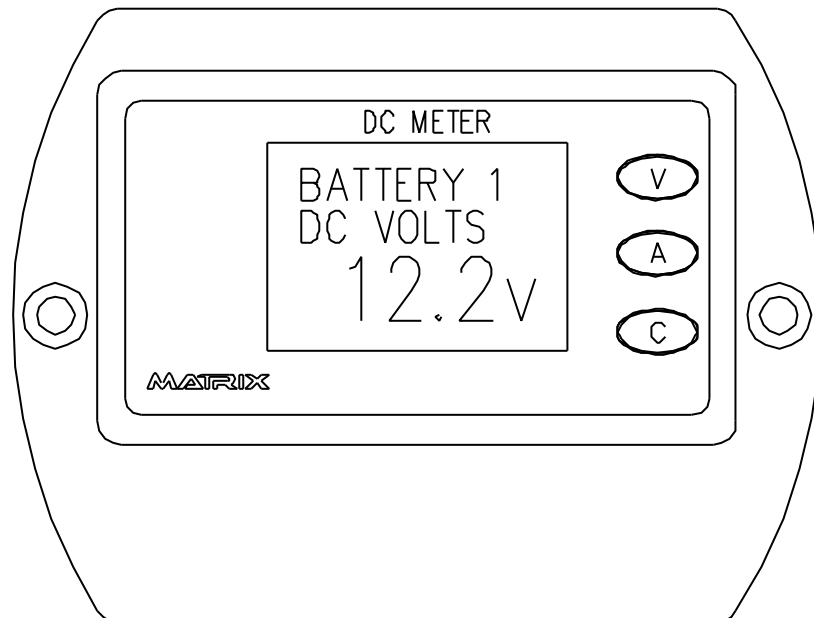# BEP 600-DCM V3.2 CONTOUR MATRIX DC MONITOR

INSTALLATION
AND
OPERATING INSTRUCTIONS

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Table of Contents

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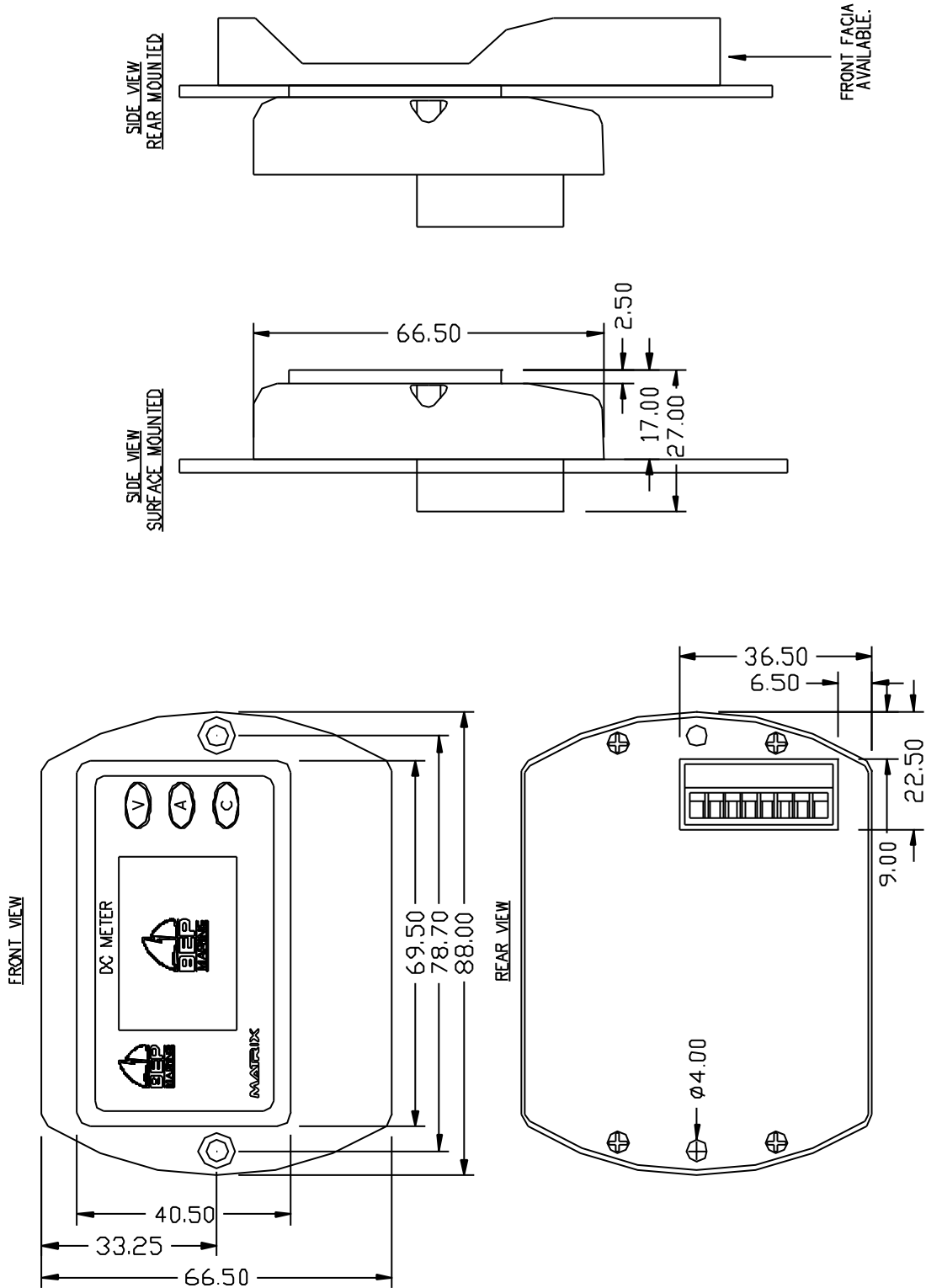*This page has been deliberately left blank.*

1 Features

The 600-DCM3.2 Battery Monitor offers the following features:

- 1/10th of an Amp resolution in the range of +/- 0-50A
- The Matrix Monitors use a dot Matrix LCD allowing for Full screen information on Function selected.
- Voltage monitoring for up to 3 battery banks.
- 12 custom selectable legends eg: Start Battery, House Battery etc.
- Hi/Low voltage alarm on all 3 banks.
- Amps charge and discharge on house bank only.
- Meter supplied with a 450-50mV shunt.
- Capacity remaining in amp hours and percentage.
- Software utilises Peukert's exponent.
- Suitable for use on battery banks 60-3000 Amp hours.
- Low amp hour alarm.
- *New additional function for 2004*
- The bilge monitor function monitors bilge pump functions 24 hours, 7 days a week. Stores bilge pump operations and accumulated time. Resetable when leaving the boat.
- *Function only available when third voltmeter position is not used.*

The 600-DCM3.2 is designed to be surface mounted or recessed into a 2.5mm panel

2 Dimensions

SIDE VIEW
REAR MOUNTED

FRONT FACIA
AVAILABLE.

SIDE VIEW
SURFACE MOUNTED

66.50

2.50

17.00

27.00

FRONT VIEW

DC METER

MATRIX

REAR VIEW

69.50

78.70

88.00

40.50

33.25

66.50

36.50

6.50

22.50

9.00

Ø4.00

3 Installed with 3 voltage monitors

REAR VIEW OF METER.

1 = +9.5 TO 30 VDC
2 = +VOLTS BATT 2
3 = +VOLTS BATT 3
4 = EXTERNAL ALARM (NEG)
5 = BACK LIGHTING
6 = SHUNT BATT
7 = SHUNT LOAD
8 = GROUND

1
2
3
4
5
6
7
8

LIGHTS ON/OFF +
EXT BUZZER
(NEG O/P)
+VOLTS BATT 3
+VOLTS BATT 2

SCREENED TWISTED PAIR
USE SCREEN AS EARTH
PART NUMBER C2534
OR PRE MADE LEAD
BL-LDTP-5M 5 METER
BL-LDTP-10M 10 METER

PLEASE NOTE.
IT IS IMPORTANT TO USE SCREENED "TWISTED
PAIR" CABLE (MINIMUM SIZE .25mm)
BETWEEN SHUNT AND METER. THIS WILL
MINIMISE THE EFFECTS OF EXTERNAL
INTERFERANCE ON THE UNIT.

1A FUSE

BATT   LOAD   SHUNT
(6)   (7)   (8)

LOAD

ISOLATOR
SWITCH

BATT 1

PLEASE NOTE:
IT IS IMPERATIVE THAT THE NEGATIVE
FEED METER TERMINAL "8" IS TAKEN
DIRECTLY FROM THE SHUNT, AS SHOWN.

B+
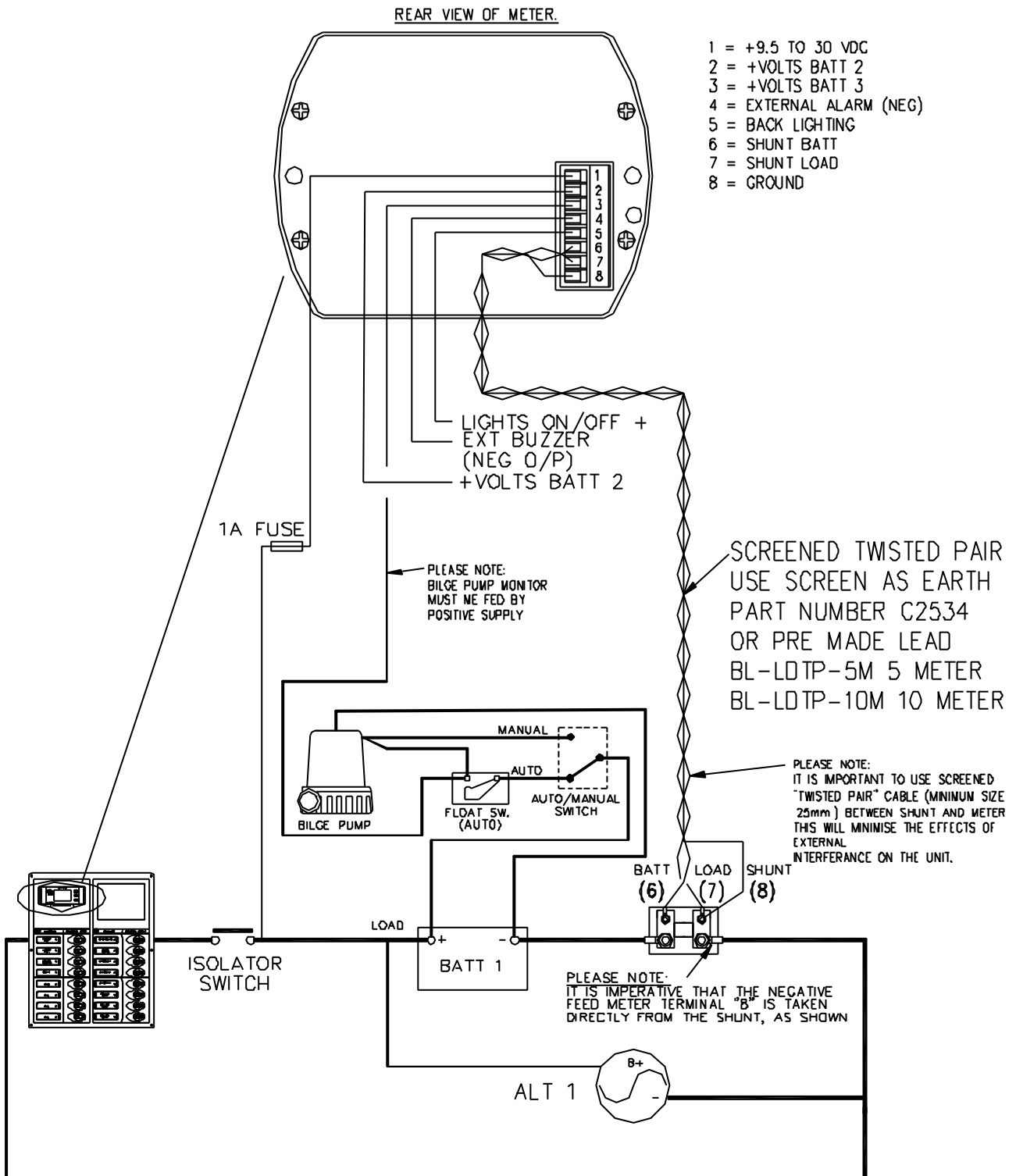
ALT 1

NOTE:
ABOVE CHARGING AND LOAD CIRCUIT IS
ONLY A SIMULATED EXAMPLE, ITS' ONLY
PURPOSE IS TO SHOW METER CONNECTIONS.

4 Installed with bilge pump monitor

REAR VIEW OF METER.

1 = +9.5 TO 30 VDC
2 = +VOLTS BATT 2
3 = +VOLTS BATT 3
4 = EXTERNAL ALARM (NEG)
5 = BACK LIGHTING
6 = SHUNT BATT
7 = SHUNT LOAD
8 = GROUND

LIGHTS ON/OFF +
EXT BUZZER
(NEG O/P)
+VOLTS BATT 2

1A FUSE

PLEASE NOTE:
BILGE PUMP MONITOR
MUST BE FED BY
POSITIVE SUPPLY

SCREENED TWISTED PAIR
USE SCREEN AS EARTH
PART NUMBER C2534
OR PRE MADE LEAD
BL-LDTP-5M 5 METER
BL-LDTP-10M 10 METER

MANUAL

AUTO

AUTO/MANUAL
SWITCH

FLOAT SW.
(AUTO)

BILGE PUMP

PLEASE NOTE:
IT IS IMPORTANT TO USE SCREENED
"TWISTED PAIR" CABLE (MINIMUN SIZE
25mm) BETWEEN SHUNT AND METER
THIS WILL MINIMISE THE EFFECTS OF
EXTERNAL
INTERFERANCE ON THE UNIT.

BATT LOAD SHUNT
(6)   (7)   (8)

ISOLATOR
SWITCH

LOAD

BATT 1

PLEASE NOTE:
IT IS IMPERATIVE THAT THE NEGATIVE
FEED METER TERMINAL "8" IS TAKEN
DIRECTLY FROM THE SHUNT, AS SHOWN

ALT 1   B+   -

5 Plug Information

1. POWER SUPPLY / BATTERY BANK 1
   +10 to +35V DC supply from battery bank 1 through a 1A fuse (for meter protection).

2. BATTERY BANK 2
   +10 to +35 DC Volts from Battery bank 2 through a 1A fuse.

3. BATTERY BANK 3 **OR** POSITIVE FEED FROM BILGE PUMP
   +10 to +35 DC Volts from Battery bank 3 through a 1A fuse.
   OR
   Positive feed from pump side of the bilge pump float switch.

4. EXTERNAL ALARM
   Can be wired to an external alarm (negative signal).

5. BACK LIGHTING
   Can be connected to a +10V to +35V DC supply to bring the back lighting on constantly.

6. SHUNT BATTERY
   One core of Screened twisted pair to the battery side of the shunt.

7. SHUNT LOAD
   The other core of Screened twisted pair to the load side of the shunt.

8. GROUND
   Use the screen of the twisted pair to go back to the load side of the shunt.

NOTE: If inputs 2 and/or 3 are not being used then low volts alarm needs to be brought down to zero, or inputs 2 and/or 3 can be looped into input 1.
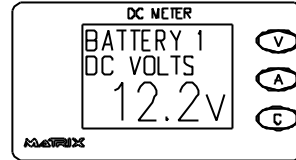
6 Operations
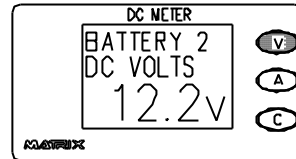
Apply Power
Power-up screen will show for 5 seconds
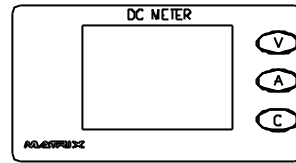
After 5 seconds
First screen shows the Supply Battery Volts.

Press button V
The second screen shows 2nd Battery volts.
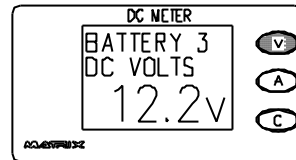
Press button V again (3RD position as volt monitor)
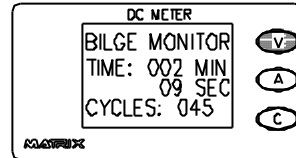The third screen shows the 3rd battery volts.
Press button V again (3RD position as bilge monitor)
The third screen shows the bilge monitoring information.

- In bilge monitor function press and hold "C" to reset the monitor back to zero.

To exit Bilge monitoring mode and resume battery monitoring press "V" to return to supply battery volts.

Press button A
This screen shows either charging
OR discharging Amps.
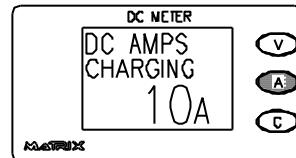
Press button C
This screen shows Capacity Remaining in
Amp Hours. This will count down when
Discharging. And count up when Charging.
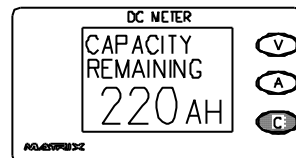
Press button C again while viewing Capacity
This screen will display the remaining
Amp hours in percentage.
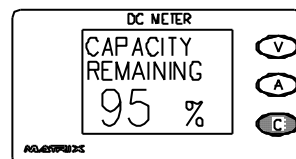
Alarm Enabled
When alarms are enabled in the monitor
setup the alarm symbol will display as shown.
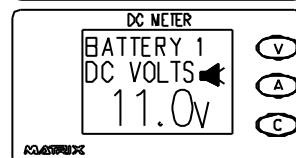
To permanently mute an alarm
Press the A button for 2 seconds, the display
will show the mute symbol as shown, repeat to
reactivate the alarm.
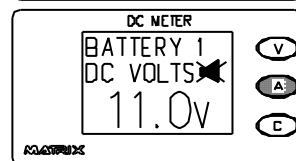
7 Factory settings

The 600-DCM3.2 is factory preset with the following settings:

- Battery Capacity   220AH
- Charge Efficiency   85%
- High Volts Alarm   15.00V
- Low Amp Hours   100AH
- Low Volts Alarm   11.00V
- Peukert's Exponent   1.25
- Reset capacity   5 amps

Amp Hours display is battery capacity remaining

Peukert's Discharge Rates Calculation

This is an exponent, which changes the discharge current to an effective discharge related to battery capacity. Most marine batteries are Capacity rated at the 20-hour rate. Ie: A battery discharged for 20 hours to a terminal voltage of 10.5v = Amp hours.

C = A x T20   C = 5 x 20   = 100 Amp Hours.
C = Battery capacity   A = Amps discharge   T20 = Time20 hours
Peukert's Equation   An x T = C

C = is battery capacity at 20hrs discharge
A = is discharge current in Amps
T = is discharge time in hours
n = is related to battery construction & is relatively constant for any given battery with in a similar discharge time.

Exponent "n" can be calculated for any given battery bank by comparing two discharge cycles.
First fully charge battery bank from shore power/genset & discharge at 50% of expected average load (Note time & amps) to 10.5volt terminal voltage (12v system). Recharge fully & discharge at 150% of expected average load. Use the following equation.

$$n = \frac{\text{Log } t2 - \text{Log } t1}{\text{Log } A1 - \text{Log } A2}$$

n = Exponent
t1 = The hours of first discharge at amps A 1
t2 = The hours of 2nd discharge at amps A 2

Example: 8G4D 180A/Hr
                 Discharge 1 = 24 hours @ 7.8 Amps
                 Discharge 2 = 8 hours @ 20.7 Amps

$$n = \frac{\text{Log } t2 - \text{Log } t1}{\text{Log } A1 - \text{Log } A2} \qquad \frac{\text{Log } 8 - \text{Log } 24}{\text{Log } 7.8 - \text{Log } 20.7} \qquad \frac{0.9 - 1.38}{0.89 - 1.32} \qquad \frac{0.48}{0.43} \quad = 1.1$$

Program this exponent in to Peukerts.

NB: 0.01 change to Peukerts can make a reasonable change to calculated discharge. Alter in small steps.

For example, 100 Amps for 1 hour = 100Amp hours. Using Peukert's exponent of 1.25, An x T, $100^{1.25}*1=316$ Amp hours. A 25% exponent change makes 316% change.

Calculating exponent "n" from discharge cycles is the only way to achieve an accurate discharge exponent. This meter comes with a factory set exponent of 1.25, which is a "rough average for deep cycle flooded lead acid.
If you do not wish to calculate "n" use the tables below to select a typical "n" for your battery type.

VALVE REGULATED GELLED BATTERIES			
Model	Volts	20 Hr rating	"n"
8GGC	6	180	1.14
8GU1	12	43	1.20
8GU24	12	70	1.13
8GU27	12	86	1.12
8GU30H	12	95	1.12
84D	12	180	1.11
8G8D	12	225	1.10

ENDURANT (US BATTERIES) FLOODED BATTERIES			
Model	Volts	20 Hr rating	"n"
R220	6	225	1.24
L16	6	350	1.28
US105	12	85	1.23
US130	12	130	1.24
US240	12	216	1.17

Full charge analysis sheet				
Type	Absorb	Amps	Float	Amps	A/Hrs (NZ)
L16	14.47	11.00	13.50	3.00	350
R220	14.53	6.60	13.50	3.10	220
US105	14.60	3.00	13.60	1.60	90
148/17	14.58	3.30	13.60	1.60	90
US130	14.50	3.00	13.80	2.00	115
US240	14.40	7.40	13.80	4.40	210
"A/Hrs NZ" -means estimated A/Hrs in NZ conditions					

If after some time or use (6-12months) the accuracy seems to be degrading (possibly due to battery condition, temperature, age – charging regime) it will be time to recalculate "n".

Amp hour capacity reset
Amp Hour Capacity reading is reset to Max Battery Capacity when the following conditions occur.
The Battery Voltage is greater than 13.5V (factory default).
The Charge Current is less than 5A (factory default).
See note (a)
Conditions 1 & 2 must be met for 5 minutes.
(a). This should be changed to 4% of amp/hour rating of battery bank ie 220amp/hour bank = 220*4% = 8.8 use 9amps

Charge efficiency
Charging Efficiency is set at 85% (factory default) ie the battery will only accept 85% of the charge current. This is a difficult parameter to set as after 75% recharge the efficiency will fall off to 0% at full charge. The overall efficiency will change with temperature, battery condition, charging current/voltage and discharge level. Trial and error with general usage is the only way to find this efficiency.

Actual capacity
Actual capacity is the present state of charge of Battery bank 1 when the monitor is installed/set up.

Voltage calibration
Factory set, this should not need to be changed.

Amps Calibration
Factory set, Amps Calibration if necessary should be performed under maximum possible load after zeroing amps at no load.

Reset capacity
Reset capacity provides the option to reset the capacity to the programmed value (YES) or to leave it at the current monitored level (NO)

Bilge monitor function
The bilge monitor function will be automatically set up when the "Bilge monitor" label is selected for Battery 3 label.
While in bilge monitoring mode, the "C" button to reset the bilge monitor.

To exit the bilge monitor and resume battery monitoring, press the "V" button to return to V1 "Source voltage".

8 Alarms and Alarms mute

When an alarm condition occurs, the alarm will sound and the corresponding display will flash.
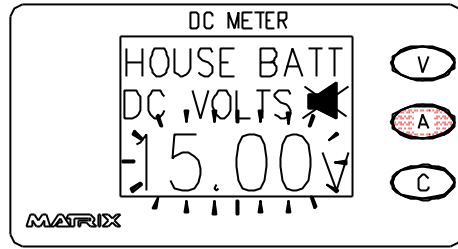
To permanently mute any alarm, press the A button for 2 seconds. The display will show the alarm mute symbol. The alarm mute mode will remain set even when the power is removed.

9 Programming Menu Flow Diagram

```
┌─────────────┐
│ POWER UP    │
│ DISPLAY     │
└─────────────┘
      │
      ▼
┌─────────────┐        ┌─────────┐        ┌─────────┐        ┌──────────────┐
│ PROGRAMMI   │───────▶│  EXIT   │        │  EXIT   │        │  SET ALARM   │
│ NG MODE     │        └─────────┘        └─────────┘        ├──────────────┤
└─────────────┘        ┌─────────┐        ┌───────────┐      │  BATT 1 LABEL│
                       │  RESET  │───────▶│ ZERO METER│      ├──────────────┤
                       └─────────┘        └───────────┘      │  BATT 2 LABEL│
                                          ┌───────────┐      ├──────────────┤
                       ┌─────────┐        │ DEFAULT   │      │  BATT 3 LABEL│
                       │  SETUP  │        │ RESET     │      ├──────────────┤
                       └─────────┘        └───────────┘      │  HI VOLT 1   │
                                                             ├──────────────┤
                                                             │  LO VOLT 1   │
                                                             ├──────────────┤
                                                             │  HI VOLT 2   │
                                                             ├──────────────┤
                                                             │  LOW VOLT 2  │
                                                             ├──────────────┤
                                                             │  HI VOLT 3   │
                                                             ├──────────────┤
                                                             │  LOW VOLT 3  │
                                                             ├──────────────┤
                                                             │  LO AMP HOUR │
                                                             ├──────────────┤
                                                             │  MAX CAP     │
                                                             ├──────────────┤
                                                             │  ACTUAL CAP  │
                                                             ├──────────────┤
                                                             │  RESET VOLT  │
                                                             ├──────────────┤
                                                             │  RESET AMPS  │
                                                             ├──────────────┤
                                                             │  CHARGE      │
                                                             │  EFFICIENCY  │
                                                             ├──────────────┤
                                                             │  PEUKERTS    │
                                                             │  EXPONENT    │
                                                             ├──────────────┤
                                                             │  V1 CAL      │
                                                             ├──────────────┤
                                                             │  V2 CAL      │
                                                             ├──────────────┤
                                                             │  V3 CAL      │
                                                             ├──────────────┤
                                                             │  HI AMPS CAL │
                                                             ├──────────────┤
                                                             │  LO AMPS CAL │
                                                             ├──────────────┤
                                                             │  RESET       │
                                                             │  CAPACITY    │
                                                             └──────────────┘
                                                                   │
                                                                   ▼
                                                             (    END    )
```
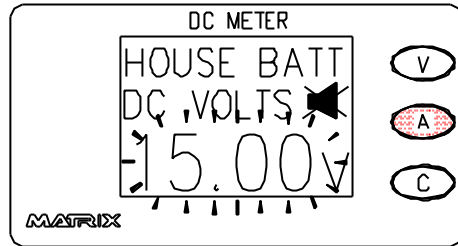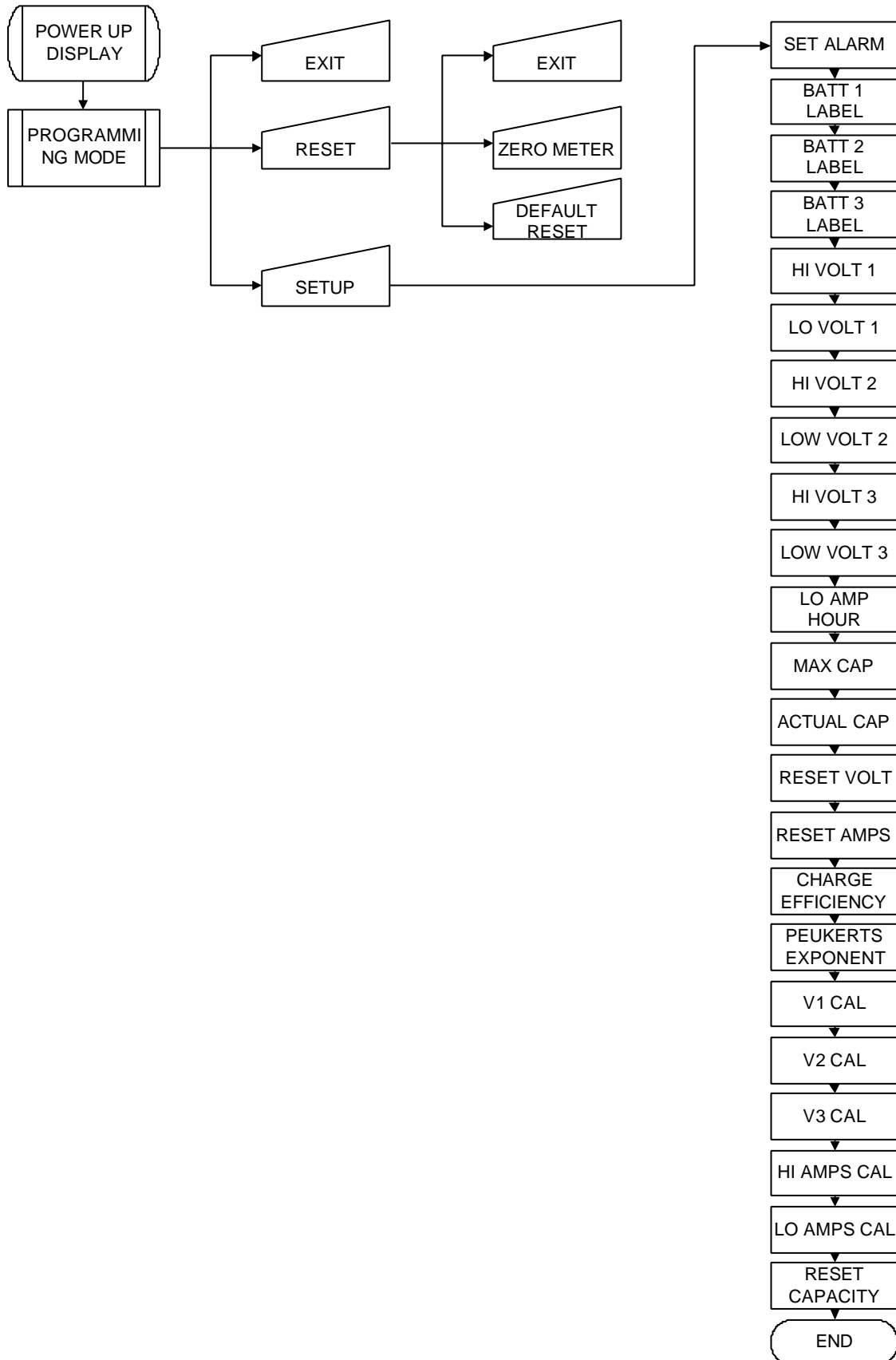
10 Setup and Programming

To enter programming mode
Hold buttons V & C down simultaneously for approx. 3 seconds the display will read
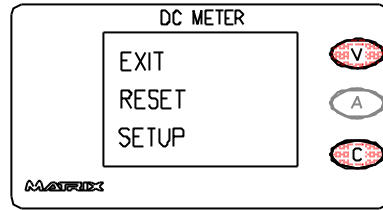
        EXIT
        RESET
        SETUP

Press 'V' to exit programming mode.
Press 'A' to enter amps zero and reset mode.
Press 'C' to enter Setup mode.

Figure 1

Amps Zero (figure 2)
While in programming mode screen (figure 1):
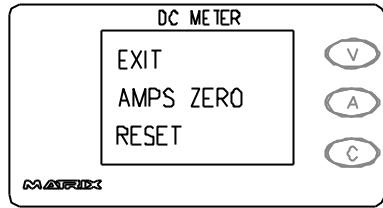Press 'A' to enter amps zero and reset mode
Press 'V' to exit.

To set amps zero point press button A.
"AMPS ZERO" will flash for approx 2-3 seconds, zero point has now been set. The screen will return to the programming mode screen (figure 1)

Figure 2

Factory Reset mode (figure 2)
While in programming mode screen (figure 1)
Press 'A' to enter "amps zero" and "reset" mode screen (figure 2)
Press 'V' to exit.

To reset the unit back to factory settings press and hold button C until "RESET" begins to flash, release button C, The display will continue to flash for approx 2-3 seconds. Unit is now reset to factory settings. The screen will return to the programming mode screen (figure 1)
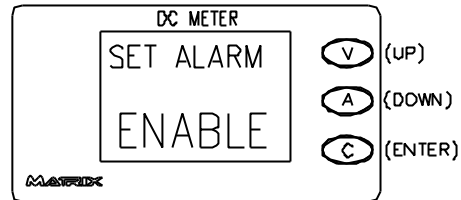
11 Setup Mode

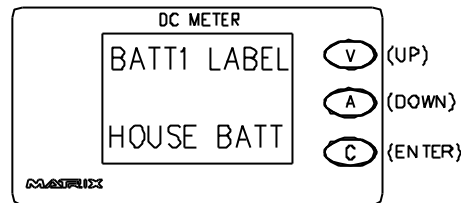Use Up (V) / Down (A) buttons to change value then press C to proceed to the next set up screen.

Set Alarm
Enable/Disable all alarms
Default: Enabled

```
┌─────────────────────┐
│      DC METER       │   ┌──┐
│  ┌───────────────┐  │   │V │(UP)
│  │  SET ALARM    │  │   └──┘
│  │               │  │   ┌──┐
│  │  ENABLE       │  │   │A │(DOWN)
│  └───────────────┘  │   └──┘
│                     │   ┌──┐
│ MATRIX              │   │C │(ENTER)
└─────────────────────┘   └──┘
```

Battery 1 label
Label battery bank 1 options are
House Batt, House 1, House 2,
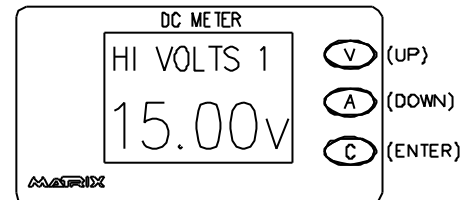Start Batt, Stbd Start, Port Start,
Aux Batt, Radio, Genset

Battery 2 label
As per Battery 1 label

Battery 3 label
As per Battery 1 label except includes
"Bilge monitor"
Refer to page 9

```
┌─────────────────────┐
│      DC METER       │   ┌──┐
│  ┌───────────────┐  │   │V │(UP)
│  │ BATT1 LABEL   │  │   └──┘
│  │               │  │   ┌──┐
│  │ HOUSE BATT    │  │   │A │(DOWN)
│  └───────────────┘  │   └──┘
│                     │   ┌──┐
│ MATRIX              │   │C │(ENTER)
└─────────────────────┘   └──┘
```
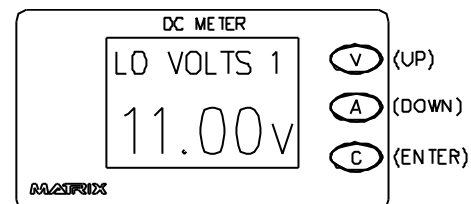
High voltage 1 alarm
Default: 15.0 Volts
Up/Dn to select value, 0.1V steps
Range: 10.0-32.0 Volts

```
┌─────────────────────┐
│      DC METER       │   ┌──┐
│  ┌───────────────┐  │   │V │(UP)
│  │ HI VOLTS 1    │  │   └──┘
│  │               │  │   ┌──┐
│  │ 15.00v        │  │   │A │(DOWN)
│  └───────────────┘  │   └──┘
│                     │   ┌──┐
│ MATRIX              │   │C │(ENTER)
└─────────────────────┘   └──┘
```

Low voltage 1 alarm
Default: 11.0 Volts
Up/Dn to select value, 0.1V steps
Range: 0.0-32.0 Volts

High voltage 2 alarm
As per High voltage 1
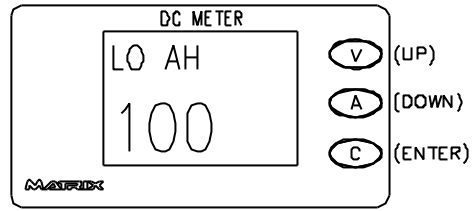Low voltage 2 alarm
As per Low voltage 1
High voltage 3 alarm
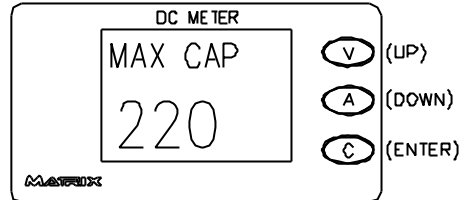As per High voltage 1
Low voltage 3 alarm
As per Low voltage 1

```
┌─────────────────────┐
│      DC METER       │   ┌──┐
│  ┌───────────────┐  │   │V │(UP)
│  │ LO VOLTS 1    │  │   └──┘
│  │               │  │   ┌──┐
│  │ 11.00v        │  │   │A │(DOWN)
│  └───────────────┘  │   └──┘
│                     │   ┌──┐
│ MATRIX              │   │C │(ENTER)
└─────────────────────┘   └──┘
```

Low amp hours alarm
Default: 100 Amp Hours
Up/Dn to select value, 10AH steps
Range: 0-1000AH

```
          DC METER
 ┌────────────────┐   ╭─╮
 │ LO AH          │   │V│ (UP)
 │                │   ╰─╯
 │ 100            │   ╭─╮
 │                │   │A│ (DOWN)
 │                │   ╰─╯
 │ Matrix         │   ╭─╮
 └────────────────┘   │C│ (ENTER)
                      ╰─╯
```

Maximum capacity
Default: 220 Amp Hours
Up/Dn to select value, 10AH steps
Range: 60-3000AH

```
          DC METER
 ┌────────────────┐   ╭─╮
 │ MAX CAP        │   │V│ (UP)
 │                │   ╰─╯
 │ 220            │   ╭─╮
 │                │   │A│ (DOWN)
 │                │   ╰─╯
 │ Matrix         │   ╭─╮
 └────────────────┘   │C│ (ENTER)
                      ╰─╯
```

Actual capacity
Up/Dn to select value, 1AH steps
Range: 0-3000AH
Refer to page 9

```
          DC METER
 ┌────────────────┐   ╭─╮
 │ ACTUAL CAP     │   │V│ (UP)
 │                │   ╰─╯
 │ 220            │   ╭─╮
 │                │   │A│ (DOWN)
 │                │   ╰─╯
 │ Matrix         │   ╭─╮
 └────────────────┘   │C│ (ENTER)
                      ╰─╯
```
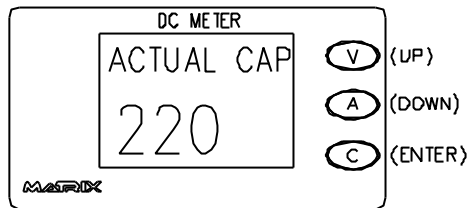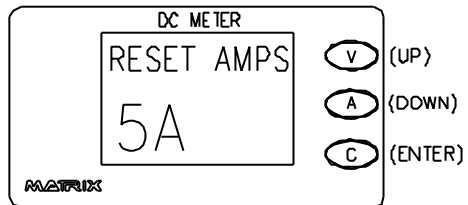
Amp hour capacity reset voltage
Default: 13.5V
Up/Dn to select value, 0.1V steps
Range: 10.0-30.0V
Refer to page 9
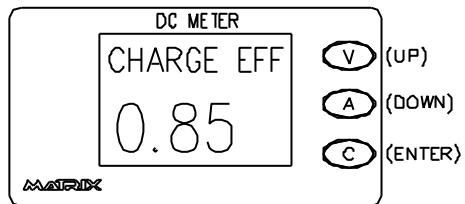
```
          DC METER
 ┌────────────────┐   ╭─╮
 │ RESET VOLTS    │   │V│ (UP)
 │                │   ╰─╯
 │ 13.5V          │   ╭─╮
 │                │   │A│ (DOWN)
 │                │   ╰─╯
 │ Matrix         │   ╭─╮
 └────────────────┘   │C│ (ENTER)
                      ╰─╯
```
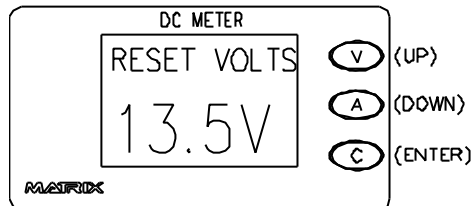
Amp hour capacity reset amps
Default: 5A
Up/Dn to select value, 1A steps
Range: 0-50AH
Refer to page 9

```
          DC METER
 ┌────────────────┐   ╭─╮
 │ RESET AMPS     │   │V│ (UP)
 │                │   ╰─╯
 │ 5A             │   ╭─╮
 │                │   │A│ (DOWN)
 │                │   ╰─╯
 │ Matrix         │   ╭─╮
 └────────────────┘   │C│ (ENTER)
                      ╰─╯
```
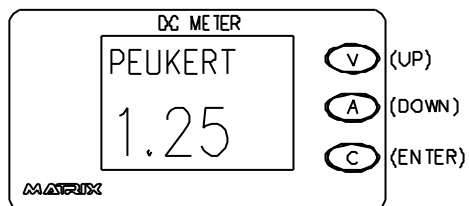
Charge efficiency
Default: 85% flooded lead acid
Use 90% for Valve regulated gel
Up/Dn to select value, 0.01AH steps
Range: 0-1.0 (multiple by 100%)
Refer to page 9

```
          DC METER
 ┌────────────────┐   ╭─╮
 │ CHARGE EFF     │   │V│ (UP)
 │                │   ╰─╯
 │ 0.85           │   ╭─╮
 │                │   │A│ (DOWN)
 │                │   ╰─╯
 │ Matrix         │   ╭─╮
 └────────────────┘   │C│ (ENTER)
                      ╰─╯
```

Peukerts exponent
Default: 1.25
Up/Dn to select value, 0.01 steps
Range: 1.00-1.50
Refer to page 7

```
          DC METER
 ┌────────────────┐   ╭─╮
 │ PEUKERT        │   │V│ (UP)
 │                │   ╰─╯
 │ 1.25           │   ╭─╮
 │                │   │A│ (DOWN)
 │                │   ╰─╯
 │ Matrix         │   ╭─╮
 └────────────────┘   │C│ (ENTER)
                      ╰─╯
```

Voltage 1 calibration
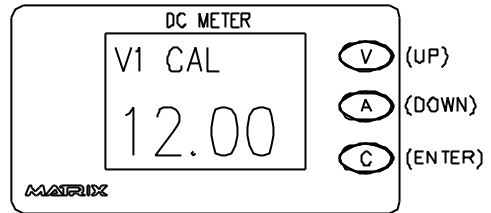Adjust this setting to actual battery
Voltage. To calibrate
Up/Dn to select value, 0.01V steps
Range: 0-32V
Refer to page 9

```
          DC METER
      ┌──────────┐
      │  V1 CAL  │      V  (UP)
      │          │
      │  12.00   │      A  (DOWN)
      │          │
      └──────────┘      C  (ENTER)
   MATRIX
```

Voltage 2 calibration
As per Voltage calibration 1
Voltage 3 calibration
As per Voltage calibration 1

Low and High Amp calibration

Note: The load must be applied before entering this screen.

Adjust this reading to correspond with the known load that is applied to the system.

For Low Amp Cal, the known load must be in the range +/- 0-50A. For High Amp Cal the known load must be within the range +/- 50-450A.

Note: You only need to do one range of calibration.

Up/Dn to select value.
Range: +/-450A (Max)
Refer to page 9

```
           DC METER
      ┌──────────────┐
  ⛵  │ HI AMP CAL   │   V  (UP)
  BEP │              │
MARINE│    270       │   A  (DOWN)
      │              │
      └──────────────┘   C  (ENTER)
   MATRIX
```

```
           DC METER
      ┌──────────────┐
  ⛵  │ LOW AMP CAL  │   V  (UP)
  BEP │              │
MARINE│    35        │   A  (DOWN)
      │              │
      └──────────────┘   C  (ENTER)
   MATRIX
```
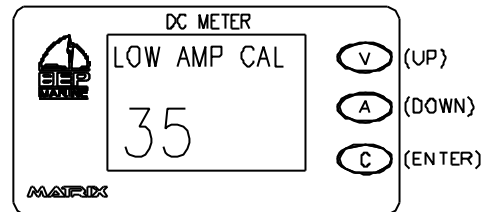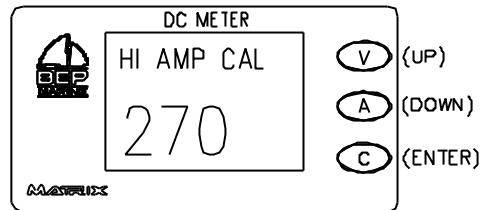
Reset Capacity
NO
YES
Refer to page 12

```
           DC METER
      ┌──────────────┐
      │  RST CAP     │   V  (UP)
      │              │
      │   NO         │   A  (DOWN)
      │              │
      └──────────────┘   C  (ENTER)
   MATRIX
```
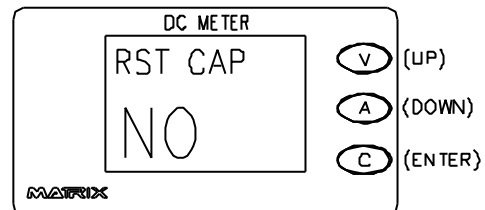
12 Frequently Asked Questions

Q: When calibrating the amps load, the display cannot be changed.
A: You will need to do a factory Reset, Amps zero and then apply a load of more than 10A before you enter the amps calibration screen in the set up menu.

Q: Screen displays: (DC Amps discharge over range)
A1:   This could be normal because you have exceeded the meter rating of 225A
A2:   You will need to do a factory reset then apply a load of more than 10A, before you enter the amps calibration screen in the set up menu.

Q: With no load, there is still an amps reading.
A: The Zero has drifted, you will need to carry out a Zero reset, with no load on the system.

Q: The A/Hrs are not what I would expect.
A1:   The batteries could be sulfated.
A2:   Re-calculate Peukert's exponent as described on page 7 & 8.

Q: The current display is unstable.
A: Check that a screened twisted pair cable has been used from the shunt to the meter and that it is installed correctly.

Q: Meter has no amps reading.
A: Check screen wiring on shunt cable; screen from load side (not battery side) of shunt to terminal 8 at the meter.

Q: "Reset all" is on the display
A: If "reset all" comes up on the screen at any time, the meter has detected a fault. Disconnect power from the unit and then reconnect. "If reset all" remains on the screen please contact your local BEP agent.

13 User Notes

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14 International Distributor List

Argentina
Baron S.R.L.
Av. Libertador 1898
B1646DCS San Fernando
Buenos Aires
Argentina
Phone +54 11 4850 5556
Fax +54 11 4746 4696
rosito@baron.com.ar

Argentina
Herby Marina
AvCostanera Norte v Pte
Castanera-1425
Buenos Aires
Argentina
Phone +54 11 4312 4545
Fax +54 11 4312 5258
herbymarina@herbymarina.com.ar

Australia
Bob Littler Agencies
P.O. Box 217
Cannon Hill
Queensland 4170
Australia
Phone +61 7 3890 1115
Fax +61 7 3890 1119
sales@bla.com.au

Brazil
Realmarine
Estada do Joa, 3862
CEP 22611-020
Rio de Janeiro
Brazil
Phone +55 21 493 9797
Fax +55 21 495 6823
rmedu@attglobal.net

Canada
North West Marine Distributors Ltd
26940 26TH Avenue
Aldergrove
British Columbia
V4W 2Y6
Canada
Phone +1 604 607 7901
Fax +1 604 607 7902

Canada
Western Marine
1494 Powell St
Vancouver
British Columbia
V5L 5B5
Canada
Phone +1 604 253 3322
Fax +1 604 253 8696
bfalk@westernmarine.com

France
Kent Marine Equipment
Siege 3, rue de la Dutee
B.P. 202
44815 Saint-Herblain
Cedex
France
Phone +33 2 4092 1584
Fax +33 2 4092 1316
contact@kent-marine.com

Greece
Sakiotis SA Mega Electronics
47 Vouliagmenis Avenue
Glyfada
Athens
GR 166-75
Greece
Phone +30 10 964 5460
Fax +30 10 962 7347
info@sakiotis.gr

Holland
Barco Marine Equipment
J.VLD Heydenstraat
3281 NE Numansdorp
Holland
The Netherlands
Phone +31 1 8665 5010
Fax +31 1 8665 5040
info@barcomarine.nl

Italy
Uflex S.R.L.
Via Milite Igonot, 8A
16012 Busalla [GE]
Italy
Phone +010 9620300
Fax +010 9620333

Malaysia
Octopus Electrical Services Co. Ltd
C/- Vision Shipping & Fowarding
Agents
27A/B Persaran Bung Raya
Langkawi Mall
07000 Langkawi
Kedah Dural Aman
Malaysia
Phone +66 76 273 379
Fax +66 76 273 379
octopi@loxinfo.co.th

New Zealand
BEP Marine Ltd
13 Tarndale Grove
Albany
Auckland
New Zealand
Phone +64 9 415 7261
Fax +64 9 415 9327
cmiddleweek@bepmarine.com

Norway
Flak AS
Skibasen 14
4636 Kristiansand S
Norway
Phone +47 3805 6600
Fax +47 3804 3471
tflak@flak.no

Poland
P.U.H. Eljacht
ul. Powstania Styczniowego 1/20
80-288 Gdansk
Poland
Phone +48 58 340 3688
Fax +48 58 340 3689
eljacht@eljact.pl

Singapore, Indonesia & Malaysia
Best Marine Electrical
61 Kaki Bukit Ave 1 #03-17
Shun Li Industrial park
Singapore 417943
Phone +65 674 10317
Fax +65 674 40317
bestmarineelect@hotmail.com

South Africa
Southpact C.C
11 Loader Street
De Waterkant
Cape Town 8001
South Africa
Phone +27 21 419 7797
Fax +27 21 419 7797
southpact@worldonline.co.za

Spain
Video Acustic
C/- Magistrat Catala 48
46700 Gandia
Valencia
Spain
Phone +96 296 5101
Fax +96 287 0498
jhawke@azimut.es

Turkey
Aquaelecs-Alesta Tekne Ltd. Sti
Liman Mh. 21. Sk. Emre Apt.
No:6/1 Antalya
Turkey
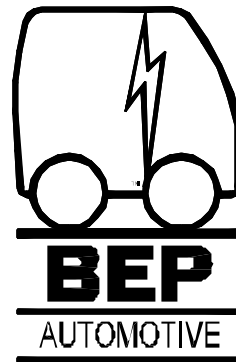Phone +90 242 259 42 94-95
Fax +90 242 259 42 96
info@aquaelecs.com

United Kingdom
EC Smith & Sons Ltd. C.C
Unit H & J kingsway Est.
Luton,
Beds,LU1 1LP,
England
Phone +44 15 8272 9721
Fax +44 15 8272 3460
ecs_marine@compuserve.com

United Kingdom
Merlin Equipment Ltd
Unit 4, Cabot Business Village
Holyrood Close
Cabot Lane, Poole
Dorset, BH17 7BA
England
Phone +0120 269 7979
Fax +0120 269 1919

United States Of America
Bischoff Marine Electric Inc
P.O. Box 3470
Peachtree City
GA.30269
United States of America
Phone +1 770 486 6770
Fax +1 770 486 6676
bischoffmarine@earthlink.net

BEP MARINE	BEP AUTOMOTIVE
13 Tarndale Grove	13 Tarndale Grove
Albany, Auckland, N.Z.	Albany, Auckland, N.Z.
Ph: +64 9 415 7261	Ph: +64 9 415 7261
Fax: +64 9 415 9327	Fax: +64 9 415 9327
www.bepmarine.com	www.bepautomotive.com

E-mail: enquiries@bepmarine.com