

**CAUTION- Refer to this manual before using this tester**

Read all operating instructions before use. Use extreme caution when checking electrical systems, batteries and circuits to avoid injury due to electrical shock. Calterm assumes basic knowledge of electricity on the part of the user and is not responsible to any injury or damages due to improper use of this tester.

**INTRODUCTION**

This instrument is designed for monitoring the voltage of 12V or 24V batteries. Easy to use, just insert it into the cigarette lighter socket. The display and charging system will show the voltage of the battery; meanwhile the instrument will also give LED indication and bar indication, so you can determine the charge level of the battery.

**GENERAL SPECIFICATION**

**Display:** LCD

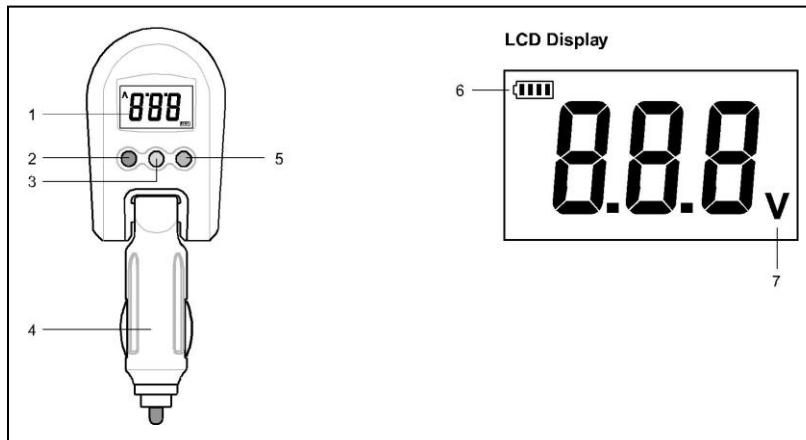
**Application:** measuring 12V or 24V batteries and charging system voltage

**Operation Temperature:** 0°C ~ 40°C, relative humidity < 75%

**Storage Temperature:** -10°C ~ 50°C, relative humidity < 85%

**Size:** 132x48x31mm

**Weight:** about 54g



Insert the plug of the instrument to the cigarette lighter socket, read the reading on the display, and observe the LED indication as well as the bar indication in the battery icon.

**By referring the following table, you can determine the charge level of the 12v or 24 batteries.**

Numerically Displayed value		Number of bars	LED indication	Battery Charge	Analysis
12V Battery	24V Battery				
13.0V - 18.0V	26.0V - 38.5V	4	Green LED lit	Full	Voltage is above the range possible for a battery. Voltage being applied to the system from some other source (battery charger, alternator, extra battery). <b>Alternator is functioning properly</b> <b>True battery condition UNKNOWN</b>
12.4V - 12.9V	24.8V - 25.9V	3	Yellow LED lit	Higher	The battery is at <b>Very Good/Full</b> state of charge
12.1V - 12.3V	24.1V - 24.7V	2	Yellow and red LED lit	Moderate	The battery is approximately 60% charged This is a <b>Fair</b> reading. Monitor battery and battery system regularly
11.7V - 12.0V	23.3V - 24.0V	1	Red LED lit	Low	<b>Bad</b> It is necessary to fully diagnosis battery and the automotive systems conditions Battery and systems may need repair or replacement
"LLL" appears if the voltage is <11.7V.	"LLL" appears if the voltage is 23.2V - 18.1V.	0	No LED lit	Too Low	

**Note:** If the battery voltage is more than 38.5V, the display will show the over-range indicator "EEE" and you should ask a qualified technician to check the battery and the automotive electronic system.

**NOTE**

1. Remove from the cigarette lighter socket when not in use.
2. Don't use the instrument to measure a voltage higher than 38.5V.
3. Before use, verify the instrument's operation by measuring a known automotive storage battery.  
Don't operate the instrument if it operates abnormally.
4. Do not operate the instrument around explosive gas, vapor, or dust.

**DISPOSAL OF THIS ARTICLE**

Dear Customer,  
If you at some point intend to dispose of this article, then please keep in mind that many of its components consist of valuable materials, which can be recycled.  
Please do not discharge it in the garbage bin, but check with your local council for recycling facilities in your area.

