phocos

PLS2

Shunt Adaptor Reference Manual

Description

The PLS2 shunt adaptor measures the current in a current shunt and sends this data to the PL controller. On the PL screen, the current read by the adaptor is added to the internal current. The adaptor current can be seen separately as CEXT or LEXT (external charge or load).

The PLS2 is bi-directional. This means it can report net load current or net charge current from a single shunt. A load/charge setting is not required. Two PLS2s can be used in one system, but their readings cannot be displayed seperately. In a two PLS2 system, one PLS2 sends its reading to the other PLS2. This adds this to its own reading and sends total charge and load data to the PL. This allows you to measure the currents in 2 different shunts. As a bonus, any flow opposite to what's assumed will be measured correctly. For example, inverters driving reactive loads often return current to the battery during part of each cycle.

Installation

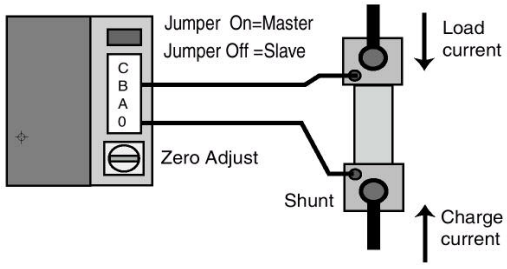
The shunt can be installed in either the positive or the negative wire. The PLS2 is supplied in a clip together powder coated aluminium box. The base of the box has two 5.5mm diameter mounting holes spaced 50mm apart. The top clips onto the base. It can be mounted in any attitude. The box is 75L x 38W x 30H mm. Mount the PLS as close to the shunt as practical. (Preferably within 100mm) Twist the two wires to the shunt around each other to reduce the pickup of interference.

Set-up

It is necessary to select the correct shunt size and mode: Three shunt sizes can be handled directly. These are 100mV/100A, 50mV/100A and 75mV/200A.

To connect to a 100mV/100A shunt, connect one wire to the terminal labelled 0 and the other to the terminal marked C. Similarly, use 0 and B for 50mV/100A, or 0 and A for 75/200. Other sizes may be handled by the use of a resistive divider.

The shunt should be arranged so that the end connected to the "0" terminal is more positive for charge information and more negative for load information. If you get this wrong, there will be no damage, simply swap the wires to the shunt.

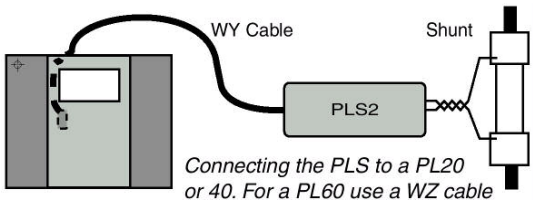


Each PLS2 must operate in either master or slave mode. If only one PLS2 is installed it must be set to master. If two PLS2s are installed one must be a master and one must be a slave. This selection is made using the two pins beside the green terminal block. If they are left connected, the PLS2 will run as a master. If the jumper is removed, the PLS2 will run as a slave.

If a PLS2 is installed with a PLS, the PLS2 must be set to master. The PLS will send either charge or load information according to it's link setting. The PLS2 will send the opposite.

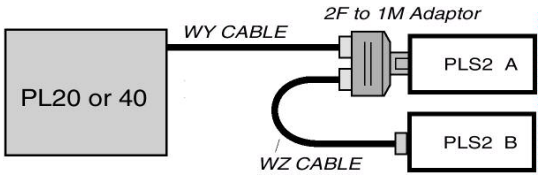
PL Connection

A "WY" cable connects a PL20 or PL40 to a single PLS2. A "WZ" cable connects one PLS2 to another, or to a PL60. When using a WY cable the phone plug end connects to the PLS2 and the 8 way connector plugs onto the 8 way pin header under the lid of the PL controller. Run the cable beside the display on the PL and then out from under the lid at the cut out tab. Do not allow the cable to touch any part of the PL heatsink. One socket of the header plug is blocked up - this matches the cut off pin on the circuit board header). The cables may all be extended if required up to a maximum run for the system of 100 metres.



Connecting the PLS to a PL20 or 40. For a PL60 use a WZ cable

To connect two shunt adaptors to a PL controller. Use the PL double adaptor and a WZ cable as shown below.



Zero adjustment

The small trimpot to the left of the green terminal block is to allow the user to adjust the PLS so that zero current reads as zero on the PL screen. This is preset in the factory. Do not adjust it unless you have to. Allow 5 minutes for the zero to stabilise before adjusting. Adjust slowly until the reading just goes to zero.

Specifications

Range	0 - 25.0 A in 0.1A steps 25 - 250 A in 1A steps
Accuracy	+/-1% or 1 digit
Shunt sizes	1mOhm, 0.5 mOhm 0.375mOhm
DC Isolation	500V
Temperature range -	20 to +70 o C
Supply current	5mA (from PL supply)
Supply voltage	10 to 100V

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