

# Battery Bug<sup>®</sup> SMART BATTERY MONITORS



How much do you know  
about *your* battery?



# Knowledge is Power.

GET MORE FROM YOUR BATTERY SYSTEMS.



Understand the health of your battery and lengthen its life. With a Battery Bug, use your battery with confidence and replace it proactively before it leaves you stranded.

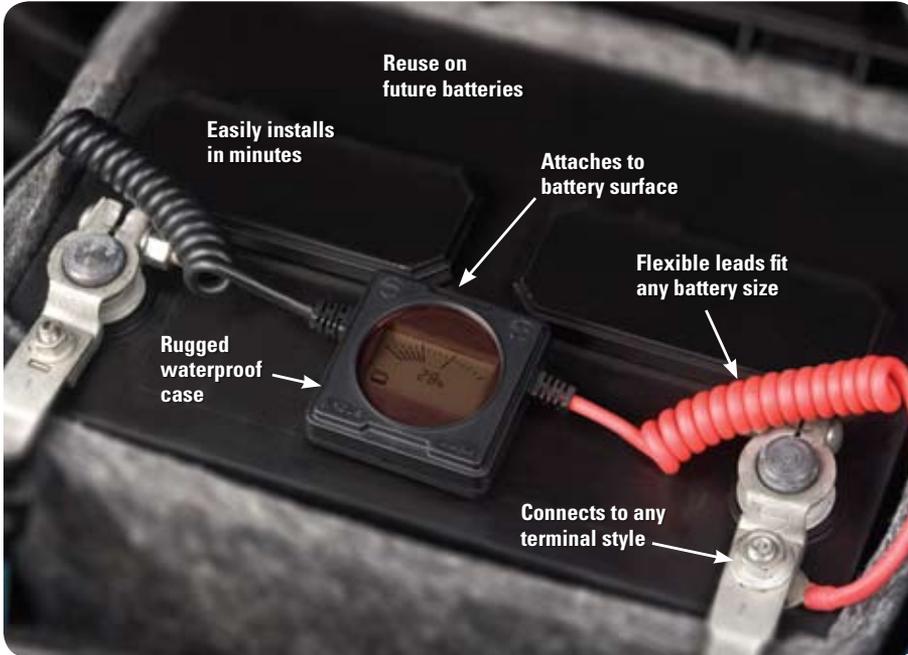
The Battery Bug Starting Battery Monitor (SBM) series is designed specifically for batteries in engine starting applications. Using patented CrankCheck™ technology, the SBM series monitors cranking health and other critical battery performance data to optimize battery reliability in applications such as automotive, light truck, power sports, and light maintenance equipment.

The Battery Bug Deep Cycle Monitor (DCM) series is designed for heavy duty and deep cycle batteries. The DCM series continuously monitors charge level and battery state of health using patented Large Pulse Resistance™ (LPR™) technology to maximize battery life and reliability in marine, RV, trucking, off-road, industrial equipment, and electric vehicle applications.

**For Autos, Light Trucks & Seasonal Vehicles**

**For Boats, RVs & Electric Vehicles**

Battery Bug® monitors empower users with the most **advanced** and **accurate** real-time battery performance information.



**AUDIBLE BATTERY ALARMS**

- End of life / replace battery
- Damaging overcharge condition
- Low battery / recharge

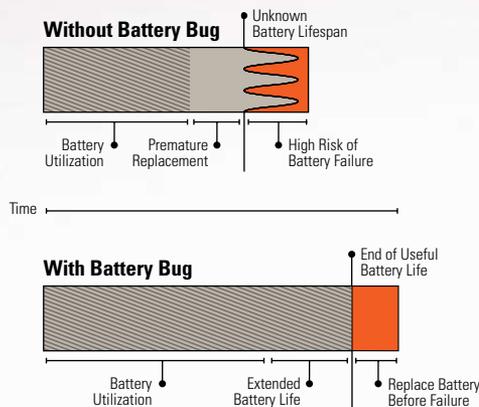
**DISPLAY SHOWS**

- Battery, charger and alternator voltage
- State of health %
- Critical battery faults

**Increase Reliability and Extend Battery Life**

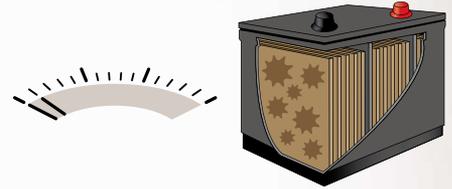
If you don't know how healthy your battery is, you can only guess when to replace it. Battery Bugs track battery health and clearly indicate when replacement is necessary – allowing you to extend battery life with a low risk of unexpected failure.

Charge level monitoring keeps your battery operating in an ideal range, avoiding common situations that unnecessarily shorten the life of most batteries.

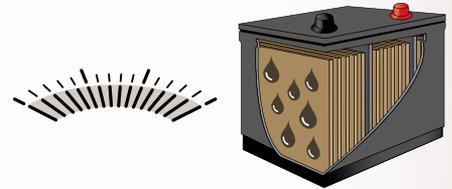


**HOW BATTERIES FAIL**

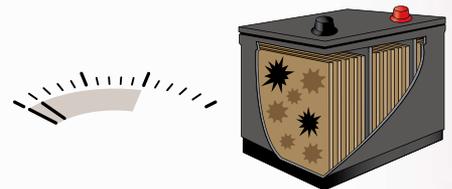
Liquid acid forms lead sulfate “crystals” on the battery's lead plates during discharge.



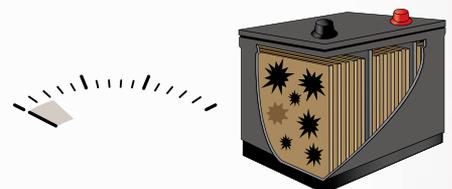
In a *perfect* world, these soft crystals dissolve upon recharge, returning the battery to full capacity.



In the *real* world, some crystals become permanently stuck on the plates, over time reducing the battery's capacity to store energy. The battery will *appear* fully charged, but it will become empty more quickly due to lost capacity.



Eventually, the battery will lose so much capacity that it is no longer useful in its application.



- Liquid acid
- Soft Crystals
- Permanent Crystals
- Lead plates

Battery Bug monitors provide a window into the health of your battery.

Starting Battery Monitors use patented CrankCheck™ technology to measure actual starting performance, which follows this decay process in starting batteries.

Capacity and Lifecycle Meters use patented Large Pulse Resistance™ (LPR) technology to continuously measure the storage capability of the lead plates and track capacity decay over time.

# FOR AUTOS, LIGHT TRUCKS & SEASONAL VEHICLES

## Starting Battery Monitors

### Battery Bug: Battery Failure Warning System



The Starting Battery Monitor extends the life of your starting battery and tells you exactly when it's time for a replacement—*before* a failure leaves you stranded.

Patented CrankCheck™ technology monitors the cranking performance of your battery every time you start the engine and determines how well the battery is doing its job.



#### KEY FEATURES

- Performs automatic cranking performance test at every start
- Continuously monitors battery cranking health
- Monitors charger and alternator performance for damaging conditions

## Never be stranded by battery failure again

### Replace your battery before it fails

To crank an engine, a starting battery delivers a large burst of electrical power for a relatively short period of time. After the engine is started, the battery is immediately recharged.

As the battery wears out, its ability to deliver this burst decreases. By monitoring the cranking performance at every start, the Starting Battery Monitor warns you to replace the battery before it can no longer start the vehicle.

### Extend battery life

Batteries are permanently damaged by remaining discharged for any period of time. The Starting Battery Monitor continuously monitors battery voltage and charger performance, identifying damaging under- and over-charge situations. Alarms and indicators allow you to correct the damaging condition, maximizing the useful life of the battery.

#### Starting Battery Monitor



- 1 Cranking health remaining
  - 2 Cranking performance of recent start
  - 3 Lost cranking health
  - 4 Low battery / recharge with audible alarm
  - 5 Replace battery indicator with audible alarm
- \* Alternately displays voltage

#### MODELS:

##### BB-SBM12

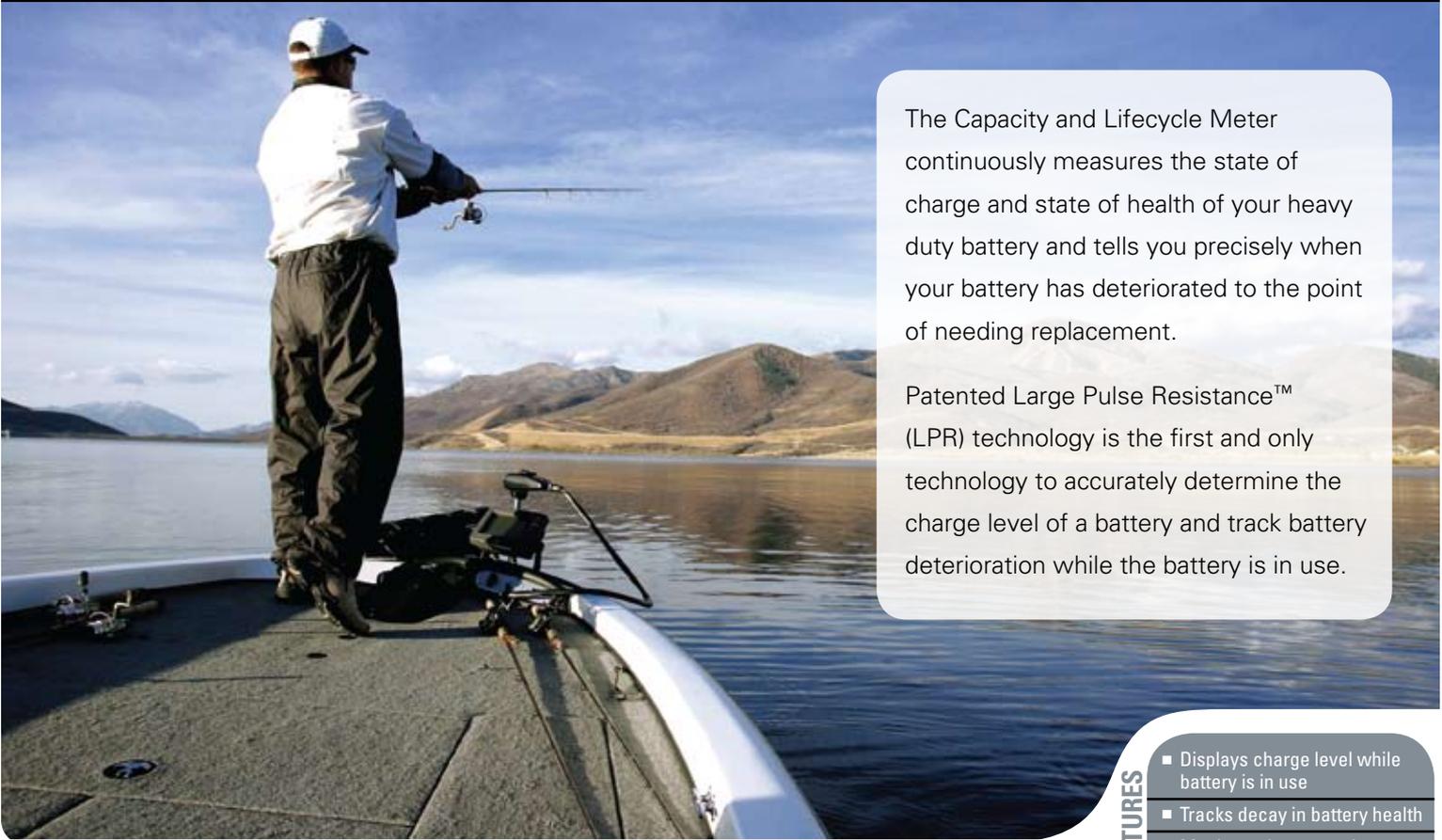
For automotive starting batteries, primarily cars and light trucks

##### BB-SBM12PS

For power sports and seasonal vehicles such as ATVs, motorcycles, scooters, snowmobiles, lawn and outdoor utility equipment

# FOR BOATS, RVs & ELECTRIC VEHICLES

## Heavy Duty & Deep Cycle Battery Monitors Battery Bug: Capacity and Lifecycle Meter



The Capacity and Lifecycle Meter continuously measures the state of charge and state of health of your heavy duty battery and tells you precisely when your battery has deteriorated to the point of needing replacement.

Patented Large Pulse Resistance™ (LPR) technology is the first and only technology to accurately determine the charge level of a battery and track battery deterioration while the battery is in use.

### KEY FEATURES

- Displays charge level while battery is in use
- Tracks decay in battery health
- Monitors charger and alternator performance for damaging conditions
- Automatically compensates for size and temperature

## Take the guesswork out of battery health

### Optimize performance and extend battery life

Heavy duty batteries supply electric power for extended periods of time. It is often critical to understand just how much energy is in a battery, so you can use it with confidence or know when to recharge.

The Capacity and Lifecycle Meter tests the battery once every minute and determines the available stored energy. Visual 'fuel gauge' indicators show how full the battery is, and audible alarms tell you when it is time to recharge.

### Replace your battery before it fails

A battery's ability to store energy decays with time and use, until eventually the battery can't store enough energy to do its job. The Capacity and Lifecycle Meter monitors the loss of storage capability as the battery ages and indicates battery health on the display. When storage capability drops to a critical level, visual and audible alarms warn you to replace the battery.

### Capacity and Lifecycle Meter



- 1 Max capability of new battery
  - 2 Lost capability
  - 3 Available capability at full charge
  - 4 Charge level
  - 5 Low battery / recharge with audible alarm
  - 6 Replace battery indicator with audible alarm
- \* Alternately displays voltage

### MODELS:

**BB-DCM12-100**  
For 12V batteries under approximately 100Ah in storage capability—up to BCI Group 27 size, typical

**BB-DCM12-200**  
For 12V batteries up to 200Ah in storage capability

## Starting Battery Monitors

Battery Failure Warning System  
for Engine Starting Batteries

## Deep Cycle / Heavy Duty Battery Monitors

Capacity and Lifecycle Meter  
for Deep Cycle and Dual Purpose Batteries

### PART NUMBERS

BB-SBM12	BB-SBM12PS	BB-DCM12-100	BB-DCM12-200
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### APPLICATIONS

BB-SBM12	BB-SBM12PS	BB-DCM12-100	BB-DCM12-200
Cranking batteries for cars, light trucks, and other engine starting applications	Powersports batteries: motorcycles, scooters, ATVs, other small cranking applications	Deep cycle, dual purpose, heavy duty batteries: marine, trolling, RV, electric vehicles	Large deep cycle, dual purpose, heavy duty batteries: commercial trucks, off road, marine, RV, heavy equipment

### OPERATING PARAMETERS

System voltage, nominal	12V	12V	12V	12V
Battery constructions supported	WET, MF, VRLA, AGM	WET, MF, VRLA, AGM	WET, MF, VRLA, AGM	WET, MF, VRLA, AGM
Battery types supported	Cranking battery	Cranking battery	Deep cycle, dual purpose, heavy duty	Deep cycle, dual purpose, heavy duty
Power consumption	<3.5 mAmp	<3.5 mAmp	<5.0 mAmp	<5.0 mAmp
Operating temp	-15C to 85C*	-15C to 85C*	-15C to 85C*	-15C to 85C*
Battery size range	300 to 1000CCA	50 to 400CCA	20Ah - 100Ah	Up to 200Ah
Battery connection	8mm 'Y' for auto terminal	6mm ring for bolt terminal	8mm 'Y' for auto terminal	8mm 'Y' for auto terminal
Display	LCD: Digital, graphical, icons	LCD: Digital, graphical, icons	LCD: Digital, graphical, icons	LCD: Digital, graphical, icons
Buttons	None	None	One: memory reset	One: memory reset
Test frequency	Every engine start	Every engine start	Every minute	Every minute
Test time	~2 seconds	~2 seconds	< 1 millisecond	< 1 millisecond
Test technology	CrankCheck	CrankCheck	Large Pulse Resistance	Large Pulse Resistance
Safety standards	CE	CE	CE	CE
Warranty	1 year	1 year	1 year	1 year
Reverse wiring protection	Yes	Yes	Yes	Yes

### PERFORMANCE AND DIAGNOSTICS

Battery voltage	Yes	Yes	Yes	Yes
Alternator voltage	Yes	Yes	Yes	Yes
Overcharge indicator / alarm	Yes	Yes	Yes	Yes
Low charge / recharge alarm	Yes	Yes	Yes	Yes
Extreme temperature indicator	Yes	Yes	Yes	Yes
Cranking health test (%)	Yes	Yes	No	No
Starting failure, replace battery indicator / alarm	Yes	Yes	No	No
Capacity test (large pulse resistance)	No	No	Yes	Yes
State of charge / charge level (%)	No	No	Yes	Yes
State of health / remaining life (%)	No	No	Yes	Yes
Low battery life / replace battery indicator / alarm	No	No	Yes	Yes
Automatic temperature calibration	No	No	Yes	Yes

### PHYSICAL SPECIFICATIONS

Dimensions	55mm x 55mm x 19mm			
Case material	ABS Plastic (IEC 68-2-32)			
Water resistance	IPX-5	IPX-5	IPX-5	IPX-5
Mounting	Surface mount (adhesive/mechanical)	Surface mount (adhesive/mechanical)	Surface mount (adhesive/mechanical)	Surface mount (adhesive/mechanical)

\* Monitor continues to operate down to -40C. LCD display temporarily loses function when temperature is below -15C.

Choose the Right Battery Bug	Applications	Engine Starting Batteries	Deep Cycle, Dual Purpose
<b>Battery Bug BB-SBM12</b> Battery Failure Warning System	Cars, Light Truck, Motorcycle, ATV	✓	
<b>Battery Bug BB-SBM12PS</b> Battery Failure Warning System	Power Sports & Seasonal Vehicles	✓	
<b>Battery Bug BB-DCM12-100/200</b> Capacity & Lifecycle Meter	Marine, Heavy Duty, RV, Electric Vehicle		✓

Compared to Other Meters	Charge Level	Charge Alarms	Cranking Performance	Battery Life	Replace Battery	Adjusts for Decay/Age	Adjusts for Temperature	Self Calibrating
<b>BB-SBM12/PS</b>	✓	✓	✓	✓	✓	✓	✗	✗
<b>BB-DCM12-100/200</b>	✓	✓	✗	✓	✓	✓	✓	✓
Typical Voltage/LED Battery Meter	✓*	✓	✗	✗	✗	✗	✗	✗
Typical Current Counting Meter	✓**	✓	✗	✗	✗	✗	✗	✗

\* Accurate only when not using batteries. \*\* Accurate only for new batteries and recent calibration

#### OTHER ARGUS ANALYZERS PRODUCTS INCLUDE:

- Hand held battery diagnostic tools for professional technicians
- Battery monitors for multiple battery systems, 6V & 24V batteries
- Embedded battery sensor technology for OEM applications



[www.argusanalizers.com](http://www.argusanalizers.com) | PO Box 203, Jamestown, Rhode Island, 02835 USA  
WorldWide: T: +1 401 398 2959 | F: +1 401 633 7038 | [info@argusanalizers.com](mailto:info@argusanalizers.com)  
Europe: T: +31 475 460104 | F: +31 475 461027 | [export@argusanalizers.com](mailto:export@argusanalizers.com)