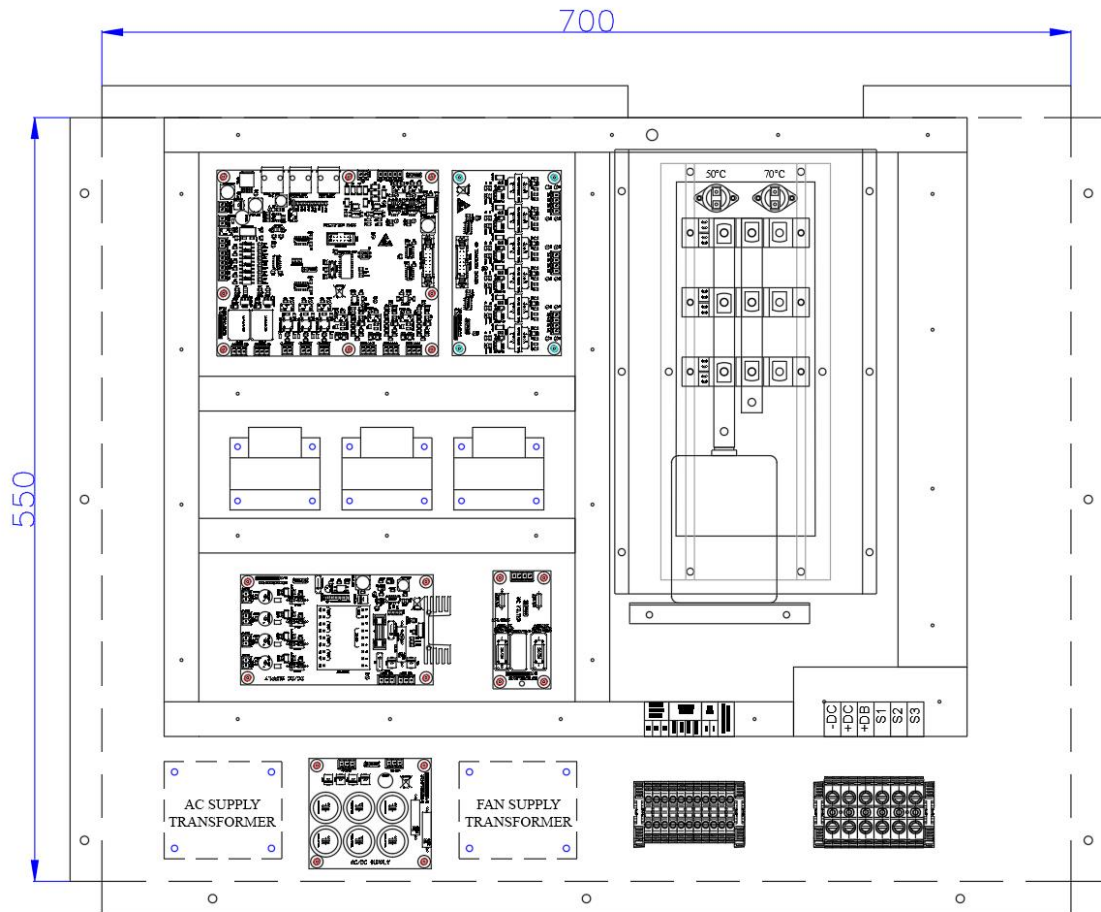
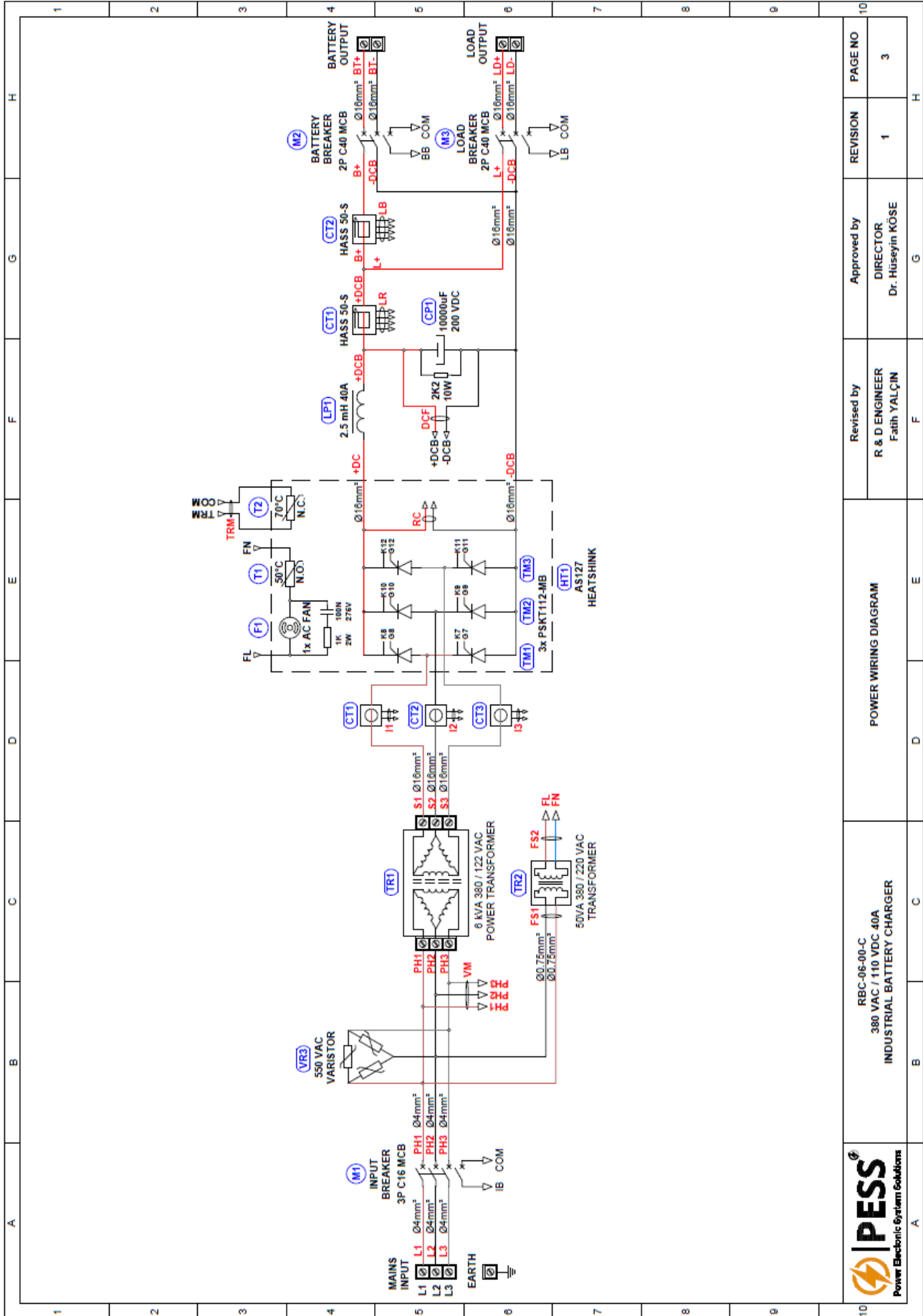


# Quick Installation Guide for PESS Open Frame Devices

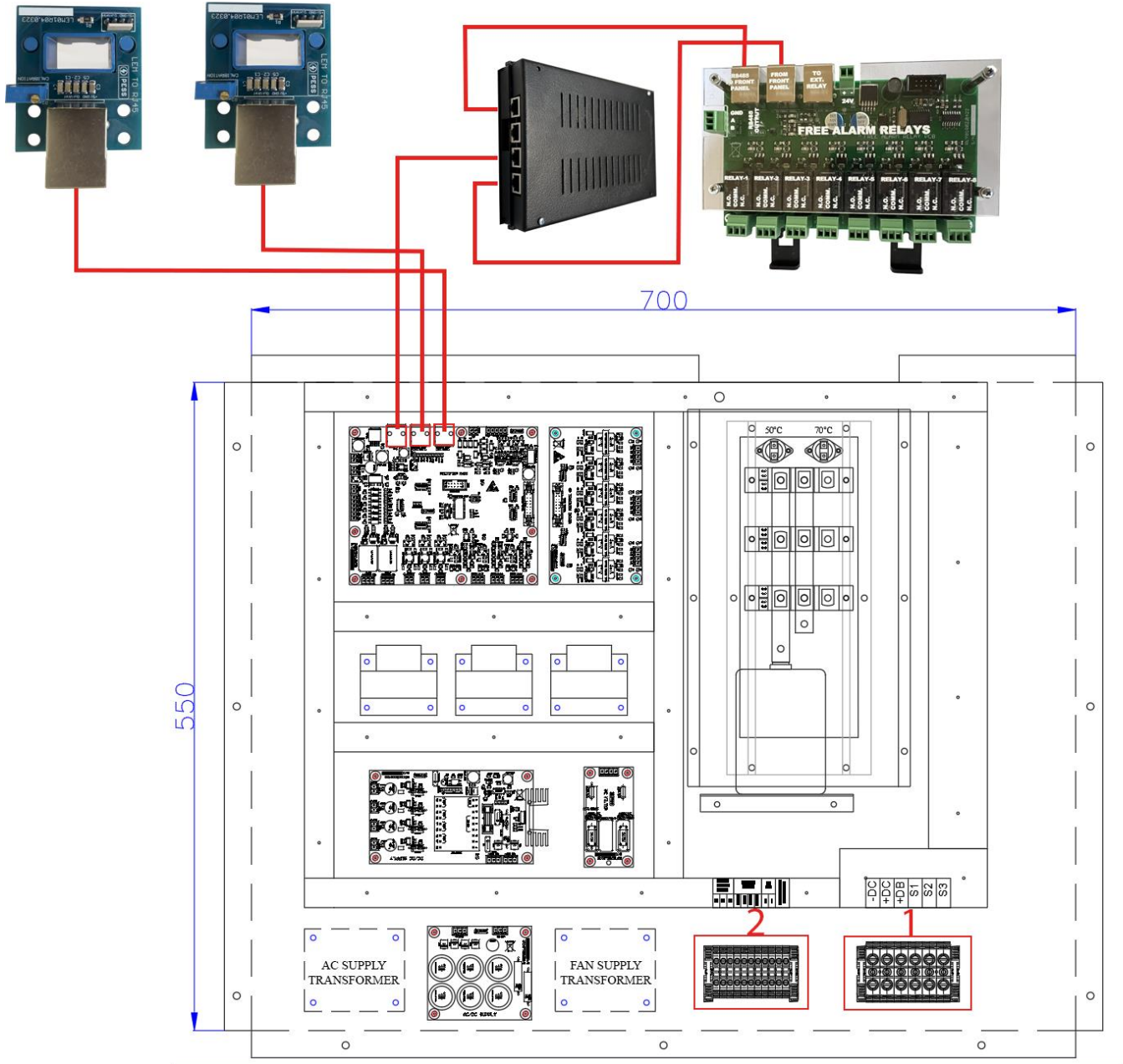


## 1. Table for Required Component

<b>Components Supplied From PESS</b>	<b>Other Required Components</b>
Open frame rectifier device	Rectifier transformer
Touch Screen Panel	Circuit breakers and varistor for input breaker
Free alarm relay board	Rectifier output inductor and capacitor
Lem current module for battery	Rectifier cabinet
Lem current module for rectifier	Cabinet cooling and lightning (optional)



## 2. Connection Points



### 3. Cabling Description

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

**! Please do not turn on the rectifier device without read the 4<sup>th</sup> title.**

#### 1. Point : Power input connection terminals

Terminal pinout in order from left to right **(-DC), (+DC), (+DB), (S1), (S2), (S3)**

- DC** Rectifier high power common negative terminal
- +DC** Rectifier output filter inductor cable
- +DCB** Return cable from filter inductor to rectifier
  
- S1** Rectifier transformer 122 VAC secondary cable
- S2** Rectifier transformer 122 VAC secondary cable
- S3** Rectifier transformer 122 VAC secondary cable

User must be use **Ø16 mm<sup>2</sup> NYAF cable with cable lug** for **(-DC), (+DC), (+DB)** DC cables.

User must be use **Ø6 mm<sup>2</sup> NYAF cable with cable lug** for **(S1), (S2), (S3)** AC input cables.

**Caution !** Please do not connect connect or disconnect under energy.

Please make sure the tightness of the terminals and connectors.

Please check the polarity of the DC cables. Reverse polarity may be caused a critical damage.

#### 2. Point : Low power signal cables connection

Terminal pinout in order from left to right **(Monitoring), (Digital inputs), (24V supply), (Heat comp.)**

**Monitoring** For AC input monitoring, it must be connected to the primary of the rectifier transformer with L1-L2-L3 sequence. Phase sequence is important for the correct operation of the device.

**Digital inputs** In order to observe the trip status of the circuit breakers, the cables taken from the auxiliary contacts of the input, load and battery breakers must be connected to the digital inputs.

- |                               |    |               |
|-------------------------------|----|---------------|
| Input breaker aux. contacts   | => | (com – MCB-I) |
| Load breaker aux. contacts    | => | (com – MCB-L) |
| Battery breaker aux. contacts | => | (com – MCB-B) |

**24V supply** This 24V supply reserved for the relay board 24V supply. Before the turn-on the device please check the polarity of the 24V supply. Wrong polarity may causes a permanent damage.

**Heat compensation** This terminal is used to measure the temperature of the batteries while they are being charged. If the user does not want to use this feature, user can be left alone this terminal. If this feature is to be used, a resistive temperature sensor must be connected to these terminals.

### 3. Point : HMI communication cable

This cable use for the communicate between internal device boards and touch screen front panel. Connection points can be check from device circuit schematic.

### 4. Point : Battery LEM cable

One of the LEM DC current modules sent with the device should be pass to the (+) battery cable. When attaching the LEM module to the cable, the arrow mark on the module should be towards the battery.

After connecting the LEM module, the battery current can be adjust using on board trimpot.

**Caution !** If the LEM module direction incorrect, the battery current will be measured incorrectly.

### 5. Point : Rectifer LEM cable

The other LEM DC current module sent with the device should be located the relavant cable according to the device circuit diagram. When attaching the LEM module to the cable, the arrow mark on the module should be towards to the output.

After connecting the LEM module, the battery current can be adjust using on board trimpot.

**Caution !** If the LEM module direction incorrect, the battery current will be measured incorrectly.  
Also LEM module should be placed correct cable for correct measurement.

## 4. Transformer Ratings and Polarity Check

The main high power transformer ratings for 110 VDC 40 A single phase open frame rectifier is 6 kVA 380 / 122 VAC. The quality of the transformer directly effects to the rectifier quality and efficiency.

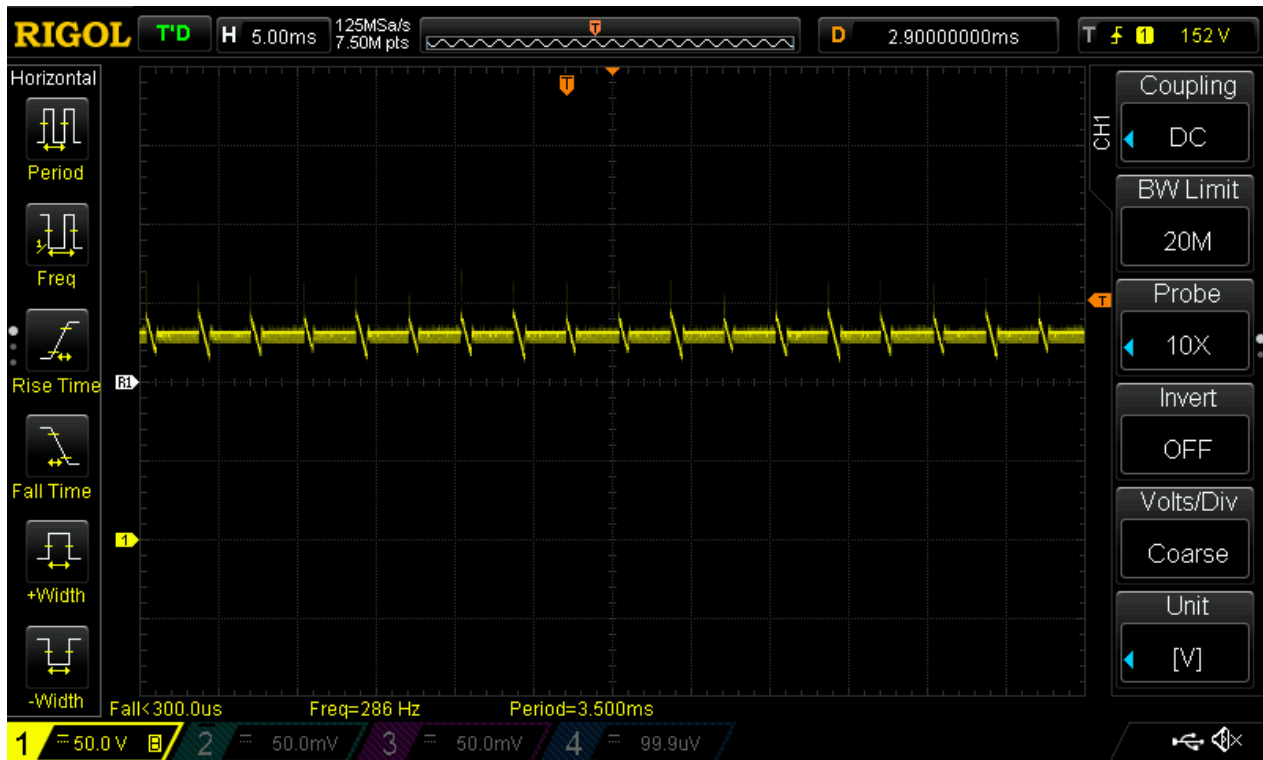
Filter inductor ratings should be 2.5 mH 40A.

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.

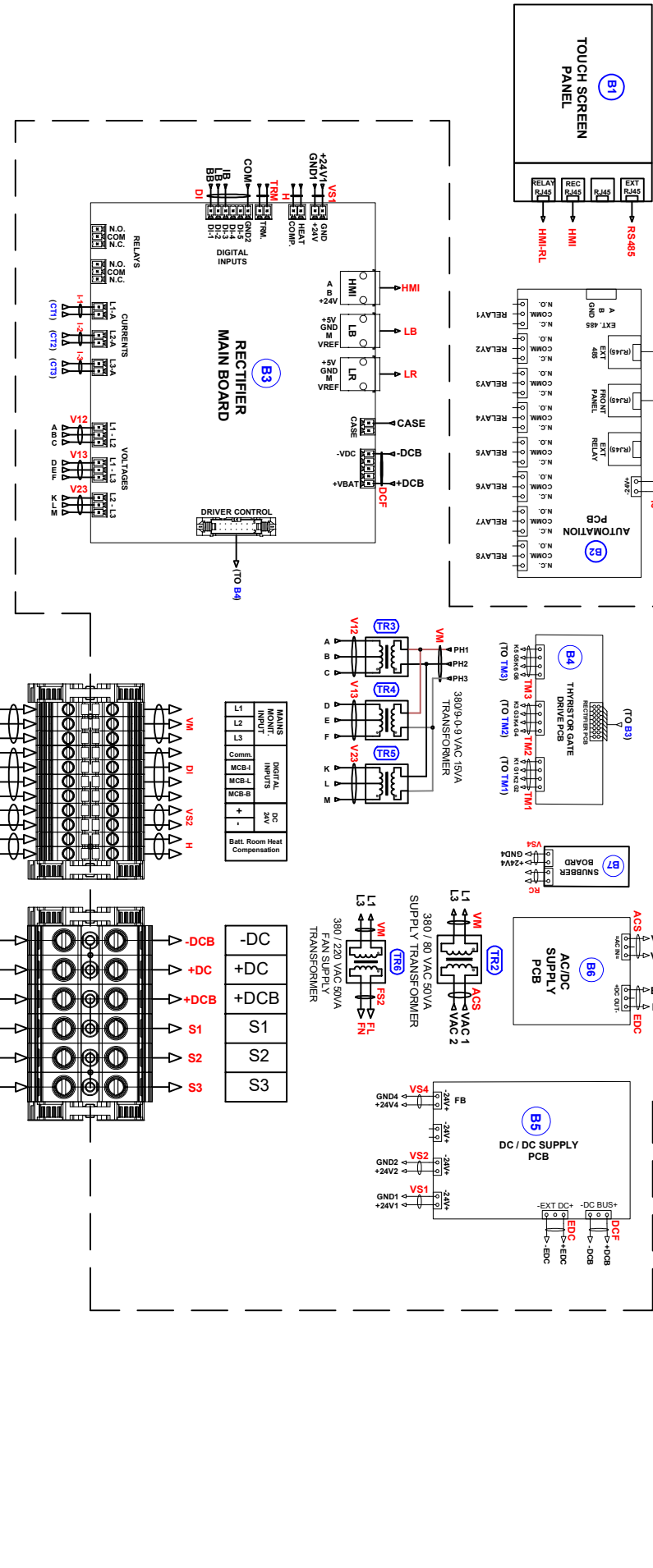
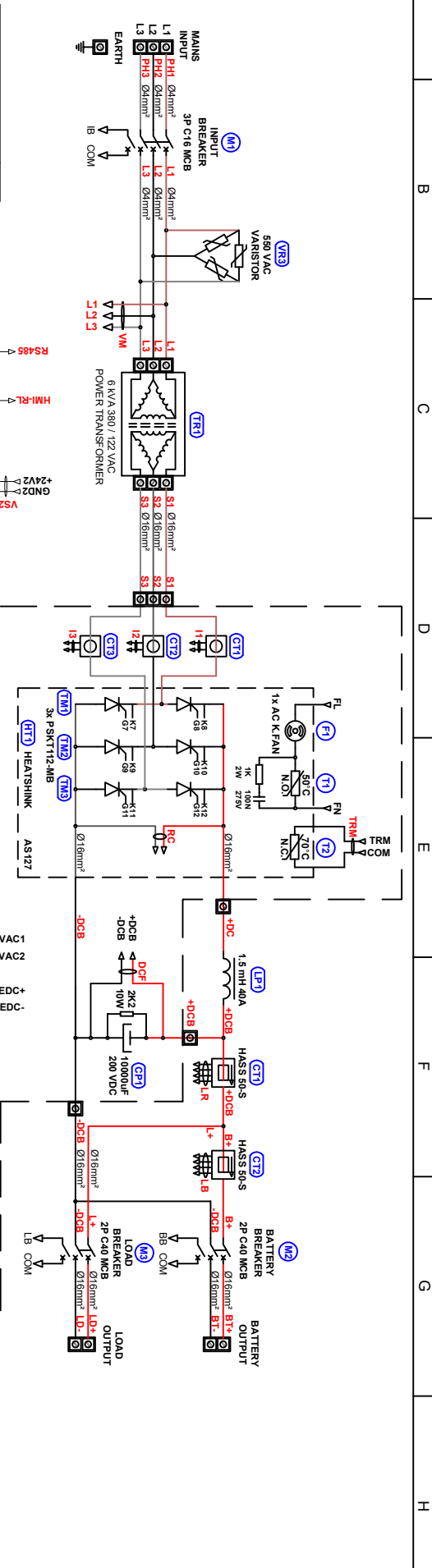
There is one more very important step that needs to be care about before turn-on rectifier.

**Please disconnect the rectifier output inductor(+DC) from terminal** and connect oscilloscope to **(-DC) and (+DC) terminals** on the device. The settings for the oscilloscope is 50V/div and 5 mSec/div.



If don't see a waveform like this picture please change the two monitoring cables from monitoring terminals. It's mean the polarity of the transformer is wrong. 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 without do these tests. It's may be cause to fatal damage on 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.



MAIN	DIGITAL INPUTS	DC 24V	Batt. Room Heat Compensation
1	MCB-1	+	-
2	MCB-2	-	+
3	MCB-3	+	-
4	MCB-4	-	+
5	MCB-5	+	-
6	MCB-6	-	+
7	MCB-7	+	-
8	MCB-8	-	+
9	MCB-9	+	-
10	MCB-10	-	+
11	MCB-11	+	-
12	MCB-12	-	+
13	MCB-13	+	-
14	MCB-14	-	+
15	MCB-15	+	-
16	MCB-16	-	+
17	MCB-17	+	-
18	MCB-18	-	+
19	MCB-19	+	-
20	MCB-20	-	+

