

Quick Installation Guide for PESS Open Frame Devices



1. Connection Points



2. Cabling Description

Please read this section carefully. PESS company don't accepts responsibility if the connection method specified in this document is not followed or the wrong connection is made.

1. Point : Battery Current Input

You need to connect LEM HASS 50-S DC Current Measurement Device this connector. **RJ45 side is standart and connector side pinout is**

Caution ! If you don't follow the pinout connection sequence, the LEM module will be damaged.

Top side(green connector)

1. RJ45 pin1-2
2. RJ45 pin3-4
3. RJ45 pin5-6
4. RJ45 pin7-8



2. Point : Load Current Input

You need to connect LEM HASS 50-S DC Current Measurement Device this connector. **RJ45 side is standart and connector side pinout is**

Caution ! If you don't follow the pinout connection sequence, the LEM module will be damaged.

Top side(green connector)

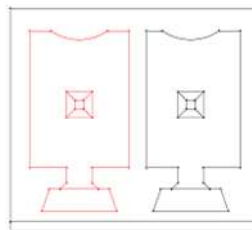
1. RJ45 pin1-2
2. RJ45 pin3-4
3. RJ45 pin5-6
4. RJ45 pin7-8



3. Point : Heat Compensation Input

You need to connect temperature sensor(resistor) this input. Polarity is not important.

Caution ! If you don't use this pin please connect 10K resistor because this pin directly effect of the rectifier output voltage. This pin can not be float or disconnected.

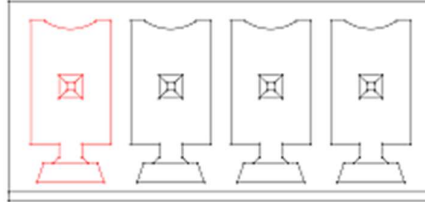


4. Point : LVD & Dropper Control Relay Output

Before cabling this connector please check your device schematic because this option may be not exist for all devices. If the dropper option is available then please connect according the following pinout. **Red pin is first pin**

Caution ! If you don't follow the pinout connection sequence, the rectifier main board will be damaged.

1. GND
2. Enable-1
3. Enable-2
4. +24VDC

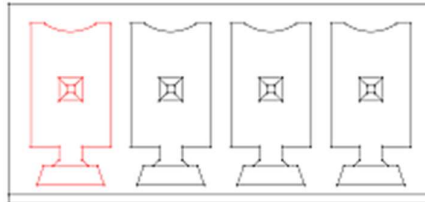


5. Point : HMI Communication connector

Main communication connector. Please connect according the following pinout. **Red pin is first pin**

Caution ! If you don't follow the pinout connection sequence, the rectifier main board and HMI panel board will be damaged.

1. GND
2. RS485-A
3. RS485- B
4. +24VDC

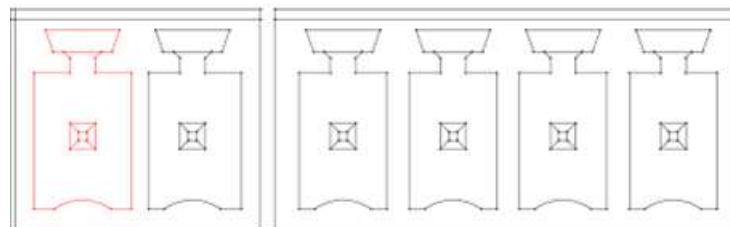


6. Point : Digital Input connector

You can use this connector digital inputs. For correct indication pinout sequence is important. **Red pin is first pin**

Caution ! This inputs accepts only dry contact (open-closed) information please do not apply voltage.

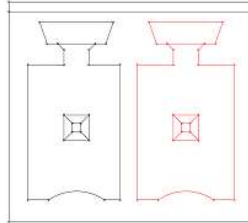
1. Common
2. empty
3. SCR Fuse aux contact
4. Main MCB aux contact
5. Load MCB aux contact
6. Battery MCB aux contact



7. Point : AC Current Transformer Input

AC current transformer input for measure the ac input current. We recommend 1:2500 ratio current transformers. Polarity is not important.

Caution ! Please keep this cables as possible as short for high precision measurement.

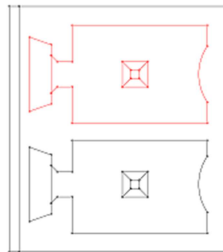


8. Point : Relay board supply

24VDC supply for relay board. Please careful about DC voltage polarity. **Red pin is (+) DC supply**

Caution ! If you don't follow the pinout connection sequence, the relay board will be damaged.

1. +24VDC
2. GND

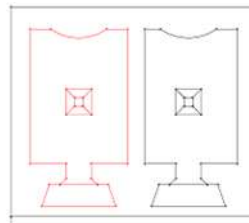


9. Point : AC supply input for electronic loads

User must be connect ac input cables to the on-board 50 VA transformer primary. Also there are fan supply cables and ac monitoring cables on the transformer primary connector. User should be not any changes on the existing cables. **The primary side of transformer 220 VAC**, secondary side of transformer 80 VAC. Polarity is not important but we recommend the following connection.

Caution !

1. Phase (Live)
2. Neutral(0V)



10. Point : High power AC phase input

User must be connect high power cable to the thyristor module **with cable lug**. User choose cable cross section by divide input current by three. For example if the input current 100A then 35 mm² should be used.

Caution ! Connection shouldn't be loose. Please careful when you are fixing the screws and don't apply too much torque.

11. Point : High power AC neutral input

User must be connect high power cable to the diode module **with cable lug**. User choose cable cross section by divide input current by three. For example if the input current 100A then 35 mm² should be used.

Caution ! Connection shouldn't be loose. Please careful when you are fixing the screws and don't apply too much torque.

Please don't change the phase and neutral cables connection point.

12. Point : Rectifier output Inductor

User must be connect high power cable to the rectifier inductor **with cable lug**. User choose cable cross section by divide input current by three. For example if the input current 100A then 35 mm² should be used. The other free(second) terminal of the should be connect to the connection 13 (DC BUS Capacitor (+) terminal).

Caution ! Connection shouldn't be loose. Please careful when you are fixing the screws and don't apply too much torque.

13. Point : DC BUS Capcitor

The second terminal of the rectifier output inductor should be connect to the DC BUS Capacitor (+) terminal

Caution ! Connection shouldn't be loose. Please careful when you are fixing the screws and don't apply too much torque.

3. Transformer Ratings and Polarity Check

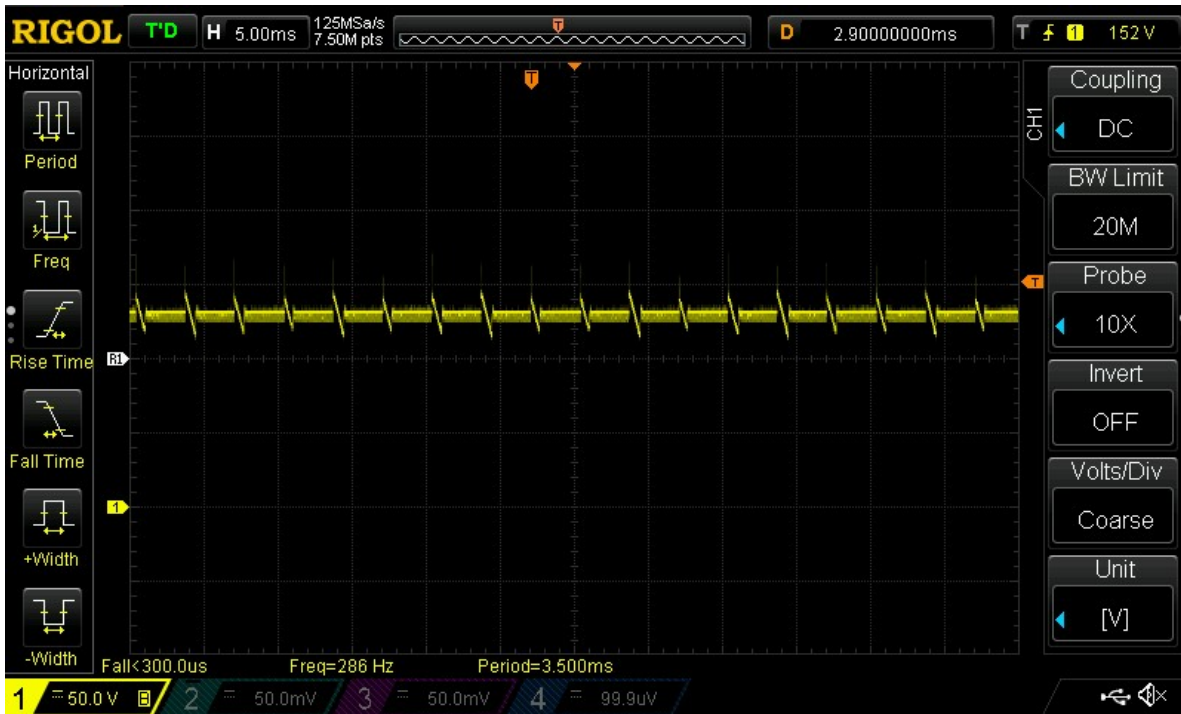
The main high power transformer ratings for 110 VDC 80 A single phase open frame rectifier is 12 kVA 220 / 172 VAC. The quality of the transformer directly effects to the rectifier quality and efficiency.

PESS, recommends use anti-vibration and isolation wedges when the mounting the transformer and inductor. Also, transformer core should be varnished and necessary electrical indication labels should be placed and correct.

PESS recommends that the user, request transformer polarity marking from their transformer manufacturer. It will be very user for detect polarity of the transformer otherwise it should be detected directly by user at the installation site.

There is one more very important step that needs to be care about before turn-on rectifier.

Please disconnect the rectifier output inductor and connect oscilloscope to the copper bar on the device. The settings for the oscilloscope is 100V/div and 10 mSec/div.



If don't see a waveform like this picture please change secondary cables of the transformer. It's mean the polarity of the transformer is wrong and also you need to see voltage raises in slowly. If the suddenly rises to peak value it's also dangerous for the rectifier capacitors. In this case please do not connect the inductor.

If you are turn-on the rectifier with this configuration it's a causes a fatal damage to the device. So you need to change secondary cables than one more time check and if you see this wave form you can connect inductor and turn-on rectifier.