SG200 Battery Monitor
Balmar's Expandable, Next Generation Monitor

Learns & Displays All Critical Battery Parameters
- State of Charge (SoC%)
- State of Health (SoH%)
- Charge/Discharge Current Flow
- Time Remaining
- History, Faults & Alerts

Support for All Common Battery Chemistries & Voltages
- Including Lead Acid, Lithium (LiFePO$_4$), Standard AGM, TPPL AGM, Carbon Foam AGM, and GEL Batteries
- Supports 12V-48V Battery Banks

Intelligent, Self-Calibrating Accuracy
- Typically 97% Accurate within 2 Cycles
- Auto-Calibrating
- Does not Lose Accuracy With Age

Large, Bright Color Display
- Sunlight Readable, Configurable & Dimmable
- 60 Degree Viewing Angle
- Fits in Standard 2 1/16" Gauge Socket

Expandable Architecture
- Supports Multiple Displays *(Optional)*
- Supports Multiple Battery Banks *(Optional)*
- Standard Support for 2 Start Batteries *(Voltage Only)*
- Simple, Easy-to-Install Point-to-Point Network

Optional Smartphone/Bluetooth® Gateway
- Free iOS and Android Apps
  (Requires Bluetooth® Gateway PN SG2-0300)
- View All Parameters on your Phone
- Download Product Updates

Balmar has combined recent technology advances to introduce a next generation battery monitor. The SG200 is quite simply the most accurate battery monitor available today. Balmar has combined the best features of its 1st generation Smartgauge™ with many advantages of a shunt-based amp-hour counting system. Further, we've designed a device architecture which facilitates multiple gauges or multiple shunts to be added to the network – allowing the boater to monitor multiple energy storage banks simultaneously from multiple locations.
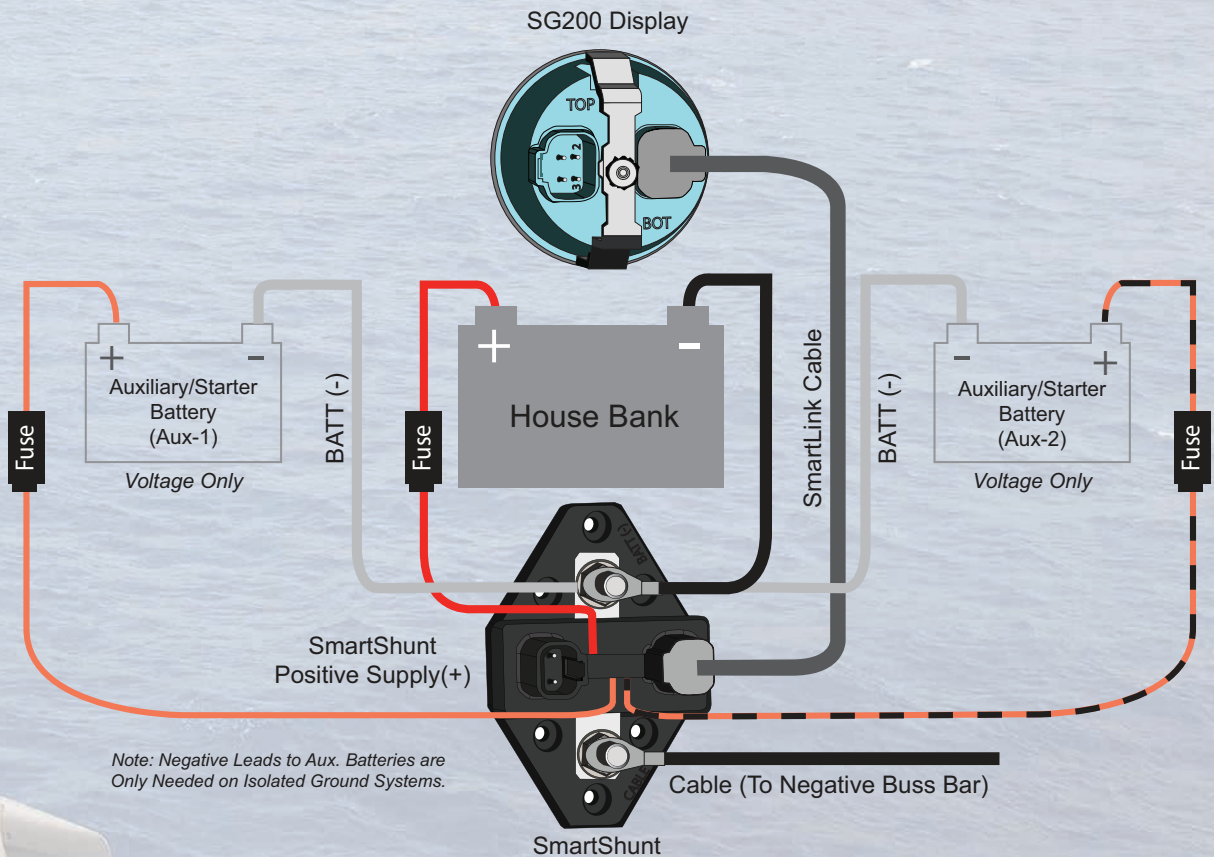
In addition, the SG200 Color Display is easy to read, configurable and fits any standard 2 1/16" gauge socket. Now you can determine your battery(s) condition from anywhere on the vessel or vehicle with multiple displays, or simply add the optional Bluetooth® Smartphone App to keep information in your pocket!
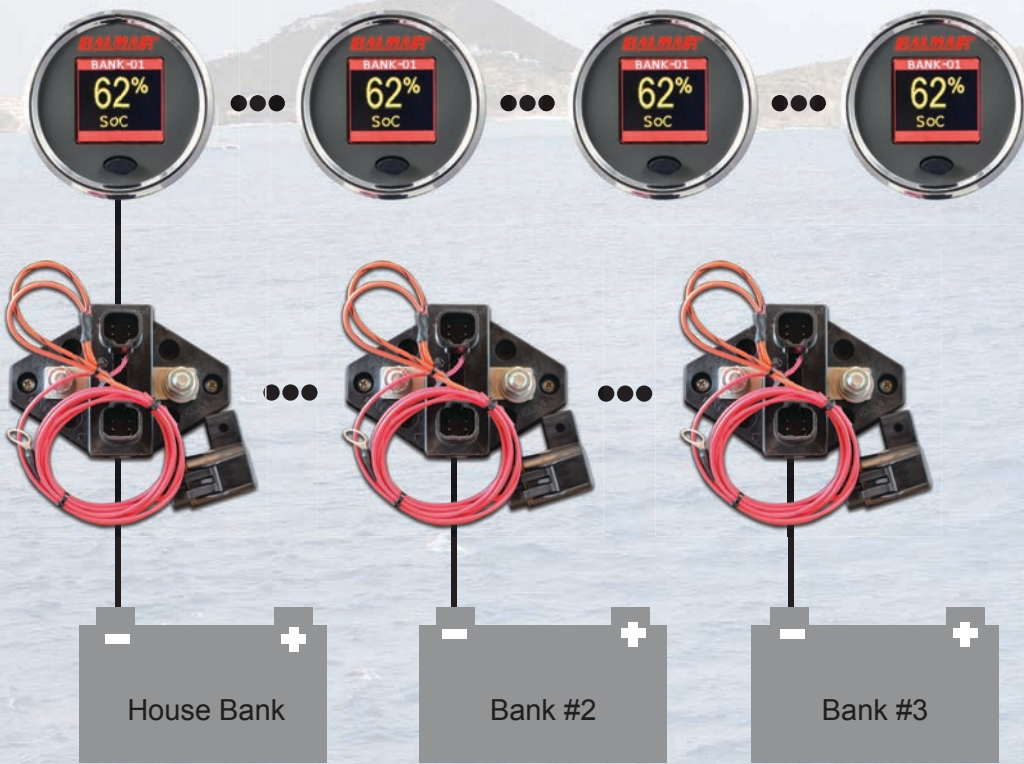
SG200 Battery Monitor

State of Charge (SoC%)	State of Health (SoH%)	Charge/Discharge Amps	Time Remaining
Accurate display of your battery's State of Charge after just two discharge cycles.	Proprietary self-calibrating algorithm determines how your battery has aged from its original capacity.	Displays the real-time current flowing in or out of your house battery.	Time remaining until empty when discharging, or time remaining until full when charging.

SG200 Display

Auxiliary/Starter Battery (Aux-1)
Voltage Only

Fuse

BATT (-)

Fuse

House Bank

SmartLink Cable

BATT (-)

Auxiliary/Starter Battery (Aux-2)
Voltage Only

Fuse

SmartShunt Positive Supply(+)

Note: Negative Leads to Aux. Batteries are Only Needed on Isolated Ground Systems.

Cable (To Negative Buss Bar)

SmartShunt

Part Number	Description	Explanation / Includes
SG200	Battery Monitor Kit, 12V-48V	Standard Unit for Initial Purchase: Includes Color Display, SmartShunt, SmartLink Com Cable
SG2-0100	SmartShunt, SG200, 350A, 12V-48V	Add a SmartShunt for Additional Bank: Includes SmartShunt and SmartLink Com Cable
SG2-0200	Color Display, SG200, 2 1/16"	Add a Color Display to an existing SmartLink Network
SG2-0300	Gateway, SG200, Bluetooth®	Optional 39" Bluetooth® Gateway for Smartphone App
SG2-0400	Com Cable, SG200, 10m	Optional SmartLink Com Cable (10 meter) for Longer Cable Runs

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- • **Build your own battery monitoring network!**
- • **Add Color Displays for viewing data in different locations.**
- • **All battery information can be displayed anywhere on the SmartLink network.**
- • **For additional flexibility, purchase the optional Bluetooth® Gateway and download Balmar's Smartphone App.**
- • **Add SmartShunts if you have multiple banks.**
  - • **Stern Thruster**
  - • **Bow Thruster**
  - • **House Bank #2**

1. **Intelligent, Self-Calibrating Accuracy:** The SG200 quickly adapts to the specific characteristics of your battery and maintains accuracy over of the life of your battery.

2. **No Synchronization:** SG200 does not drift in accuracy with multiple Partial State of Charge (PSoC) cycles. Synchronization is not needed to ensure the SG200 is accurate!

3. **Revolutionary State of Health (SoH%):** All batteries age, diminishing in capacity over time. The SG200 accounts for aging factors to determine State of Health (SoH) as a percentage of the battery's original capacity. The SG200 also adjusts for changes in battery capacity to account for aging. This means that you no longer run into the real, inevitable problem of discharging batteries below a safe State of Charge before charging. Many battery owners think they are treating their batteries well, but are unaware they are chronically discharging the batteries beyond a point which causes "sulfation" and significantly shortens battery life and capacity.

4. **Works With all Major Battery Types:** Charge profiles are characterized for Standard Lead Acid, Lithium (LiFePO$_4$), Standard AGM, Thin Plate Pure Lead AGM (TPPL), Carbon Foam AGM and GEL batteries.

5. **Embedded History, Faults & Alerts:** Provides a complete picture of your dual purpose battery system.

History	Alerts (User Defined)	Faults (System Defined)
Min / Max SoC%	Min / Max SoC%	Over Current
Min / Max Current	Min / Max Current	Over Voltage
Min / Max SoH%	Min / Max SoH%	Under Voltage
Min / Max Voltage	Min / Max Voltage	Low SoC%
Min / Max Power	Min / Max Aux-1 & Aux-2 Voltage	-

SG200 Battery Monitor

The SG200 solves a number of traditional weaknesses found in battery monitors. For example, have you ever heard the following?

- **I know my batteries are in good shape, I never discharge my batteries below 50% State of Charge (SoC%).**

  If you are using a traditional amp-hour meter, there are weaknesses in current technology which could be a problem. There are two issues that may make the SoC% reading on your traditional battery monitor inaccurate.

  1. Batteries age and lose capacity over time. When the capacity of your batteries diminish due to aging, the SoC% reading on a traditional meter is going to be higher than is actually the case. In other words, a traditional amp-hour meter only counts amps – which means as your battery ages and the available amps decrease, your amp-hour meter doesn't know it! This condition could send your battery unwittingly into the sulfation zone and shorten its life more rapidly.

  2. If you are not fully charging your batteries on a daily basis, the State of Charge reading will drift in value, and become increasingly inaccurate. The more partial charge cycles (PSoC) occurring between full charge cycles with traditional battery monitor, the bigger the measurement drift.

  The effect of these two problems is that batteries can die a premature death because of inaccurate monitoring. The SG200 minimizes these issues by compensating for the inherent aging affects of the battery and partial cycles.

- **My batteries are in great shape, because they are only two years old.**

  Prior to Balmar's introduction of the SG200, the only way to know the accurate condition of a battery would be to do a controlled, 20-hour discharge test. Few people have the time or inclination to make that investment, so it is rarely accomplished.

  SG200 can show you an accurate State of Health (SoH%). If your batteries are failing, you will know it before a battery failure ruins your boating day. Our SoH% calculations are chemistry-specific and comprehensive learning your battery over time to return the most accurate measurements available today. The SG200 gets more accurate, (not less) with time.

SG200 Specifications

Standard Configuration:	1 Bank per SmartShunt Device 2 Start/Auxiliary Voltage Sense Lines (Up to 32 devices including Displays and SmarShunts can be added to a single network.)	**Display Values:**	State of Charge (SoC%) State of Health (SoH%) Voltage (V) Charge/Discharge Current (A) Time Remaining (Hrs) History, Faults & Alerts (Consult User Manual)
Supply Voltage Range:	8V - 60V DC	**Max Ah Capacity:**	1250 Ah (per SmartShunt)
Average Supply Current:	Display On: 20 mA @12V Sleep Mode: 10 mA @12V	**Communications Cable:**	4 wire, 22 AWG, Shielded 4 pin Deutsch DT Style
SmartShunt Operating Temperature:	-40°C - +85°C (-40°F - +185°F)	**Grounding:**	Negative Battery Connection
SmartShunt Max Current:	600A Instantaneous (10 minutes @ ambient) 350A Continuous (For Higher Currents Consult User Manual)	**SmartShunt Dimensions:**	Length: 4.87" (123.7 mm) Width: 3.34" (84.8 mm) Height: 2.01" (50.9 mm)
Weight:	SmartShunt: 0.62lbs Color Display: 0.16lbs	**Color Display Dimensions:**	Bezel Diameter: 2.37" (60 mm) Base Diameter: 2.05" (52 mm) Depth With Attachment Cable: 2.75" (70 mm)
Standards Compliance:	CE *EMC Directive 2014/30/EU* *RoHS 2 Directive 2011/65/EU*	**Protection Rating:**	IP65 (Display), IP67 (SmartShunt)