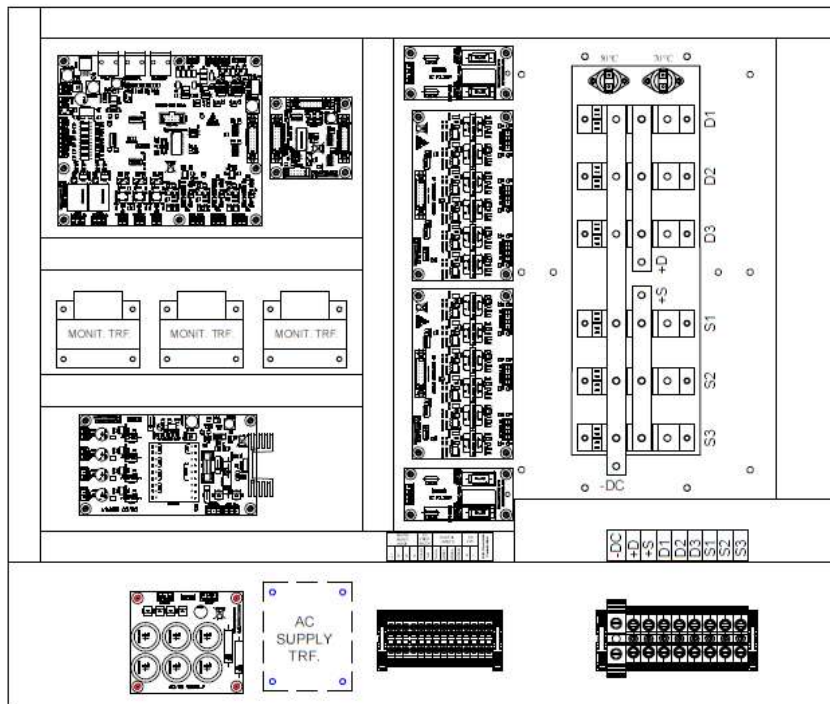
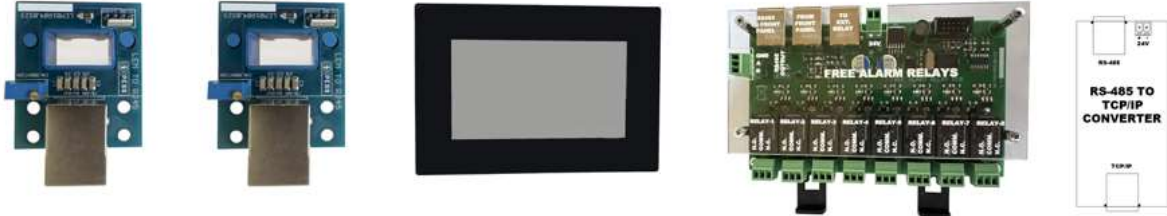


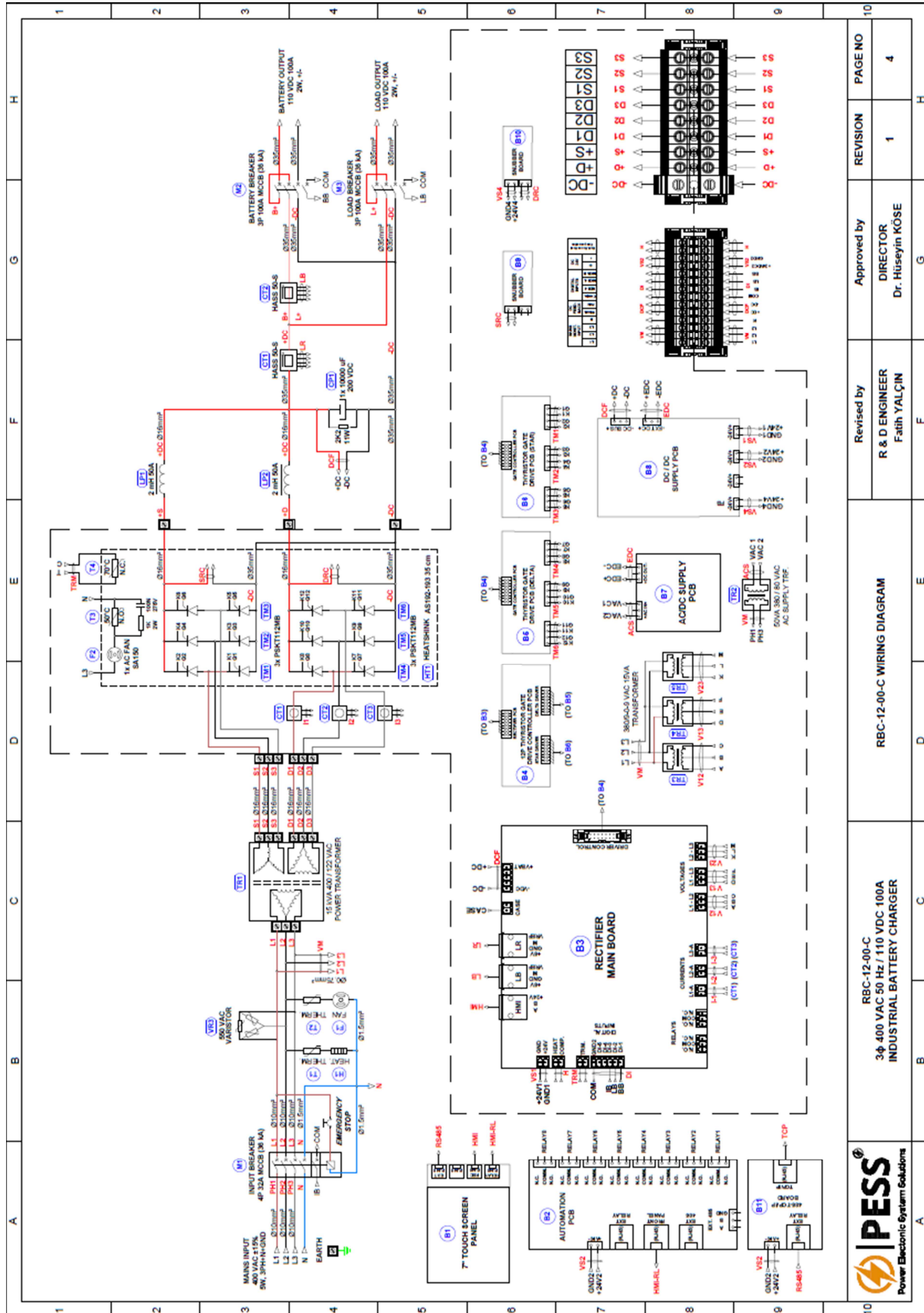
## Quick Installation Guide for PESS Open Frame Devices



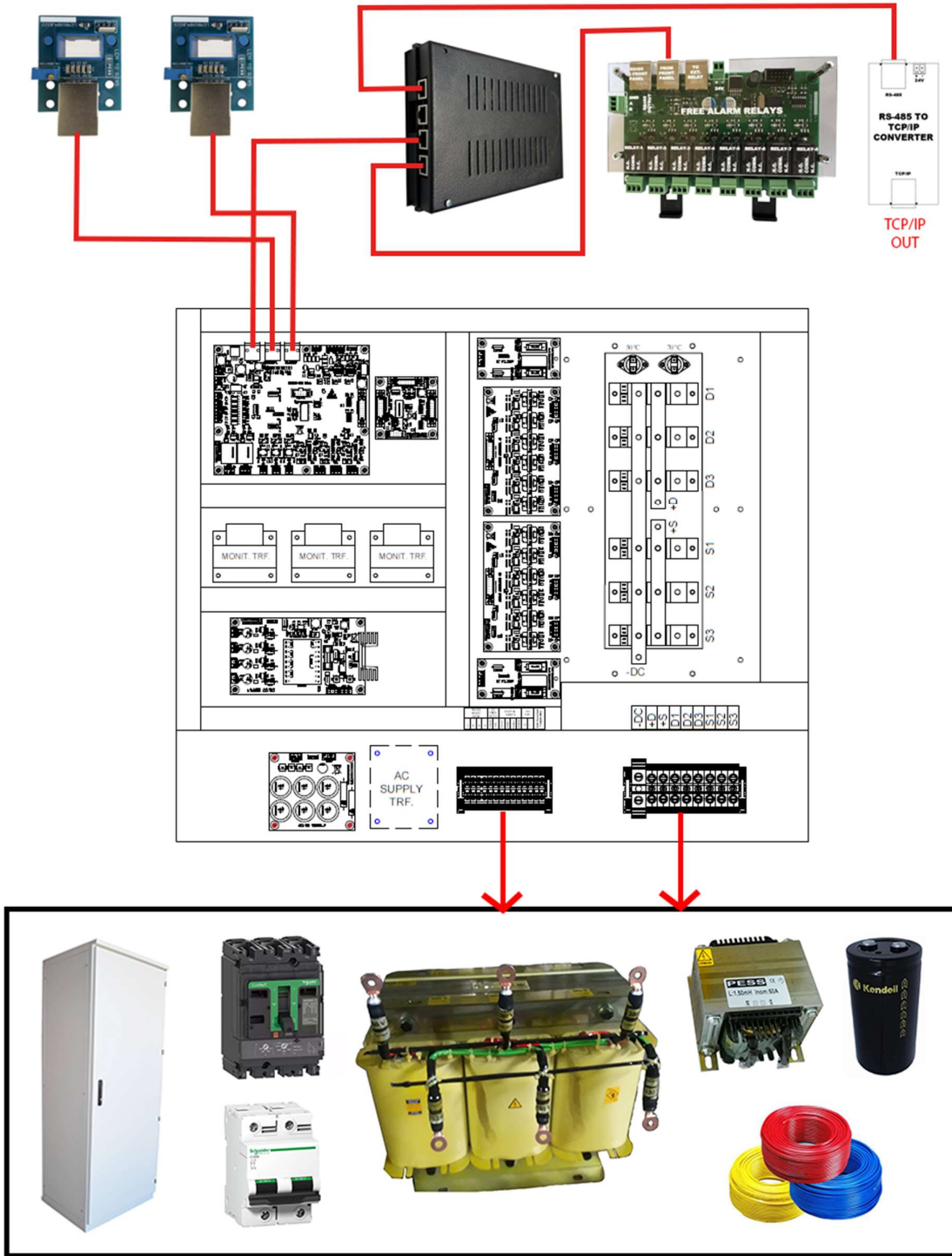
## 1. Table for Required Components

The list of the components provided by PESS				
No	Description	QTY	Manufacturer	Part code
1	15 kVA 3PH 400 VAC 50 Hz / 110 VDC 100A 12 pulse rectifier module	1	PESS	RBC-12-00-C
2	7" Touch screen HMI display module	1	PESS	TS-REC-HMI
3	RS485 to TCP/IP Converter module	1	PESS	485-TCP/IP
4	Rectifier output current measurement module	1	LEM	HASS 50-S
5	Battery current measurement module	1	LEM	HASS 50-S

The list of the components should provided by customer				
No	Description	QTY	Manufacturer	Part code
1	4P 32A Input circuit breaker MCCB (36 kA)	1	Schneider	C10F6TM032
2	220 VAC Shunt trip unit for input circuit breaker	1	Schneider	LV429387
3	1 NO + 1 NC Auxiliary contact block for input circuit breaker	1	Schneider	29450
4	3P 100A circuit breaker MCCB (36 kA) for load and battery output	2	Schneider	C10F3TM100
5	10000 uF 200 VDC DC BUS Capacitor	1	Kendeil	K012001030HM0J143
6	15 kVA 400 VAC delta primary / (122 VAC delta secondary + 122 VAC star secondary) 12 pulse rectifier transformer	1		
7	2 mH 50 A Rectifier filter inductor	2		
8	550 VAC Disk varistor for input overvoltage protection	3		
9	Emergency stop button and label plate	1		
10	50W 220 VAC Cabinet heater + heating thermostat	1		
11	65W 220 VAC Cabinet cooling Fan + cooling thermostat	1		



## 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), (+D), (+S), (D1), (D2), (D3), (S1), (S2), (S3),

-DC Rectifier high power common negative terminal  
 +D Delta thyristor group output  
 +S Star thyristor group output

D1 Rectifier transformer 122 VAC delta secondary phase 1  
 D2 Rectifier transformer 122 VAC delta secondary phase 2  
 D3 Rectifier transformer 122 VAC delta secondary phase 3

S1 Rectifier transformer 122 VAC star secondary phase 1  
 S2 Rectifier transformer 122 VAC star secondary phase 2  
 S3 Rectifier transformer 122 VAC star secondary phase 3

User must be use **Ø35 mm<sup>2</sup> NYAF cable with cable lug** for (-DC).

User must be use **Ø16 mm<sup>2</sup> NYAF cable with cable lug** for (+S), (+D).

User must be use **Ø16 mm<sup>2</sup> NYAF cable with cable lug** for (D1), (D2), (D3), (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**), (**Neutral**), (**DC feedback**), (**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 – IB)
Load breaker aux. contacts	=>	(com – LB)
Battery breaker aux. contacts	=>	(com – BB)

**24V supply** This 24V supply reserved for the relay board 24V supply and RS485 to TCP/IP Converter module. 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 100 A single phase open frame rectifier is 15 kVA 400 / 122 VAC. The quality of the transformer directly effects to the rectifier quality and efficiency.

Filter inductor ratings should be two piece 2 mH 50A.

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.

If the phase sequence at the input is wrong, the device will not turn on. In this case, it will be sufficient to replace any two phase wires at the input.