



# Intellitec

## BSM140

Battery Separator with Motiondetect – 140A  
Datasheet and Owners Manual



### Features

- Intelligently driven 140 A relay
- Motor status detection through vibration
- Low power consumption
- Simple installation
- Automatic 12 V/24 V system detection
- High voltage shutdown 17 V/ 34 V

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The BSM is also suitable for switching on DC loads that are only required to be active when the engine is running (such as inverters)

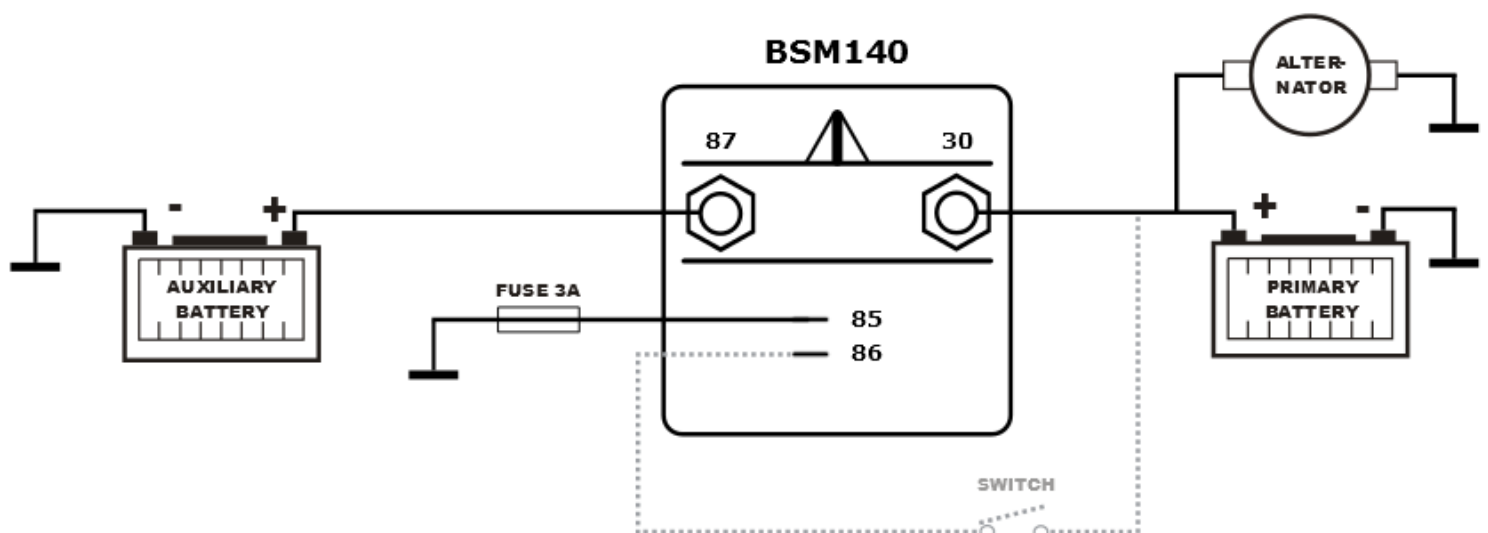
### Purpose

The BSM140 (hereinafter: BSM) is a high-capacity mechanical switch with integrated vibration (i.e. motion) detection that can be used in situations where 2 batteries are present, for example, in trucks, workvans and campervans.

It is no longer possible to read whether a vehicle is 'on' based on the battery voltage with regard to many modern vehicles. The BSM has a sensor that detects vibrations. The BSM can detect whether a vehicle is 'on' based on the measured vibrations.

Since every vehicle is unique and has its own vibration frequency and amplitude, the user can set the sensitivity of the BSM. The actions that must be performed to set the sensitivity of the BSM are listed in the "Configure" section.

### Wiring diagram



## Installation

### Connections

30	Main/start battery positive (+) terminal.
85	Negative (-) terminal. [ <b>Note:</b> it must always be connected through a 3 A fuse.]
86	Connection configuration.
87	Auxiliary battery positive (+) terminal.

### Connection method

- Step 1. The negative terminal (-) of the batteries must be connected to connection 85 of the BSM through a 3 A fuse.  
Step 2. The positive terminal (+) of the main battery must be connected to connection 30 of the BSM.  
Step 3. Connect the positive terminal (+) of the auxiliary battery to connection 87 of the BSM.

### Warnings:

- ◆ The product should only be connected by skilled fitters/mechanics, who are aware of the regulations for working with high battery voltages.
- ◆ The product may be damaged if you use inferior connection material and/or wiring that is too thin.
- ◆ A short circuit between the positive and negative terminals of the battery may cause severe damage to your system.
- ◆ Always use fuses between the battery and the BSM.
- ◆ The main thing to consider when using this type of dual battery charging system is that whatever voltage is present on the input from the vehicle system will be passed through the relay to the auxiliary battery system (up to a maximum of 17(34) volts). This high vehicle system voltage is applicable to many newer European vehicles fitted with Smart Alternator / Regenerative Braking systems (euro 6). If your auxiliary system comprises of batteries or consumer loads that are sensitive to high DC voltages or current (such as Lithium batteries or some makes of inverters), we advise using our Battery-to-Battery Charger or DC-DC Charger options which have programmable output voltages and current limiting capabilities.

**If in any doubt please contact our technical help line prior to purchasing or installation (Tel: 0151 482 8970)**

## Operation

### Vibration detection

The BSM can detect whether a vehicle is 'on' or that the vehicle is being driven thanks to the internal vibration sensor.

### Switching on and off the relay

The BSM will only be switched on if a vibration is detected and the voltage on the primary side falls within specific values. The values are specified in the "Technical details" section. The relay will switch off when the BSM no longer detects vibrations or when the voltage limits are exceeded.

## Configure

The BSM can be set with regard to two issues:

1. Its sensitivity.
2. The time that the BSM remains switched on after detecting the last vibration.

When the configuration connection of the BSM (connection 86) is connected with the positive terminal (+) of the primary battery for 4 seconds, the LED will light up briefly once. When this happens, the connection must be broken.

This same connection must again be made briefly to set the correct configuration – the LED will light up as feedback. This means that configuration #1 has been selected at that moment. If the user again makes the connection briefly, configuration #2 will have been selected, etc.

When a connection is not made between the configuration connection and the positive terminal (+) of the primary battery for 4 seconds, the LED will again display the set position. (Example: Configuration #4 has been set by the user, the LED will flash 4 times.)

### Configuration table

#	Sensitivity	Time (sec)
1	1	1
2	(most sensitive)	5
3		30
4		1
5	2	5
6*		30
7		5
8	3	30
9		60
10		5
11	4	30
12		60
13	5	30
14	(least sensitive)	60

\* factory setting

## Technical details

Supply voltage	8 – 35 V DC	
Switchable current	140 A	
Connections	Bolts	M6
	Faston	6.3 mm
Cable diameter (minimum)	25 mm <sup>2</sup>	
Current take-up	Relay closed	±200 mA @ 13.5 V
		±130 mA @ 27.0 V
	Relay open	±6 mA @ 13.5 V
		±6 mA @ 27.0 V
Off with regard to minimum voltage (after 0.25 s)	12 V system	<11.6 V (reset when >11.8 V)
	24 V system	<23.2 V (reset when >23.6 V)
Off with regard to maximum voltage (after 0.25 s)	12 V system	>17.0 V (reset when <16.8 V)
	24 V system	>34.0 V (reset when <33.6 V)