

PESS RBC-06

Industrial Rectifier – Battery Charger up to 600 A (3-ph input)

PESS RBC RANGE

Customized to user specification full portfolio of industrial or commercial options

The PESS RBC-06 industrial rectifier | battery charger is the most requested rectifier of the company-products range. It combines reliability and maintainability from compact (easy to replace) designed power electronic control module to offer the best performance in any electrical and environmental conditions.

BENEFITS

Optimized design: Battery can represent a significant part of UPS budget in greenfield or brownfield projects. That's why PESS RBC-06 is designed with a wide output DC voltage range to optimize:

- ◆ Number of battery cells
- ◆ Battery capacity and therefore the price, as per the required autonomy

Seamless integration: A made-to-order system can accommodate:

- ◆ Various solutions to operate with the differing input voltage networks (nominal value, tolerance, frequency)
- ◆ Various LVD and Dropper configurations to get flexible design
- ◆ Customizable fault and status 8 or 16 relays for enhanced interfacing with existing DCS and SCADA systems

Very high reliability. The modul-type design provides high reliability on most ratings to:

- ◆ Make easy to replace complete power electronic parts of product thanks to modul-type design, easy maintenance
- ◆ High MTBF above 100 000 hours with appropriate maintenance plan

Specialized solutions. Thanks to modular design of power electronic control parts, specialized designs are possible with LVD, diode droppers or dc/dc converter regulators.

Range Overview

With an appropriate chosen of stand-by battery, PESS RBC-06 industrial rectifier protects DC critical industrial equipment and processes from the damaging effects of power interruptions and losses.

With a microprocessor control, it offers exceptional output stability and allows adaptability for various application requirements.

PESS RBC-06 range of rectifiers-chargers is available from 10A to 200A with single phase input, and from 10A to 600 A with three-phase input. It offers several output voltages from 24 Vdc to 360 Vdc.

PESS RBC-06 is also available with 360 | 400 Vdc output. This configuration can be combined with a PESS INV-01 or PESS INV-03 inverters to design specific high ratings double conversion AC UPS systems (up to 150 kVA).

To further improve load availability a process reliability, PESS RBC-06 is able to operate in dual or tri parallel configuration, with single or dual batteries, and can include a DC bus-tie.

Applications

- ◆ Power generation, transmission and distribution substations
- ◆ Continuous process industries
- ◆ Uninterrupted power supply applications
- ◆ Oil & Gas and petrochemical industries rail transport



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KEY FEATURES

- ◆ Galvanically isolated input transformers, secure isolation input to output.
- ◆ Designed for 12+ years of continues operation with appropriate maintenance.
- ◆ Full compatibility with lead-acid and nickel-cadmium batteries, sealed or vented.
- ◆ Easy maintenance and easy re-produce thanks to compact designed power electronic control module.
- ◆ Default wireless load sharing algorithm, default modbus through rs485 communication, default measurement calibration software from HMI on PC, and default battery room temperature compensation algorithm.

TECHNICAL SPECIFICATIONS

INPUT

AC voltage	220 240 380 400 440 480 (+-15%) (Ph-Ph)
Frequency	50 or 60 Hz +-5%
Neutral configuration	With or without neutral
DPF (cos Θ)	>0.9 (at full load)
Power factor (PF)	>0.85 (at full load)

OUTPUT

Nominal DC voltage	24V 48V 110V 220V 360V
Output DC voltage range	16-35V 32-70V 72-158V 144-310V 240-480V
Output voltage stability (in floating mode)	
-Single system	+/-1%
-Parallel system	+/-2%
Voltage ripple	<1% rms (without battery)
Current limitation	5% to 100%

BATTERY

Type	Lead acid Nickel cadmium
Autonomy	Few minutes to hours
Battery current limitation	
-Lead Acid battery	0.1C
-Ni-Cd battery	0.2C
Battery room temperature compensation	0.04V /1C degree per 12V battery, above and below 25C degree

GENERAL DATA

Dimension	Depends on the project
IP protection	IP20 (IEC60529)
Cabinet color	RAL7035 or special
Cooling	Forced with FANs
Efficiency	80-95% (depends on ratings)
Noise (1m from unit)	60-70% (depends on ratings)
Operating temperature	0-40 C degree
Storage temperature	-20 to 70 C degree
Relative humidity	<95 non-condensing
Operating altitude	1000m max. without derating

STANDARDS COMPLIED

STANDARDS

IEC60146-1-1	Semiconductor converters, basics
EN50091-1	Security
EN50091-2	EMC
IEC60529:1989 +AMD1:1999	Degrees of protection (IP code)

CONFORMITY

Factory tip tests	Sending signed test reports with product
Customer acceptance test	online test factory test
Warranty	2 years

RBC FAMILY & RATINGS

OUTPUT VOLTAGES (Vdc) vs.CURRENTS (A)

24 Vdc	48 Vdc	110 Vdc	220 Vdc	360 Vdc
10A	10A	10A	30A	30A
20A	20A	20A	50A	50A
30A	30A	30A	60A	60A
50A	50A	50A	80A	80A
60A	60A	60A	100A	100A
100A	100A	100A	120A	120A
120A	120A	120A	150A	150A
150A	150A	150A	200A	
200A	200A	200A		
250A	250A	250A		
300A	300A	300A		
400A	400A	400A		
500A	500A			
600A	600A			

PESS RBC FAMILY:

- ◆ RBC-02 (Single phase 2 pulse thyristor controlled)
- ◆ RBC-06 (Three phase 6 pulse thyristor controlled)
- ◆ RBC-12 (Three phase 12 pulse thyristor controlled)

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OPTIONAL FEATURES

RECTIFIER

Blocking diode for capacitor protection
12 Pulse rectifier topology (input current THD < 10%)
+/- 25% wide input range

BATTERY

Battery room temperature sensor
Battery monitoring system (PESS BMS)
Low voltage disconnection contactor (LVD)
Battery Cabinet

SYSTEM

Freewheel reverse diode for magnet application
1,2 or three stage diode-dropper for load output
Serial DC/DC converter for load voltage regulation
Internal lighting for cabinet
DC distribution cabinet

MECHANICAL

External Protection up to IP42
Special cabinet color
Special cabinet dimensions
Lifting eyes
Special nameplate etc.

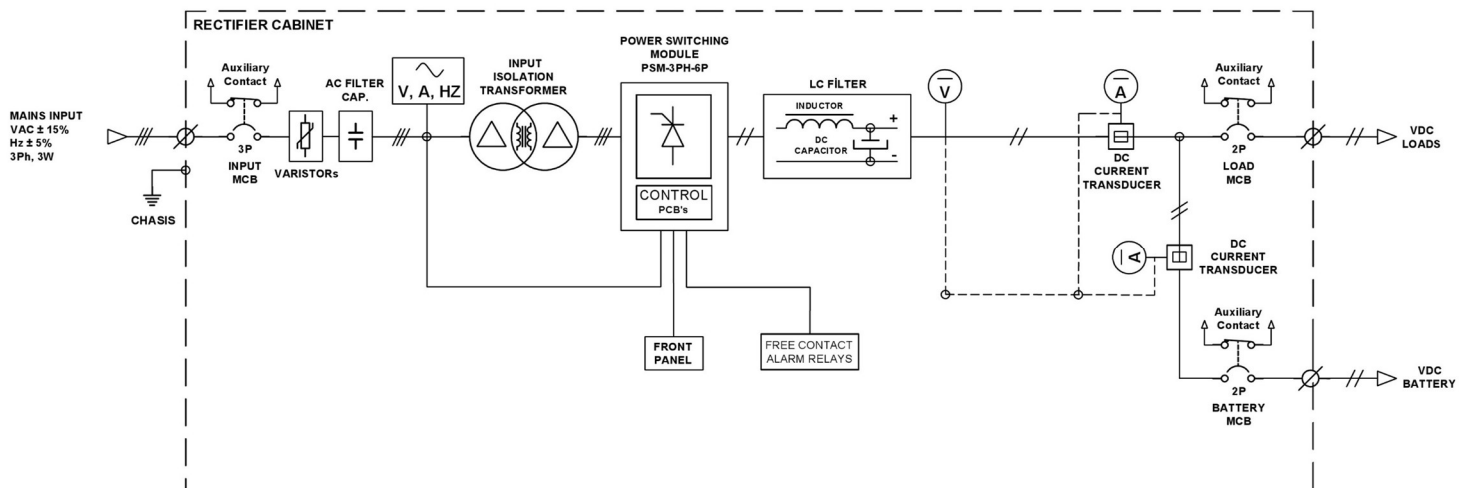
Communication

Front panel analog meters
Transducers 4-20ma output for SCADA
Modbus TCP/IP
SNMP version1
DNP3 class2
IEC61850 protocol
Indoor Mimic Panel for layout explanation (metal or aluminum)

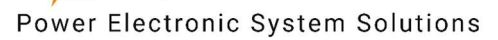
ASSEMBLY EXAMPLE



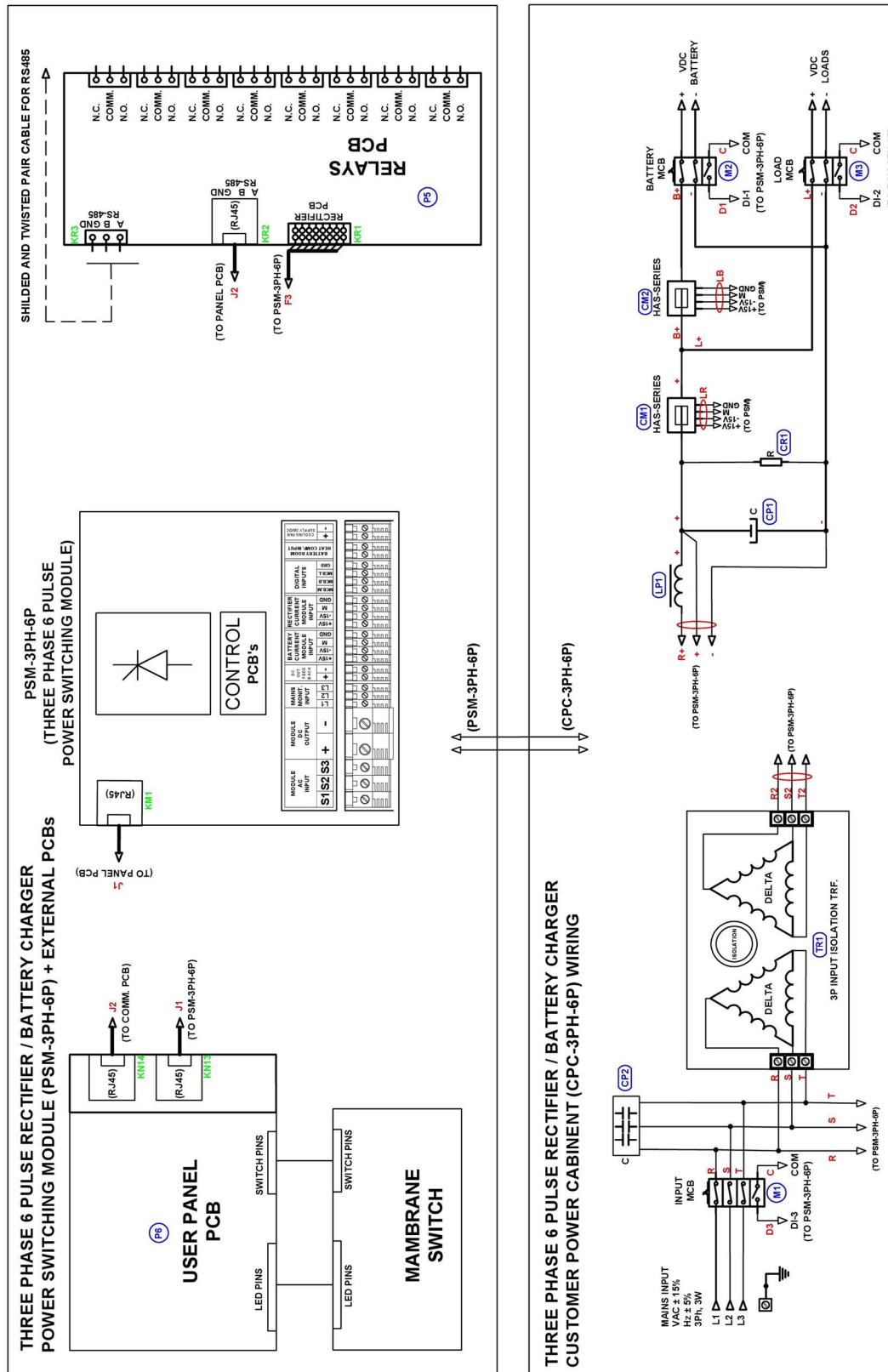
SINGLE LINE DIAGRAM



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COMPACT POWER ELECTRONIC CONTROL MODULE & EASY MAINTENANCE

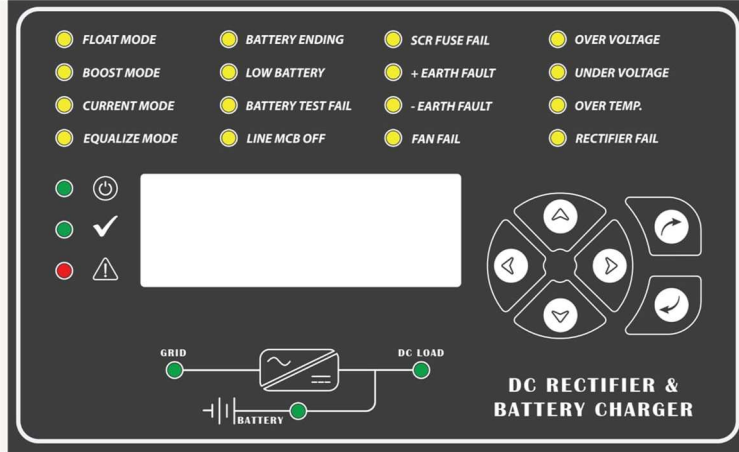


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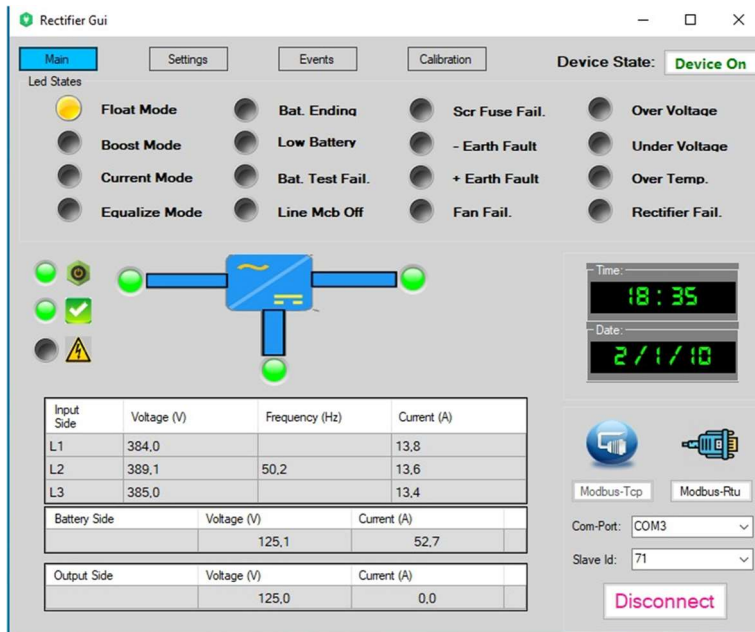
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HMI & SYSTEM TROUBLESHOOTING

FRONT LCD & MIMIC:



HMI ON PC:



TROUBLESHOOTING:

- ♦ Colored or labeled cable-coding of each point, easy to understand all wirings
- ♦ Memorization of last 1000 event with date & time, enable to save a .txt file and print event history from HMI on PC, or check from user LCD panel one by one.
- ♦ LED indications for all critical warnings or faults, measurements for all analog readable values.
- ♦ Enable to replace complete power electronic module of product with new one, easy maintenance

PESS COMPANY

COMPANY:

PESS ENERJİ TEKNOLOJİLERİ LİMİTED
ŞİRKETİ

PESS POWER ELECTRONIC SYSTEM
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