SEC AMERICA CORP.

Model 382 DC-DC Converter
Owner's Manual

Dec. 21, 2019

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I Introduction

Model 382 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 382 is a high-power DC-DC down converter with a wide range (22V-60V) input capability. Its continuous maximum output current is 30A at 13.6V. Model 382 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 382 has an overall length of 7.8 inches with mounting flanges included in this dimension. Hole mounting centers are 7.3 x 3.75 (inches). The 382 comes with 4 rubber bumpers which may be mounted between the baseplate and mounting surface.

2.2 Connections

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

Figure 1 shows the connection panel view of the 382.

The 382 DC-DC Converter can be activated by:

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

OR

2) By switching ON source power

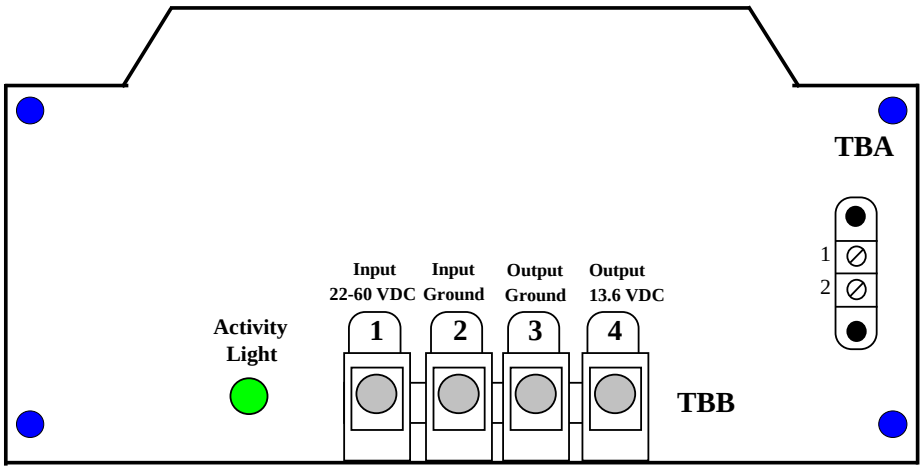


Figure #1

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).

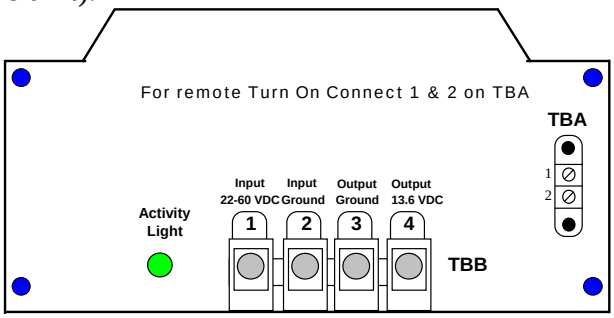


Figure #2

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 382 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 382 begins to electronically limit power once 450W output is exceeded.
In the event that the converter is misused e.g. its input is connected in reverse polarity, the circuit breaker on the rear panel provides secondary protection. IT IS ADVISABLE TO TRY TO AVOID REVERSE POLARITY AS IT MAY RESULT IN PERMANENT DAMAGE TO THE UNIT.

III Internal Adjustments

Varying the output voltage adjustment of the Model 382 requires 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 mechanical drawing of baseplate on page 6)

Orient the converter upside down and horizontally with the connection panel to the left as shown in figure #3.

Figure #3

There are two pots as shown in Figure #3. The Current limit adjust should not be touched unless the user has a power source which can supply and a suitable load which can draw the current at which the supply is to be limited.

3.1) Voltage Adjustment

a) Hook up the unit to be adjusted as shown in Figure #4 under no load conditions:

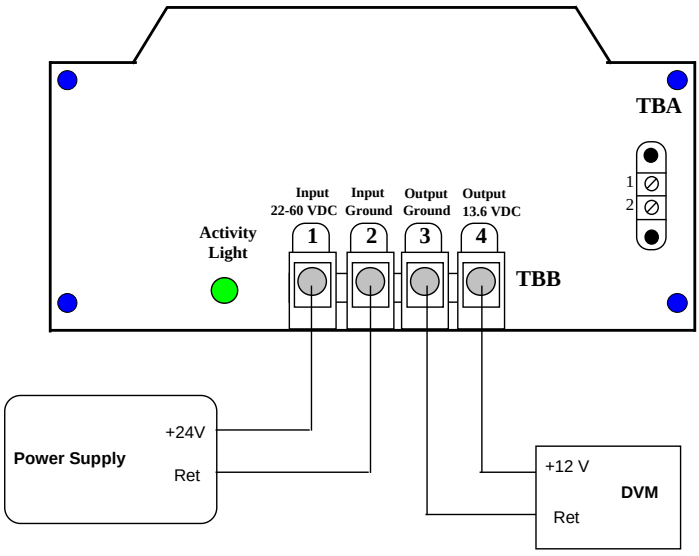


Figure #4

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 12 VDC to two decimals.

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

d) Turn off power supply.

3.2) Current Limit Adjustment

a) Hook up the unit to be adjusted as shown in Figure #5. Apply a load set to the desired current draw at the limit point:

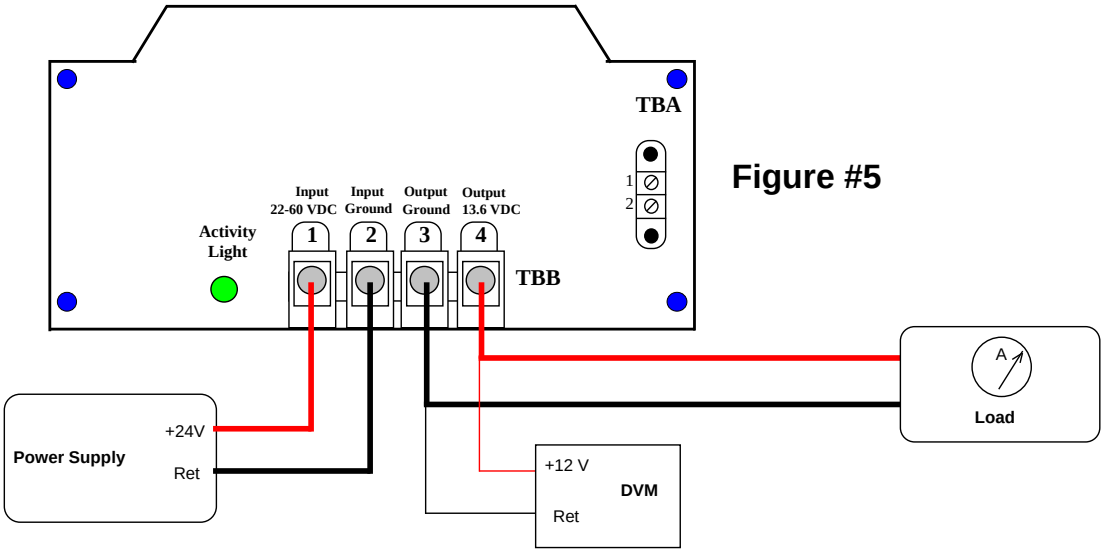


Figure #5

b) Turn the current limit pot completely clockwise. Turn on the power supply and note that the load is drawing current and note the voltage on the DVM.

c) Turn C limit pot slowly counter clockwise while observing the DVM reading. When the voltage drops by 100 mV while the pot is being turned, that designates that the current limit point has been reached.

d) Adjustment is complete. Turn off the power supply.

IV Warranty and Repair

Should your investigations indicate that your new Model 382 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 382 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.

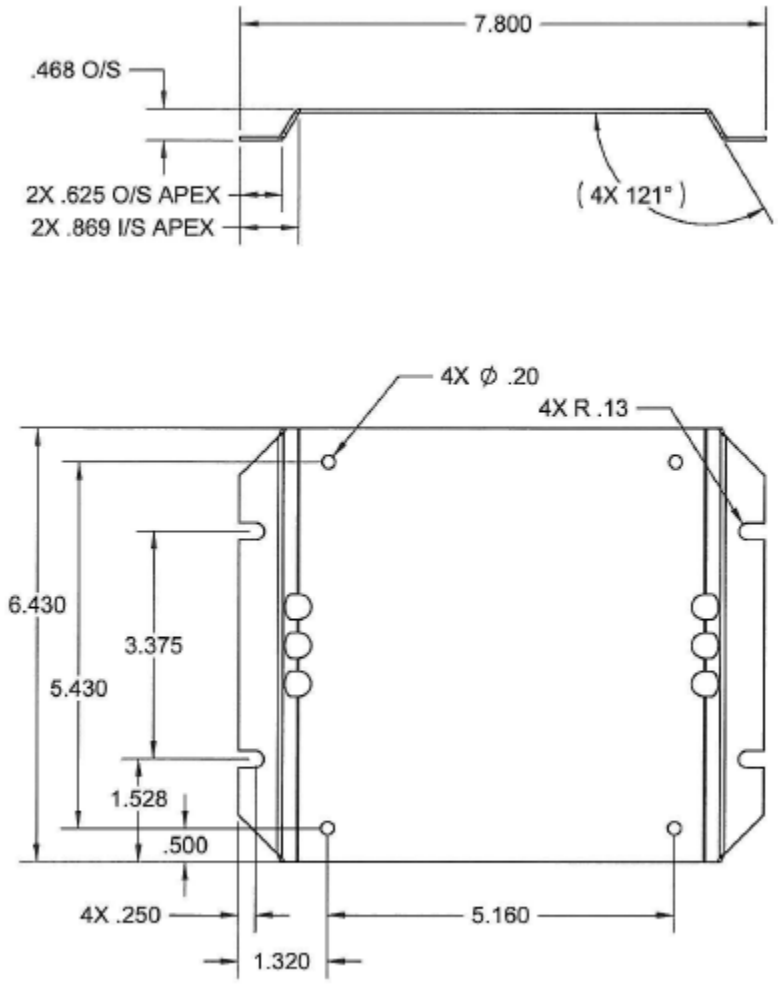
The above limited warranties take the place of all other warranties, expressed or implied, and correction of such defects by replacement or repair shall constitute a fulfillment of all obligations under the terms of the warranties. The warranties do not cover any unit that has been damaged either in 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 382

Wide Input Range Down Converter

22 Vdc-60 Vdc to 13.6 Vdc

Design Features

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

SPECIFICATIONS

	NOMINAL INPUT VOLTAGE	48 VDC
	INPUT VOLTAGE RANGE	22 to 60 (+/- 0.5) VDC
	INPUT CURRENT AT MAX CONTINUOUS POWER	16.5 A / 8.2A @ 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	**30 A**
	OUTPUT POWER, CONTINUOUS (RESISTIVE LOAD)	400 W
	OUTPUT RIPPLE & NOISE	<50 mV RMS
	EFFICIENCY AT MAX CURRENT (30A)	**96% minimum**
PROTECTIONS	**LOW INPUT VOLTAGE SHUTDOWN**	19.0 - 21.0 VDC
	HIGH INPUT VOLTAGE SHUTDOWN	> 64.0 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 60C
	OPERATING HUMIDITY	<95%, non condensing
	ALTITUDE	6000 meters
MECHANICAL	**DIMENSIONS, INCHES (L x W x H)**	7.8 x 6.9 x 3.6
	MOUNTING CENTERS, INCHES (L x W x H)	7.30 x 3.38
	VIBRATION & SHOCK RESISTANT	Internally Encapsulated
	WEIGHT (LB/KG)	6.0 / 2.75

NOTE: Specifications are subject to change without notice.

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