SEC AMERICA CORP.

Model 384 DC-DC Converter
Owner's Manual

Dec. 21, 2019

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I Introduction

Model 384 is shipped in fully assembled form. 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.

Model 384 is a high-power DC-DC down converter with a wide range (22V-60V) input capability. Its continuous maximum output current is 60A at 13.6V. Model 384 is designed for mounting in vehicles of all types and is capable of enduring harsh vibration and shock conditions

II Installation

2.1 Mounting

Model 384 has an overall length of 13.8 inches with mounting flanges included in this dimension. Hole mounting centers are 13.3 x 3.93 (inches)

2.2 Connections

Tools Required - 1 flat blade screw driver (1/4 in. wide)

Figure 1 shows the connection panel view of the 384.

The 384 DC-DC Converter can be activated by:

1) Connecting Terminals 1 & 2 on TBA (as factory supplied)

OR

2) By switching ON source power

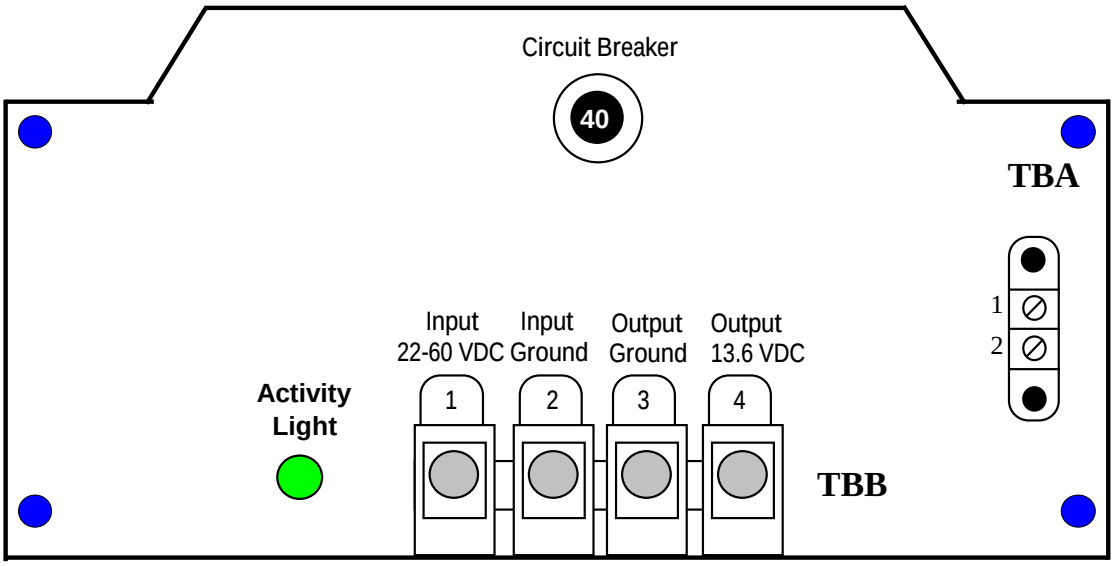


Figure 1

Prior to Main Input Power Connections:

Make connections A through D prior to hook up to the vehicular power source as shown in Figure #2. This ensures that there is no sparking from the source of power and allows a reprieve in case there is a hook up error. (User should carefully review connections as such an error would have to be detected prior to energizing the unit).

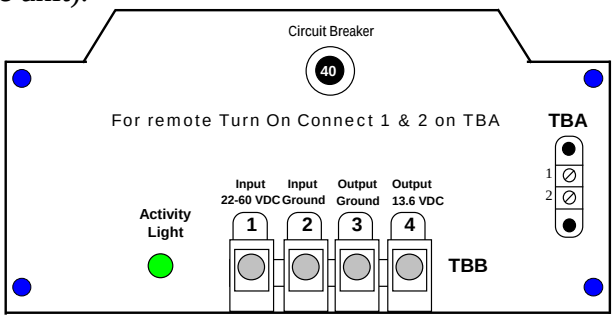


Figure #2

A) Connect input +(22-60)V line to position #1 of TBB.
B) Connect input ground to position #2 of TBB.
C) Connect output 13.6 V ground to position #3 of TBB.
D) Connect output +13.6V line to position #4 of TBB

Note: The two ground positions are in the center of the terminal block adjacent to each other.

Prior to energizing, installer should:

1) Ensure that hook up in steps A through D is correct.
2) Select the suitable method of converter activation.

2.3 Methods of Converter Activation

A) Connect terminal #1 to terminal #2 on terminal block TBA. The 384 is so configured when shipped from the factory. This configuration allows for converter activation by either turning the source power ON and OFF.
B) Terminal #1 can be connected to terminal #2 through a remote ON/OFF switch or relay thereby activating the converter.

2.4 Power Limiting & Overload Protection

The 384 begins to electronically limit power once 800W output is exceeded.
In the event that the converter is misused e.g. its input is connected in reverse polarity, there is a protective circuit breaker on the front panel above the connection block. (Figure #3)

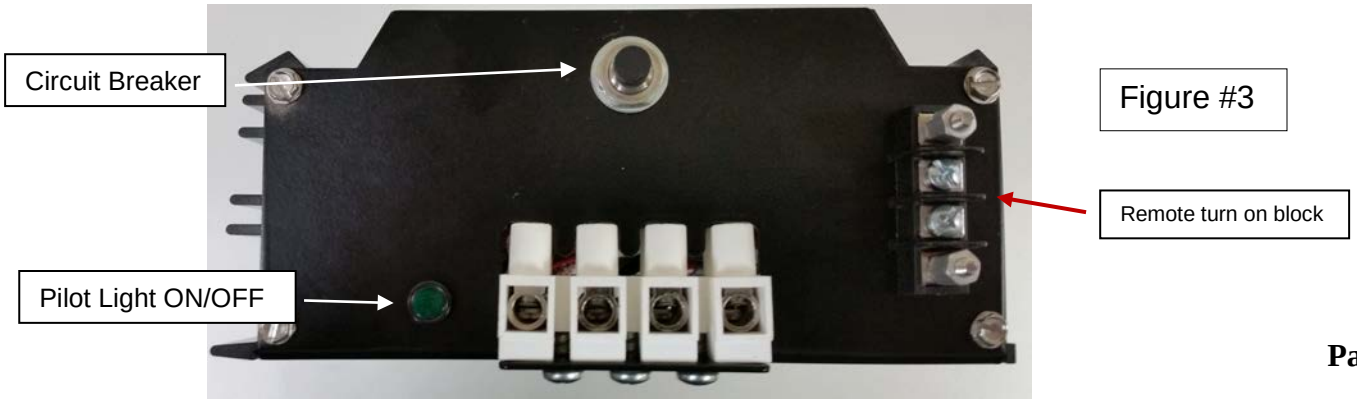


Figure #3

III Internal Adjustments

Varying the adjustments of the Model 384 require the technician to have a stable DC power supply variable from at least 20 VDC to 30 VDC.

To access the adjustment, turn the unit upside down and remove the base plate by unscrewing the 4 securing screws in its corners. (See drawing on page #5)
Orient the converter upside down and horizontally with the connection panel to the left as shown in figure #4.

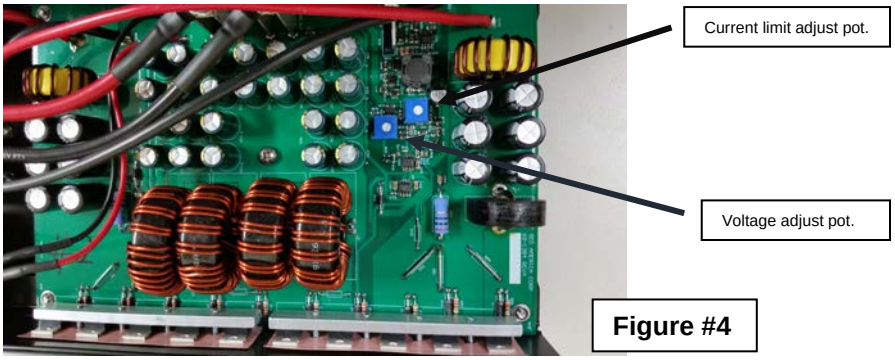


Figure #4

Two potentiometers can be noticed. The voltage adjustment pot should be used for the procedure in (3.1). The current limit adjust potentiometer is for power limiting purposes only and intended for technical personnel only.

3.1) Voltage Adjustment

a) Hook up the unit to be adjusted as shown in Figure #5 under no load conditions:

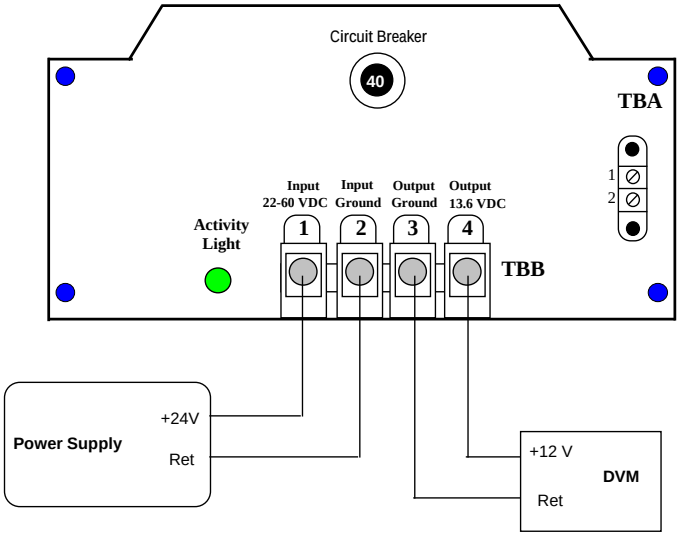


Figure #5

b) Make sure terminals 1 & 2 on TBA are tied together and that the Power supply is turned off. Set the Digital Volt Meter to the appropriate scale to read 13.60 VDC to two decimals.

c) Energize power supply and adjust its output voltage to +24 VDC. Adjust voltage adjust potentiometer shown in figure #4 to the desired setting (between 12 VDC and 14 VDC) and observe converter voltage output reading on DVM

d) Turn off power supply.

IV Warranty and Repair

Should your investigations indicate that your new Model 384 is defective or damaged and your unit is still under warranty then contact SEC America, LLC at 802-865-8388 and obtain return merchandise authorization for credit or exchange.

If the warranty period has expired or if the warranty has been violated due to operator error or misuse, call:
SEC America Corp., Repair Department, at 802-**865-8388** or fax SEC America Corp. at 802-865-8389 to receive authorization for shipment back to factory for a survey and possible repair.

Warranty

The Model 384 has a 2-year warranty covering parts and labor. The warranty is found below:

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 years 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.

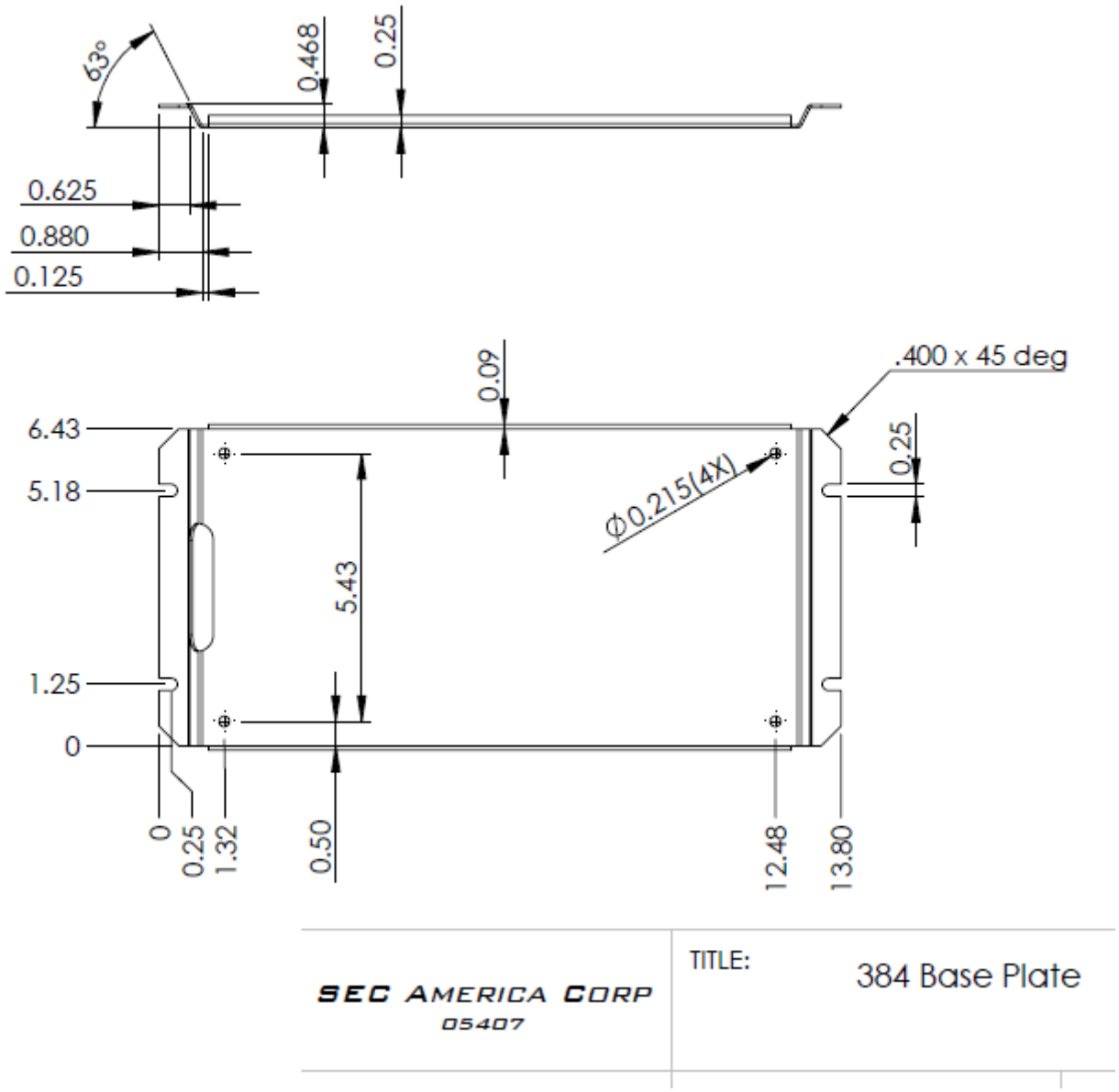
The above limited warranties take the place of all other warranties, expressed or implied, and correction of such defects by replacement or repair shall constitute a fulfillment of all obligations under the terms of the warranties. The warranties do not cover any unit that has been damaged either in 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 send only to the following address:

SEC America Corp.
78 Ethan Allen Drive
S. Burlington, VT 05403

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

V Base Plate Mechanical Drawing



MODEL 384

Wide Input Range Down Converter

22 Vdc-60 Vdc to 13.6 Vdc / 60A

Design Features

- Low Input Voltage Cutout
- Compact design
- Convection Cooled
- **High Efficiency- 96% minimum**
- Common Input-Output Negative Terminal
- Soft start technology

SPECIFICATIONS

	INPUT VOLTAGE RANGE	22 to 60 (+/- 0.5) VDC
	INPUT CURRENT AT MAX CONTINUOUS POWER	31.0 A / 15.5 A @ 24 / 48 V_{in}
	MAX. INPUT CURRENT AT NO LOAD	0.30 A when converter is in "ON" state
	MIN. INPUT CURRENT AT NO LOAD	<0.002 A when converter is in "OFF" state
OUTPUT	**OUTPUT VOLTAGE**	**13.6 - 13.8 VDC** (factory set, internally adjustable)
	OUTPUT VOLTAGE REGULATION	< 40 mV, NL to Full Load
	RATED MAX OUTPUT CURRENT	**60 A**
	OUTPUT POWER, CONTINUOUS (RESISTIVE LOAD)	850 W
	OUTPUT RIPPLE & NOISE	<50 mV RMS
	EFFICIENCY AT MAX CURRENT (55A)	**96% minimum**
PROTECTIONS	**LOW INPUT VOLTAGE SHUTDOWN**	19.0 - 21.0 VDC
	HIGH INPUT VOLTAGE SHUTDOWN	> 61.0 VDC
	OVERLOAD CURRENT LIMITING	Electronic knee type at power limit
	OVER TEMPERATURE SHUTDOWN	Yes (Auto reset)
	INPUT REVERSE POLARITY PROTECTION	Resettable Integral Circuit Breaker
RF TRANSPARENCY	High pass filters allow RF signals in the PLC4 spectrum to pass between input and output terminals with attenuation <3dB	
CONNECTIONS	**INPUT CONNECTION**	WECO Screw Terminal Block
	OUTPUT CONNECTION	WECO Screw Terminal Block
	REMOTE CONTROL PORT	Yes
ENVIRONMENT	**AMBIENT AIR OPERATING TEMPERATURE RANGE**	-30C to +50C no derating Derate 15% per 10C above 50C to a maximum of 70C
	OPERATING HUMIDITY	<95%, non condensing
	ALTITUDE	6000 meters
MECHANICAL	**DIMENSIONS, INCHES (L x W x H)**	13.8 x 6.9 x 3.6
	MOUNTING CENTERS, INCHES (L x W x H)	13.30 x 3.38
	VIBRATION & SHOCK RESISTANT	Internally Encapsulated
	WEIGHT (LB/KG)	12 / 5.5

NOTE: Specifications are subject to change without notice.

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