles from the year 2008 onwards.



### DISPLAY

- The display shows the following information:
- Pressure cycle display
- Temperature cycle display
- Sensor battery voltage
- Low Pressure alarm
- High Pressure alarm
- Leak alarm
- High temperature alarm
- No sensor signal
- Battery low voltage
- ID learn function
- Change tyre position function
- Pressure level adjust function





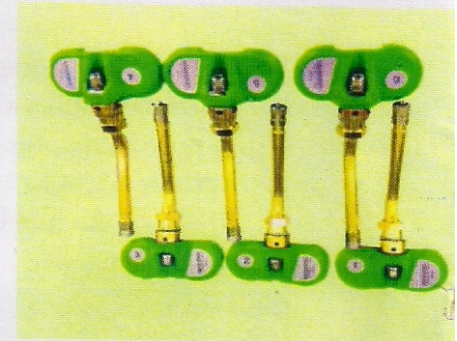


u d o k a b e s t m a n i n t ' L L t d .

## HOW UBILTPMS WORKS

It comprises of three components:

1. The sensor - measures tyre pressure and temperature which transmits to the repeater and display
2. The Repeater - Get sensor signals and transmits to the display
3. The display - Gets sensor and repeater signals which displays information to the driver.



## FUNCTIONS OF UBILTPMS

- Continuous monitoring of tyres is displayed on the display in the dashboard of the driver. This prompts the driver to take immediate action should he be required to do something when they receive an alert. The same information is sent to the headquarters alerting the fleet manager on either under inflation, over inflation or temperature rise which might result in a tyre burst.
- In addition, this helps the fleet manager to already know which tyre requires more pressure. The information is transmitted by GPRS to the backend server of the fleet management.
- Also, the fleet manager can instantly confirm if the driver has taken any action of the UBILTPMS alert in order to avoid a tyre being worn out resulting to damage/accident.



## ADVANTAGES OF UBILTPMS

- **Cost Effective:** A tyre, depending on brand would cost around 500\$. A set of new tyres for the whole trailer is  $22 \times 500\$ = 11,000\$$ . Tyres are the second most expensive component after fuel. To save two tyres per truck per year can lead to thousands of dollars in savings.
- **Extended tyre life:** Tyres that are under inflated are the number one cause of tyre failure and adds up to tyre disintegration, building up heat in the tyre, etc. Running tyres on inadequate pressure breaks down the tyre casings and prevents it from being retread.
- **Improved Safety:** As a result of under inflation of tyres, more than 600 deaths are caused every year also adding up to thousands of accidents and injuries. Tyres inflated properly add better stability, brake efficiencies, better safety for the driver, vehicle, cargo and other road users. Tyre bursts due to overheating of the tyre can cause severe accidents leading to loss of lives and huge losses in load that is carried.





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- **Reduced downtime and improved maintenance:** Trucks and trailers are checked manually for under inflation which leads to costly hours of downtime and inflating the necessary tyres after checks. With UBILTPMS, detection is usually known by the fleet manager and can identify which tyre requires more pressure.
- **Fuel savings:** Study shows for every 100% of an under inflated tyre on a vehicle, fuel economy is reduced by 1%.
- **Environmental friendly:** Under-inflated tyres release unnecessary carbonmonozide pollutants which is a hazard to the atmosphere.
- **Tyre worn out without the drivers' awareness:**  
This can affect the axles, rim and can even damage the whole trailer by overturning. Should the driver have known,, he would have done something prior to reaching this state.



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### WHAT IS A SPEED LIMITER

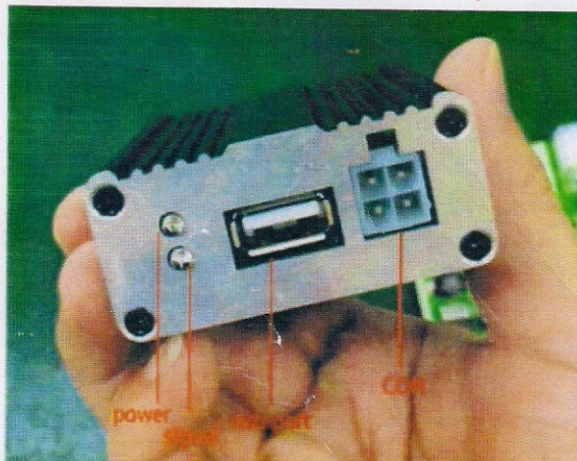
The Speed Limiting Device is a 'governor' used to measure and regulate the speed of vehicles.

It is a method of onboard speed restrictions to prevent the machine from exceeding the prescribed speed.

### DEVICE FEATURES

1. LIMIT SPEED
2. RECORD SPEED
3. STORE DATA
4. USB INTERFACE
5. WARNING ALARM
6. SET SPEED ALARM
7. EASY ACCESS OF DATA (TEXT FORMAT)

### HARDWARE (FRONT-VIEW)



COMport: LCD screen used for calibration is connected to the COM port.

USB port: This is used for downloading speed report & updating firmware & setting car into

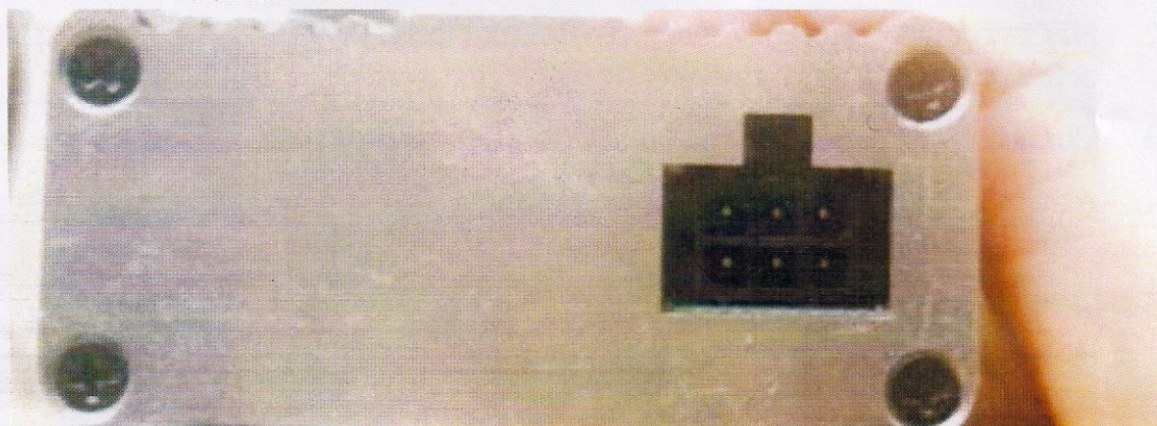
Led light1: For checking power status

Led light2: For checking speed signal status



## CONTINUED (BACK-VIED)

**I/O PORT:** This port is used for connecting power acc speed signal wire and relay control wire.



## CONTINUED (WIRES)

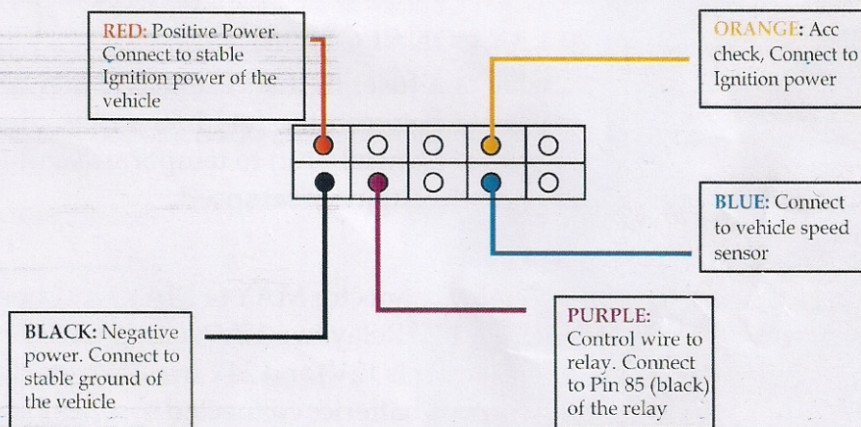


Red: power+  
 Black: power-  
 Purple: control line, connect to relay  
 Orage: ACC  
 Blue: speed signal wire

## USB PORT FUNCTION

- To Download the 360H speed report
  - To Set the car info and driver infor
  - To Upgrade the device firmware
- Buzzer beep 1 time  
 Buzzer beep 2 times  
 Buzzer beep 3 times

## HARNESS WIRE (ITMS)



**CONNECT THE FIVE WIRES AS ILLUSTRATED ON THE DIAGRAM ABOVE**





u d o k a b e s t m a n i n t ' L L t d .

### SPEED LIMITER MANUAL

1. POSITIVE: Connect **RED** wire with fuse to constant positive power 12/24V to reliable point at the ignition or at fuse box
2. NEGATIVE: Connect **BLACK** wire with fuse to a reliable point on the chassis of the vehicle/ground wire -0V
3. Connect **PURPLE** wire to relay black wire (5-pin relay provided in the box)
4. ACC: Connect **ORANGE** wire to a reliable ACC point. Preferably to the ignition wire which comes from the key, or at the fuse box.
5. SPEED SIGNAL OR VSS SIGNAL: Connect **BLUE** wire to speed signal wire behind speedometer clock (instrument cluster) or vehicle speed sensor signal wire at gear box rear end

### LIMITING THE SPEED

The device is then connected to a relay or valve (depending on the mechanism of the vehicle) to limit the speed. There are three different connections.

1. **For electronic petrol and diesel engines with fuel control lines, to injector pump or fuel pump.**

A relay is connected between the fuel line to control supply of fuel at set speed.

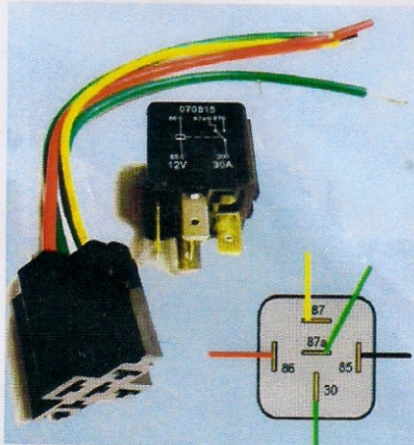
2. **Mechanical diesel engines with injector pumps**

A valve is connected between the fuel filter and the injector pump to control the supply of fuel at set speed.

3. **Vehicles with stop engines/exhaust breaks/cooler/engine breaks**

A relay is connected to the stop engine system to trigger the stop engine at set speed

### RELAY



### RELAY CONNECTION

A relay is a fuse, in this case it is a fuel control unit connected between the fuel line and is controlled by the device (control unit) to temporarily cut the supply of fuel to the engine at set speed.

#### NOTE:

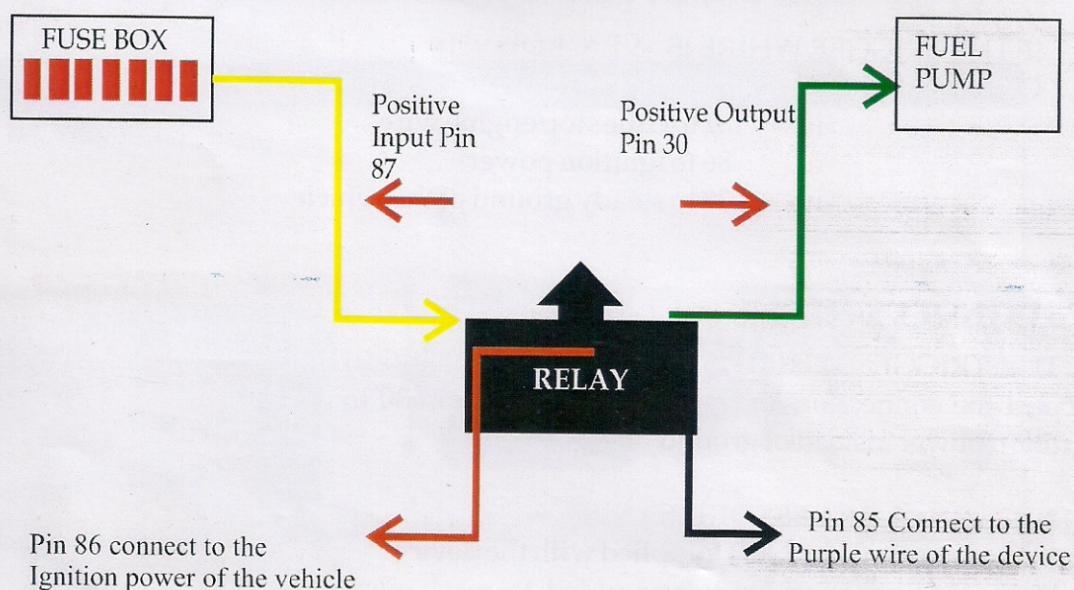
1. A relay connector MAY or MAY NOT be supplied.
2. Use a 12V Relay in a 12V Vehicle (All vehicles with one battery is 12V) and 24V in a 24V vehicle (Vehicles with two batteries connected in series)
3. All connections MUST be insulated.



## RELAY CONNECTION PETROL ENGINE

### PETROL ENGINES

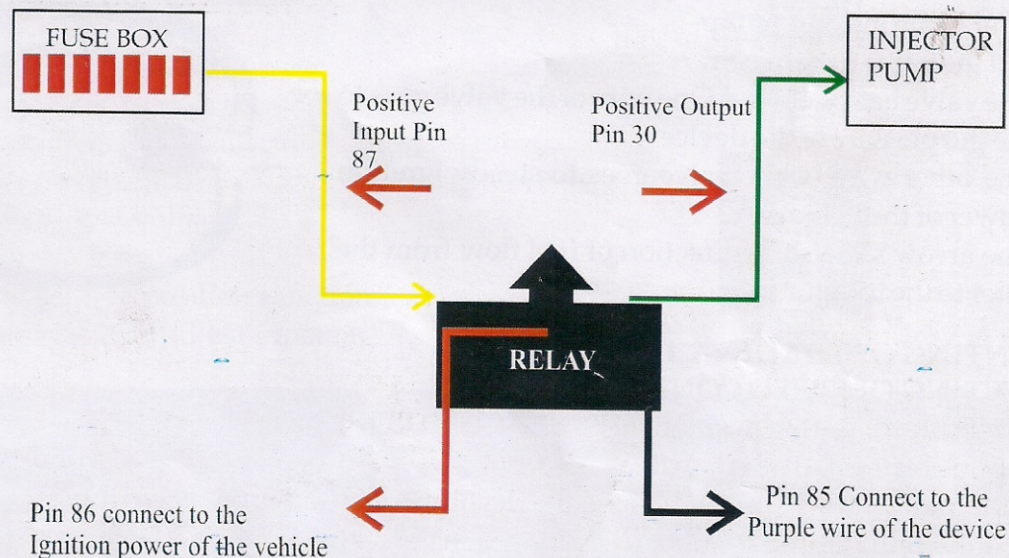
Cut fuel line wire from the fuse box to the fuel pump and connect between the relay as shown in the diagram below.



## RELAY CONNECTION DIESEL ENGINE

### DIESEL ENGINES WITH INJECTORS

Cut the control wire from the fuse box to the injector and connect between the relay as shown in the diagram below.





## RELAY CONNECTION FOR STOP ENGINE/EXHAUST BREAKS SYSTEM

This is another way of limiting speed, the device is connected to the stop engine of the vehicle.

1. Test the stop engine trigger wire from the stop engine switch on the dashboard it is either -ve (ground trigger) or positive (power trigger)
2. IF THE TRIGGER WHIRE IS **-VE (GROUND)**

Connect pin	i.	85 to the purple wire of the relay
	ii.	87 a to the stop engine wire
	iii.	86 to ignition power
	iv.	30 to steady ground of the vehicle

### 1. DO NOT USE PIN 87

IF THE TRIGGER WHIRE IS **+VE (POSITIVE POWER)**

Repeat the connection above **BUT** connection pin 30 to Ignition power instead of ground

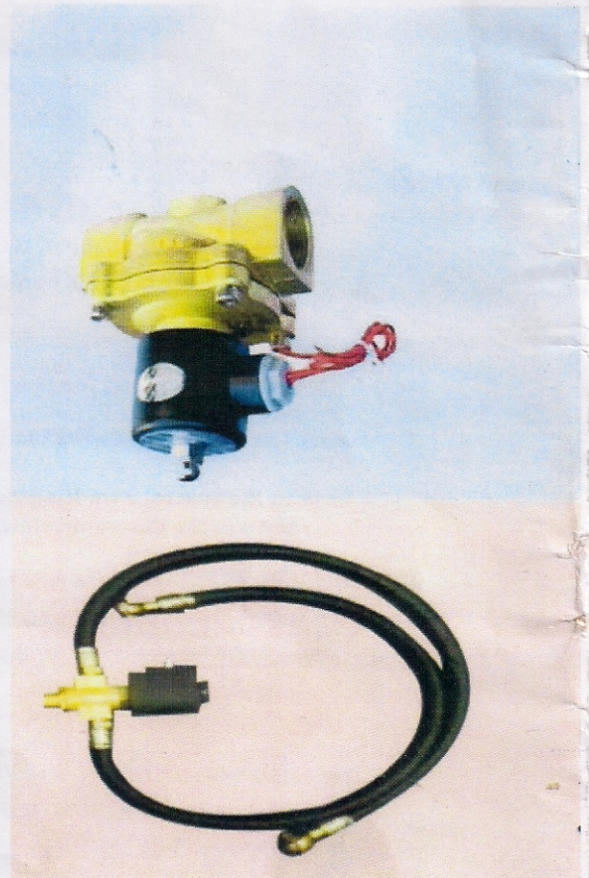
## ADDITIONAL ACCESSORIES

These accessories ARE NOT supplied with the device

1. FUEL VALVE is an accessory added to mechanical engines with manual mechanisms, the valve is connected between the fuel filter and the injector pump. The valve is then connected to the device.

## FUEL VALVE CONNECTION

1. Cut/Disconnect the fuel pipe that runs from the fuel filter to the injector pump.
2. Put the valve in between
3. The valve has two wires One wire of the valve goes to the purple wire of the device
4. The other wire of the valve goes to steady ignition power of the vehicle
5. The arrow shows the direction of fuel flow from the filter to the injector.



## MOUNTING OF THE DEVICE

### MOUNTING OF SPEED CONTROL UNIT

- Select the mounting position for SPEED CONTROL UNIT
- Decide on the path for the cables
- Mount the Speed Control Unit on the dashboard or under the dash (if the device is mounted under the dashboard a data extension cable is required to easy access of information from the device)



### CAUTION

- Cables should run on a well protected route in the vehicle
- Be careful of moving parts like gear linkages and hot compressor pipes.
- Secure all cables properly with cable ties
- All connections MUST be insulated

### CALIBRATION AND CONFIGURATION

CALIBRATION is the process of enabling the device to get the actual speed of the vehicle by transforming the speed pulse received from the Vehicle speed signal (VSS) use a calibrator (see pic below) for calibration.

1. Connect the device to calibration port of the device
2. If the calibrator is correctly connected the message below will be displayed.

- Use the command below to enter settings.

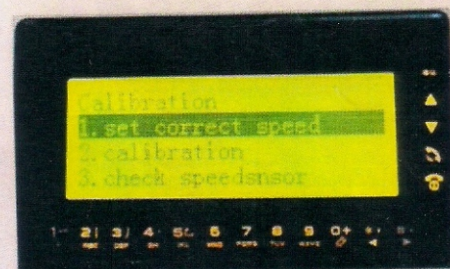
3. Set correct speed at any value e.g. 30kph (It is always good you set it low between 20-40kph)

**NOTE:** It must be 3 characters, if you want to set correct speed at 30 the characters will be 030. Then press the enter key the calibrator will show "set ok"

4. With the help of a simulator (drive the vehicle incase simulator is not available) rise the vehicle to the speed that you have set as your correct speed.

**Example:** If correct speed is 030 then drive the vehicle to 30KPH make sure the speedometer is reading 30kphs then scroll down to "calibration" and press enter it must show "set ok"

If the calibrator shows "set fault" means the device is not getting speed signal, check the blue wire of the device if is correctly connected to the speed sensor of the vehicle and if the speed sensor is working.







### LIMIT MODEL

**LIMIT MODEL** is the amount of time you want the device to take action at set speed. Most of the vehicles work perfect with "one second on and off". From your calibrator scroll down to "LIMIT MODEL" and press enter. Select the limit model depending on the vehicle you are installing.

1. Direct Open Model
2. Sec off 1 sec on
3. Secs off 1 sec on
4. Secs off 1 sec on

Select "1 sec on 1 sec off" the calibrator should display "set ok"

### ADJUST THE TIME

"Adjust time" this is to set the system date. If the settings are not correct the report time will not be correct. Scroll down to adjust time then select

We are assuming the date is 16th February 2017 and the time is 1:30PM 05seconds.

Set the date using the format below

17,02,16,13:30:05

17,	02,	16,	13:	30:	05
Year	Month	Day	hour	Minutes	seconds

### SET CAR INFO

Below is the Format for Setting Vehicle Parameter

• <ITMS,Make:XXXX,CarNo:XXXX,Type:XXXX,ChasisNo:XXXX,OwnerName:XX  
XX,OwnerNumber:XXXX,SpeedLimiterSN:XXXX,DateOfInstallation:14/08/3118:05:  
30,SetSpeed:XXXX,DriverName:XXXX,DriverPermit:XXXX>

#### Bytes length:

- Make--≤32 bytes
- CarNo--≤12 bytes
- Type--≤8 bytes
- ChasisNo--≤17 bytes
- OwnerName--≤30 bytes
- OwnerNumber--≤30 bytes
- SpeedLimiterSN--≤16 bytes
- DateOfInstallation---yy/mm/dd hh:mm:ss
- SetSpeed--≤3 bytes
- DriverName--≤10 bytes
- DriverPermit--= 18 bytes must be 18bytes

### CALIBRATION AND CONFIGURATION USING COMPUTER APPLICATION

**CONFIGURATION** is entering of the installed vehicle details to the device, the details include the set speed (the maximum speed you want the device to limit) use a



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configuration application to configure the device.

Open your application from your computer system, attach a flash disk to your system.

Fill all the fields as shown on the diagram.

Click calibration and save the configuration file to the flash disk

Insert the flash disk with the configuration file to the USB port of the device to configure

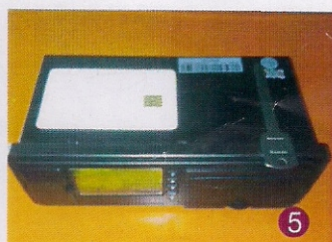
The device will beep twice then a short pause followed by a long beep "device configured"

### CHECK

It is necessary to check the following regularly for tampering and for proper operation.

- Drive the vehicle to the programed limit and check if it actually limiting the speed
- Listen to the warning alarm and the set speed alarm as you are doing the test drive
- Make sure the device does NOT compromise the performance of the vehicle in any other way apart from limiting the speed
- The vehicle should NOT off at set speed
- The driver should be informed that the vehicle has been installed with a speed limiting device and he/she should be aware of the set speeds.
- Get and analyze the speed report from the device
- Vehicle installation form should be filled correctly with all necessary details information

## SOME SPEED LIMITING DEVICES







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### CHECKS AND TROUBLESHOOTING

- Switch ignition ON If the led lights do not light up, it indicates a power failure.
- Check both positive and negative connections
- Check all wires and connections positive input (orange) and positive output from relay, and ground (black wire)
- Check if the speed signal is in the correct wire connection
- Check and make sure all connections and wires are insulated

### CHECKS AND TROUBLESHOOTING

The report is generated in a TXT format.

Insert a flash drive in the USB port, without any command the device will automatically detect the flash and download the 360 hours speed report.

The device will beep once then a pause, followed by a long beep (download done)

The file will be saved under the vehicle registration number

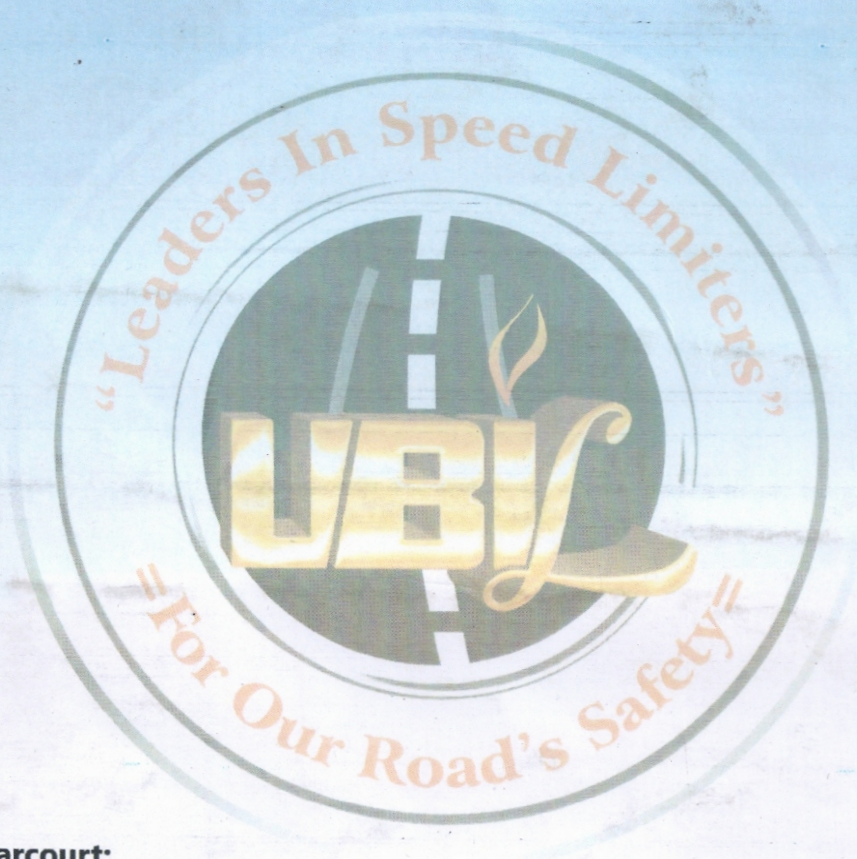
```
ZAR 06XR (2) - Notepad
File Edit Format View Help
itms speed limiter
360H speed report
CAR DETAILS
Make: DAF
Car NO.: ZAR 06XR
Type: OIL TANKER
Chasis No.: LRAT85WCOE417345
Owner Name: I.D. GLOBAL
Owner Number: 08066362693
Driver Name: ALIU
Drive Permit: YES
Speed.Limiter SN: 16012000530
Date of Installation: 15/05/1511:40:30
Set Speed: 60Km/h

15-08-12 05:28:33 07Km/h 131KM
15-08-12 05:28:13 02Km/h 131KM
15-08-12 05:27:33 03Km/h 131KM
15-08-12 05:27:13 04Km/h 131KM
15-08-12 05:26:53 03Km/h 131KM
15-08-12 05:26:33 02Km/h 131KM
15-08-12 05:25:53 05Km/h 131KM
15-08-12 05:25:33 03Km/h 131KM
15-08-12 05:25:13 01Km/h 131KM
15-08-12 04:59:25 01Km/h 131KM
15-08-12 04:59:05 01Km/h 131KM
15-08-12 04:44:07 02Km/h 131KM
15-08-12 04:43:47 01Km/h 131KM
15-08-12 04:43:27 02Km/h 131KM
```





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