

## **The Dualmate and its operation. - Information sheet.**

The **Dualmate** Dual Battery Management System is designed to manage and control dual batteries. The system eliminates the syndrome known as 'dueling' batteries. It will monitor both battery and charging levels and warn the owner immediately if a problem arises.

The **Dualmate** is controlled by a micro-processor and is fully automatic whilst allowing manual control of various functions. It consists of a control unit and an Interface unit.

Two separate displays are incorporated for monitoring both Main and Auxiliary batteries and are updated constantly.

The **Dualmate** also incorporates both visual and audible indicators, for instant warning of high or low voltages on both batteries.

The **Dualmate** has spike protection for EFI and can be used on vehicles with automotive computer systems.

Micro-processor control ensures that the main battery; which is responsible for starting the vehicle and operating the basic electrical equipment, will never be drained by the auxiliary battery. It also ensures that both batteries receive charge, but gives priority to the starting battery.

### **Modes of operation**

#### **When the ignition is OFF, the batteries are isolated from each other.**

When the ignition is turned on, the **Dualmate** will always be in AUTO mode.

In AUTO mode, it will monitor the voltage on both batteries. When it detects a charge from the alternator, it will, after a pre-determined time, connect the auxiliary battery for charging.

If there is not sufficient charge available for both batteries, (due to excessive current draw, i.e. lights, aircon, windscreen wipers etc. or to a faulty alternator giving a low output,) it will disconnect the auxiliary battery to allow the starting battery all available charge.

This situation is constantly monitored by the **Dualmate** and the auxiliary battery will be connected when the starting battery has received an adequate charge.

If the voltage rises above 15 volts, an audible warning will sound and a light will flash, again, to show what the fault is.

**The auxiliary battery will be instantly disconnected to protect it.** (This fault can happen if your alternator regulator goes open circuit). This will ensure that you still have a good battery to rely on.

## **Alternator output**

The voltages on both batteries will be constantly monitored. If the voltage on either battery falls to 11.8 volts or below, an audible warning will sound and a light will flash to show what the fault is. This situation can occur if your alternator is not capable of supplying the current required to run all of your accessories and vehicle needs. Most vehicle alternators are designed to cater for the needs of the vehicle and can struggle when extra loads are placed upon it. If this situation occurs, a higher output alternator will need to be fitted. It is interesting to note, that on a vehicle without a **Dualmate** fitted, you would never know that this was occurring.

## **AUX ON Button**

AUTO mode can be overridden when required. If for example (and we have all done it), we have forgot and left our lights on, we can have a situation where there is not enough current in the starting battery to turn the engine over. We can select **AUX ON** by pressing the aux on button. This will instantly connect the AUX battery so we can start our vehicle. When the vehicle has been started, the control unit will, after two minutes, go back to **AUTO mode**. **AUX ON** mode can also be used when extra current is needed i.e. Winching, etc.

## **AUX OFF Button**

This button is used to cancel **AUX ON** mode or to isolate the auxiliary battery and allow for winching or extended cranking while keeping the auxiliary in reserve.

In **AUX ON** mode and **AUX OFF** mode, the unit will give both a visual and audible warning

## **TEST Button**

When pressed and held, the **Dualmate** will give a reading from both batteries, even with the with ignition OFF.



### **Features:**

- 1. Microprocessor controlled for reliability**
- 2. High voltage warning on Main and Auxiliary battery.**
- 3. Low voltage warning on Main and Auxiliary battery.**
- 4. Starting on Main battery or both. (Selectable by button).**
- 5. Instant voltage display from 0 to 20 volts on Main battery.**
- 6. Instant voltage display from 0 to 20 volts on Auxiliary battery.**
- 7. Solenoid operation indicator LED.**

**8. Delayed solenoid operation on Auxiliary battery at startup, This ensures that starting is done only by the main battery (unless the Aux On button is pressed.)**

**9. Visual and audible warnings.**

**10. Automatic display dimming at night time.**

**11. Manual override switch on Interface box (under bonnet). This is fitted to ensure both batteries can be connected in the event of a control unit not working. I.E. Stolen, submerged in water or physically damaged.**

### **Specifications**

Operating voltage: 8 volts to 18 volts  
Current consumption: 160 Milliamps ON 10 Micro amps OFF  
Voltage Range: 0 to 20 volts (Both displays)  
Low voltage warning: 11.8 volts (Both Batteries)  
High voltage warning: 15 volts (Both Batteries)  
All voltage inputs fuse protected  
Displays updates Every 10 milliseconds

Fuses: (fitted in Interface unit) Self resetting.

Solenoid not supplied.

Manufactured by ACE Communications WA Pty Ltd

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