

SAFESTOP

Automotive Management Systems

UD UD TRUCKS

Engine Management System
with Idle, Rev & Speed (EMRS2)

OPERATION

When the ignition switch is turned on the display unit undertakes a complete function check for 5 seconds and then displays the Green "GO" light. This indicates that the EMRS2 is fully functional and that all lights are in good order.

The **SAFESTOP** EMRS2 is unique in operation and does not follow normal Engine Management protocols in that no Oil Light is displayed at ignition on. The Oil circuit is only active after the engine has been started. This facility ensures that normal vehicle functions can take place without interference from the **SAFESTOP** unit.

Whilst the "GO" light is on the engine can be started and the vehicle can be worked on. At any time that the "GO" light is off the Starter Motor is isolated to prevent excessive cranking and damage.

In the event of a fault the respective circuit light turns on together with the buzzer. The 'Go' light flashes, the throttle ceases to function and the Hazard lights activate, automatically. As the vehicle loses speed the exhaust brake activates and once the vehicle comes to a full stop the 'Go' light turns off, the engine stop control closes and the engine, automatically switches off.

Any or all lights for the circuit/s responsible for stopping the engine will be displayed. This is a controlled stop and is not a breakdown. The vehicle will only restart once the fault has been corrected. In the case of the Oil Pressure circuit this will require intervention and reset, after management authorisation, by use of a coded calibrator.

The buzzer will sound, intermittently and the corresponding light will flash as a pre-warning should the driver be reaching the Speed or Rev limits.

The throttle will cease to function if the vehicle exceeds the speed or rev limit and the buzzer changes to a constant tone.

The exhaust brake also activates and only when the speed or revs have dropped to below the buzzer warning point and the driver has removed his foot from the accelerator completely will accelerator function be restored

GENERAL INFORMATION (FAQ)

Why does the **SAFESTOP** Water Level Light come on even though there is sufficient water?

The **SAFESTOP** water level system is intelligent. It also monitors the quality of the water. If there is oil in the water the unit will activate. This may assist with an early warning that there is an engine fault - Head gasket etc.

The Starter Motor will not crank when the "GO" light is off. Why?

SAFESTOP creates a controlled stop - not a breakdown. If the driver was permitted to crank the Starter Motor when there was a fault he could burn out the Starter Motor or flatten the batteries. This will turn the stop into an expensive breakdown.



Why must the cooling system be sealed?

Water boils at 100c at the coast and less at altitude when it is not under pressure. The **SAFESTOP** Temperature Switch switches at above those temperatures. It naturally follows that the cooling system must be sealed for the **SAFESTOP** switch to work.

SPECIFICATIONS

Control Module : Epoxy encapsulated

Size : 70x70x20 mm

Voltage : 12 or 24v DC

Consumption : Active mode - 50 mA

Fuse capacity : 5 Amp Maximum

Outputs : Engine Stop Control
Starter Motor Control
Exhaust Brake Activation
Hazard Activation

Buzzer/Alarm : High frequency Piezo

Pressure switch : 70kPa Contacts normally open

Temperature switch : 100 - 109 degrees C
Contacts normally closed

Water level probe : Conductive. 6 sec Surge delay

Manufactured in the Republic of South Africa

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Engine Management System with Idle, Rev & Speed (EMRS2)



FEATURES

- * ENCAPSULATED SOLID STATE ELECTRONICS
- * TAMPERPROOF
- * VIBRATION RESISTANT
- * WATERPROOF ELECTRONICS
- * FAIL-SAFE - IF WIRING IS TAMPERED WITH OR IS DISCONNECTED
- * SELF DIAGNOSTIC
- * DEDICATED WIRING HARNESS
- * FAULT INDICATION DISPLAY UNIT
- * CODED CALIBRATION
- * ALARM PRE-WARNING BEFORE POWER LOSS
- * LIMP MODE UNTIL VEHICLE REDUCES SPEED THEN FULL ENGINE SHUT DOWN
- * OIL PRESSURE CIRCUIT LATCHES ON FAULT SHUT DOWN. ACTIVE RESET REQUIRED
- * SPEED & REV CONTROL VIA E-THROTTLE
- * AUTOMATIC HAZARD LIGHT ACTIVATION ON ENGINE FAULT
- * NATIONAL DISTRIBUTION
- * NATIONWIDE 24 HOUR SUPPORT/SERVICE VIA TOLL FREE EMERGENCY NUMBER IN RSA

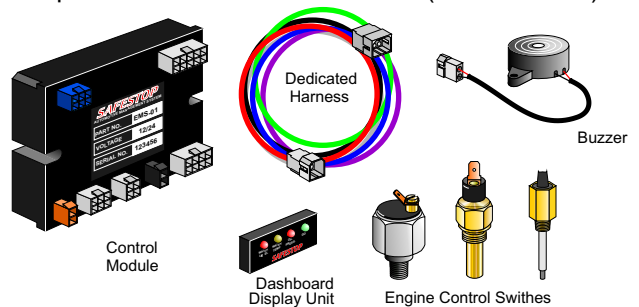
INTRODUCTION

Engine failure is the transport industry's nightmare. It involves untimely expensive repairs, which upset the repairs and maintenance budget, causes late deliveries, involves downtime and loss of revenue of having to hire a replacement vehicle.

All these problems can be minimised by installing a **SAFESTOP** EMRS-2 Engine Management System with Idle, Rev & Speed Control.

DESCRIPTION

Standard equipment consists of an epoxy encapsulated control module, dedicated wiring harness, dashboard display unit, a high frequency Piezo buzzer as well as relays to control the Starter Motor, Engine Stop Control Circuit, Exhaust Brake & Hazard light circuits. Standard engine equipment includes switches for low oil pressure, high water temperature and low coolant level (Coolant Loss)



The **SAFESTOP** system's uniqueness is its built in diagnostic and pre-warning functions.

If any circuit is tripped due to a pre-set parameter being exceeded, switch failure, or loss of continuity of a signal wire, the driver is alerted to the impending shut down of the engine by the appropriate circuit light and buzzer. The Hazard lights automatically activate and this 10 second pre-warning allows the driver to take necessary action to move the vehicle to the side of the road. Throttle control is denied which effectively puts the vehicle into a "Limp Mode" and once the vehicle speed reduces to 15kmh, the engine automatically shuts down.

The Starter Motor is isolated in sympathy with engine power loss.

Throttle Control is restored once the fault has been corrected. The unit will not reset if the Oil Pressure circuit has been triggered whilst the vehicle was moving. The reset for this is via a coded calibrator and requires client management authority for this action.

Three circuits monitor driver attitude and enforce Management limits via control of the E-Throttle and Exhaust Brake. Speed and Revs are controlled to pre-set calibrated limits after providing a pre-warning to the driver via the buzzer. The throttle is reinstated once the speed or revs have reduced to below the buzzer warning point and the driver has removed his foot from the accelerator. Excessive Engine Idle is also monitored & will stop the engine after 5 or 10 minutes of continuous idling.

The SAFESTOP EMRS2 is fail-safe and any fault with the engine switches, wiring or main control module causes the engine to shut down. Simply put, if the vehicle leaves the depot the system is working.