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Option 11W/11Y

External Temperature Probe

Installation and Operation Manual

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CPN 125122

Instruction Drawing Number: P25-LOPT11WY-1
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Option 11W/11Y – Operation

General Description

The natural voltage of a battery changes as a result of temperature change. As the battery temperature rises, the effective voltage of the battery decreases. Without Temperature Compensation, the battery charger will always produce a set constant output voltage. As the battery temperature increases this constant voltage will then induce a higher output current from the charger. This higher current can result in overcharging the battery, which in turn can result in damage to the batteries.

Temperature Compensation combats this overcharging by adjusting the charger's output voltage based on the temperature read by the temperature probe. In order to increase the accuracy of the temperature compensation, the external probe can be used to measure the temperature of the battery.

Option 11W includes the compensation circuit and a 24-foot-long temperature probe. Option 11Y includes the compensation circuit and a 100-foot-long temperature probe. With either option, approximately two feet of the probe is taken inside the charger enclosure.

Installation

When a charger is ordered with a temperature compensation probe, it comes from the factory with the probe connected on the charger side. The probe will be wrapped up and zip tied to the bottom of the case. To complete the installation, simply install the remaining lug of the probe to the negative terminal of the battery.

If multiple chargers are used in parallel, all chargers must have the same temperature compensation setup, meaning all chargers either use or do not use temperature probes. An effort should be made to locate the multiple temperature probes near each other on the string as such that they are seeing as close to the same temperature as reasonable. Also, being placed physically around the middle of the battery bank where the probes would see the average temperature. Example image below.

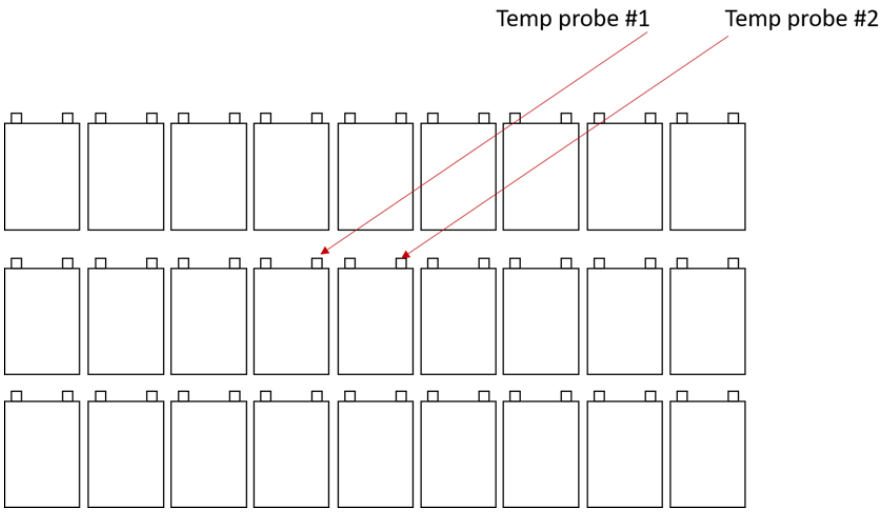

Figure 1 – Recommended Temperature Probe Connection for Two Parallel/Load Sharing Chargers

The lug of the probe is completely isolated from the compensation circuitry, so the battery voltage will not affect the compensation. Also, Temperature Compensation requires no calibration. Once the temperature probe is connected, the charger can be started as normal.

A12B Battery Chargers

For A12B battery chargers, the temperature compensation circuit becomes an integral part of the overall control circuit. If the probe is removed (or replaced with a shorting wire) the control of the charger will not function properly. If it is decided that Temperature Compensation is no longer needed, a small bypass circuit board (S2C-47B-AD01) is required in the place of the probe. This circuit board places the charger at 25˚C settings, regardless of the actual ambient temperature.

The temperature compensation considers 25°C as the nominal ambient temperature and adjusts the voltage level based on the difference between the actual temperature and 25°C. The temperature compensation rate for A12B chargers is 1mV/°C/cell.

Before making any connections to the A12B, ensure that the charger is isolated from all AC and DC sources. Verify that no voltage is present by using a voltmeter at all input and output terminals.

NOTE: *Procedure only applies on A12B chargers with Option 11W/11Y.*

1. Locate the **T-S** terminal strip inside the charger.
2. Connect the black lead of the external probe to the other end of terminal **T2**, and the red lead to the other end of terminal **T1**. Refer to Figure 2.
3. Land the external probe on the negative terminal of the battery.

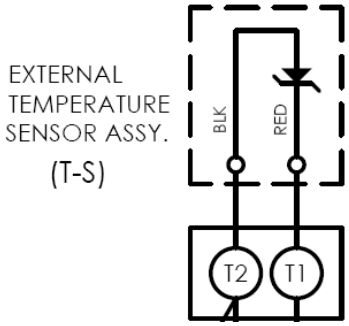

Figure 2 – External Temperature Compensation Connection (A12B Chargers Only)

TPSD2 Battery Chargers

For TPSD2 chargers, the external temperature probe is not necessary for normal operation, unless temperature compensation is enabled. Before making any connections to the TPSD2, ensure that the AC power is off at the main breaker box and the charger's breakers are off. Verify that no voltage is present by using a voltmeter at all input and output terminals.

NOTE: *Procedure only applies on TPSD2 chargers with Option 11W/11Y. Assure to enable temperature compensation via the Settings Menu. Refer to charger instruction manual for details.*

1. Locate the **J4** terminal strip on the S2A-406 board.
2. Toggle the **SW1** switch on the S2A-406 board to the External position. Refer to the Figure 3.
3. Connect the black lead of the external probe to terminal **2** of **J4**, and the red lead to terminal **1** of **J4**.
4. Land the external probe on the negative terminal of the battery.

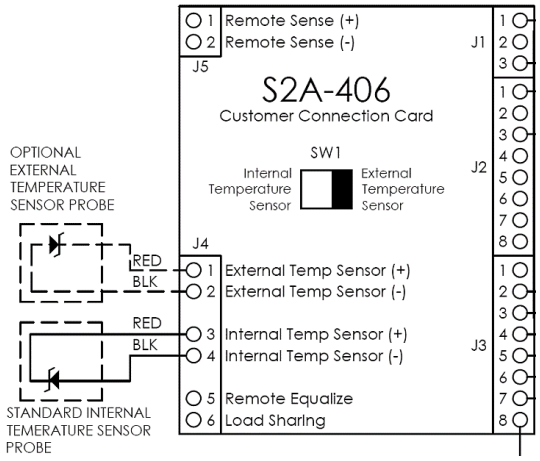

Figure 3 – External Temperature Compensation Connections (TPSD2 Chargers Only)

A36D Battery Chargers

For A36D chargers, the external temperature probe is not necessary for normal operation, unless temperature compensation is enabled. Before making any connections to the A36D, ensure that the AC power is off at the main breaker box and the charger's breakers are off. Verify that no voltage is present by using a voltmeter at all input and output terminals.

NOTE: *Procedure only applies on A36D chargers with Option 11W/11Y. Assure to enable temperature compensation via the Settings Menu or Customer Calibration. Refer to charger instruction manual for details.*

1. Locate the **TS-6** terminal strip inside the charger.
2. Connect wire marked **F** to terminal **1** and wire marked **G** to terminal **2**. Refer to Figure 4.
3. Connect the black lead of the external probe to the other end of terminal **1**, and the red lead to the other end of terminal **2**.
4. Land the external probe on the negative terminal of the battery.

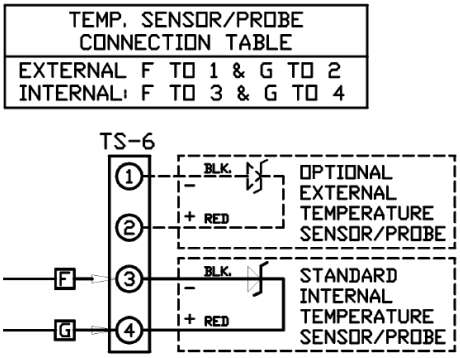

Figure 4 – External Temperature Compensation Connections (A36D Chargers Only)

A77 Battery Chargers

For A77 chargers, the external temperature probe is not necessary for normal operation, unless temperature compensation is enabled. Before making any connections to the A36D, ensure that the AC power is off at the main breaker box and the charger's breakers are off. Verify that no voltage is present by using a voltmeter at all input and output terminals.

NOTE: *Procedure only applies on A77 chargers with Option 11W/11Y. Assure to enable temperature compensation via the Settings Menu. Refer to charger instruction manual for details.*

1. Locate the **J4** connector on the S2A-368S board.
2. Disconnect the internal probe on **J4** connector and install the external probe. Refer to Figure 5.
3. Land the external probe on the negative terminal of the battery.

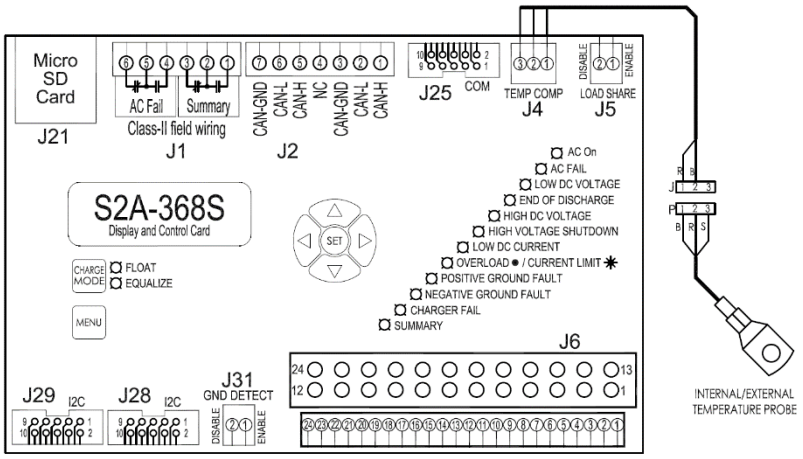

Figure 5 – External Temperature Compensation Connections (A77 Chargers Only)

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