Rapid Shutdown Device
(RSD-D750)
and
Initiator
(RSD-Ixx)
V4.3

Assembled by

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*PV Technical Services Inc. keeps the right to modify this document without advance notices. It's the installer's responsibility to know, understand and follow the relevant local safety regulations and codes during the installation of provided RSD-D750 and SRD-Initiator.

1. Introduction

Rapid Shutdown Device (RSD-D750) is equipped with a contact relay. It complies with the 2014 NEC 690.12 and C22.2 No330-23 PV Rapid Shutdown Systems. The string of a solar PV system will be cut off and the de-energized conductors to not more than 30 V within 10s of rapid shutdown initiation. The RSD shall be installed following the local safety code, e.g. Bulletin 64-6-3 and Rule 64-218 in Ontario, Canada.

INITIATOR (RSD-Initiator) is a device included in the PV rapid shutdown system that initiates the process. The RSD-Initiator shall be installed following the local safety code.

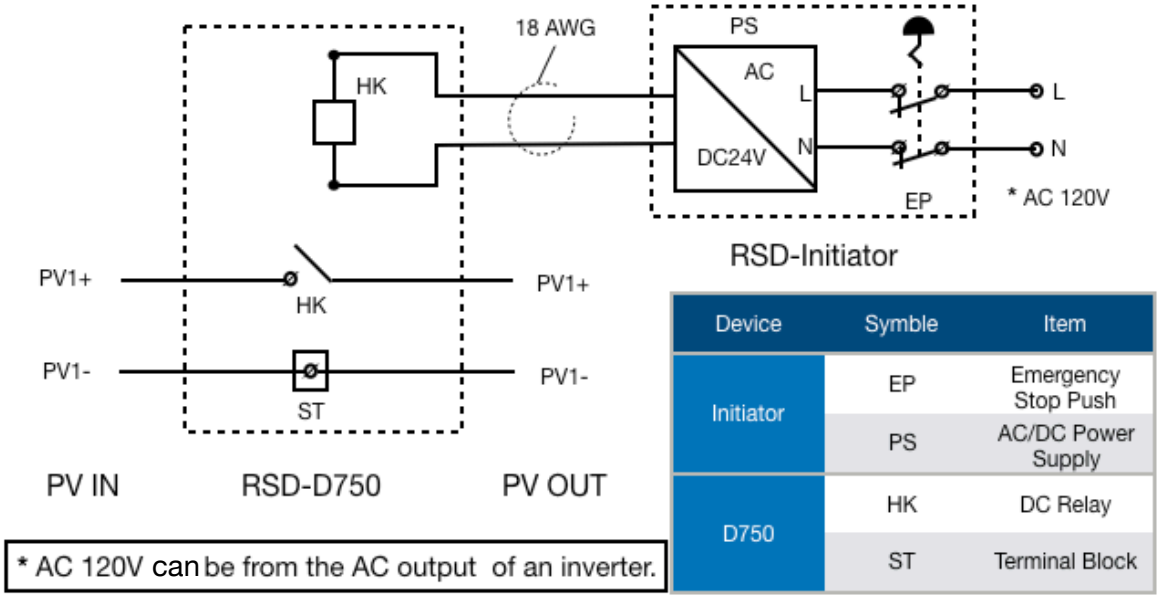
2. Specification of RSD-D750

Classification	Item	Parameter
String input	Current rating	30 A
	Voltage rating	750 V DC
Driving power	Driving voltage	24 V DC
	Driving current	0.26A
	Max. power consumption	6W
Environment	Operating temperature	-40°C ~ +85°C
	Waterproof level	NEMA Type 4, 4X
	Dimension - RSD/Dual	5.51”x5.51”x3.54”

3. Specification of RSD-Initiator (RSD-Ixx)

RSD-I92/I60/I36		
Classification	**Item**	**Parameter**
Input & Output	Input voltage range	85~264 V AC
	Input current (110VAC)	3A(I92)/1.2 A(I60)/0.9 A(I36)
	Max. input current (fuse)	10 A
	Output voltage	24 V DC
	Max. Output power	92W(I92)/60W(I60)/36W(I36)
Environment	Operating temperature	-30°C ~ +70°C
	Waterproof level	NEMA Type 4, 4X
	Dimension	7.1”x7.1”x3.54”

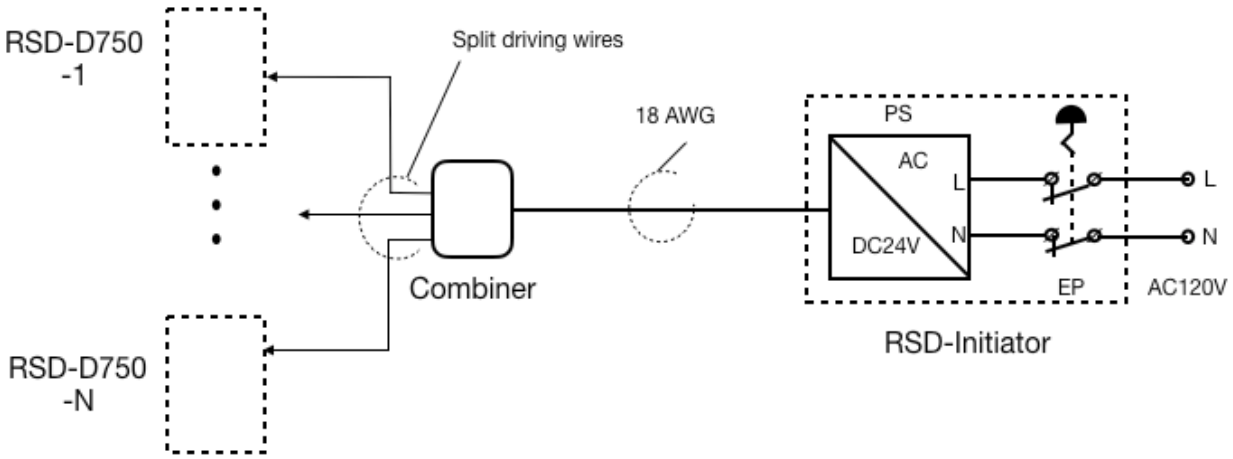
4. Circuit of RSD-D750/RSD-Initiator



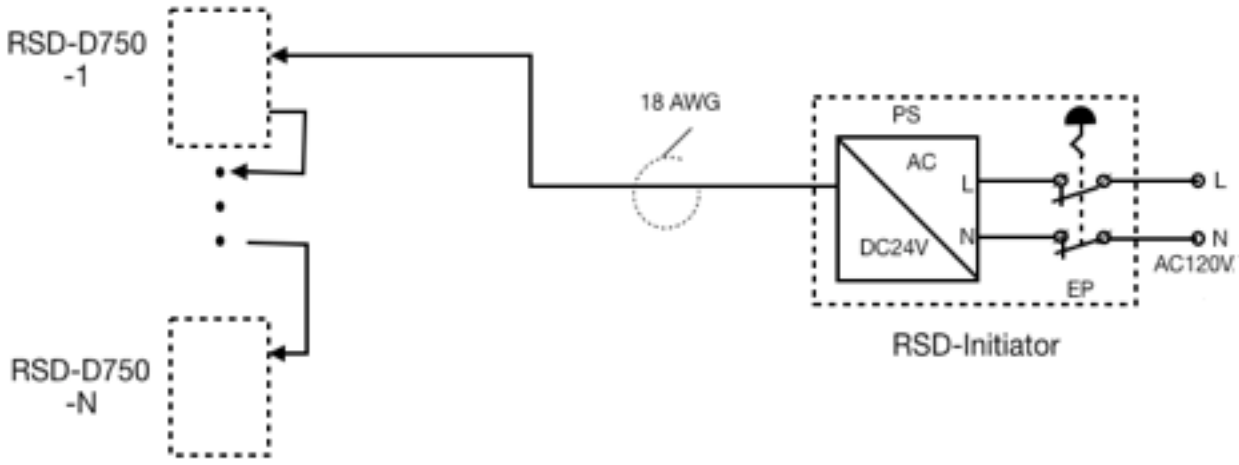
Device	Symble	Item
Initiator	EP	Emergency Stop Push
	PS	AC/DC Power Supply
D750	HK	DC Relay
	ST	Terminal Block

5. Multi RSD-D750 connected with one RSD-Initiator

Option 1:

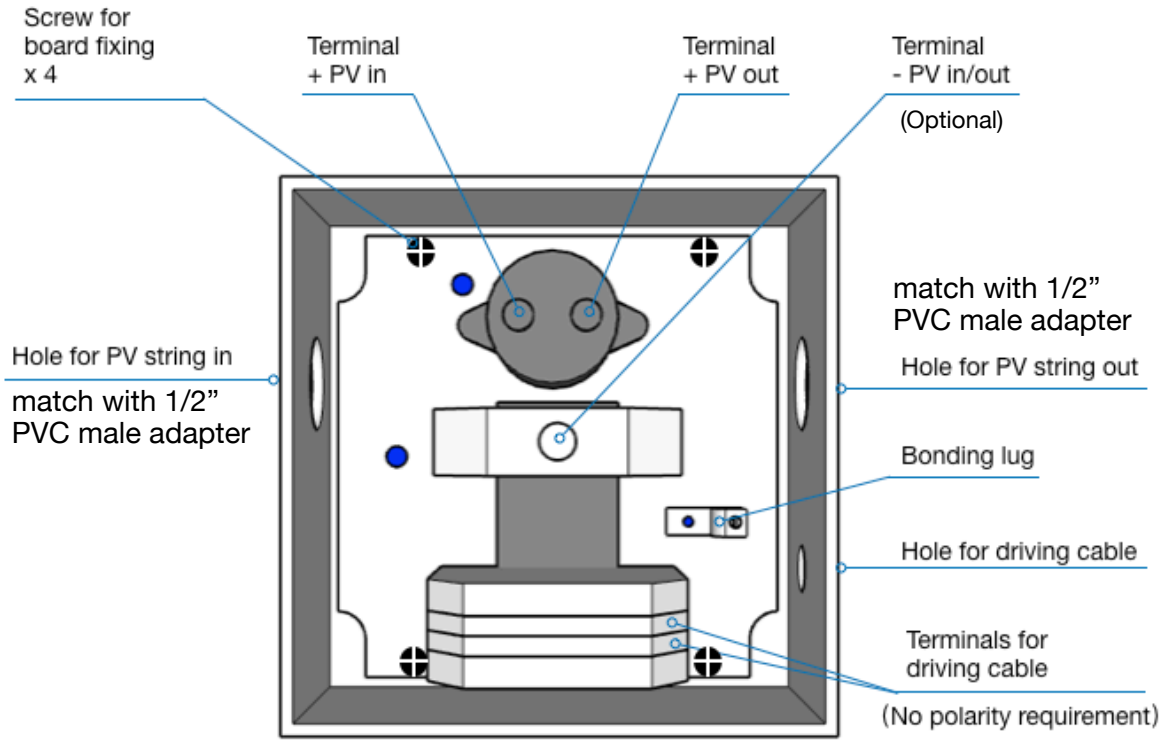


Option 2:



N : The maximum number of RSD-D750 can be driven by a RSD-I92 is thirteen (13), by a RSD-I60 is eight (8) and by a RSD-I36 is five (5).

6. RSD-D750 box



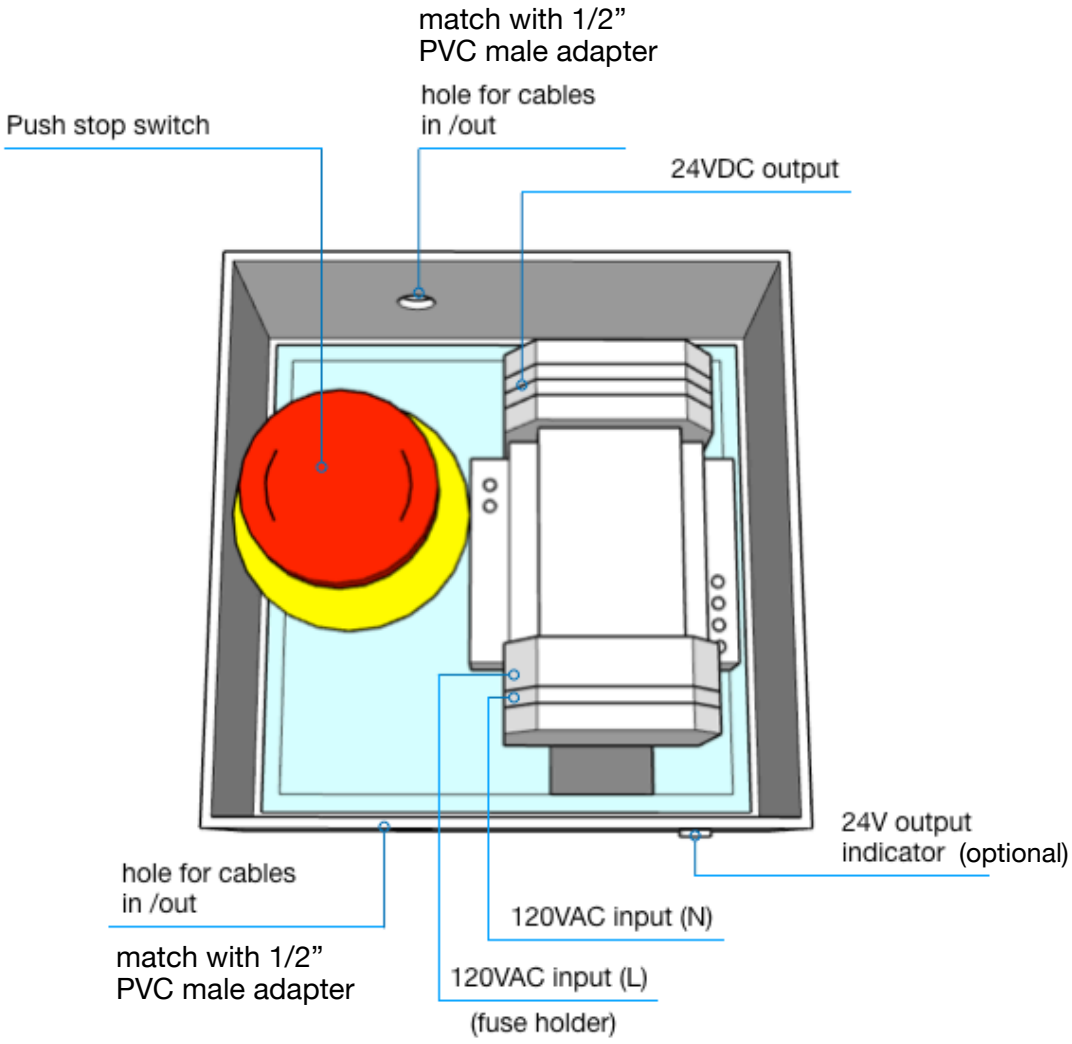
Note:

1) Factory located wiring knockouts and proper wiring devices used that will maintain the enclosure's NEMA 4 environmental rating. Non-metallic connector(s) (e.g. PVC conduit) may be applied for knockout connection(s) following the local safety code(s).

2) The driving cable coming in the box shall directly fixed on the terminals on the din rail; and it should be kept away from the +PV terminals at least one inch if the cable's sheath rating less than the voltage on the +PV terminals. It is no polarity for the driving cable terminals.

3) The size of holes of PV strings in/out is opened for 1/2" PVC conduit connection. If resizing them, the whole board shall be first taken out from the box by loosing the four screws on the metal base; and using a stepping drill to enlarge the hole(s).

7. RSD-Initiator box

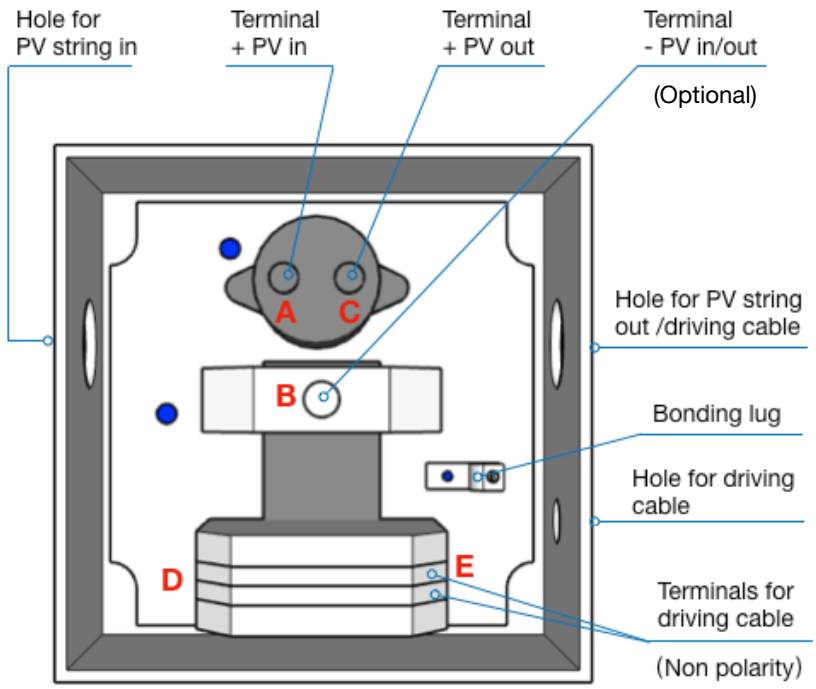


Note:

Factory located wiring knockouts and proper wiring devices used that will maintain the enclosure’s NEMA 4 environmental rating. Non-metallic connector(s) (e.g. PVC conduit) may be applied for knockout connection(s) following the local safety code(s).

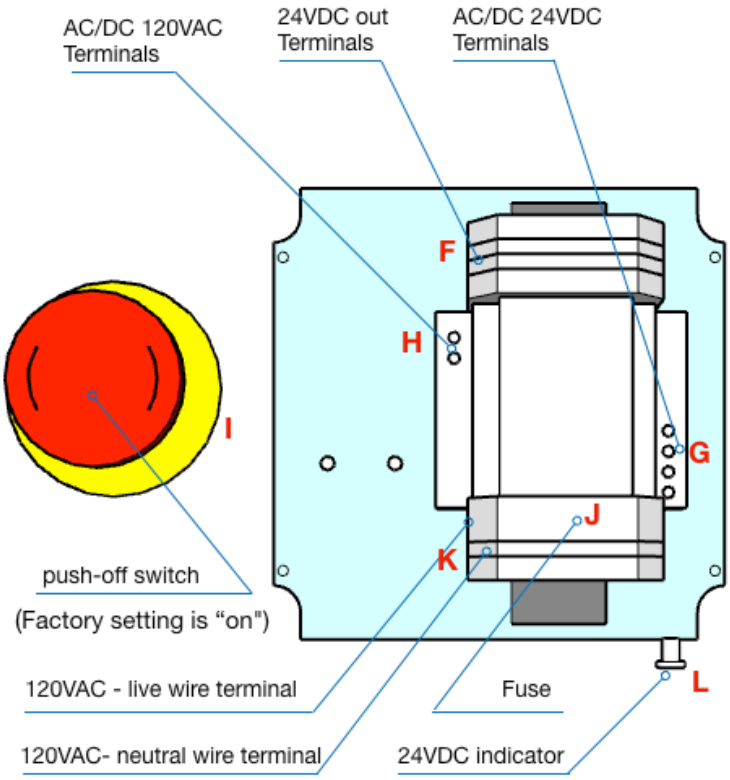
8. Troubleshooting

RSD-troubleshooting



Items	Testing	If unusual, checking	Possible follow-up action(s)
PV power into the RSD	DC voltage between A and B, V_{AB} . Readable in daytime.	connections at A and B	re-connecting
		connection jumpers of the string	checking the jumper(s) of the PV string from roof.
DC relay connector	DC voltage between C and B, V_{CB}; equal to V_{AB}.	~24V_DC at D	If voltage about 24V and no problem on the connection at D, the DC relay may be replaced.
		~24V_DC at E	Checking the terminals' connection, and the voltage of the driving cable. If < 18V_DC, the DC relay will not operate in normal.

Initiator-troubleshooting



Items	Testing	If unusual, checking	Possible follow-up action(s)
1	DC voltage at F. ~ 24V	connections at both sides of the din rail terminal, and at the G.	re-connecting.
2	If item 1 isn't the root cause, checking the voltage at G. ~ 24VDC	AC voltage at H, 120VAC.	if **there is a 120VAC** at H, and **no 24VDC** at G, and the indicator L is "turn-off", replacing the AC/DC convertor.
3	If there is no 120VAC at H, checking if the button of push-off switch I is at "on", the releasing status.	• the status of the button • the wires' connection on the switch.	• releasing the button • re-connecting.
4	If item 3 isn't the root cause of non-existing 120VAC at H, checking the fuse J and 120VAC input at K.	• fuse status • connections at both sides of the din rail terminal K, and the fuse holder J.	• change the fuse • re-connecting.