Warranty

Each unit is carefully tested and adjusted at the factory before shipping and is warranted for one full year against original defects in materials or workmanship. This warranty does not include damage to the product resulting from accident or misuse.

If the product should become defective within the warranty period, we will repair or replace it free of charge, including free return transportation, provided it is delivered prepaid to the dealer from whom it is originally purchased.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state, or country to country.

CruzPro®

CE

V60

3 Bank Digital Voltmeter & Alarm

NMEA 0183 Sentences

The V60 outputs a 4800 BAUD serial data stream of battery volts for battery1, 2 and 3 once per second. The NMEA sentence identifies the instrument and the battery (1,2 or 3).

Volts: $IIXDR,U,xx.x,V,V301,*CS (for battery 1)
Volts: $IIXDR,U,xx.x,V,V302,*CS (for battery 2)
Volts: $IIXDR,U,xx.x,V,V303,*CS (for battery 3)

*CS = Check Sum

Introduction

The V60 Battery Monitor provides accurate low cost digital instrumentation for 3 banks of batteries between 9.5 and 33 Volts. The V60 displays battery voltage for any one of three banks. You can set Low and High voltage alarms for each bank independently and the V60 continuously monitors the voltage of each bank at all times. When activated, the V60 built-in 85 dB alarm will sound and the display will flash. Five levels of backlighting can be selected and all setup, calibration constants and alarm values are saved to nonvolatile memory. You can select to have either an external alarm output or standard NMEA 0183 compatible data output. If you select NMEA 0183, the voltage of each battery is output once per second as a 4800 BAUD serial data stream.

Table of Contents

 V60MAN-E

http://www.cruzpro.com **info@cruzpro.com**

Other CruzPro Products

- Depthsounders, Fishfinder & Speed/Temperature/Log
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- Bilge Water Alarms & Bilge Pump Controllers
- Windlass Controller/Chain Counter
- Digital Fuel Gauges & Fuel Consumption Calculator
- Digital Gauge for 1 or 3 Tanks /w Separate Alarms
- Smart 4 step Alternator Regulator
- Marine Security System/w Reliable Intrusion Sensors
- RPM/Engine Hours/Elapsed Time Gauge/w Alarm
- Digital Oil Pressure Gauge/Alarm
- Digital Temperature Gauges for 1 or 3 Areas /w Alarms
- One and Three Bank Digital Volts Gauges
- Digital Amps Gauge
- Digital Clock/Watch/Race Timers/w 8 Alarms
- 8 and 16 Amp Light Dimmers / Motor Speed Controller
- Solar Panel Charge Controllers 6/8/9 & 20 Amps
- 4 & 8 Channel NMEA Combiners/RS-232 Convertors
- Engine/Exhaust Temp. Monitor & Digital Pyrometer
- NMEA 0183 Remote Data Repeater/w 4 Input Channels

Specifications

Power supply: 9.5 to 33.0 VDC, .018 amps nominal

Operating temperature: 32 to 122 F (0 to 50 C)

Size: 2.5" dia X 4.1" deep (61mm x 104 mm).

Accuracy: Better than +/- 0.1 VDC front panel adjustable independently for each bank.

Ranges: Volts 1, 2 & 3: 9.5 to 33.0 VDC

Alarms: Independent High and Low Voltage Alarms for each Battery.

Display: 4 digit LCD, 5 levels of backlighting.

Output: 4800 Baud Serial Data; $IIXDR output once per second for each bank OR external alarm output (user selectable).

Warnings and Notes

1. The V60 receives power from the connection to Battery 1 (screw terminal B), ***but requires that the battery 2 and Battery 3 inputs (screw terminals E and F) also be connected to at least 9.5 VDC for proper operation.*** If you have fewer than three batteries, connect the spare terminals to the same battery as Battery 1 (screw terminal B).

2. Screw terminal (D) must be connected to 9.5 VDC minimum in order for the backlights to turn ON. If screw terminal (D) is not connected to at least 9.5 VDC the backlights will turn OFF. This provides remote control of the backlights.

Selecting NMEA 0183 or External Alarm Output

The V60 comes factory preset to output NMEA 0183 compatible serial data. If you do not need this feature or would rather have an external alarm output on screw terminal (C), you can do so as follows:

While viewing battery voltage (any battery), press and hold down both the ▼ and ▲ keys for 10 seconds (until you hear a long beep). This operation switches the output mode between NMEA 1083 and External Alarm. The new output mode is automatically saved to memory.

When the external alarm output is activated, a 5V signal (10 mA Max.) is output on screw terminal (C).

Installation

Before starting the installation, please read this entire section first. Be sure to install the bulkhead gasket before you install the instrument. Finger tighten the screws that mount the instrument bracket - do not use tools.

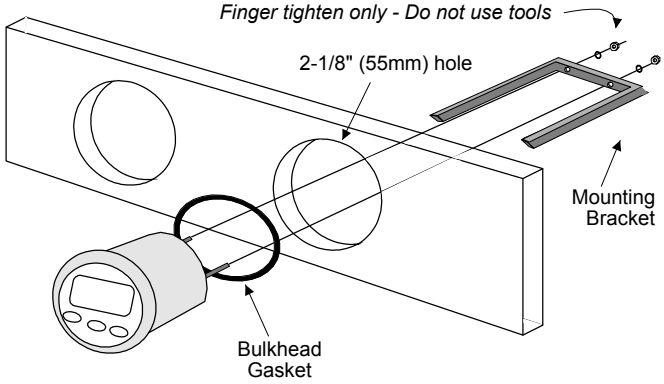


Figure 1

alarm value. Press the ✙ key to save the High Volts Alarm value to memory.

Setting Low Volts Alarm

Select the battery (1, 2 or 3) for which you wish to set the Low Volts Alarm. Press and hold the ▼ key for ten (10) seconds. You will hear a beep and the Low Volts alarm value for that battery will be displayed. Use the ▼ and ▲ keys to set the desired alarm value. Press the ✚ key to save the new alarm value.

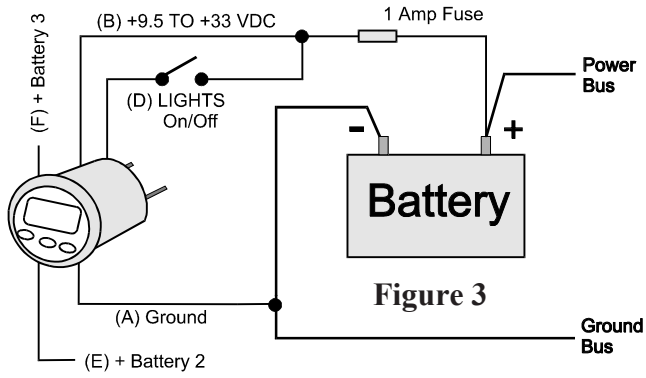


Figure 3

- Carefully check all your wiring against those shown in Figures 2 and 3. If everything is wired correctly you can mount the V60 in the instrument hole. Be sure the bulkhead gasket is in place and use only finger tension to tighten the bracket hold-down nuts *Do not overtighten the bracket or you may damage the case - do not use tools to tighten the nuts.*

- Drill a 2-1/8" (55mm) mounting hole where you desire to mount the instrument (Figure 1).

- Bring the wires out the mounting hole and make the connections to the screw terminal on the instrument case back as shown in Figure 2 and Figure 3.

- ***NOTE: For proper operation all three battery inputs MUST be connected to 9.6 VDC minimum.***

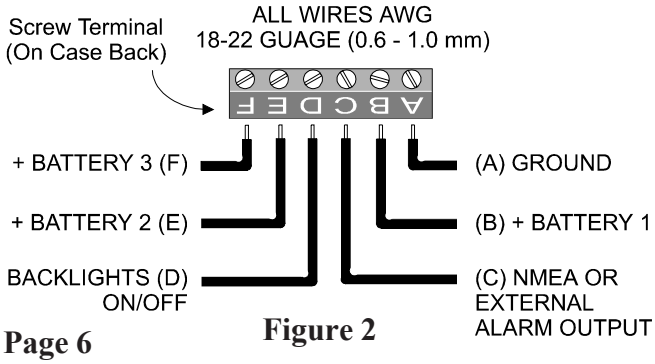
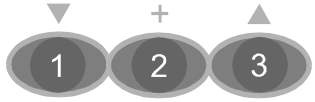


Figure 2

Calibrating the Instrument

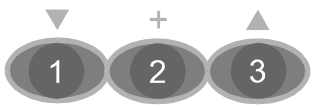
The V60 is calibrated at time of manufacture for 12V battery banks, but can be calibrated at any time by using the front panel keys. Battery 1, 2 and 3 can be independently calibrated. To calibrate the voltmeter, press and hold down one of the



keys for three seconds (to calibrate battery 1, 2 or 3) while applying power to the instrument. Use the ▼ and ▲ keys to make the displayed value read correctly. Press the ✚ key to save the calibration data to memory.

Operation

Key Functions



The keys are used to select what to display, backlights, calibrate volts, turn alarms on/off and set alarm values. New information is automatically saved to memory.

Turning Alarms ON/OFF

Press the ▲ key 1/2 second to turn alarms ON. The Battery (1, 2 or 3) icon will blink. Press the ▼ key for 1/2 second to turn the alarms OFF.

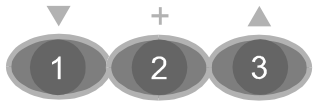
Backlight Intensity

Press the ✚ key 1/2 second to adjust the backlight level. Each time you press the ✚ key 1/2 second, the level will get brighter 1, 2, 3,

4, OFF, 1, 2, ... etc. Screw terminal pin (D) must be switched ON for the backlights to work.

Display Volts for Battery 1, 2 or 3

Quick press one of the



keys to select Battery 1, 2 or 3.

Setting High Volts Alarm

Select the battery (1, 2 or 3) for which you wish to set the High Volts Alarm. Press and hold the ▲ key for ten (10) seconds. You will hear a beep and the High Volts alarm value for that battery will be displayed. Use the ▼ and ▲ keys to set the desired alarm value. Press