Experienced. Effective. Trusted.

INTRODUCTION

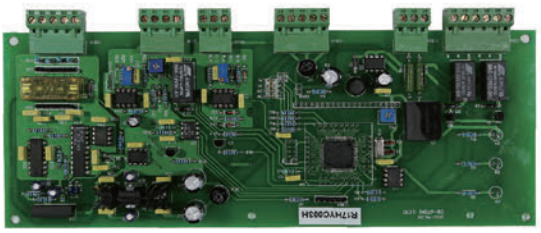
R-SS keeps an open mind and heart to cooperate with you for the further communication in the CP field through variety way including OEM, ODM, Customer design, etc.

OEM

Qingdao Rising-Sun Shine Ship Engineering Technique Co.,Ltd. R–ss has over 20 years design and manufacture experience in high quality CP rectifiers and auxiliary equipments. After years of efforts, we have a comprehensive factory management system and production flow. Our company started technical cooperation and communication with Britain and Hongkong in 2005, thereby improving our product design constantly and ensuring the products technology to keep pace with the international advanced level. All the industry project involves into the power, shipping, offshore platform, chemical industry field, etc.

ODM

Over the years, company is devoted to design & develop new products independently and, guys work as a team with their strongly executive force. Many of the technical products had won national patent and achieved many honor certificates. With the advanced technology and continuous technology innovation, Cathodic protection technology is in the domestic leading level. While, based on several year's field experience we have ability to make CP system design for our customer. We hope help our customer to win good reputation.



SERVICE

Our professional senior engineers keep close communication with customers one-on-one and can always provide personalized service according to the customer demand. If there's any technical difficulty, we will give them feedback & construction information in time. All of what we do is conducted to provide higher quality service for customers and improve customer satisfaction & win their trust and support.

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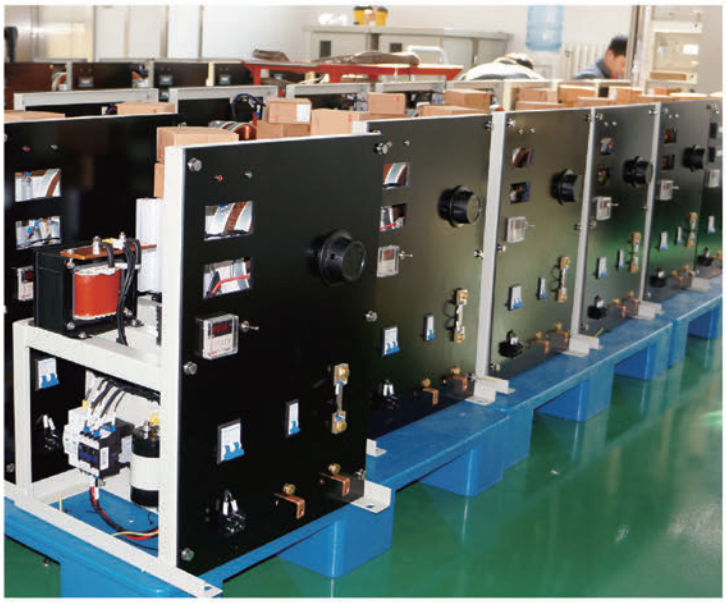
Expect More. Know More. Do More.

Our head office is located in Qingdao, and also R-SS has set up service network stations in Beijing, Shanghai, Guangzhou, Dalian forming a unique complete and large-scale service system. We are not only providing products but also providing service.

OUR TEAM

We're privileged to be able to work each day with smart and talented people who are passionate about creating great products. All while treating customers with respect, making a living, and having fun. United, we're a stronger company. We know that so much more is possible when we work together. Never satisfied with the status, we seek challenges and find a better way.



CP SYSTEM DESIGN AND SERVICE

In order to maintain the good reputation of from our customers, R-SS can quickly & efficiently design CP product as you need, saving time and money by getting your system designed accurately at the first time. We have rich experiences for customized design. All units production strictly comply with safety regulations and ISO 9001 certification, fully in accordance with all applicable International standards. We can cooperate and help you deal with the after sale problem for your products or your brand.

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Analog Thyristor Transformer Rectifier

INTRODUCTION

Analog Thyristor Transformer Rectifier adopts analog circuit scheme. It is very stable, strong anti-interference, and easy to operate, so the equipment is suitable for the hazard environment. R-SS provides Analog Thyristor Transformer Rectifier in every standard configuration, including air-cooled, oil cooled and explosion proof. All the enclosures can achieve IP65 grade. The rectifiers are available in almost any voltage and current output, and can be monitored by point-to-point communication method.

SYSTEM OPERATION

- Single or 3-phase input
- plinth mounted
- Dry powder coated enclosure
- Fully magnetic circuit breaker
- Stepless adjustment
- A.C. and D.C. lightning arrestors
- Constant current mode, accuracy ≤±1%
- Constant potential precision ≤5mV
- Constant potential mode, protection potential range -3000 mv~ + 3000 mv
- Heavy duty transformer with 20% over design capacity
- Interrupter mode, time variable
- DC output volt ,amp and potential meters, with +/- 1.5% accuracy
- Ripple: 3 phase, ≤5%, single phase, ≤10%
- Transformer: min. 95% efficient, Class “F” rated
- When the output current or output voltage exceed 100%-110% of rated value, current down to zero and the fault light on
- Lack phase alarm
- Temperature high alarm
- Over/under potential limited alarm
- IP65, NEMA4x
- 4~20mA transmitter
- Time-elapse recorder
- Sunshade, outdoor normally provided

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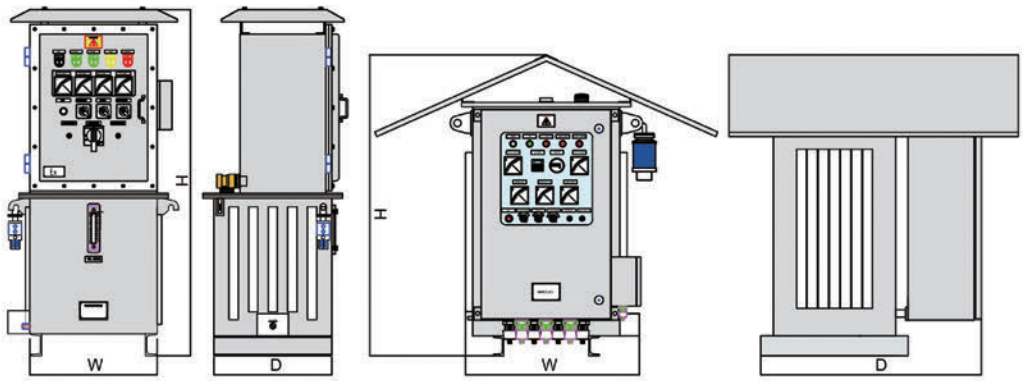
Analog Thyristor Transformer Rectifier

TAOR-2*50A/50V-EX...

RECTIFIED TYPE:
T-THYRISTOR, S-SWITCHING POWER
CONTROL TYPE:
A-ANALOG, I-INTELLIGENT
T-TAPPED, S-STEPLESS
COOLING TYPE: A-AIR, O-OIL
EQUIPMENT TYPE:
R-RECTIFIER,
C-CONSTANT POTANCIAL RECTIFIER
OUTPUT CHANNEL: QUANTITY
RATED OUTPUT CURRENT: XXA
RATED OUTPUTVOLTAGE: XXV

OPTIONAL FEATURES
EX-EXPOLUSION-PROOF
UD-UP & DOWN STYLE
FB-FRONT & BEHIND STYLE
IM-INTEGRATE MODULE
SM-SEPARATED MODULE
PA-PAINTING
DG-DIP GALVANIZING



The enclosure divides 2 house, namely oil tank and control cabinet. There are 2 types, left side is up & down, while right is front & behind.

MODELS

No.	Size(W*D*H)mm	Cooling Type	Rated Power	Remark
1	520*440*1160	Air Cooled	5KVA	1 Channel Output
2	700*500*1380	Air Cooled	10KVA	1 Channel Output
3	800*600*1600	Air Cooled	20KVA	1 Channel Output
4	600*550*1250	Air Cooled	15KVA	2 Channel Output
5	600*680*1500	Air Cooled	15KVA	2 Channel
6	800*600*2100	Air Cooled	30KVA	4~6 Channel
7	520*475*1200	Oil Cooled	5KVA	1Channel/Up & Down
8	600*660*1625	Oil Cooled	8KVA	1Channel/Up & Down
9	600*860*1225	Oil Cooled	10KVA	1Channel/Front & Behind
10	550*400*920	Oil Cooled	5KVA	1Channel/Front & Behind
11	600*660*1700	Oil Cooled	8KVA	3Channel/Up & Down
12	600*660*1625	Oil Cooled	5KVA	2Channel/Up & Down

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Digital Intelligent Transformer Rectifier

INTRODUCTION

Digital Intelligent Transformer Rectifier Based On Intelligent Microcomputer Control System, Which Has Very Big Advantage In Human-machine Interaction. We Can Realize The Local Data Storage, As Well As Long-distance Intelligent Control And Monitor. For The Reason Of Highly Integration, The Structure Seems Very Brief, Stable And Easy To Maintenance, Meanwhile, Simple Operation Interface And Easy To Upgrade. Plinth Mouthed Or Hanging Is Optional.

ELECTRICAL CHARACTERISTICS

- Single or 3-phase input,
- A.C. and D.C. lightning arrestors
- Constant current mode, accuracy ≤±1%
- Constant potential mode, accuracy ≤5mV
- Ripple: 3 phase, ≤5%, single phase, ≤10%
- Constant potential mode,
  protection potential range - 3000mv~ + 3000mv
- Heavy duty transformer with 20% over design capacity

SYSTEM OPERATION

- Constant current mode
- Constant potential mode
- Interrupter mode (standard)
- RS485/Ethernet/GSM for remote communication
- Small/standard output swithing mode
- Air/oil cooling mode

ALARMS:

- All alarms are indicated by digital comms monitor, control interface, alarm indicator, relay contact closure and analog converter.
- Lack phase alarm Always active
- Output open circuit Always active
- Temperature high alarm Always active
- Current out of range User select/program
- Voltage out of range User select/program
- Potential out of range User select/program

COMPLIANCES/STANDARDS

LVD

- EN 61558-2-12:2011
- EN 61558-1-1:2005+A1:2009

LVD

- EN 61000-6-2:2005+AC:2005
- EN 61000-6-4:2007+A1:2011

INTERFACES

- Control & monitor by LCD controller
- Control & monitor by Touch screen
- Discrete control & meters monitor as console

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Digital Intelligent Transformer Rectifier

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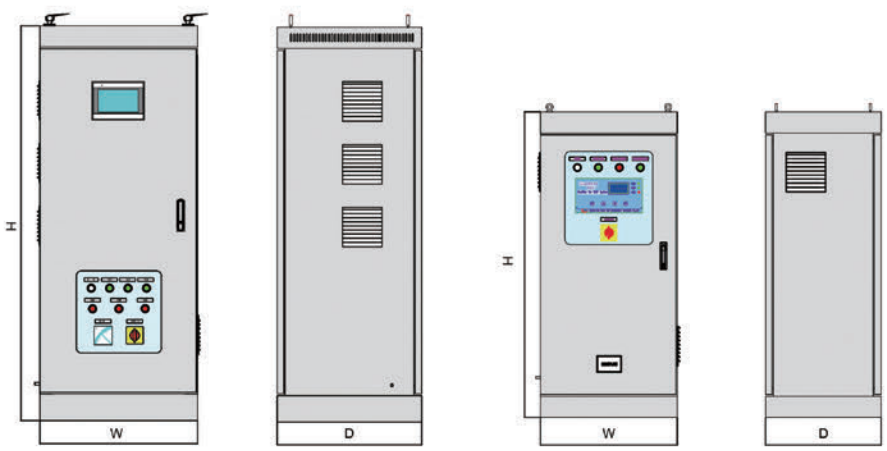
RECTIFIED TYPE:
T-THYRISTOR, S-SWITCHING POWER
CONTROL TYPE:
A-ANALOG, I-INTELLIGENT
T-TAPPED, S-STEPLESS
COOLING TYPE: A-AIR, O-OIL
EQUIPMENT TYPE:
R-RECTIFIER,
C-CONSTANT POTANCIAL RECTIFIER
OUTPUT CHANNEL: QUANTITY
RATED OUTPUT CURRENT: XXA
RATED OUTPUTVOLTAGE: XXV

OPTIONAL FEATURES
EX-EXPOLUSION-PROOF
UD-UP & DOWN STYLE
FB-FRONT & BEHIND STYLE
IM-INTEGRATE MODULE
SM-SEPARATED MODULE
PA-PAINTING
DG-DIP GALVANIZING



MODELS

No.	Size(W*D*H)mm	Cooling Type	Rated Power	Remark
1	520*440*1160	Air Cooled	5KVA	1 Channel
2	700*450*1350	Air Cooled	10KVA	1 Channel
3	800*600*1600	Air Cooled	20KVA	1 Channel
4	600*550*1250	Air Cooled	8KVA	1 Channel&1 Backup
5	600*550*1250	Air Cooled	10KVA	2 Channel
6	600*680*1500	Air Cooled	15KVA	2 Channel&1 Backup
7	600*680*1500	Air Cooled	15KVA	3Channel
8	800*600*2100	Air Cooled	30KVA	4~6 Channel
9	520*475*1200	Oil Cooled	5KVA	1 Channel/Up&Down
10	600*660*1625	Oil Cooled	8KVA	1Channel&Spare/Up&Down
11	550*670*920	Oil Cooled	5KVA	1Channel/Front&Behind
12	600*860*1225	Oil Cooled	10KVA	1Channel/Front&Behind
13	600*660*1700	Oil Cooled	8KVA	3Channel/Up&Down
14	600*660*1625	Oil Cooled	5KVA	2Channel/Up&Down

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Explosion-Proof Transformer Rectifier

INTRODUCTION

Explosion-Proof Transformer Rectifier can adopt both analog and digital circuit scheme. It should be stable, strong anti-interference, and qualified, so the equipment is suitable for the hazard environment. R-SS has the ATEX certificate and CNEX certificate, which stand for the leading level in the world.

FEATURES:

- Single or 3-phase input,
- Plinth mounted
- Dry powder coated enclosure,
- Fully magnetic circuit breaker
- Meters, indicators, buttons, and switches are Explosion-Proof
- Input and output lightning arrestors
- Constant current mode, accuracy ≤±1%
- Constant potential precision, ≤5mV
- Constant potential mode, protection potential range - 3000 mv~ + 3000 mv
- Heavy duty transformer with 20% over design capacity
- Interrupter mode, time variable
- DC output volt ,amp and potential meters, with +/- 1.5% accuracy
- Ripple: 3 phase, ≤5%, single phase, ≤10%
- Transformer: min. 95% efficient, Class up to “H” rated
- When the output current or output voltage exceed 100%-110% of rated value, current down to zero and the fault light on .
- Lack-phase alarm ,
- Temperature high alarm,
- Over/Under potential limited alarm
- IP65, NEMA4X
- 4~20mA transmitter
- If digital scheme, LCD controller can show more interactive information.
- Sunshade, outdoor normally provided.

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Explosion-Proof Transformer Rectifier

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CONTROL TYPE:
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T-TAPPED, S-STEPLESS
COOLING TYPE: A-AIR, O-OIL
EQUIPMENT TYPE:
R-RECTIFIER,
C-CONSTANT POTANCIAL RECTIFIER
OUTPUT CHANNEL: QUANTITY
RATED OUTPUT CURRENT: XXA
RATED OUTPUTVOLTAGE: XXV

OPTIONAL FEATURES
EX-EXPOLUSION-PROOF
UD-UP & DOWN STYLE
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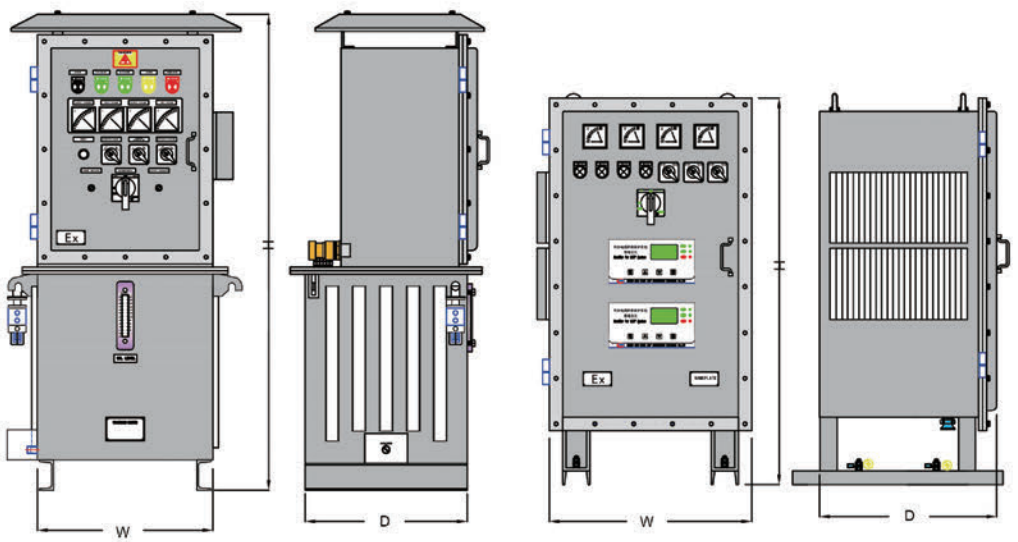

Note: Oil-cooled enclosure divides 2 house, namely oil tank and control cabinet. Down is oil tank while up is control cabinet.

MODELS

No.	Size(W*D*H)mm	Cooling Type	Rated Power	Remark
1	520*440*1160	Air Cooled	5KVA	1 Channel Output
2	700*450*1350	Air Cooled	10KVA	1 Channel Output
3	800*600*1600	Air Cooled	20KVA	1 Channel Output
4	600*550*1250	Air Cooled	15KVA	2 Channel Output
5	600*680*1500	Air Cooled	15KVA	2 Channel
6	520*475*1200	Oil Cooled	5KVA	1 Channel/Up&Down
7	800*600*1600	Oil Cooled	8KVA	1 Channel/Up&Down
8	600*660*1625	Oil Cooled	5KVA	2 Channel/Up&Down
9	600*660*1700	Oil Cooled	8KVA	3 Channel/Up&Down

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GPS Synchronous Interrupter

INTRODUCTION

GPS Synchronous Interrupter can solve the problem of synchronous measurement. Because most pipelines are laid at extremely long distances, the cathodic protection system needs to turn on and off the current during testing, RSS GPS synchronous Current Interrupter can help with very accurate testing of the current on and off, Combined with ICCP, the internal time of the system can be calibrated by GPS satellite which the error is within 1ms, also presets synchronously turn-on and turn-off, Our GPS synchronous Current Interrupter is highly compatible, strongly reliable, and able to effectively prevent voltage surge and various interferences.

FEATURES:

- Input Power Range: 85-265VAC
- On-off DC ability: 50A at most, 250V DC at most
- Dimension: 150 x 200 x 130mm（5.91“x 7.87”x 5.12”）
- Working Temp.: -30~ + 70°C（-22~158°F）
- Four Settable Operation Parameter :
- (1) Starting Time:
  1970.01.01 00:00:00 - 2069.12.31 23:59:59
- (2) Ending Time:
  1970.01.01 00:00:00 - 2069.12.31 23:59:59
- (3) On Time: 0-99999ms
- (4) Off Time: 0-99999ms
- On-state Voltage Drop: <0.5V
- Leak Current: ≤100μA
- GPS syn error: <1ms
- Up Time: 130us
- Down Time: 4.2ms
- Internal RTC Error: <100ms within 24h
- Time Zone: 24 time zone optional, Eastern eight zones default
- 485 communication supportive
- Parameters saved when power is off
- Output signal can control multi-relay.
- User Interface: 16x4 char display, sunlight readable, 5 press-keys
- GPS Antenna: Magnet mounted

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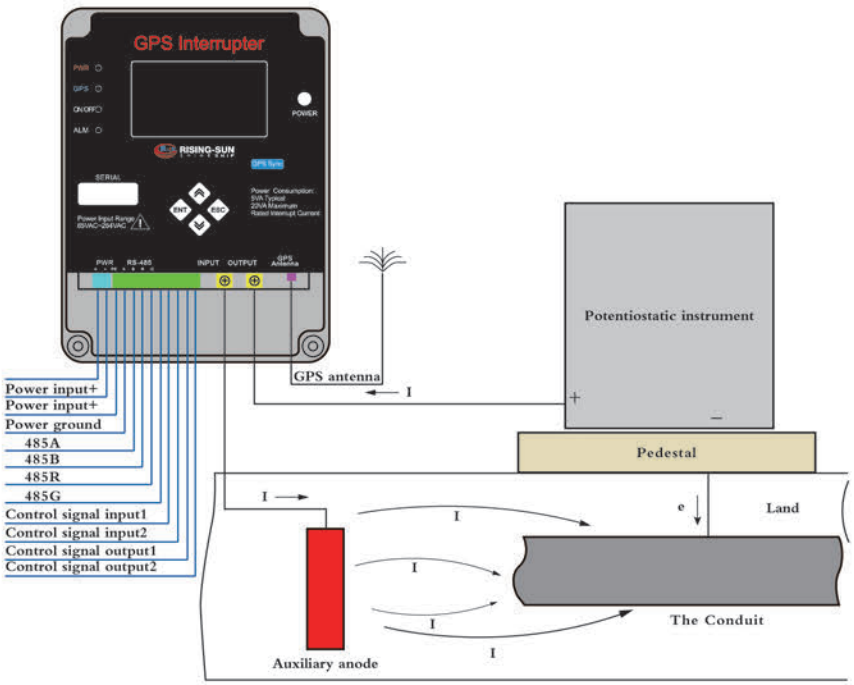
GPS Synchronous Interrupter

INTRODUCTION OF MAIN FUNCTIONS:

- The turn-on and turn-off time for the current operation can be set, when the RTC time of the system reaches to the start time, the system will on and off circularly according to the pre-set current on-off time by the user, it will not stop the circularly operation until the RTC time reaches to the pre-set current off time.
- The circulate time of the on and off current can be set, the minimum step size is 1ms, and the range is from 0ms-9999ms.
- The time zone can be set for the RTC time of the system, to make it convenient for people in different time zones to set up their local time which they accstomered to.
- The break current system can select control system to control it, and it also can be controlled by the input control signal from outside, but meanwhile, it can be restricted by the internal work time setting.
- The signal of the internal control system can be outputted, thereby to control the external independent break system, supports the on-and-off operation of the external switch to start and stop the equipment.
- Support for 485 parameter setting.



MODELS

No.	Size(W*D*H)mm	Cooling Type	Rated Power	Remark
1	300*240*110	Natural Air Cooled	8A	1 Channel Output
2	300*240*110	Forced Air Cooled	20A	1 Channel Output
3	500*350*200	Natural Air Cooled	30A	1 Channel Output
4	500*350*200	Forced Air Cooled	50A	2 Channel Output
5	500*350*200	Forced Air Cooled	100A	1 Channel Output

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Intelligent Testing Station

INTRODUCTION:

Intelligent Testing Station from R-SS is an integrated application for acquisition, storage, transmission, analyzing of data, for natural gas, hazardous liquids and other common pipeline systems. Both DC and AC voltage can be acquired, including stray current, polarized potential and natural potential which can be monitored.

TERMINAL FEATURES:

- Range of potential: -3,000 mV ~ 3,000 mV
- DC Voltage Acquisition Error: less than 0.01V
- AC Interference Voltage Acquisition Range: 0~80V
- AC Voltage Sampling Error: less than 1%
- RTC Clock Error: less than 10 seconds per year
- Transfer Interface: RS-485/GPRS/Ethernet/Satellite
- Monitoring: parameters of rectifier, state of pipeline;
- Life of Battery: Min. 20days ~ Max. 2Years (Depends on sampling rate)
- History Data Storage: Min. 20days ~ Max. 2Years (Depends on sampling rate)
- Power of Controller: DC 5V input or battery input;
- Storage Capacity: 24Mb, more than 4G if SD card can be used
- Input Impedance: > 1M
- DC Input Anti-Interference: more than AC30V
- Protect Degree: IP66
- PCB Treatment: moisture proof, mould proof and salt proof

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Intelligent Testing Station

SERVER FEATURES:

- The server is C/S struction, and acquires data through TCP/IP mode, the system supports the internet, if you have public IP, you can get data fluently, and SMS report is another way to transfer your data.
- Server Database: SQLSever2000
- Server's Monitor: resolution support 1440 x 900
- Server can set parameters of data acquisition terminals, and monitor the communication
- Friendly UI to show dynamic cathodic protection situation of pipeline
- Support setting GPRS terminal address, channel, send interval etc.
- Real-time graphics display
- Save data from the terminals
- Graphical alarm and message alarm
- Print various types of statistical table

INTERFACE DISPLAY OF REMOTE MANAGEMENT SYSTEM MONITORING SOFTWARE

Geographic Information Interface

Alarm interface settings

Statistical Analysis Interface

Statistical analysis of interface histogram

Data Monitoring Interface

Curve Analysis Interface

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Portable Transformer Rectifier Box

INTRODUCTION

A portable ICCP Box can provide a wide range of portable DC power in a variety of cathodic protection testing scenarios. The box can provide 50 volt, 50amp maximum DC output in 25 of adjustment, and has the solid state variable interrupter.

All electrical connections are double-nutted or soldered, It has simple structure, convenient operation and high reliability. All the components can resist high temperature, using short jumper to adjust the output voltage.

Portable transformer rectifier box becomes a convenient and durable troubleshooting tool.

TECHNICAL DATA

Maximum DC Voltage	20V
Maximum DC Current	20A
AC Input	Single phase 230±10%, 50/60 Hz; three phase is optional
Size (W*D*H) mm	400*200*200
Maximun Wattage	400W
Control Mode	25-step voltage control link bar taps, stepless is optional
Interrupter	Solid state timer relay
Display	Output current, output voltage, runtime
Cooling	Air-cooled
Protection	RCCD/MCB and fuse protection, surge suppression, lightning arrestors
Measurement	Accessible front panel total precision shunt
Standard Control	Constant voltage, stepless adjustment is optional
Monitoring	4~20mA, relay dry contact
Ripple in Rated Power	≤5%(3 Phase), ≤10%(1 Phase)
Efficiency	≤80%
Operation Temperature	Max 50°C, Min. -20°C
Current Limit	Protection against current overloading
Optional	Remote monitoring and control

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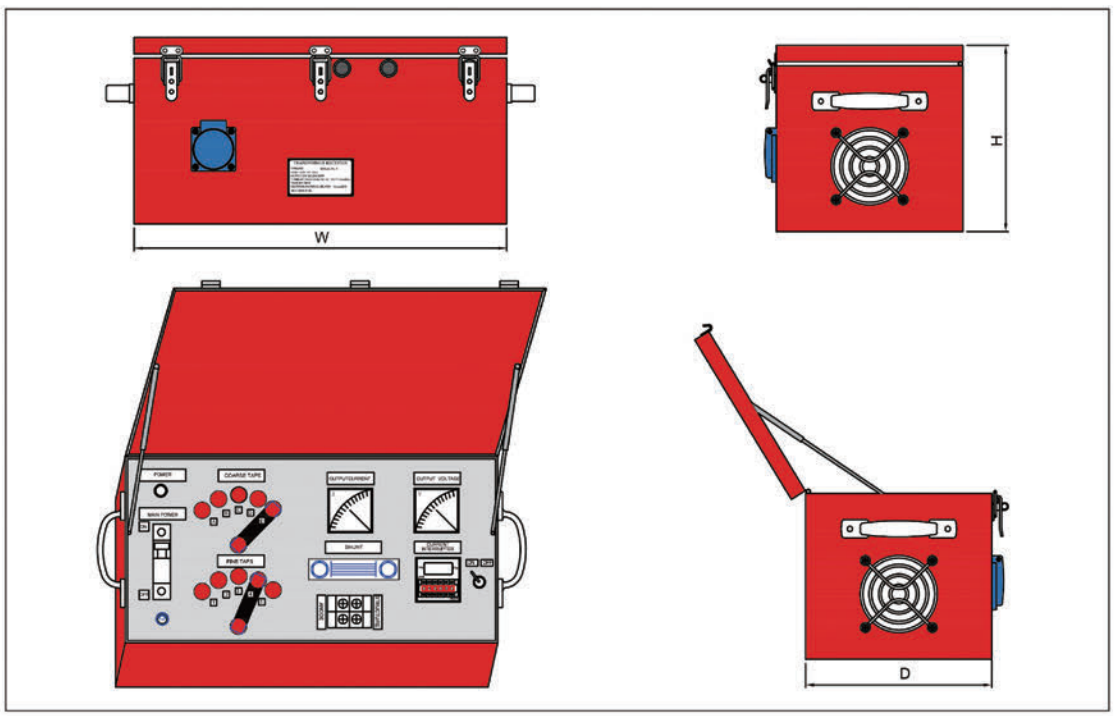
Portable Transformer Rectifier Box

Maximum DC Voltage	50V
Maximum DC Current	50A
AC Input	Single phase 230±10%, 50/60 Hz; three phase is optional
Size (W*D*H) mm	600*250*200
Maximun Wattage	1500W
Control Mode	18-step voltage control link bar taps
Interrupter	Solid state timer relay
Display	Output current, output voltage, runtime
Cooling	Air-cooled
Protection	RCCD/MCB and fuse protection, surge suppression, lightning arrestors
Measurement	Accessible front panel total precision shunt
Standard Control	Constant voltage
Monitoring	4~20mA, relay dry contact
Ripple in Rated Power	≤5%(3 Phase), ≤10%(1 Phase)
Efficiency	≤80%
Operation Temperature	Max 50°C, Min. -20°C
Current Limit	Protection against current overloading
Optional	Remote monitoring and control



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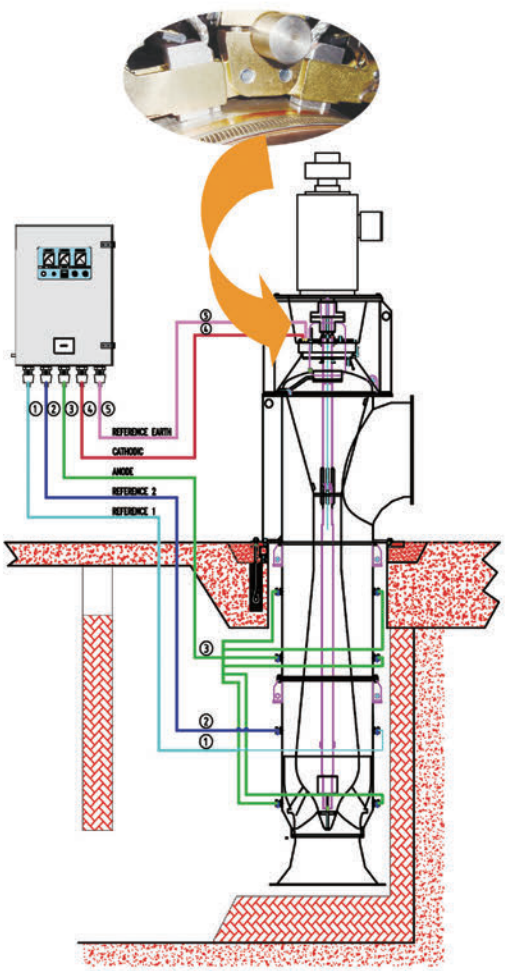
Smart Impressed Current Cathodic Protection System

Qingdao Rising-Sun Shine Ship Engineering Technique Co.,Ltd.(R-SS) has over 15 years of professional manufacturing experience in highest quality CP rectifiers and auxiliary CP equipment production. It has also built a reputation of providing the overall anti-corrosion solution for cooling seawater pump, tanks and condenser water box, etc. Manual and automatic impressed current or sacrificial anode systems are all available options.

There are two principle methods of providing cathodic protection: one is sacrificial anode and another is impressed current. Impressed current cathodic protection (ICCP) is useful for the cases where the driving voltage is higher than the galvanic system or if there is a need for increased system control. Also some structures can not install sacrificial anodes, such as the inner surface of pipes and CW pumps, structures in high resistivity environments, etc.

ICCP system comprises of auxiliary anodes, reference electrodes, earth grounding device and a transformer/rectifier controller power unit. The types and sizes of these components and their positions on the structures protected are specified according to design parameters which allow for the structures can be in the good protection state.

R-SS design engineers can supply a complete integrated CP system from initial survey and design through manufacturing in our own factory to installation, commissioning, monitoring and maintenance. All CP works will be implemented under the control of our corrosion specialist with experience and ISO 9001 certified quality management System.



INTEGRATED ICCP SYSTEM FOR CW PUMP

Many CW pump applications today involve some extremely corrosion problem, especially for the seawater or sea-fresh water cooling system. R-SS has developed five models of integrated ICCP systems for deferent sizes of CW pumps. All models of CP systems had been proved to be very reliable, easy to be installed and less to do maintenance works.

• Feature of ICCP for CW pump

- Easily installed: Flange mounted anode and reference cell
- Rectifier adjusted automatically: CP keeps correct potential level
- Combined sacrificial anodes: Full pump body protection.
- Stable electrical equipment and anode: Reliability proved.

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Smart Impressed Current Cathodic Protection System

Model	Rectifier	Anode	Rated Cell	Shaft Earthing
PCC-1	20A	4*FMA	2*FMRC	1*RSJD
PCC-2	30A	6*FMA	2*FMRC	1*RSJD
PCC-3	40A	6*FMA	2*FMRC	1*RSJD
PCC-4	50A	8*FMA	2*FMRC	1*RSJD
PCC-5	60A	8*FMA	2*FMRC	1*RSJD

INTEGRATED ICCP SYSTEM FOR TANK

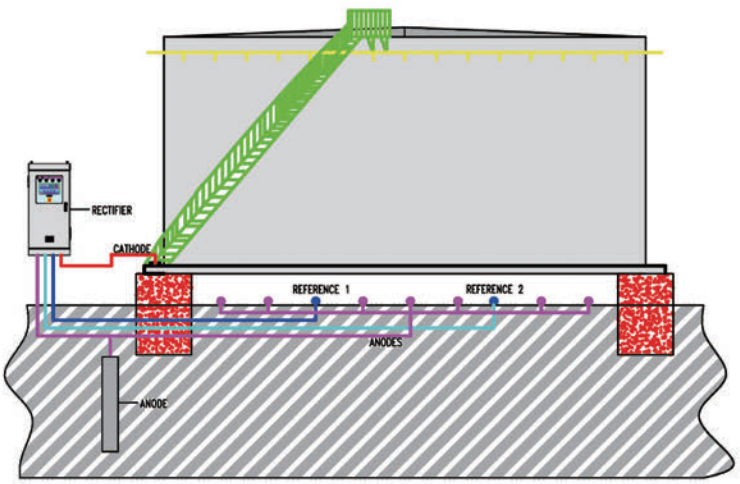
Corrosion of metal underground or above ground storage tanks is a normal, natural process that is the result of an electrochemical reaction in which current flows from areas where corrosion is occurring (anodic areas) to areas where it is not (cathodic areas). A cathodic protection system reverses the process. R-SS tank ICCP systems have been used to successfully protect crude oil storage tank, product oil tank, produced water tank and sewage water tanks, etc.

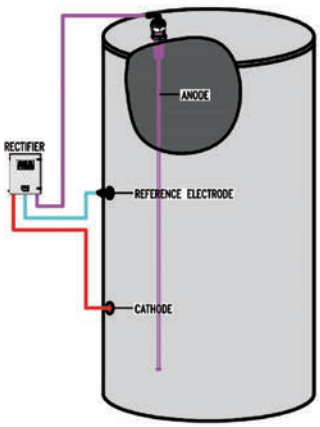
• Tank's Internal Cathodic Protection

Either sacrificial anodes or impressed current anodes (mostly MMO anodes) are used for such system. And the resistivity, PH, temperature, content of tank liquid medium and the details of tank internal coating are the design parameters of cathodic protection.

• Tank's External Cathodic Protection

R-SS design engineers can provide CP reliable proposal based on client's parameters and complete integrated CP system. Each design is carried out to customer, national and international standards to ensure that you are provided with a cost effective and specialised CP system. Furthermore R-SS provides a complete documents of corrosion control specialising in cathodic protection to ensure safe and continuous plant operation.





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Step Tapped Transformer Rectifier

DESCRIPTIONS:

As impressed current corrosion protection device, stepless variable transformer rectifier use open-loop bridge-type rectification, and efficiency is more than 80%. It has simple structure, convenient operation and high reliability. All the components can resist high temperature, using short jumper to adjust the output voltage. We have rich experience in this type.

There are two main types of transformer rectifiers, including air-cooled and oil-cooled, the selection based on the environmental conditions, hazard, high temperature or high humidity environment need Oil-Cooled device. Rated output power will determine the physical size and cost of the unit. It can increase solid state variable interrupter. Left is Oil-Cooled, while Air-Cooled is on the right as following picture showing.

FEATURES:

- Input Power Supply: 1 Phase and 3 Phase, from110V~690V , 50/60Hz
- Output Voltage: 0 to 100Volts DC
- Output Current: 0 to 500Amps DC
- Ambient Temperature: -20~55℃
- Output Control: 16steps, 25steps, 64steps
- Protection: RCCD/MCB and fuse protection, Surge suppression, Lightning Arrestors
- Monitoring: 4~20mA, relay dry contact
- Ripple in rated power: ≤5%(3 Phase), ≤10%(1 Phase)
- Display: output current, output voltage, runtime
- Display: output current, output voltage, runtime
- Efficiency: ≤80%
- Note: Other voltages and current are available per request.

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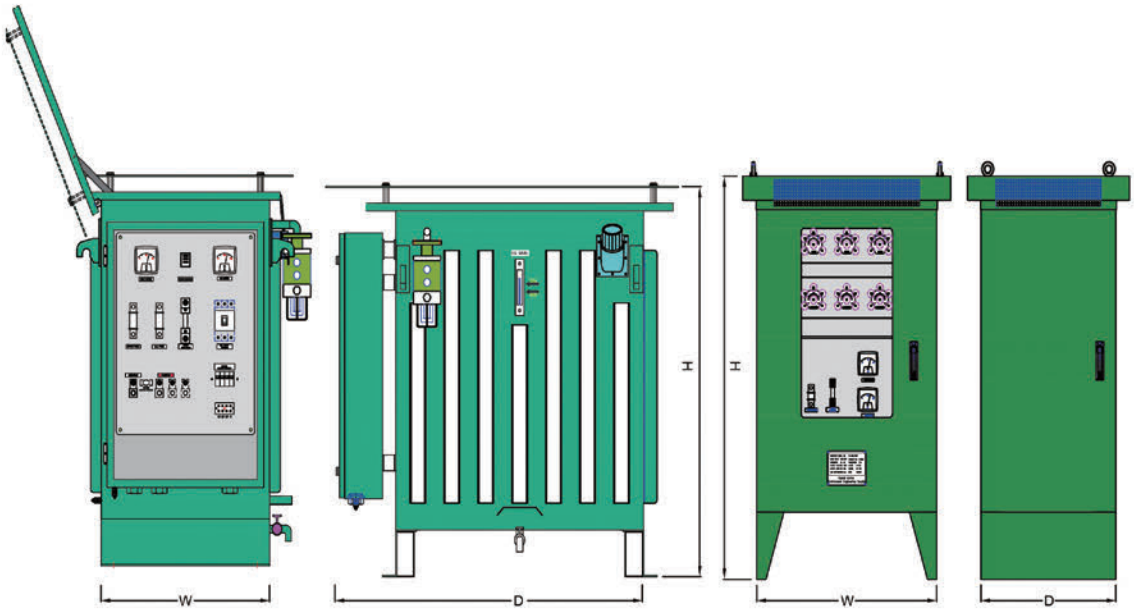
Website: www.qdrss.com

Step Tapped Transformer Rectifier

TESTING

The following test shall be tested at the factory on the complete transformer rectifier unit as a minimun.

- Efficiency test of Transformer Rectifier Assembly at 25%, 50%, 75% and 100% rated output current.
- Efficiency test of Transformer alone after isolating rectifier at 100% rated output current.
- Insulation resistance test using 500V Magger for transformer between primary and secondary, primary and earth, secondary and earth.
- Hear run test for maximum temperature rise to be conducted for transformer, filter choke, and diodes, at max output current for 48 to 72 hours continuous operation.
- Wiring connerction integrity.
- Circuit continuity and compliance.
- High voltage insulation resistance test.



MODELS

No.	Size(W*D*H)mm	Cooling Type	Suitable Power	Remark
1	400*200*200	Air-Cooled	600VA	Portable
2	620*550*850	Air-Cooled	3KVA	Single
3	800*600*1600	Air-Cooled	10KVA	Single
4	550*400*920	Oil-Cooled	5KVA	Front-behind
5	600*860*1225	Oil-Cooled	10KVA	Front-behind

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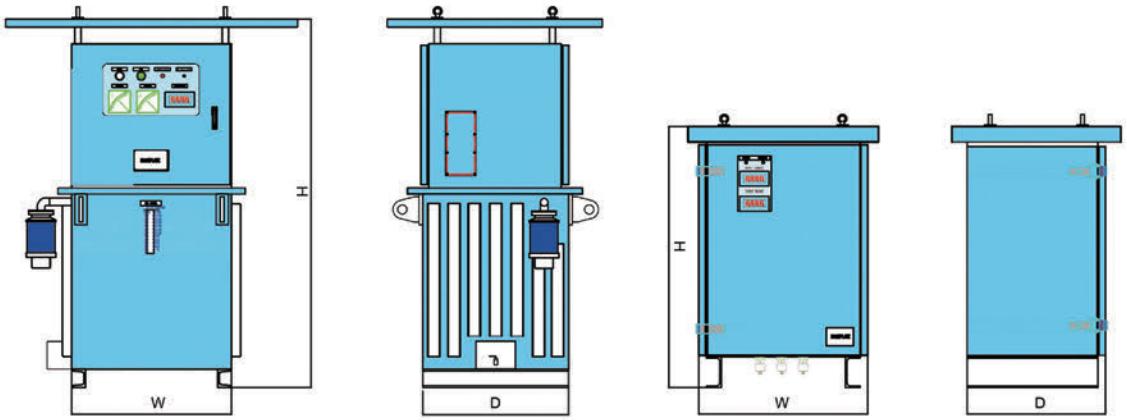
Stepless Variable Transformer Rectifier

DESCRIPTIONS:

As impressed current corrosion protection device, stepless variable transformer rectifier use open-loop bridge-type rectification, and efficiency is more than 80%. It has simple structure, convenient operation and high reliability. All the components can resist high temperature, using short jumper to adjust the output voltage. We have rich experience in this type.

There are two main types of transformer rectifiers, including air-cooled and oil-cooled, the selection based on the environmental conditions, hazard, high temperature or high humidity environment need Oil-Cooled device. Rated output power will determine the physical size and cost of the unit. It can increase solid state variable interrupter. Left is Oil-Cooled, while Air-Cooled is on the right as following picture showing.



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Stepless Variable Transformer Rectifier

TAOR-2*50A/50V-EX...

RECTIFIED TYPE:
T-THYRISTOR, S-SWITCHING POWER
CONTROL TYPE:
A-ANALOG, I-INTELLIGENT
T-TAPPED, S-STEPLESS
COOLING TYPE: A-AIR, O-OIL
EQUIPMENT TYPE:
R-RECTIFIER,
C-CONSTANT POTANCIAL RECTIFIER
OUTPUT CHANNEL: QUANTITY
RATED OUTPUT CURRENT: XXA
RATED OUTPUTVOLTAGE: XXV

OPTIONAL FEATURES
EX-EXPOLUSION-PROOF
UD-UP & DOWN STYLE
FB-FRONT & BEHIND STYLE
IM-INTEGRATE MODULE
SM-SEPARATED MODULE
PA-PAINTING
DG-DIP GALVANIZING

FEATURES:

- Input Power Supply: 1 Phase and 3 Phase, from 110V~690V , 50/60Hz
- Output Voltage: 0 to 100Volts DC
- Output Current: 0 to 500Amps DC
- Ambient Temperature: -20~55°C
- Output Control: 16steps, 25steps, 64steps
- Protection: RCCD/MCB and Fuse protection, Surge suppression, Lightning Arrestors
- Monitoring: 4~20mA or Relay dry contact
- Ripple in rated power: ≤5%(3 Phase), ≤10%(1 Phase)
- Display: Output current, Output voltage, Runtime
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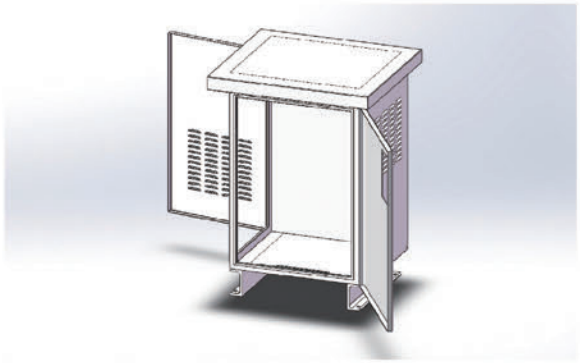
- Efficiency: ≥80%
- Note: Voltages and current are available per request.



TESTING

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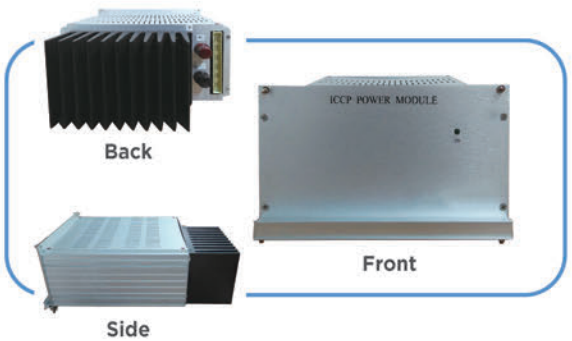
CP-RSS-K02 Power Modules for
Impressed Current Cathodic Protection Applications

Switching mode modular rectifier uses PWM mode to convert electric power efficiently, this product uses modular structure. There are two parts, control module and power module. Compared with silicon controlled type rectifier, SMMR has advantages of small size, high efficiency, lower cost and easy to maintain.



ELECTRICAL CHARACTERISTIC

- Single or 3-phase input
- AC and DC lightning arrestors
- Overload protection(current & voltage)
- Constant current accuracy ≤±1%
- Heavy duty transformer with 20% over design capacity
- Frequency 45-66Hz
- Ripple coefficient ≤1%(rated output)
- Allow modules parallel
- Efficiency ≥90%

MECHANICAL/ENVIRONMENTAL

- Dimensions 87x266x320mm (power module only)
- Weight 6.0kg (power module only)
- Cooling natural air (fan-cooled option)
- Temperature -10°C to +50°C (operating)
  -10°C to +45°C (full power range)
  55% power at +70°C
  -40°C to +70°C (transport/storage)
- Humidity 0 to 100% RH condensing
- Altitude operational to 3000m

COMPLIANCES/STANDARDS

- EN 61558-2-12:2011
- EN 61558-1-1:2005+A1:2009
- EN 61000-6-2:2005+AC:2005
- EN 61000-6-4:2007+A1:2011

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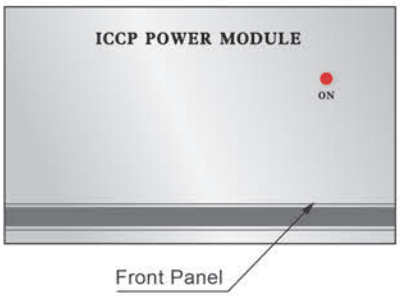
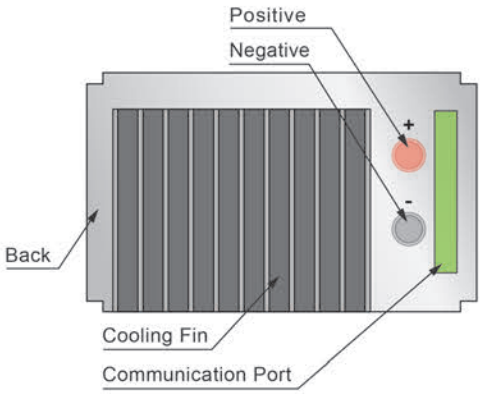
CP-RSS-K02 Power Modules for
Impressed Current Cathodic Protection Applications

CONNECTED POWER MODULE OUTPUT

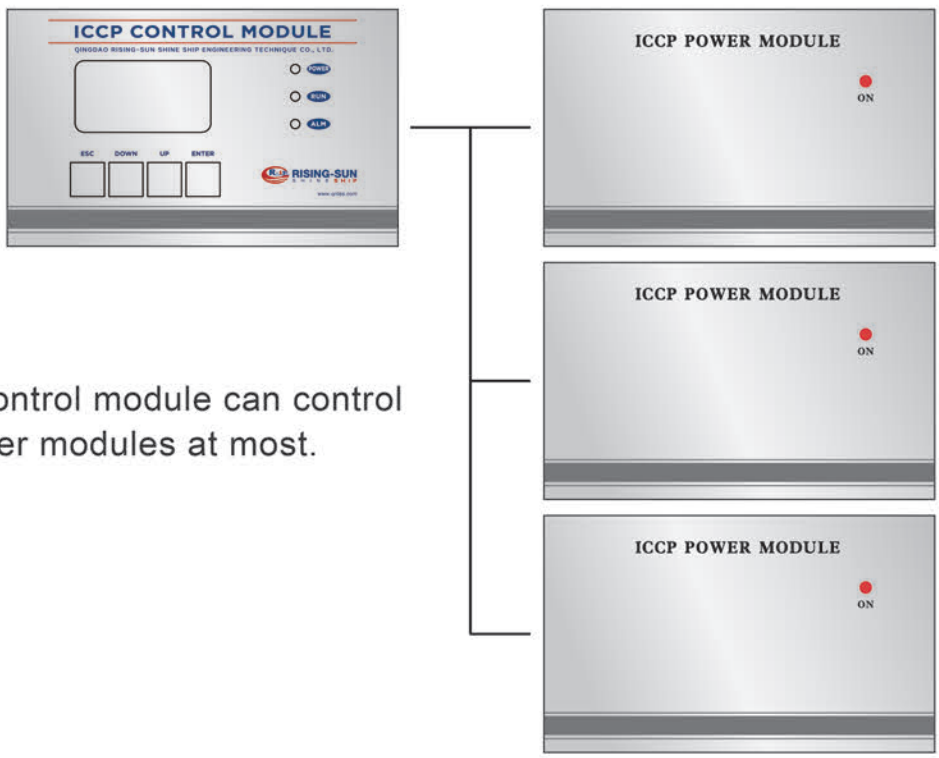
Module Type	Output Volts	Output Current	Input Rating
CPRS2420	24VDC	20A	530W
CPRS2430	24VDC	30A	800W
CPRS2440	24VDC	40A	1050W
CPRS2450	24VDC	50A	1300W

CONNECTOR DEFINITION





CONTROL MODULE MATCHED



Each control module can control 16 power modules at most.

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