Intelligent Battery Sensor with Integrated Current, Voltage, and Temperature Sensing Abilities

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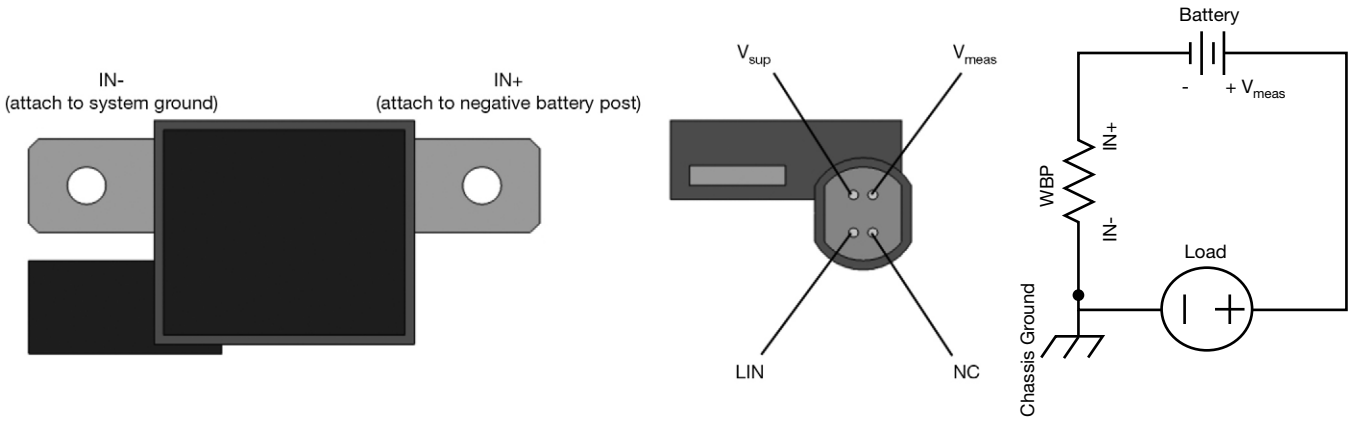
PIN CONFIGURATION AND APPLICATION RECOMMENDATION



BASIC OPERATION

Powering up the Device

To set up the WBP for communication the device first needs to be connected as shown above. The V_{sup} and V_{meas} pins should be connected to a voltage source that is between 4 V and 18 V, (12 V is recommended.) The shunt leads should be placed in a current path with the IN- side attached to the common system ground (i.e. chassis) as shown in the above schematic. Finally the LIN pin then needs to be connected to a suitable LIN master that is also grounded to system ground.

Communicating with the Device

The WBP will accept a LIN baud rate of anywhere from 2000 to 20 000, with the recommended baud rate being 19 200. Set up the LIN master and have it send out the request for information command (in hex this is 3D.) The WBP will send back the information on the current, voltage, and temperature parameters of the device.

Interpreting the Data

The WBP will send data back as a series of binary numbers. The specific values are coded in these numbers as follows:

LIN TRANSMISSION DATA										
VALUE	ID	CURRENT				VOLTAGE		TEMPERATURE		CHECKSUM
Code	3D	xx	xx	xx	xx	xx	xx	xx	xx	xx

Note

- "xx" is data transmitted from the WBP to the LIN master

APPLICATION NOTE

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DATA CONVERSION

The first step in finding an actual value from the binary data transmitted over the LIN bus is to convert the binary number to a decimal number. When dealing with the current value the next step is to divide that number by 1 000 000. The resulting value is the current read by the WBP.

The equation and an example of a ~ 20 A reading are shown below.

Current equation = (0 x XXXXXXXX/1 000 000)

When working with the voltage value all that is needed after converting the value to decimal is to divide that result by 1000.

The equation and an example of a ~12 V result are provided below.

Voltage equation = (0 x XXXX/1000)

To find the value of the temperature result in °C the decimal value has to be divided by 100.

The equation and an example of a ~ 24 °C result are provided below.

Temperature equation = (0 x XXXX/100)

Example:

LIN TRANSMISSION DATA										
VALUE	**ID**	**CURRENT**				**VOLTAGE**		**TEMPERATURE**		**CHECKSUM**
Code	3D	01	31	7D	10	2E	CE	09	57	xx

Current:	
0 x (01317D10) =	20 020 496
20 020 496/1 000 000 =	20.020496

Voltage:	
0 x (2ECE) =	11 982
11 982/1000 =	11.982

Temperature:	
0 x (0957) =	2391
2391/100 =	23.91

APPLICATION NOTE