



SHINOZAWA

RECTIFIER/CHARGER

INDUSTRIAL GRADE DESIGNED

20 YEARS OPERATION LIFE | SIMPLE & RELIABLE

BROMO PLUS SERIES



FULL BRIDGE THYRISTOR CONTROL

STABLE AND RELIABLE
AC TO DC RECTIFIER
FOR STATIC AND
DYNAMIC LOAD

ERGONOMIC INTERFACE

EASY READING ON
OPERATION STATUS
QUICK FOR DAILY AND
ROUTINE OBSERVE

TEMPERATURE CHARGING VOLTAGE COMPENSATION

BATTERY CHARGING
VOLTAGE AUTOMATIC
ADJUST ACCORDING
TO TEMPERATURE FOR
PROLONG BATTERY
OPERATION LIFE

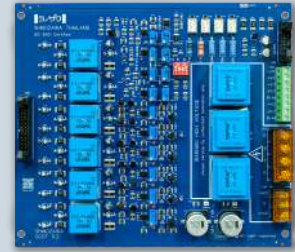
FEATURE SHINOZAWA rectifier is full bridge SCR controlled AC/DC rectifier with input isolation transformer. The system provided constant voltage and constant current output with drooping system. Our rectifier is parallelable by two or more for redundant without parallel card to increase capacity or fault tolerance system by N+1. The front panel features accessible monitors and alarms with auxiliary contacts for external device integration. The HMI Interface is for monitoring and reading on electrical value. The rectifier parameters can be set to meet the load and battery requirements. This LCD display enables the rectifier to communicate with other devices via RS 485/ Modbus, TCP/IP, or other requested protocols.

The rectifier chargers have been developed to conform to the standard as follow :

- NEMAPE5, National Electrical Manufacturer Association,
- IEC 62040-5-3 The Utility Type Battery Charger & the Semiconductor Converters standard
- IEEE 2405-2022 Standard for the Design of Chargers Stationary Used in Battery Applications : The Institute of Electrical and Electronics Engineers, Inc
- JIS C 4402:2004 Thyristor rectifiers for floating charge : Japanese Industrial Standards
- TIS 1293-2538 Battery Charger : Thai Industrial Standards

FUNCTION

- Auto boost after power failure
- Adjustable boost and float charge timer
- Automatic and manual operation mode
(VRLA/Vented Type/Lithium Battery Selected)
- Battery charging voltage against temperature compensation
- Alarm auto stops
- Parallel redundant operation
- DC filter designed with long life capacitor
- DC over/under voltage protections
- Silicon dropper control output function
- Rectifier fuse blow alarm
- Non contact low level sensor
- MCCB trip alarm
- DC earth fault alarm by current sensor
- Float/Equalizing status
- AC Input on status
- Voltage free contact alarm ready



Intelligent gate control device



Full function sensor/alarm PCB.



Single / Three phase N+1
Power supply PCB.

ADVANTAGE

- High MTBF low MTBR
- Low annual capital expenditure on maintenance costs
- Front access easily to maintenance and replaceable spare parts
- Minimize shutdown maintenance downtime
- Low operating heat reduces cooling costs.
- 2 x Battery MCCB easy swap on battery replacement
- Online spare parts replaceable
- Low ripple / battery charging current limit for extended battery life
- DC output to load with/without silicon dropper selectable
- Long operation life PCB with moisture protection coating
- 24/7 After sales service all parts are in stock



Smart DC Ground detector
by Leakage current



HMI Display

“ENGINEERED FOR DEMANDING INDUSTRIAL ENVIRONMENTS”



TECHNICAL SPECIFICATION

INPUT CHARACTERISTIC

| | |
|-----------|--------------------------------------|
| Voltage | 110/220/380/400/525VAC or on request |
| Phase | Single/Three Phase |
| Variation | +/-10% |
| Frequency | 50Hz/60Hz |
| Variation | +/- 6% |

OUTPUT CHARACTERISTIC

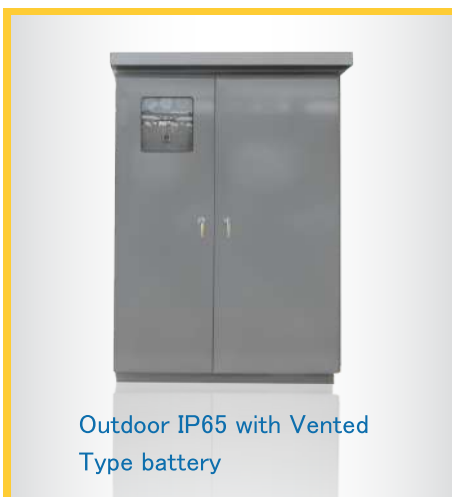
| | |
|--------------------------|------------------------------------|
| Voltage | 24/48/110/220/240VDC or on request |
| Rating | 10/20/30/40/50/75/100/150/200/300A |
| Current rated | 100% Continuous running |
| Drooping current | 120% of rated capacity |
| Output voltage stability | +/-2% Static , 10% Dynamic |
| Voltage ripple | <1VAC |
| Overall efficiency | >85% at full load rated |



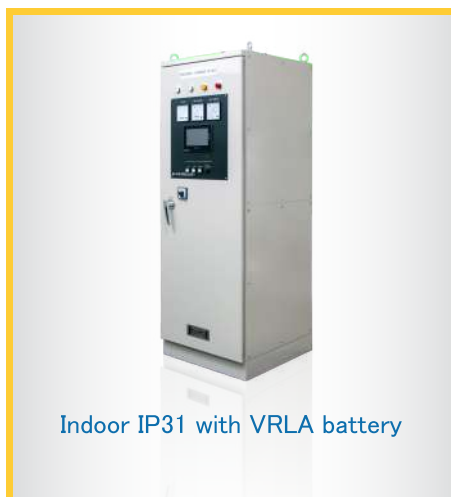
GENERAL DATA

| | |
|-------------------------------|------------------------------------------|
| Ambient operating temperature | -10°C - +50°C |
| Relative humidity | 25-95% |
| Attitude | 1000m |
| Colling system | Natural / Air force cooling |
| Cabinet protection | IP31 |
| Color | Munsell 5Y7/1 / RAL 7032 / or on request |

“CUSTOMIZED ENGINEERING SOLUTION FOR INDUSTRIAL SYSTEMS”



Outdoor IP65 with Vented Type battery

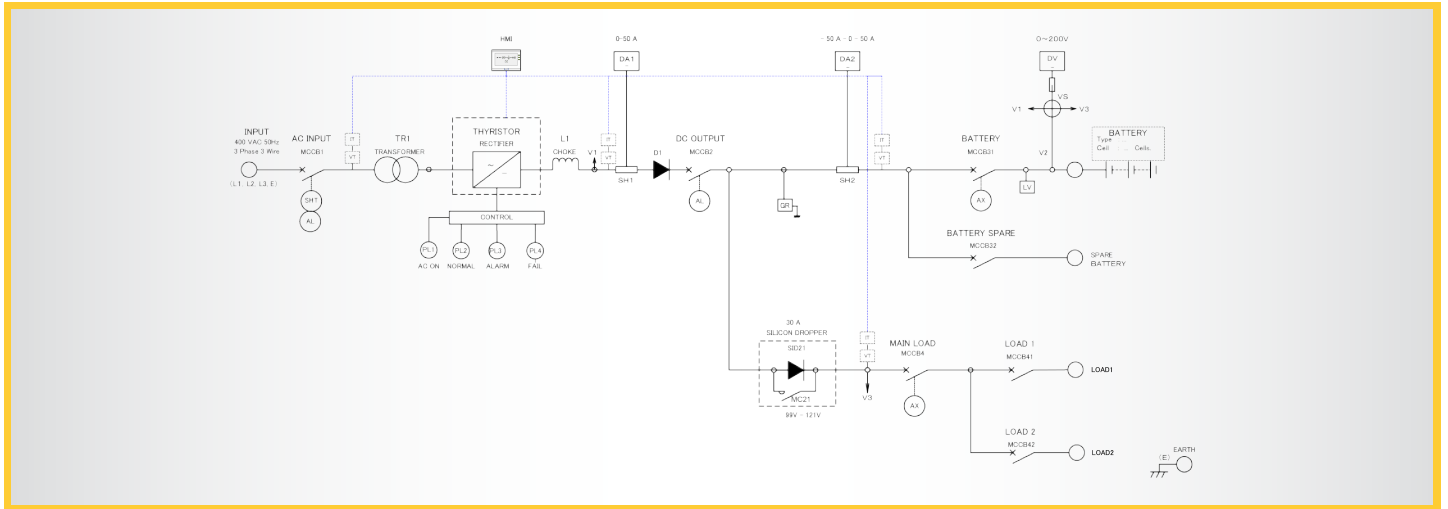


Indoor IP31 with VRLA battery

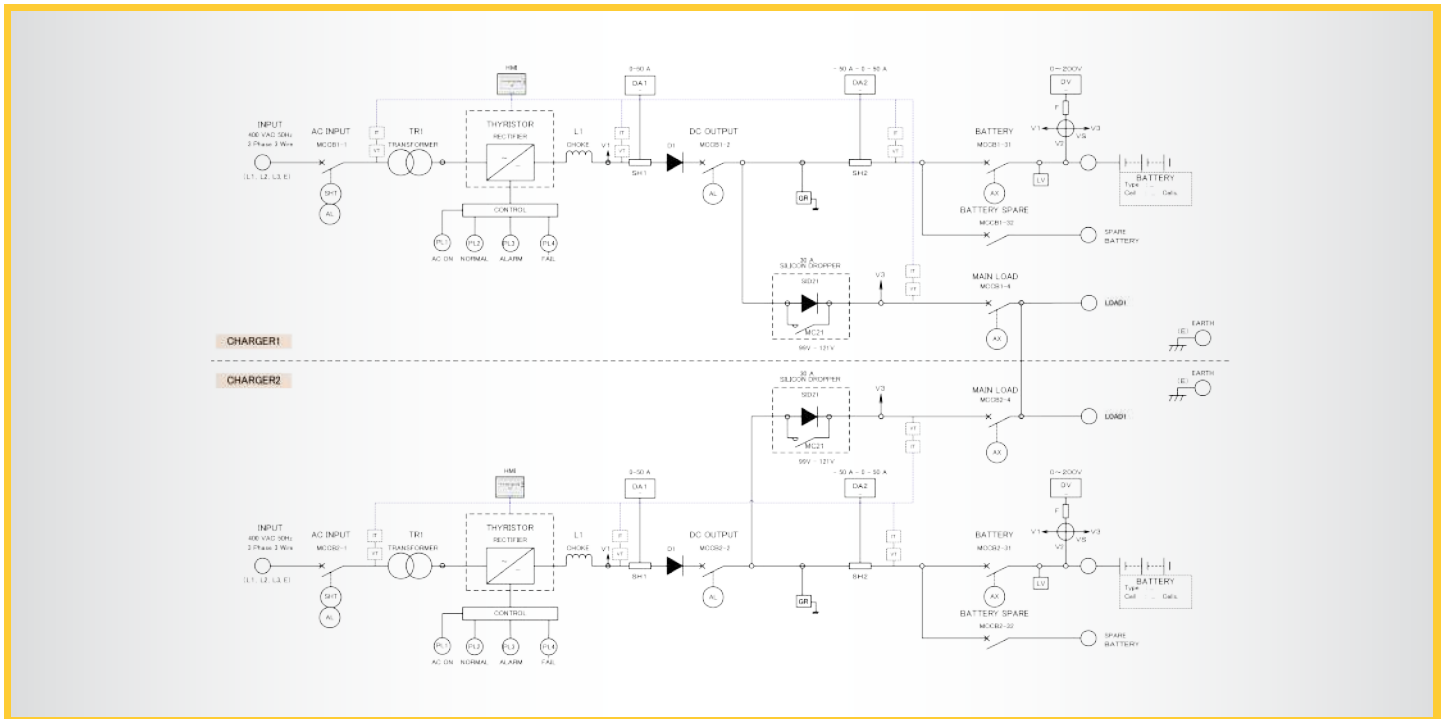


Parallel redundant system

STANDARD SYSTEM DIAGRAM



STANDARD PARALLEL SYSTEM DIAGRAM



OUR PRODUCTS & OUR SERVICE

AC/DC POWER SUPPLY
 INVERTER DC POWERED
 BATTERY CHARGER
 BATTERY SERVICE
 USER TRAINING



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“SHINOZAWA THAILAND'S
 QUALITY MANAGEMENT SYSTEM
 IS CERTIFIED TO ISO 9001:2015 STANDARDS”