



www.secamerica.com

USER MANUAL



600HS Series DC-DC Converters

Applies to Models:

611HS
621HS

637HS
649HS

March 10, 2016

TABLE OF CONTENTS

	page
I Introduction	1
II Installation	1
2.1 Mounting	1
2.2 Connections	1
2.3 Mechanical Drawing	2
III Remote Sense Regulation	2
IV User Adjustments	3
IV Warranty	4
V Electrical Specifications	5-8

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.

600HS Series models are fully isolated dc-dc converters capable of delivering up to 450 Watts in extreme ambient temperatures and adverse operating conditions. See specification sheets at the end of this manual for the ratings of a particular model.

II Installation

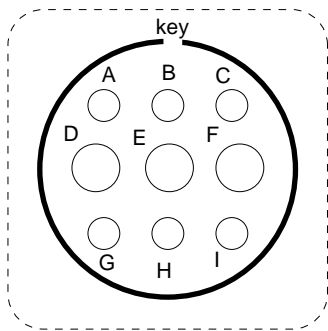
2.1 Mounting

The converters are designed to be mounted to flat metal surfaces offering optimum heat transfer from the converter base in environments where air flow may be 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 - Input Positive
- E - Housing Ground
- F - Input Negative
- G - Output Positive
- H - Remote Turn On/Off
- I - Output Negative



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

Figure 1

Figure 1A

Pins	Maximum Wire Sizes
D,E,F	#8
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.

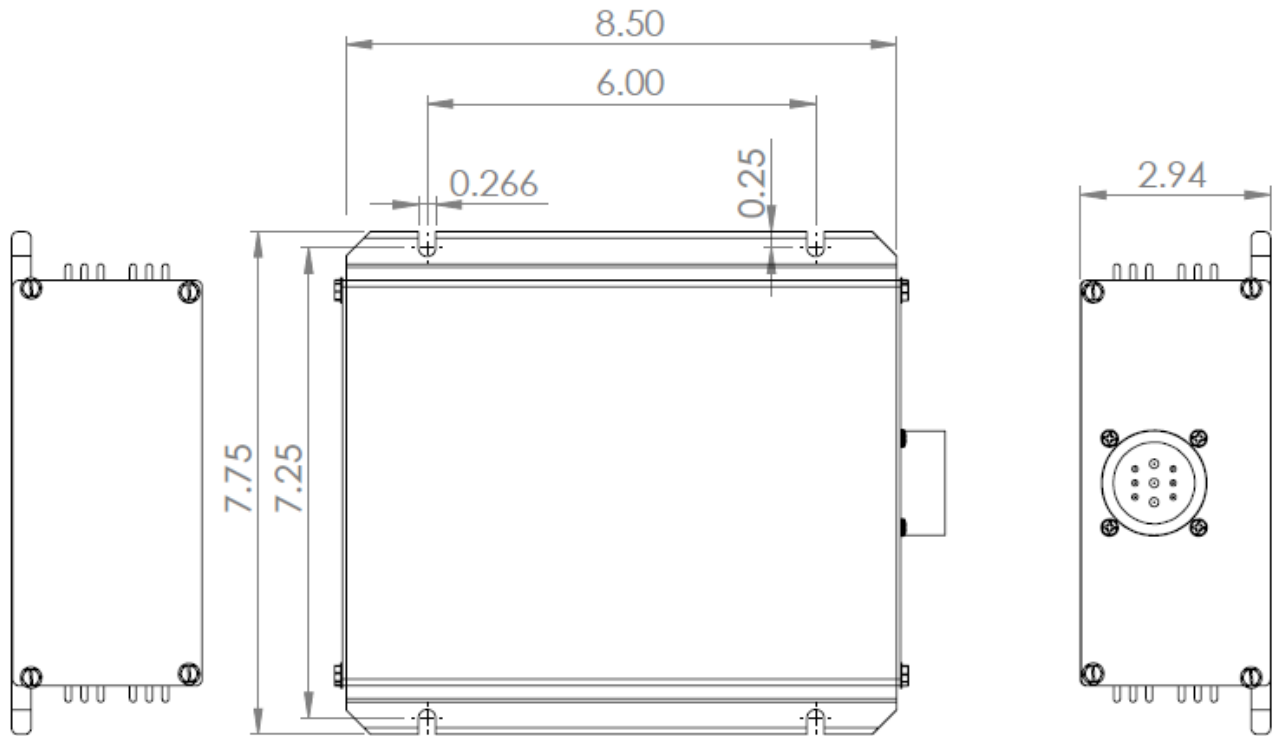


Figure 2



All dimensions are in inches

III Regulation With Remote Sense

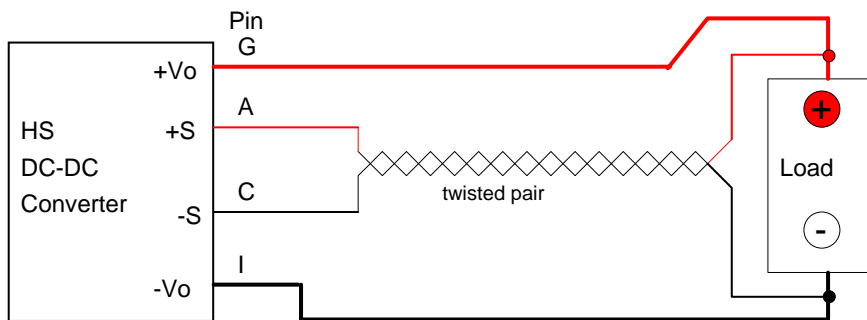


Figure 3

The HS Series provides regulated outputs at the output terminals. When there is a large current and/or the output cable is of some length, 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). Even if the load current is low, users should still connect +Vo to +S and -Vo to -S.

IV User Adjustments

Series 600HS units are gasket-sealed. Changes or adjustments to the operating modes of any unit are accomplished internally:

- 1) To gain access, remove the 4 corner screws retaining the connector plate as shown in Figure #4. Disconnect power from the unit before opening it.



Figure 4

- 2) After removing the screws, lift the panel to expose the internal components as shown. Figure #5 shows the adjustments and their locations

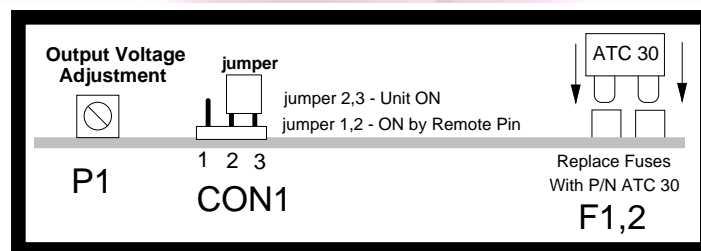


Figure 5

Accessible Adjustments:

- A) **Output voltage** is trimmed by adjusting the potentiometer P1.
- B) **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.
- C) **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 F.

- D) **Fuse Replacement:** In the unlikely event that fuses F1,2 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 securing screws and 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, LLC, 802-865-8388 to receive an authorization for return for an assessment and possible repair.

Warranty

600HS 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, LLC
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**



**DC-DC Converter
HS Sealed Series**

**Model
611 HS**

Design Features

- Wide Range Input Voltage
- High Efficiency Design
- Hi Ingress Rating, IP 676
- Adjustable Output Voltage
- Optional Remote Output Voltage Sensing
- Optional Remote On/Off switching
- Low Voltage cutout
- High Voltage cutout
- Electronically Current Limited
- Thermally Protected
- Low No Load Power Consumption
- I/O Bayonet Quick Connection

		MODEL NO.	611 HS
INPUT	NOMINAL INPUT VOLTAGE RANGE	12 VDC to 28 VDC	
	MAXIMUM INPUT VOLTAGE RANGE	10.5 to 32.0 (+, - 0.5) VDC	
	INPUT CURRENT AT 20A OUTPUT CURRENT	28A @ 12.0 Vin; 13.0 Vout	
	INPUT CURRENT AT NO LOAD	< 150 mA over entire input/output voltage range	
OUTPUT	OUTPUT VOLTAGE NOMINAL	13.0 VDC (factory adjusted)	
	OUTPUT VOLTAGE ADJUSTMENT RANGE	9.5 VDC to 18.0 VDC (internally accessible to user)	
	OUTPUT LOAD REGULATION	250 mV (without remote sensing) 50 mV (with remote sensing)	
	OUTPUT VOLTAGE REGULATION	<2%	
	OUTPUT RIPPLE	50 mV RMS at maximum load (measured at 25C)	
	MAXIMUM CONTINUOUS OUTPUT POWER	450 W	
	POWER SURGE	550 W	
	MAXIMUM LOAD CURRENT	20 ADC, for output voltage setting 9.5 VDC - 18.0 VDC	
PROTECTION	LOW INPUT VOLTAGE SHUTDOWN	< 10.5 +/-0.3 VDC	
	HIGH INPUT VOLTAGE SHUTDOWN	> 32.0 +/- 1.0 VDC	
	OVERLOAD SHUTDOWN	Set to shut off at 110% of maximum current with continuous automatic retry	
	OVER TEMPERATURE SHUTDOWN	Via internal thermostat, self resetting	
	COOLING	By Conduction through base plate and convection	
	FUSING	Customer accessible	
CONNECTIONS	INPUT/ OUTPUT CONNECTION	Via 9 pin Bayonet connector	
	REMOTE TURN ON	Via pin to -ve on input connector, may be disabled via internal jumper	
	REMOTE SENSE	Via 2 pins on the output connector usage is optional	
GENERAL	OPERATING TEMPERATURE RANGE	-40C to 70C, 100% loading	
	OPERATING HUMIDITY	100%	
	INGRESS RATING	IP 676	
	MOUNTING SLOT CENTERS (in./cm.)	6.0 x 7.3 / 15.2 x 18.5	
	DIMENSIONS, (in./cm.) (L x W x H)	9.5 x 8.0 x 2.9 / 24.1 x 20.3 x 7.4	
HOUSING MATERIAL	All Aluminum		
WEIGHT, (lb./kg.)	7 / 3.2		

NOTE: Specifications are subject to change without notice.

Rev 7/15/2015

450W

DC-DC Converter
HS Sealed Series

Model
621 HS



Design Features

- Wide Range Input Voltage
- High Efficiency Design
- Hi Ingress Rating, IP 676
- Adjustable Output Voltage
- Optional Remote Output Voltage Sensing
- Optional Remote On/Off switching
- Low Voltage cutout
- High Voltage cutout
- Electronically Current Limited
- Thermally Protected
- Low No Load Power Consumption
- I/O Bayonet Quick Connection

MODEL NO.		621 HS
INPUT	NOMINAL INPUT VOLTAGE RANGE	12 VDC to 28 VDC
	MAXIMUM INPUT VOLTAGE RANGE	10.5 to 32.0 (+, - 0.5) VDC
	INPUT CURRENT AT 15A OUTPUT CURRENT	38A @ 11.5 Vin; 26.0 Vout
	INPUT CURRENT AT NO LOAD	< 150 mA over entire input/output voltage range
OUTPUT	OUTPUT VOLTAGE NOMINAL	26.0 VDC (factory adjusted)
	OUTPUT VOLTAGE ADJUSTMENT RANGE	16.0 VDC to 28.0 VDC (internally accessible to user)
	OUTPUT LOAD REGULATION	<1.6% (with local sensing) <30 mV (with remote sensing)
	OUTPUT VOLTAGE REGULATION	<2%
	OUTPUT RIPPLE	50 mV RMS at maximum load (measured at 25C)
	MAXIMUM CONTINUOUS OUTPUT POWER	450 W
	POWER SURGE	550 W
	MAXIMUM LOAD CURRENT	15 ADC, for output voltage setting 16.0 VDC - 28.0 VDC
PROTECTION	WORST CASE EFFICIENCY	92.0% @ 50% max. power, 88.0% @ max. power
	LOW INPUT VOLTAGE SHUTDOWN	< 10.5 +/-0.3 VDC
	HIGH INPUT VOLTAGE SHUTDOWN	> 32.0 +/- 1.0 VDC
	OVERLOAD SHUTDOWN	Set to shut off at 110% of maximum current with continuous automatic retry
	OVER TEMPERATURE SHUTDOWN	Via internal thermostat, self resetting
	COOLING	By Conduction through base plate and convection
CONNECTIONS	FUSING	Customer accessible
	INPUT/ OUTPUT CONNECTION	Via 9 pin Bayonet connector
	REMOTE TURN ON	Via pin to negative return on input connector, may be disabled via internal jumper
	REMOTE SENSE	Via 2 pins on the output connector usage is optional
GENERAL	OPERATING TEMPERATURE RANGE	-40C to 70C, 100% loading
	OPERATING HUMIDITY	100%
	INGRESS RATING	IP 676
	MOUNTING SLOT CENTERS (in./cm.)	6.0 x 7.3 / 15.2 x 18.5
	DIMENSIONS, (in./cm.) (L x W x H)	9.5 x 8.0 x 2.9 / 24.1 x 20.3 x 7.4
	HOUSING MATERIAL	All Aluminum
WEIGHT, (lb./kg.)	10 / 4.5	

NOTE: Specifications are subject to change without notice.

Rev 7/15/2015

450W



**DC-DC Converter
HS Sealed Series**

**Model
637 HS**

Design Features

- Wide Range Input Voltage
- High Efficiency Design
- Hi Ingress Rating, IP 676
- Adjustable Output Voltage
- Optional Remote Output Voltage Sensing
- Optional Remote On/Off switching
- Low Voltage cutout
- High Voltage cutout
- Electronically Current Limited
- Thermally Protected
- Low No Load Power Consumption
- I/O Bayonet Quick Connection

		MODEL NO.	637 HS
INPUT	NOMINAL INPUT VOLTAGE RANGE		12 VDC to 28 VDC
	MAXIMUM INPUT VOLTAGE RANGE		10.5 to 32.0 (+, - 0.5) VDC
	INPUT CURRENT AT 10A OUTPUT CURRENT		36A @ 11.5 Vin; 36.1 Vout
	INPUT CURRENT AT NO LOAD		<150 mA over entire input/output voltage ranges
OUTPUT	OUTPUT VOLTAGE NOMINAL		36.0 VDC (factory adjusted)
	OUTPUT VOLTAGE ADJUSTMENT RANGE		32.0 VDC to 42.0 VDC (internally accessible to user)
	OUTPUT LOAD REGULATION		250 mV (without remote sensing) 50 mV (with remote sensing)
	OUTPUT VOLTAGE REGULATION		<2%
	OUTPUT RIPPLE		50 mV RMS at maximum load (measured at 25C)
	MAXIMUM CONTINUOUS OUTPUT POWER		450 W
	POWER SURGE		550 W
	MAXIMUM LOAD CURRENT		10 ADC, for output voltage setting 32.0 VDC - 42.0 VDC
PROTECTION	WORST CASE EFFICIENCY		92.0% @ 50% max. power, 88.0% @ max. power
	LOW INPUT VOLTAGE SHUTDOWN		< 10.5 +/-0.3 VDC
	HIGH INPUT VOLTAGE SHUTDOWN		> 32.0 +/- 1.0 VDC
	OVERLOAD SHUTDOWN		Set to shut off at 110% of maximum current with continuous automatic retry
	OVER TEMPERATURE SHUTDOWN		Via internal thermostat, self resetting
	COOLING		By Conduction through base plate and convection
CONNECTIONS	FUSING		Customer accessible
	INPUT/ OUTPUT CONNECTION		Via 9 pin Bayonet connector
	REMOTE TURN ON		Via pin to -ve on input connector, may be disabled via internal jumper
	REMOTE SENSE		Via 2 pins on the output connector usage is optional
GENERAL	OPERATING TEMPERATURE RANGE		-40C to 70C, 100% loading
	OPERATING HUMIDITY		100%
	INGRESS RATING		IP 676
	MOUNTING SLOT CENTERS (in./cm.)		6.0 x 7.3 / 15.2 x 18.5
	DIMENSIONS, (in./cm.) (L x W x H)		9.5 x 8.0 x 2.9 / 24.1 x 20.3 x 7.4
	HOUSING MATERIAL		All Aluminum
	WEIGHT, (lb./kg.)		10 / 4.5

NOTE: Specifications are subject to change without notice.

Rev 7/15/2015

450W

**DC-DC Converter
HS Sealed Series**

**Model
649 HS**



Design Features

- Wide Range Input Voltage
- High Efficiency Design
- Hi Ingress Rating, IP 676
- Adjustable Output Voltage
- Optional Remote Output Voltage Sensing
- Optional Remote On/Off switching
- Low Voltage cutout
- High Voltage cutout
- Electronically Current Limited
- Thermally Protected
- Low No Load Power Consumption
- I/O Bayonet Quick Connection

		MODEL NO.	649 HS
INPUT	NOMINAL INPUT VOLTAGE RANGE	12 VDC to 28 VDC	
	MAXIMUM INPUT VOLTAGE RANGE	10.5 to 32.0 (+, - 0.5) VDC	
	INPUT CURRENT AT 8A OUTPUT CURRENT	36A @ 11.5 Vin; 48.1 Vout	
	INPUT CURRENT AT NO LOAD	<180 mA over entire input & output voltage ranges	
OUTPUT	OUTPUT VOLTAGE NOMINAL	48.0 VDC (factory adjusted)	
	OUTPUT VOLTAGE ADJUSTMENT RANGE	42.0 VDC to 55.0 VDC (internally accessible to user)	
	OUTPUT LOAD REGULATION	250 mV (without remote sensing) 50 mV (with remote sensing)	
	OUTPUT VOLTAGE REGULATION	< 0.2%	
	OUTPUT RIPPLE	50 mV RMS at maximum load (measured at 25C)	
	MAXIMUM CONTINUOUS OUTPUT POWER	450 W	
	POWER SURGE	550 W	
	MAXIMUM LOAD CURRENT	8 ADC, for output voltage setting 42.0 VDC - 55.0 VDC	
PROTECTION	WORST CASE EFFICIENCY	94.0% @ 50% max. power, 92.0% @ max. power	
	LOW INPUT VOLTAGE SHUTDOWN	< 10.5 +/-0.3 VDC	
	HIGH INPUT VOLTAGE SHUTDOWN	> 32.0 +/- 1.0 VDC	
	OVERLOAD SHUTDOWN	Set to shut off at 110% of maximum current with continuous automatic retry	
	OVER TEMPERATURE SHUTDOWN	Via internal thermostat, self resetting	
CONNECTIONS	COOLING	By Conduction through base plate and convection	
	FUSING	Customer accessible	
	INPUT/ OUTPUT CONNECTION	Via 9 pin Bayonet connector	
GENERAL	REMOTE TURN ON	Via pin to -ve on input connector, may be disabled via internal jumper	
	REMOTE SENSE	Via 2 pins on the output connector usage is optional	
GENERAL	OPERATING TEMPERATURE RANGE	-40C to 70C, 100% loading	
	OPERATING HUMIDITY	100%	
	INGRESS RATING	IP 676	
	MOUNTING SLOT CENTERS (in./cm.)	6.0 x 7.3 / 15.2 x 18.5	
	DIMENSIONS, (in./cm.) (L x W x H)	9.5 x 8.0 x 2.9 / 24.1 x 20.3 x 7.4	
	HOUSING MATERIAL	All Aluminum	
	WEIGHT, (lb./kg.)	10 / 4.5	

NOTE: Specifications are subject to change without notice.

Rev 7/15/2015





cage code 07KU1

P.O. Box 2266
South Burlington
Tel: 802-865-8388

78 Ethan Allen Drive
VT 05403
Fax: 802-865-8389

www.secamerica.com

Copyright - March 2016 All rights reserved

Printed in U.S.A.