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USER MANUAL



600HS Series DC-DC Converters

Applies to Models:

618HS
628HS

638HS
652HS

July 10, 2019

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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.

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

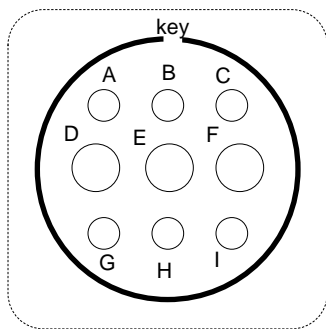
2.1 Mounting

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 1/4 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.

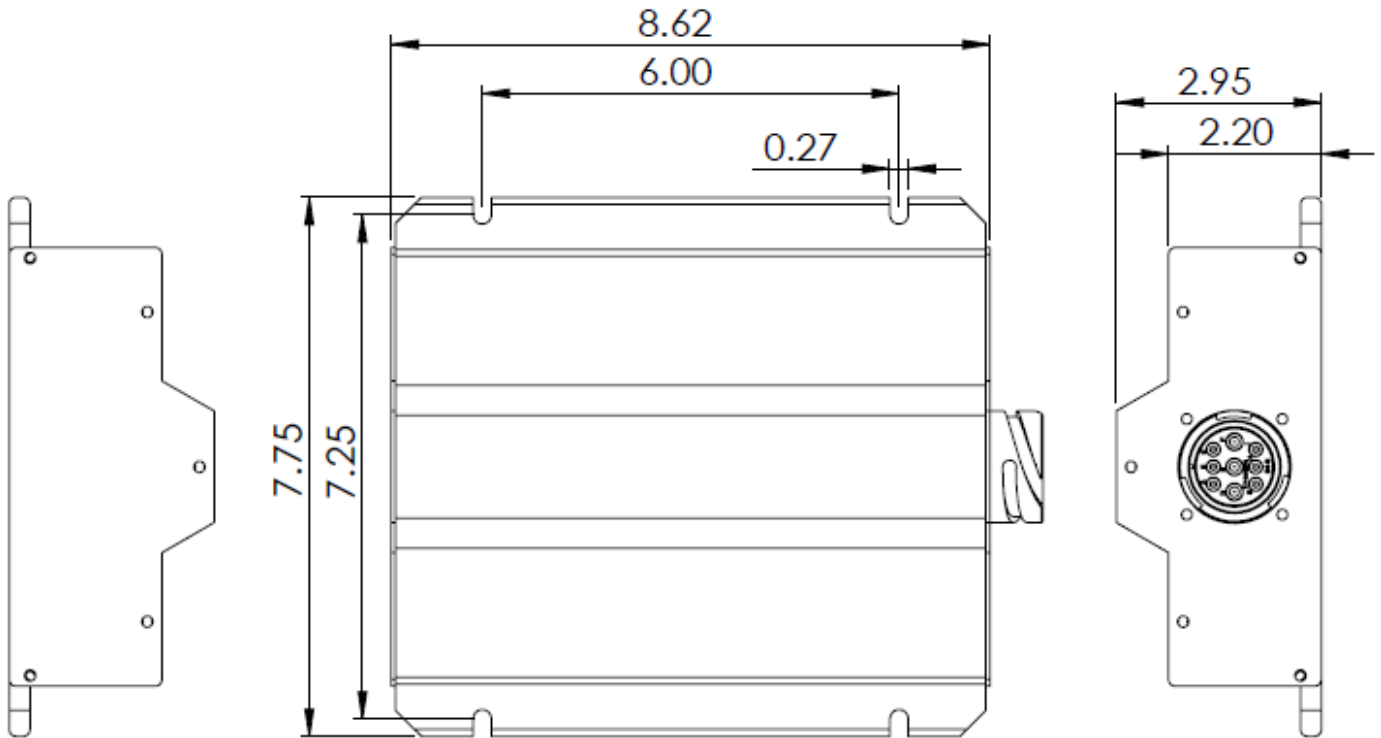
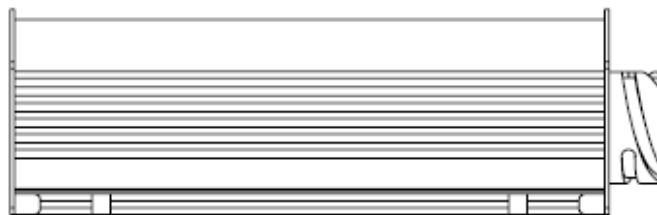


Figure 2



All dimensions are in inches

III Regulation With Remote Sense

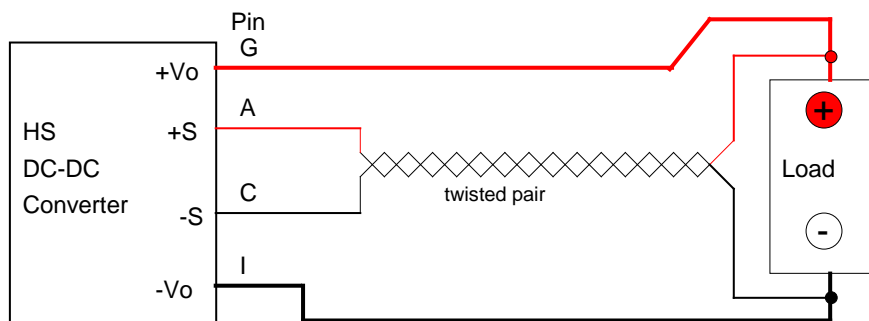


Figure 3

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, (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 enable the removal of the front panel.

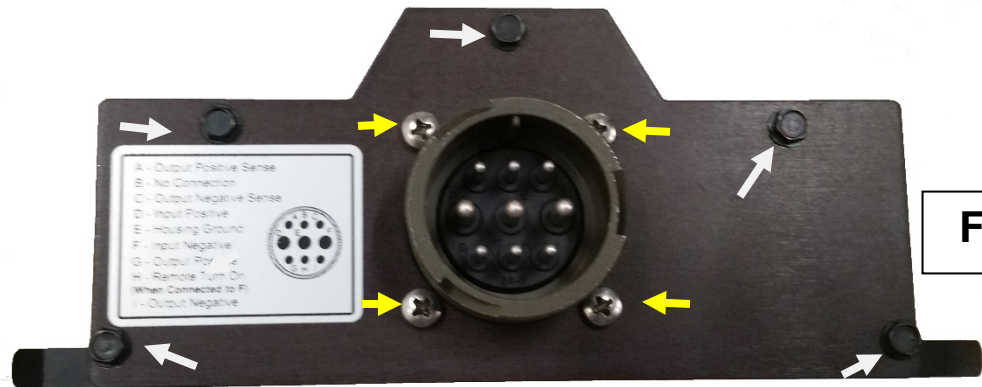


Figure 4

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

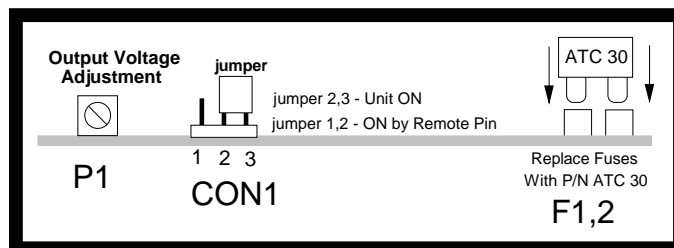


Figure 5

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 (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

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 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**

450W

Model 618HS

Isolated Sealed DC-DC Converter



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. | 618 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 | | |
| EFFICIENCY | Not less than 90% over entire operating range | | |
| 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.

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450W

Model 628HS

Isolated Sealed DC-DC Converter

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. | 628 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 | |
| | EFFICIENCY | Not less than 90% over entire operating range | |
| 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 FUSING | By Conduction through base plate and convection Customer accessible by front panel removal | |
| CONNECTIONS | 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.) | 7.0 / 3.2 | |

NOTE: Specifications are subject to change without notice.

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SEC America Corp.

www.secamerica.com

1 (802) 865 8388

sales@secamerica.com

SEC AMERICA CORP.

450W

Model 638HS

Isolated Sealed DC-DC Converter



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. | 638 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 | 34A @ 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 | |
| PROTECTION | MAXIMUM LOAD CURRENT | 10 ADC, for output voltage setting 32.0 VDC - 42.0 VDC | |
| | EFFICIENCY | Not less than 90% over 10% to 100% load range | |
| | 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 | |
| | REMOTE TURN ON | Via pin to -ve on Input connector, may be disabled via internal jumper | |
| GENERAL | REMOTE SENSE | Via 2 pins on the output connector usage is optional | |
| | OPERATING TEMPERATURE RANGE | -40C to 70C, 100% loading | |
| | OPERATING HUMIDITY | 100% | |
| GENERAL | 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.) | 7.0 / 3.2 | |

NOTE: Specifications are subject to change without notice.

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www.secamerica.com

1 (802) 865 8388

sales@secamerica.com



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. | | 652 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 | 34A @ 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 | EFFICIENCY | Not less than 90% over 10% to 100% load range |
| | 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.) | 7.0 / 3.2 |

NOTE: Specifications are subject to change without notice.

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cage code 07KU1

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