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# USER MANUAL



## 850HS Series DC-DC Converter

June 10, 2020

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# I Introduction

After removing the unit from its packaging and ensuring that it has suffered no damage in shipment, it is important to read this manual and follow its instructions to ensure proper connection and mounting.

850HS is an isolated dc-dc converter capable of operating in extreme ambient temperatures and adverse conditions. See the specification sheet at the end of this manual for ratings.

# II Installation

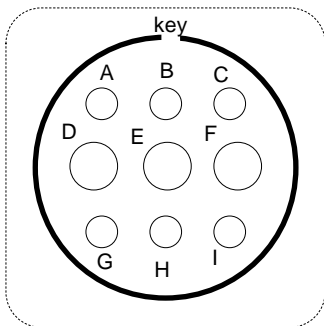
## 2.1 Mounting

The converter is designed to be mounted to flat metal surfaces offering optimum heat transfer from the converter base in environments where air flow is restricted. For best results, thermal transfer compound is a recommended interface between the converter and mounting surface. The [4] mounting slots in the flanges will accommodate mounting hardware up to ¼ inch diameter. (See figure #2 for mounting centers)

## 2.2 Connections

The Input/Output connector on the converter is shown in Figure 1 with designated pin functions.

Input/Output Connector



Canon 3102E24-11PB  
Front View

**Pin**

- A - Output Positive Sense
- B - No Connection
- C - Output Negative Sense
- D - Output Positive
- E - Housing Ground
- F - Output Negative
- G - Input Positive
- H - Remote Turn On/Off
- I - Input Negative



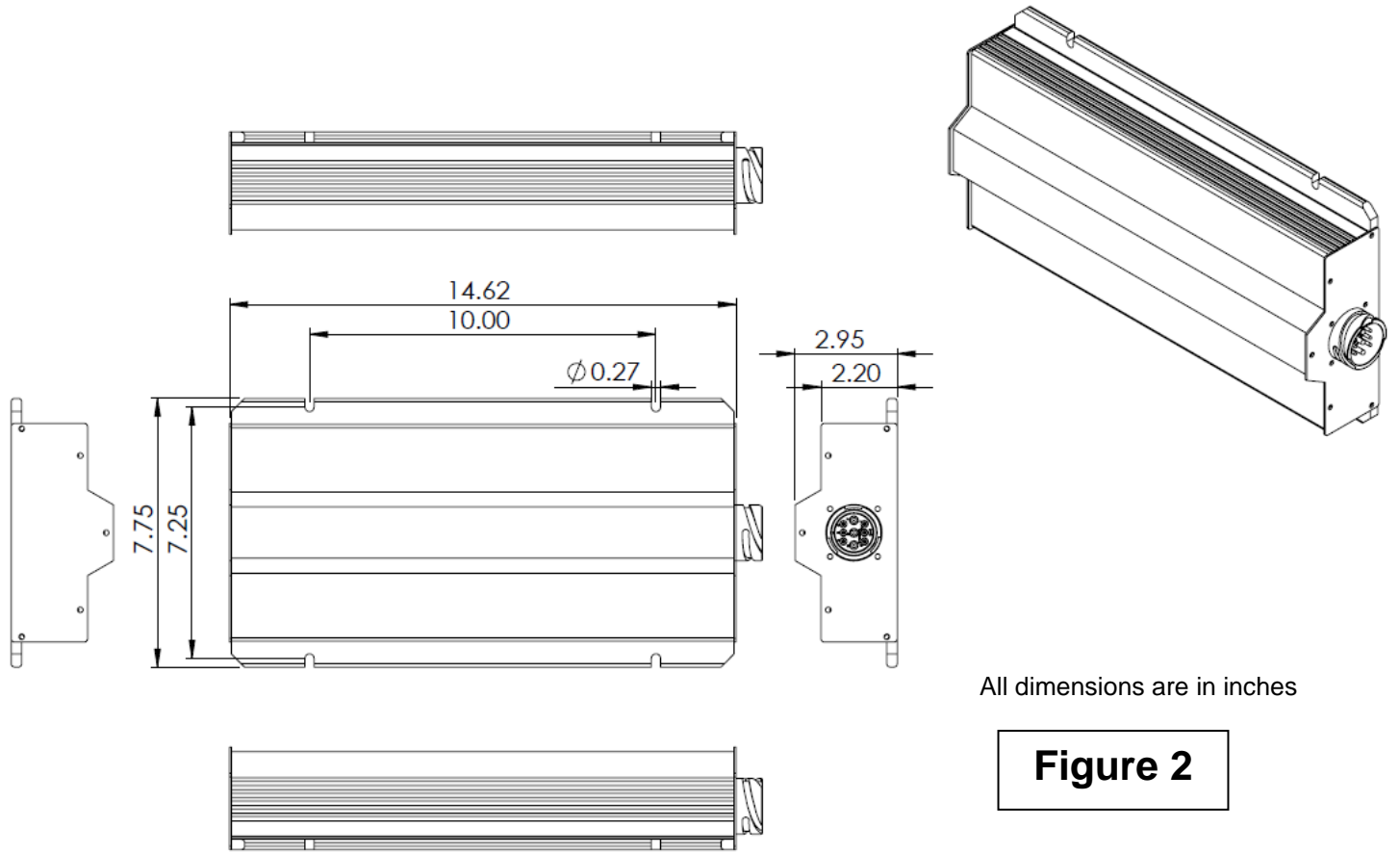
Cable side mating connector  
Canon P/N 3106E24-11SB

**Figure 1**

**Figure 1A**

<u>Pins</u>	<u>Maximum Wire Sizes</u>
D,F	#8
E	#12 - #14
Others	#12

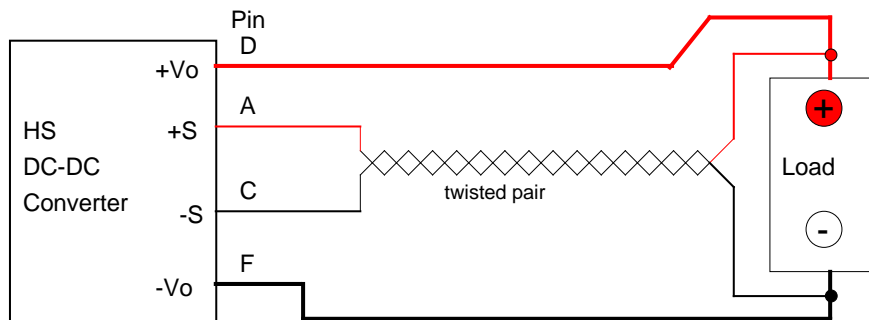
An option for users who wish to purchase a manufactured cable assembly is P/N 68-0749-6 which is 6 feet long and is a standard SEC part.



All dimensions are in inches

**Figure 2**

### III Regulation With Remote Sense



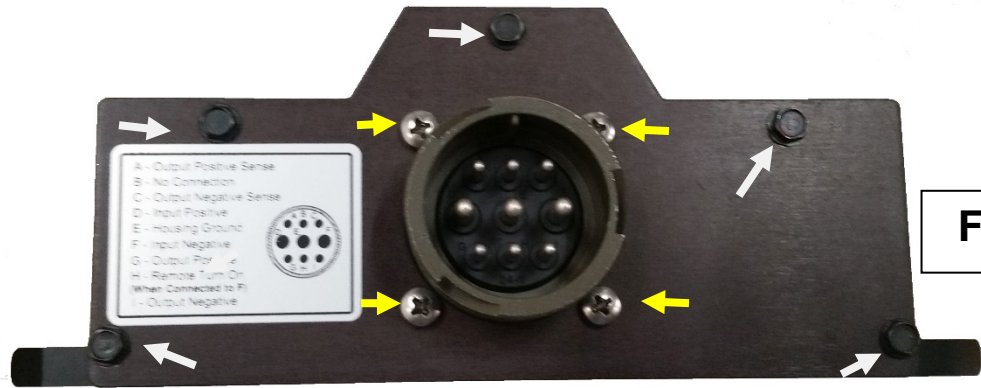
**Figure 3**

The 850HS provides regulated outputs at the output terminals. When there is a large current and/or the output cable is of excessive length (longer than 6 feet), the voltage at the end of the cable may be noticeably lower than at the terminals. The converter can compensate up to 0.75V of voltage drop through remote sense terminals. To ensure accurate regulation, users should run two separate wires (twisted from the desired regulation points to the remote sense terminals) Wires of gauge 24 or thicker are adequate for sensing. Even if load currents are low, users will realize better regulation by connecting +Vo to +S and -Vo to -S.

### IV User Adjustments

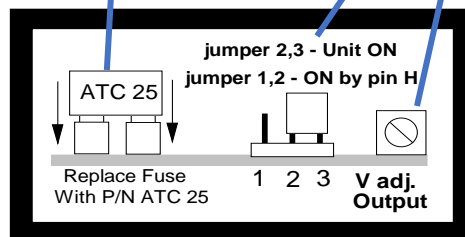
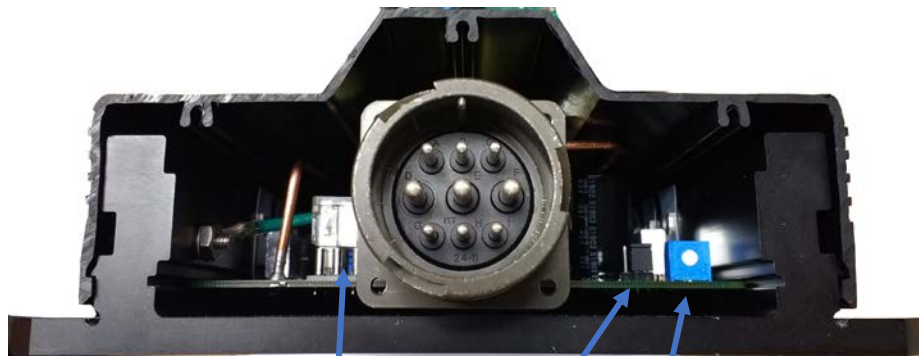
850HS is gasket-sealed. Changes or adjustments to the operating modes are accomplished internally:

- 1) To gain access, (Disconnect power from the unit before opening) remove the 5 outer black hexagonal head screws retaining the connector plate as shown in Figure #4. Then remove the 4 screws surrounding the connector. This will free the front panel for removal.



**Figure 4**

- 2) After the screw removal, lift the panel off the connector to expose the internal components as shown in Figure 5 which also shows the adjustments and their locations.



**Figure 5**

**Accessible Adjustments:**

- Output voltage** is trimmed by adjusting the potentiometer P1 (on the right).
- Remote “Turn On” Disabled:** Units are shipped from factory with pins 2 and 3 of the connector [CON1] jumpered as shown. This programs the unit to be “ON” when source power is applied.
- Remote “Turn On” Enabled:** To program the unit for remote enable, shift the jumper from pin positions 2 and 3 of [CON1] to positions 1 and 2. In this mode the unit will energize when pin H is connected to the negative input line pin I.
- Fuse Replacement:** In the unlikely event that fuses F1 will open, disabling the unit, **DO NOT CHANGE FUSES WITH THE POWER APPLIED.** In order to restore normal operation, the user will need to ensure that the cause of the failure has been removed. Then the blown fuses need to be removed by gently prying them out of their clips and replacing them with ones of identical ratings. Notwithstanding the above the user should take every precaution to ensure that a reversed polarity input is avoided. Any polarity reversals may result in permanent damage.

- 3) Restore the front plate to its original position by replacing the (4) connector securing screws and then the (5) front plate hex head screws making sure the gasket is compressed.

## **IV Warranty and Repair**

Should your investigations indicate that your product is defective or damaged and the unit is still under warranty, contact your dealer (purchase point of origin) and obtain a return merchandise authorization (RMA number) for corrective action.

If the warranty period has expired or if the warranty has been violated due to operator error or misuse call: SEC America Corp. 802-865-8388 to receive an authorization for return for an assessment and possible repair.

### **Warranty**

**850HS Series models come with a 2-year factory warranty covering parts and labor per the following:**

#### **LIMITED WARRANTY**

We warrant each instrument, sold by us, or our authorized agents, to be free from defects in material and workmanship and that it will perform within applicable specifications for a period of two year after original shipment. Our obligation under this guarantee is limited to repairing or replacing any instrument or any part thereof, except fuses and pilot lights, which shall within one year after delivery to the original purchaser, be returned to us with transportation charges prepaid, prove after our examination to be thus defective.

The above limited warranties take the place of all other warranties, expressed or implied, and correction of such defects by replacement or repair shall constitute a fulfillment of all obligations under the terms of the warranties. The warranties do not cover any unit that has been damaged either in transit or by misuse, accident or negligence. No warranty or representation by anyone other than this Company shall be binding on us.

To return a unit to factory, send only to the following address:

**SEC America Corp.  
78 Ethan Allen Drive  
South Burlington, Vermont 05403      Tel: 802-865-8388**

**PLEASE RETAIN YOUR ORIGINAL BILL OF SALE. IT MUST  
BE SUBMITTED WHEN MAKING ANY WARRANTY CLAIM**



**48 to 48 VDC Isolated Converter  
Model 850HS  
Regulated Sealed DC-DC Converter**

**Design Features**

- Wide Range Input Voltage
- High Efficiency Isolated Design - 94%
- Hi Ingress Rating, IP 67
- Adjustable Output Voltage
- Optional Remote Output Voltage Sensing
- Optional Remote On/Off Switching
- Low/High Input Voltage Cutouts
- Electronically Current Limited
- Thermally Protected
- Low No Load Power Consumption
- I/O Bayonet Quick Connection

		MODEL NO.	850HS
INPUT	NOMINAL INPUT VOLTAGE RANGE	46 to 56 VDC	
	MAXIMUM INPUT VOLTAGE RANGE	40 to 61 VDC	
	INPUT CURRENT WITH LOAD AT 18A; 48.0 Vout	19.1 A with input at 48.0 V	
	INPUT CURRENT AT NO LOAD	< 160 mA over entire input and output ranges	
OUTPUT	OUTPUT VOLTAGE NOMINAL	48.0 +/- 0.1 VDC (factory adjusted)	
	OUTPUT VOLTAGE ADJUSTMENT RANGE	46.0 to 54.0 VDC (internally accessible to user)	
	OUTPUT LOAD REGULATION	200 mV (without remote sensing)	
		<30 mV (with remote sensing 5%-100% Load)	
	OUTPUT VOLTAGE REGULATION	< 0.2% with input excursions from 46-56 VDC	
	OUTPUT RIPPLE	50 mV RMS at maximum load (measured at 25C)	
	MAXIMUM CONTINUOUS OUTPUT POWER	864 W	
	POWER SURGE	1000 W	
MAXIMUM LOAD CURRENT	18 ADC, for output voltage setting 46.0-54.0 VDC		
EFFICIENCY	Not less than 94% over entire operating range		
PROTECTION	LOW INPUT VOLTAGE SHUTDOWN	40V +/- 1V	
	HIGH INPUT VOLTAGE SHUTDOWN	60V +/- 1V	
	OVERLOAD SHUTDOWN	Knee current limit starting at 110% of maximum current	
	ISOLATION	Input/Output-1800V, Input/Housing-2500V	
	OVER TEMPERATURE SHUTDOWN	Via internal thermostat, self resetting	
	COOLING	By conduction through base plate and convection	
FUSING	Customer accessible by front panel removal		
CONNECTIONS	INPUT/ OUTPUT CONNECTION	Via 9 pin Bayonet connector (see owner's manual)	
	REMOTE TURN ON	Via pin H jumpered to -ve Pin I on input connector, may be disabled via internal jumper	
	REMOTE SENSE	Via 2 pins on the output connector usage is optional (see user manual)	
GENERAL	OPERATING TEMPERATURE RANGE	-40C to 70C, 100% loading	
	OPERATING HUMIDITY	100% non condensing	
	INGRESS RATING	IP 67	
	MOUNTING SLOT CENTERS (in./cm.)	10.0 x 7.3 / 25.4 x 18.5	
	DIMENSIONS, (in./cm.) (L x W x H)	15.5 x 8.0 x 2.9 / 39.4 x 20.3 x 7.4	
	HOUSING MATERIAL	All Aluminum	
WEIGHT, (lb./kg.)	15 /6.8		

NOTE: Specifications are subject to change without notice.

Rev 06/06/2020



**cage code 07KU1**

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