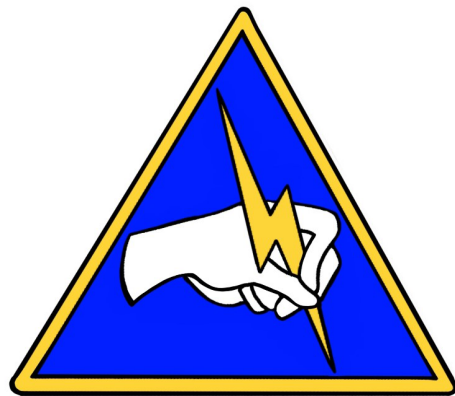


Hawkeye 6.6kW + 1.2kW Charger/DCDC ---Manual---



**HAWKEYE INNOVATIONS
LLC**

Table of Contents

Safety First!.....	3
Charger Specifications.....	5
Safety Notes.....	6
Installation.....	7
BMS Setup.....	9
LED States.....	11

Safety First!

This list is not all inclusive. Use common sense and be responsible when working with high voltage and high voltage components. High voltage components are dangerous and can cause injury or death if not correctly or safely handled.

Always wear safety equipment such as high voltage rated shoes, gloves, and safety glasses. Be sure to remove all metal jewelry or any metal objects prior to working with any high voltage. Use insulated tools or insulate any tools that may be coming in contact with high voltage points.

Always check over the high voltage wiring and connections several times. Always use precautions when working with high voltage and/or series connected batteries. Be sure that the vehicle is off of the ground, and the wheels will not make contact with anything. It is good practice to have more than one support mechanism that supports the vehicle for extra safety.

Always refer to the component manufacturers' manuals for the most up to date information on their specific products. Please be sure to always use correct high voltage fusing and high voltage disconnect devices that are fully operational.

If you ever feel uncomfortable or uncertain in any way, STOP and seek advice from a knowledgeable person immediately.

DISCLAIMER:

Hawkeye Innovations LLC Hawkeye 6.6kW + 1.2kW Charger/DCDC manuals can change and be updated at any time without notice. Except for Hawkeye Innovations, LLC's express warranties, if any, set forth in the manual regarding Hawkeye 6.6kW + 1.2kW Charger/DCDC located at https://www.hawkeyeinnovationsllc.com/store/p76/Hawkeye_6.6kW_1.2kW_Charger%2FDCDC.html , Hawkeye Innovations, LLC, makes no representations or warranties whatsoever with respect to the Hawkeye 6.6kW + 1.2kW Charger/DCDC, including but not limited to any warranty of merchantability, warranty of fitness for a particular purpose, or warranty against infringement of intellectual property rights, whether express or implied by law, course of dealing, course of performance, usage of trade, or otherwise. Hawkeye Innovations, LLC, has no control of third-party installation or use of the Hawkeye 6.6kW + 1.2kW

Charger/DCDC. Accordingly, Hawkeye Innovations, LLC, assumes no liability for vehicle functionality or safety during or after third-party installation of the Hawkeye 6.6kW + 1.2kW Charger/DCDC. Additionally, Hawkeye Innovations, LLC, assumes no liability for any damage caused to the vehicle or the Hawkeye 6.6kW + 1.2kW Charger/DCDC as a result of installation of the Hawkeye 6.6kW + 1.2kW Charger/DCDC. Hawkeye Innovations, LLC, assumes no responsibility for this product in any use. DO NOT open the charger, damage and electrical shock may occur, and warranty will be void.

Hawkeye 6.6kW + 1.2kW Charger/DCDC Specifications

Features:

- >92% efficient
- Automotive grade
- High flow chill plate for maximum cooling capacity with ¼ NPT coolant ports.
- Integrated 1.2kW (1.4kW peak) DC/DC Converter with soft start enable function.
- Excellent protection features (output over-voltage, output over-current, charger over temperature (automatic output reduction))
- Built in temperature sensor shuts down the charger in an overheated condition.
- Easy to use connectors.
- Auto shut down if the CAN message is not received within 5 seconds.

Charger Technical Specifications:

Operational Temperature	-40°F - 140°F
Storage Temperature	-40°F - 194°F
Relative Humidity	5%-95%
Heat Dissipation Method	Liquid Cooled
AC Input Voltage/Current	95-260VAC 32A
AC Input Frequency	50-60Hz
Charger Rated Output Power	6600W

Charger Voltage Regulation Accuracy	$\leq 1\%$
Current Regulation Accuracy	$\leq 1\%$
Output Response Time	≤ 5 seconds
DC/DC Rated Output Voltage	14V
DC/DC Rated Output Power	1200W
DC/DC Max Output Power (burst)	1400W
Weight	24 lbs

Safety Notes

1. While the charger is water resistant when the connectors are mated, care should be taken so that the charger does not get excessive spray (i.e. mounted under the car near the wheels).
2. Ensure that the AC power input connections are good.
3. The charger should have cool liquid to ensure proper cooling.
4. Do not operate the charger with poor quality, high resistance, or defective batteries.
5. Do not operate the unit if charger wire harnesses are damaged.
6. Charger must be securely mounted to the vehicle.
7. Do not reverse polarity of the charger output.
8. Take caution to connect the AC input properly.
9. If you are ever unsure, STOP, and consult a technician.
10. DO NOT open the charger, damage and electrical shock may occur, and warranty will be void.
- 11. If you are unsure of anything, please contact us before use.**

Installation



Figure 1

1. Note the connector labels in **Figure 1**. With the 12V battery disconnect off, connect the +12V and Ground with appropriately sized cables depending on your 12V load, through a fuse or circuit breaker.
2. Without any power present on the high voltage system, the 12V system or the CAN bus network, wire up the included signal harness shown in **Figure 2**.



Figure 2

4 Pin Signal Harness (Deutsch DT Plug):

Pin #1, (Gray wire) CAN Low

Pin #2, (Orange wire) CAN High

Pin #3, (Yellow wire) +12v DC/DC Enable, apply +12V here to turn on the DC/DC converter, or wire it up to the SCM2 DC/DC output if you are using our SCM.

Pin #4, (Red wire) +12V 0.3A Supply

Pin #4 NOTE: Do not try to draw more than 0.3A through this supply, it is a signal level output ONLY. If connecting to the Orion BMS ‘Charge’ Power input (through a fuse first), ensure the BMS is powered by the ‘Ready’ power first and the DC/DC output is on. The BMS will draw power from the 14V of the DC/DC (higher voltage source) and not through this supply. If using SCM2, wire up according to the SCM2 Schematic.

3. With the high voltage (HV) disconnect switch in the off position, ensuring no high voltage present, wire-up the included HV Battery Connectors **shown in Figure 3** to the battery pack/HV distribution box. **It is important to make a solid crimp using a hydraulic crimper with appropriately sized dies.** Failure to make a good connection here may cause cables/connectors to melt, and/or damage the charger. Ensure that the polarity is correct, as incorrect polarity will damage the charger. It is recommended to add a fuse in between the HV Input and the battery pack. The fuse should be sized accordingly.



Figure 3

3. Once the HV Battery Connectors **shown in Figure 3** are connected to the pack, plug in the connectors into the charger, ensuring they click and lock into place.

4. **Figure 4** below shows the AC Input harness. We have made this harness with individual wires to make it much easier to install per feedback from our customers. **The red wires are both Hot, for 240VAC, the green wire is ground (ground of AC mains). This should be wired directly to your J1772 port.** Always be sure to use high quality connectors, that have good conductivity, and rated for *more* than the expected draw. The body of the charger should have contact with the chassis ground of the vehicle, to ensure proper grounding for J1772 and safety.



Figure 4

5. Once you have verified that the wiring is correct, connect the AC input harness **shown in Figure 4** to the AC input 3 pin orange port on the charger shown in **Figure 5 (this is a two stage plug, so make sure it is pushed in all the way)**. Incorrect wiring can damage the charger.

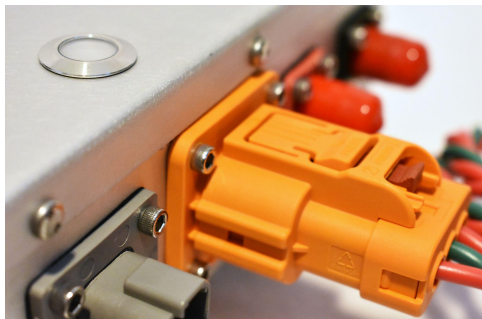


Figure 5

6. Finally, after verifying all of the wiring is connected correctly, turn on your HV disconnect switch. Log into your Orion BMS, and once connected, select the Elcon Charger under ‘third party devices’ shown in **Figure 6**. If you need more assistance with the Orion BMS, please contact your Orion BMS dealer. We only recommend the Orion BMS, but if you are using a different BMS and need the CAN byte structure, please contact us for more information. The default CAN speed for this charger is 250kbps. **The CAN bus baud rate of the Orion BMS needs to be set to 250kbps as it defaults to 500kbps.** This can be done by changing the CAN speed in the drop down menu shown in **Figure 6**. Upload the changes to the BMS and power cycle the unit (wait 60 seconds after shutting off the BMS power). If needed, please contact your Orion dealer for more information.

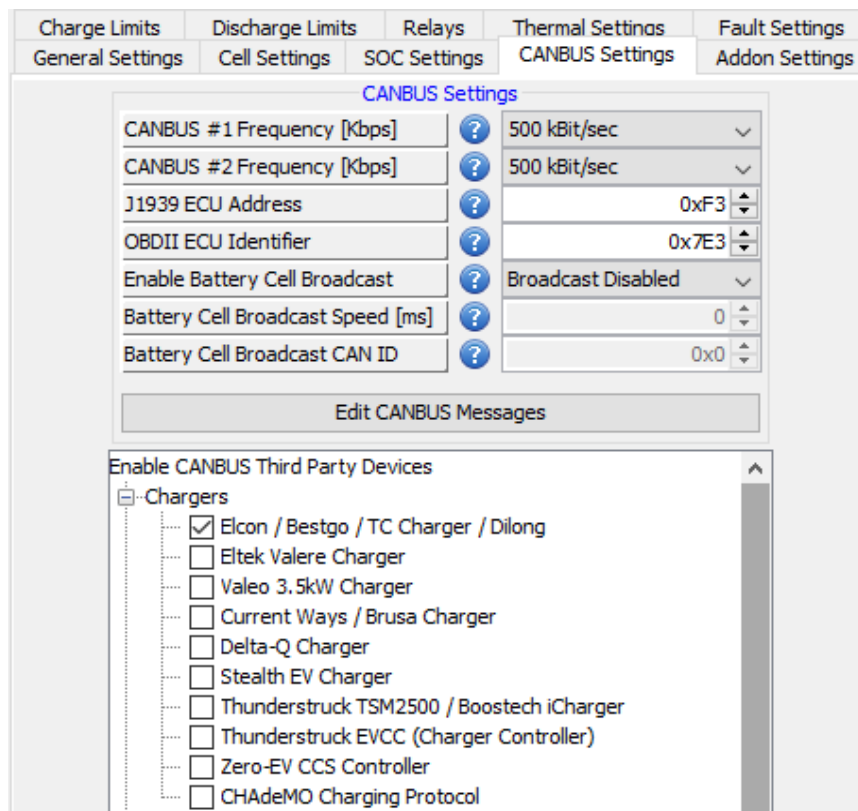


Figure 6

Status LED States

Red/Green alternating - HV Battery not detected or incorrect wiring.

Red blinking - Charging

The Hawkeye 6.6kW + 1.2kW Combo Charger/DCDC should now be fully operational and set up with your system. If you have any questions, please feel free to contact us.

Hawkeye Innovations, LLC

Email: support@hawkeyeinnovationsLLC.com