

Features:

- Input Voltage: 9-15V / 20-30V
- Output Current: 50A to 200A
- Thermal Overload Protection @ 75°C
- Overcurrent Protection
- Measured Voltage Tolerance: <0.5%
- Compliance with CE Standards, RoHS, 97/24/EC-C08, EN1175
- Supports 12V or 24V systems with automatic detection
- Voltage Drop in Open State: <100mV
- Compatible with automotive, gel, AGM, and traction batteries
- Configurable main battery connection/disconnection voltage threshold
- No mechanical elements for disconnecting the battery
- Monitor input - compensatory for voltage measurement (SA100 and SA200 versions)
- Low current consumption <2mA
- Output for signaling - open collector
- Remote activation input (SA100 and SA200 versions)

Applications:

- Charging control of additional battery
- Passenger cars with Euro emission standards < 5/6 ¹⁾
- Campervans
- Service vehicles
- All types of vehicles with internal combustion engines, including trucks, vans, and vehicles
- PV systems

1) For vehicles with Euro 5/6 emission standards, use the MR20 charger

Parameters:

Model	SA50	SA100	SA200
Allowed Current	50A	100A	200A
Limited Current	60A	150A	250A
Voltage Value for Threshold 1 (disconnection/activation)	12,5 (13,4) \ 25,0 (26,8) V		
Voltage Value for Threshold 2 (disconnection/activation)	12,8 (13,4) \ 25,6 (26,8) V		
Voltage Value for Threshold 3 (disconnection/activation)	13,0 (14,0) \ 26,0 (28,0) V		
Voltage Value for Threshold 4 (disconnection/activation)	13,5 (14,4) \ 27,0 (28,8) V		
Voltage Value for Threshold 5 (disconnection/activation)	13,8 (14,4) \ 27,6 (28,8) V		
Recommended maximum battery capacity	60Ah	150Ah	250Ah
Recommended wire diameter for "positive" connection	6mm ²	16mm ²	25mm ²
Recommended fuse value	40A	80A	160A

Operation Principle:

The device is used to control the charging of an additional battery and protect the main battery from excessive discharge in case of alternator failure (engine shutdown). After connecting the device according to the "mounting method" description, use the button (or through the "DRV" input for SA100/200 versions) to set the desired disconnection voltage threshold. Holding the button for 1 second and releasing it will cycle through the active threshold settings in the order 1...2...3...4...5...1... etc. Holding the button for more than 5 seconds will activate the "manual" mode, indicated by the blinking of the "SW ON" LED at a frequency of 1Hz. If the LEDs are not lit at all or only the blue "SW ON" LED is lit, it means the energy-saving mode is active, disabling unnecessary LED lights. To enter the configuration mode, hold the button as if changing the threshold for about 1 second. After about 30 seconds of no button presses, the unnecessary LEDs will turn off, leaving only the active blue "SW ON" LED.

Upon power-up, the device performs initial voltage measurements on the input current and monitor inputs. When a voltage within the 10-16V range is detected on the monitor input, the device will operate in the 12V system mode and indicate this state by illuminating the "12V" and "Vm" LEDs. If no voltage is detected on the monitor input, the device will continue to sample the current input as a voltage monitoring input until the current input is reactivated. A similar situation applies for the 24V system, with the voltage needing to be within the 20-30V range, and indicated by the "24V" LED.

Threshold settings and the state of the button in manual control mode are stored by the device.

The device will automatically connect the additional battery for charging when it detects a voltage higher than the activation threshold for more than 10 seconds. The device will not connect the additional battery output when its voltage drops below 10V (20V for the 24V system) or when it's not detected at all. This is to protect the vehicle from emergencies if, for instance, the additional battery becomes damaged or shorted.

The threshold should be chosen depending on the application and the expected input voltage during the main battery's charging. The correct threshold setting allows the devices connected to the additional battery to work smoothly, considering both its capacity and the main vehicle battery's capacity. Automatic disconnection upon reaching the threshold aims to preserve an adequate amount of energy in the main battery to start the engine.

The open collector output is used to connect an external signaling diode at the appropriate 12/24V voltage (or a regular diode with a resistor), and the operation of this output is correlated with the "SW ON" LED. The recommended diode current is 20mA, with a maximum of 50mA. This output can also be used, as an open collector type, to transmit device operating information to an external data system.

Alarm States Signaling:

In the event of thermal protection activation, the "SW ON" LED will rapidly blink at 2Hz, and the alarm will automatically disappear when the high temperature subsides.

In the event of overcurrent protection activation, all LEDs will blink rapidly. This alarm can only be cleared by holding the button for 1 second or using the DRV input. When this alarm occurs, ensure that the additional battery is not drawing too much current, is not damaged, and the wire diameters are within the recommended values. In this specific case, a larger diameter indicates higher currents and device blocking!!!

SSR Mode:

By shorting the DRV contact to the ground (negative), the device operates in a semiconductor, high-efficiency SSR relay mode, and the device is activated.

Mounting Method:

ALWAYS install a fuse as close to the positive terminal of the battery as possible when working with batteries. This applies to both the main battery, from which the main positive

current wire departs, and the additional battery where the charging current arrives. For proper operation, the minus connection must be made with a thin wire directly to the main battery. To compensate for voltage measurements on current wires, connect a thin wire from the main battery's positive terminal to the monitor input "MON" (this only applies to the 100A and 200A versions). This wire should be equipped with a 100mA - 1A fuse.

The OC output provides the ground to an indicator diode. Plus voltage, through a resistor (unless the diode is already at 12V, in which case the resistor can be omitted), should be taken from anywhere in the vehicle.

The DRV input acts like a button, and it requires supplying the power voltage plus through any normally open momentary switch (NO).

Connect the current wires through suitable-sized ring connectors.

The device's housing is separated from the device's poles, but keep in mind that after attaching the device to the vehicle, it's likely that the housing will have a potential difference, usually negative. The housing is made of aluminum and thus conducts current!!

Install the device in a dry, cool location in the vehicle. Do not install it in the engine compartment. The device is not waterproof.

Mounting Template:



