The most common type of power supply used for impressed current cathodic protection is a transformer/rectifier, commonly referred to simply as a rectifier. A rectifier converts the AC power supply voltage to the required output voltage and then converts it to DC. Rectifiers are either supplied in ventilated cases to allow convective air cooling or are immersed in transformer oil. Rectifiers are normally powered by an AC power system. The rectifier input is an AC voltage from the commercial electrical power grid or an engine-generator. A transformer with tap adjustments in the secondary side provides a method to reduce and adjust the output voltage level and to isolate the DC circuit from the input power system. A rectifying circuit next converts the adjusted AC voltage to produce a DC voltage output.

The basic units of a rectifier consist of:

- AC Supply
- Circuit Breaker
- Transformer
- Rectifying Elements
- Meters
- DC Output Terminals
- Fuses
- Surge Protection

Zhejiang Yuxi acquire an electronic manufacture - CHANGLIAN with more than 40 years of history in 2014, this factory has 20 years of experiences in manufacturing Transformer Rectifier, so far China’s first Rectifier made by Changlian for Sinopec is still in operating in Ningbo. This acquisition enable Yuxi have the full capability to supply high end electronic equipment for the industry it served, most important is the Transformer Rectifier.

Product Line:

- YX-DJ-1 Air Cooled Type
- YX-DJ-2 Oil Cooled Type
- YX-FPS-1 Explosion Proof Type
- YX-HPS-1B HFS Type
- YX-SF5-1 Solar Type
YX-DJ-1 is normal air cooled type rectifier used in non-hazardous area, this TR has been provided with automatic switching function of operation mode, and function of anti-jamming and anti-lightning to increase reliability greatly. The TR has adopted key-press operation. Multimeters can be shown by multiple digital meters at the same time. Operation and control are simple and intuitive. The TR can be connected with computer to transmit parameters and working state remotely and control operation mode and potential given value remotely, which has realized intelligent management.
## Product Specification:

<table>
<thead>
<tr>
<th></th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AC Input</strong></td>
<td>Single phase AC220V±10% or Three phase 380V ±10%</td>
</tr>
<tr>
<td><strong>DC Output Current</strong></td>
<td>0 - 400A (as request)</td>
</tr>
<tr>
<td><strong>Current Limiting</strong></td>
<td>55 - 66A</td>
</tr>
<tr>
<td><strong>Constant Current</strong></td>
<td>0 - 400A</td>
</tr>
<tr>
<td><strong>DC Output Voltage</strong></td>
<td>0 - 400V (as request)</td>
</tr>
<tr>
<td><strong>Set Potential</strong></td>
<td>0 - ± 3V</td>
</tr>
<tr>
<td><strong>Precision of Constant Potential</strong></td>
<td>≤ ± 5mV</td>
</tr>
<tr>
<td><strong>Precision of Constant Current</strong></td>
<td>≤± 1 %</td>
</tr>
<tr>
<td><strong>Input Impedance</strong></td>
<td>≥10MΩ</td>
</tr>
<tr>
<td><strong>Working Style</strong></td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Cooling</strong></td>
<td>Air Cooling</td>
</tr>
<tr>
<td><strong>Ripple</strong></td>
<td>≤ 3 %</td>
</tr>
<tr>
<td><strong>Fuses</strong></td>
<td>AC Input Fuses, DC Output Fuses, Rectifier Fuses MCBs, Surge Arrester, Lightning Protector</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>Manual / Automatic</td>
</tr>
<tr>
<td><strong>Meters</strong></td>
<td>Digital DC Ampere Meter, Digital DC Voltage Meter, Digital Potential Meter</td>
</tr>
<tr>
<td><strong>Oil</strong></td>
<td>Oil level sensing device, Oil temperature indicator</td>
</tr>
<tr>
<td><strong>Terminals</strong></td>
<td>DC Output ( positive ) - 2nos</td>
</tr>
<tr>
<td></td>
<td>DC Output ( negative ) - 2nos</td>
</tr>
<tr>
<td></td>
<td>AC Input ( 220V ) - 1nos</td>
</tr>
<tr>
<td></td>
<td>Reference electrode grounding - 1nos</td>
</tr>
<tr>
<td></td>
<td>Reference electrode - 1nos</td>
</tr>
<tr>
<td><strong>Resist of AC Interference</strong></td>
<td>≥ 24V</td>
</tr>
<tr>
<td><strong>Enclosure</strong></td>
<td>Outdoor type, Standard Painted Sheet Steel</td>
</tr>
<tr>
<td><strong>Protection</strong></td>
<td>≥ IP55 grade</td>
</tr>
<tr>
<td><strong>Dimension (approx.)</strong></td>
<td>1120 mm x 960 mm x 780 mm</td>
</tr>
<tr>
<td><strong>Weight (approx.)</strong></td>
<td>80 kg</td>
</tr>
<tr>
<td><strong>Ambient temperature range</strong></td>
<td>-30º to + 60º</td>
</tr>
<tr>
<td><strong>Relative Humidity</strong></td>
<td>≥ 90 %</td>
</tr>
</tbody>
</table>
YX-DJ-2 Oil-cooled transformer rectifier adopts thyristor primary regulator, transformer decompression and rectification technology of secondary rectifying tube. The TR is provided with smooth output regulation, small loss and high efficiency. Transformer, rectifying unit and filtering unit are equipped in oil box; and control components are equipped in control box. The degree of protection of enclosure is IP65.
### Product Specification:

<table>
<thead>
<tr>
<th>AC Input</th>
<th>Three phase 380V ±10%</th>
<th>Frequency 50 ± 10 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Output Current</td>
<td>0 - 400A (as request)</td>
<td></td>
</tr>
<tr>
<td>Current Limiting</td>
<td>102 - 110 % Rated Current Output</td>
<td></td>
</tr>
<tr>
<td>Constant Current</td>
<td>0 - 400A</td>
<td></td>
</tr>
<tr>
<td>DC Output Voltage</td>
<td>0 - 20V (as request)</td>
<td></td>
</tr>
<tr>
<td>Set Potential</td>
<td>0 - ± 3V</td>
<td></td>
</tr>
<tr>
<td>Precision of Constant Potential</td>
<td>≤ ± 5mV</td>
<td></td>
</tr>
<tr>
<td>Precision of Constant Current</td>
<td>≤± 1 %</td>
<td></td>
</tr>
<tr>
<td>Input Impedance</td>
<td>≥10MΩ</td>
<td></td>
</tr>
<tr>
<td>Dielectric Strenght</td>
<td>1500V, 50Hz, 1 minute without breakdown</td>
<td></td>
</tr>
<tr>
<td>Working Style</td>
<td>Continuous</td>
<td></td>
</tr>
<tr>
<td>Cooling</td>
<td>Oil Cooling</td>
<td></td>
</tr>
<tr>
<td>Ripple</td>
<td>≤ 5 %</td>
<td></td>
</tr>
<tr>
<td>Fuses</td>
<td>AC Input Fuses, DC Output Fuses, Rectifier Fuses MCBs, Surge Arrester, Lightning Protector</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>Manual / Automatic</td>
<td></td>
</tr>
<tr>
<td>Meters</td>
<td>Digital DC Ampere Meter, Digital DC Voltage Meter, Digital Potential Meter</td>
<td></td>
</tr>
<tr>
<td>Oil</td>
<td>Oil level sensing device, Oil temperature indicator</td>
<td></td>
</tr>
<tr>
<td>Terminals</td>
<td>DC Output (positive) - 2nos</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DC Output (negative) - 2nos</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AC Input (380V) - 1nos</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reference electrode grounding - 1nos</td>
<td></td>
</tr>
<tr>
<td>Resist of AC Interference</td>
<td>≥ 24V</td>
<td></td>
</tr>
<tr>
<td>Enclosure</td>
<td>Outdoor type, Standard Painted Sheet Steel</td>
<td></td>
</tr>
<tr>
<td>Protection</td>
<td>≥ IP65 grade</td>
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<tr>
<td>Dimension (approx.)</td>
<td>1120 mm x 960 mm x 780 mm</td>
<td></td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>90 kg</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>-30º to +60º</td>
<td></td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>≥ 90 %</td>
<td></td>
</tr>
</tbody>
</table>
YX-FPS-1 is oil cooling, explosion proof type rectifier built for Zone 1 & 2 areas according to the 94/9/EC (ATEX) directive. It is used in the place in which there are requirements for explosion-proof to protect metal structures and equipments, such as pipelines, cables, tanks and piers and so on by impressing current.
### Product Specification:

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<th>Specification</th>
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<td><strong>AC Input</strong></td>
<td>Three phase 380V ±10%</td>
</tr>
<tr>
<td><strong>DC Output Current</strong></td>
<td>0 - 400A (as request)</td>
</tr>
<tr>
<td><strong>Current Limiting</strong></td>
<td>102 - 110 % Rated Current Output</td>
</tr>
<tr>
<td><strong>Constant Current</strong></td>
<td>0 - 400A</td>
</tr>
<tr>
<td><strong>DC Output Voltage</strong></td>
<td>0 - 20V (as request)</td>
</tr>
<tr>
<td><strong>Set Potential</strong></td>
<td>0 - ± 3V</td>
</tr>
<tr>
<td><strong>Precision of Constant Potential</strong></td>
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<tr>
<td><strong>Terminals</strong></td>
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</tr>
<tr>
<td></td>
<td>DC Output ( negative ) - 2nos</td>
</tr>
<tr>
<td></td>
<td>AC Input ( 380 V ) - 1nos</td>
</tr>
<tr>
<td><strong>Resist of AC Interference</strong></td>
<td>≥ 24V</td>
</tr>
<tr>
<td><strong>Enclosure</strong></td>
<td>Outdoor type, Explosion Proof</td>
</tr>
<tr>
<td><strong>Protection</strong></td>
<td>Exod II BT3, IP65</td>
</tr>
<tr>
<td><strong>Dimension (approx.)</strong></td>
<td>1055 mm x 750 mm x 1645 mm</td>
</tr>
<tr>
<td><strong>Weight (approx.)</strong></td>
<td>90 kg</td>
</tr>
<tr>
<td><strong>Ambient temperature range</strong></td>
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