



Specialists in Electrical Power Generation  
& Battery Management Systems

## Digital Circuit Monitor DCM Mk.III

### Installation & Operating Instructions.

The DCM has been designed to ensure simplicity of use and easy installation.

Reference to the voltages below and the state-of-charge graph, will enable you to make a rapid assessment of the battery state-of-charge and take appropriate action.

#### Battery Voltages.

Open Circuit Voltage – no loads – state-of-charge.

12.8v	25.6v	Fully charged.
12.6v	25.2v	80% state-of-charge.
12.4v	24.8v	70% state-of-charge.
12.2v	24.4v	50% state-of-charge.
12.0v	24.0v	30% state-of-charge.
11.8v	23.6v	15% state-of-charge.

An open circuit voltage is where the battery has been allowed to settle or stabilise after charging and with the DC loads off.

If voltages are measured immediately after charging, then, due to the presence of surface charge on the battery plates, the voltages could read **13.4v / 26.8v**. To obtain an accurate measurement, the surface charge can be removed by applying a load – 15-20watts – for ten minutes.

Similarly if a heavy load has been applied to the batteries, allow the batteries to recover before taking a measurement.

#### Alternator Voltages.

The optimum charging voltage should be approximately **14.0v / 28.0v** to achieve 90%+ state-of-charge, depending on the ambient temperature.

If the charging voltage is **13.7v / 27.4v**, then the battery state-of-charge achieved will be low i.e. 65%-70%.

An over-voltage condition is when **15.0v / 30.0v** is recorded and immediate action must be taken, as gassing of the batteries will occur.

## **Low Voltage Alarm Function.**

a. The DCM alarm is set at **12.0v / 24.0v**, thus giving time to take appropriate action.

The low voltage setting can be altered by removing the back cover and adjusting the potentiometer, situated by the DIL switches. Clockwise rotation increases the voltage setting and vice-versa.

**It is not recommended to alter the settings until total familiarity with the system has been achieved.**

b. When the DCM is in 'Alarm Only' mode, the alarm will sound for whichever battery bank is below the low voltage setting. Using the select switch you can determine which battery is low. The audible signal can be muted, but the warning light will remain on until a charging voltage is applied to the battery.

## **Installation.**

**Wiring.** Appropriate size cables should be used to connect to the shunt. The sense leads from the shunt to the DCM – red and white are supplied – are 7/0.20.

**Fuses.** Two fuses are supplied: an in-line 1.25amp in a holder for the negative line and a spare.

## **Voltage Connection.**

For a voltage only connection - we recommend the engine battery be monitored only for voltage - take a sense lead from the battery +VE to a DCM voltage connection. (Terminals 3, 4, 5 or 6. see Spec 044 Installation Schematic, circuit 1).

## **Current Connection.**

When monitoring current, two sense leads from the shunt are connected as shown in

Spec 044 – DCM Installation Schematic.

## **DIL Switches.**

The DCM is factory set at **12.0v / 24.0v** with the DIL switch '**ON**', for circuit **1**, but the other switches are '**OFF**'.

The DIL switches control the circuits to be alarmed. To access them, remove the rubber grommet in the back plate.

With 1, 2 or 3 battery banks / circuits the alarm switches should be '**ON**'. However, if the alternator output is being monitored on circuit 4 the DIL switch should be '**OFF**', otherwise with the engine off, the alarm function will be activated, as the alternator is not producing an output voltage.



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## ADVERC DIGITAL CIRCUIT MONITOR DCM Mk III.

**Battery problems**  
**Charging problems**  
**Electrical problems**



Having essential information at a glance is the first step to solving them!

The Adverc DCM Mk III does this and more.



### **FUNCTIONS AND TECHNICAL DATA**

#### **FEATURES**

- 5 Up to 4 circuits can be monitored simultaneously.
- 5 Voltage current displayed instantly.
- 5 Can measure up to 199amps.
- 5 Large 4 digit display.
- 5 Low voltage alarm, with audio visual functions.
- 5 Adjustable threshold level provides ample time to react.
- 5 Back lighting facility.
- 5 Low power consumption – less than 5mA.
- 5 Compatible fascia plate – white legend on black traffolyte.
- 5 Straightforward installation.

**The DCM Mk III.....**  
**another SIMPLE solution**  
**from ADVERC.**

#### **SELECT FUNCTION**

- OFF:** DCM is off and draws no current.
- ALARM ONLY:** The display will remain blank, but the low voltage facility will monitor the circuits that have been connected and activate the alarm function if the voltage falls below the present value. The SELECT CIRCUIT control enables you to determine which battery bank is low.
- VOLTS:** The display will show the voltage on the circuit selected.
- AMPS:** The display will show the charge or discharge current of the circuit selected.

#### **SELECT CIRCUIT**

Select which ever circuit is to be displayed.

#### **WARNING LOW VOLTAGE**

When the voltage on any selected circuit falls below the preset value, the red lamp will light and the buzzer sound. The buzzer may be turned off by pressing the mute button. However the red lamp will only go out if the battery voltage is restored above its preset alarm voltage. The low voltage threshold can be adjusted.

#### **BACK LIGHT**

This switch will activate the back light to make the display easier to read in low ambient light.

#### **DIMENSIONS**

Front Plate: 160mm x 80 x 35mm  
Hole Centres: 150mm x 70mm  
Cut-out dimensions: 140mm x 60mm nominal  
Black traffolyte – white legends

#### **FRONT PANEL SHUNTS**

Shunts are required when measuring current. These are available in mounted form, if required.

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