BatteryProtect 40A/60A/200A

The Snaptec Australia *BatteryProtect* disconnects the battery from non essential loads before it is completely discharged (which would damage the battery) or before it has insufficient power left to crank the engine.

12/24V auto ranging
The *BatteryProtect* automatically detects system voltage

Fully programmable with simple 'count down' program
The *BatteryProtect* can be set to engage / disengage at several different voltages with a simple 'count down' program, please see manual for details.

Over voltage protection
To prevent damage to your sensitive loads due to over voltage, the load is disconnected whenever the DC voltage exceeds 16 V respectively 32 V.

Ignition proof
No relays but MOSFET switches, and therefore no sparks.

Delayed alarm output
The alarm output is activated if the battery voltage drops below the preset disconnect level during more than 15 seconds. Starting the engine will therefore not activate the alarm. The alarm output is an open collector output to the negative (minus) rail, max. current 500 mA. The alarm is typically used to activate a buzzer and / or lamp.

Delayed load disconnect
Only 1 minute after the alarm has been activated will the load be disconnected. If battery voltage increases to the connect threshold within this minute (after the engine has been started for example) the load will not be disconnected.

BP-40i and BP-60i

BP-200i

BatteryProtect	BP-40i	BP-60i	BP-200i
Maximum continuous load current	**40A**	**60A**	**200A**
Peak current	120A	120A	480A
Operating voltage range	6 –35 V		
Current consumption	4mA		
Alarm output delay	15 seconds		
Load disconnect delay	1 minute		
Default threshold	Disengage: 10,5V or 21V Engage: 12V or 24V		
Weight kg (lbs)	0,2 (0.5)	0,2 (0.5)	0,8 (1,8)
Dimensions hxwxd in mm (hxwxd in inches)	80 x 60 x 40 (3.2 x 2.4 x 1.6)	80 x 60 x 40 (3.2 x 2.4 x 1.6)	60 x 120 x 110 (2.4 x 4.7 x 4.3)

Read the owners manual carefully before installing the BP!

Owners manual BP40 / BP60 / BP200

The new Battery Protect BP40/60/200 (hereafter called BP) is an intelligent, waterproof, Battery Protect with accessory connections for a ON/OFF switch, Alarm buzzer or relay and our CurrentWatch current sensor (not included). The unit has two bolts as connection for the Input+ and the Output+ to guarantee low losses. Other connections, like the minus and the accessories, are made by a 4-pole 6.3mm faston connector. A blue LED shows the status (ON/OFF). In program- mode it shows the program position. The BP has an 'Automatic system voltage Detection'; the BP detects which battery voltage (12 or 24V) is used. This does not need to be programmed manually. There is a choice of 10 on/off threshold voltages, for both 12V and 24V, which can be programmed in a simple way. The BP uses very little current. In the OFF mode or when in under voltage the BP uses just 2mA or less.

Installation

The installation of the BP has to be done by qualified personnel. Working with batteries is not without danger. Use wires of sufficient diameter and connectors of good quality. All connections have to be done via a fuse of the right value. See for a guiding principle for the wire diameter the separate chapter. Attention! Live wires should never make contact with the case of the BP or the vehicle. Wrong connection could damage the electronic circuit. Mount the BP on a cooling (metal) surface, so it can dissipate the generated heat. Mount it as close as possible to the battery (max. 50cm). This is the only way to exactly guard the voltage of the battery. Wait with connecting the equipment until the BP is fully programmed. Use a 1.5mm^2 wire for the minus connection which is directly connected to the battery. No other equipment should be connected to this wire.

Programming

To start the program mode a connection should be made between the Input+ and the ProgramInput. The LED will start flashing. The number of flashes represents the program-position (see table) it is in. As soon as the desired program-position is reached the connection, between the Input+ and the ProgramInput, should be removed. To confirm the programmed position the LED will repeat the number of flashes. If it is not the right position, the previous steps have to be repeated. A change in position 11 or 12 has to be programmed separately. The programmed positions will be remembered, even if the battery connection has been removed. After completing the programming the equipment can be connected.
ATTENTION! First remove the battery-connection, connect the equipment to the Output+ and then reconnect the battery.
Default program-position is position 1 and 11. See program table.

Remote ON/OFF

There is a possibility to connect a switch to the BP's OFF connection. If the OFF connection is connected to the Minus, the BP will shut down the connected equipment after about 1 second. If the connection is removed, the equipment will be started up again after about 1 second. The current through the switch is very low, so a small switch can be used.

Alarm-output

A buzzer can be connected to the alarm-output. The buzzer/alarm will be activated in case of under voltage after about 12 seconds. When there is no change in this situation the BP will shut down the equipment about 90 seconds later. The buzzer/alarm will also be stopped. Because at overvoltage (16V/32V) the equipment can be damaged, the BP will shut down the equipment immediately and the alarm-output will pulsate. This way you can hear the difference between an under voltage and an over voltage alarm. A second application of this output is with the use of a relay. In this application the BP should be programmed in program-position 12 (default is position 11) . This way the relay will be activated at alarm and when it reaches the upper voltage threshold it will be deactivated again. This way the relay can be used to activate a charger or generator.

Programming table

12 Volt mode			
	Undervoltage Threshold		Uppervoltage Threshold
Position 1	10,5V		12 V
Position 2	10 V		11,5V
Position 3	9,5V		11,5V
Position 4	11,25 V		13,25 V
Position 5	11,5V		13,8 V
Position 6	10,5V		12,8 V
Position 7	11,5V		12,8 V
Position 8	11,8 V		12,8 V
Position 9	12 V		13 V
Position 10	10 V		13.2 V
Position 11	Normal Alarm		
Position 12	Relay function		

24 Volt mode			
	Undervoltage Threshold		Uppervoltage Threshold
Position 1	21 V		24 V
Position 2	20 V		23 V
Position 3	19 V		23 V
Position 4	22,5 V		26,5 V
Position 5	23 V		27,6 V
Position 6	21 V		25,6 V
Position 7	23 V		25,6 V
Position 8	23,6 V		25,6 V
Position 9	24 V		26 V
Position 10	20 V		26.4 V
Position 11	Normal Alarm		
Position 12	Relay function		

Position 1 & 11 Default positions

Normal alarm: Alarm output activated at alarm; deactivated after 1 minute.
Relay function: Alarm output activated at alarm; deactivated at overvoltage threshold.

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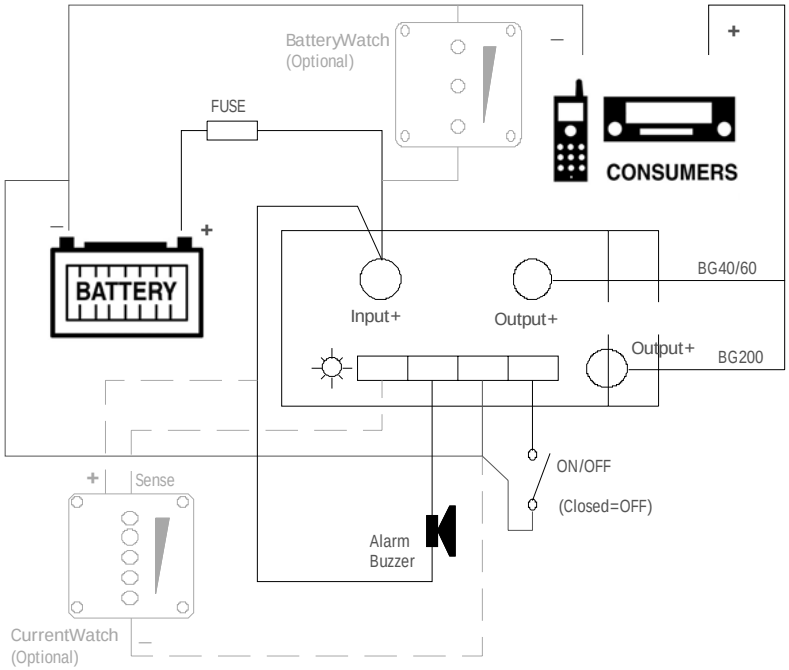
CurrentWatch
The Prog/Current connection can be used to connect a CurrentWatch. The CurrentWatch will show the current used by your equipment. If you are interested in this product, please contact your supplier.
Wire cross section
Use at least the following wire cross section for the bolt connection:

- BP40 min 10mm^2
- BP60 min 15mm^2
- BP200 min 50mm^2

In difficult environments it is advised to use larger cross sections.



Specifications:

- Auto detect 12 or 24V Battery voltage
  - 8-20V -> 12V mode
  - 20-35V -> 24V mode
- 10 programmable voltage thresholds
- Over voltage shut down
  - > 16V (12V mode)
  - > 32V (24V mode)
- Current in use ~ 4mA
- Current in OFF position or under- or over-voltage position
- Maximum Load (shut down current)
  - BP40 : ~ 40A (45A)
  - BP60 : ~ 60A (65A)
  - BP200 : ~ 200A (210A)
- Peak current
  - BP40 & BP60 : 120A
  - BP200 : 480A
- Shut down at overload after 5 sec. (after 1 minute start up)
- Connections
  - ON/OFF switch
  - Alarm buzzer or relay
  - CurrentWatch current sensor
- Voltage drop
  - BP40 : ~ 0,0875 @35A
  - BP60 : ~ 0,125 @ 50A
  - BP200 : ~ 0,1125 @ 180A
- Voltage tolerance ~2%
- Current output tolerance +/- 20%
- Water proof IP66
- The BP will shut down after about 5 seconds when overloaded. After about 60 seconds the BP will start up again.