

 <p>PG PARS CO Corrosion control &amp; Cathodic protection شرکت پی جی پارس مهندسی صنایع</p>	<h2>DATA SHEET</h2>	
<b>Document Title:</b>	Transformer Rectifier –SCR & REG-3 PH-50V 50A	<b>Rev:01</b>
<b>Document No.:</b>	PGP-NN-002-DSH-011	Page 1 of 5

# Transformer Rectifier

## 50 V 50 A

### SCR & REG

00	03/07/2024	ISSUE FOR APPROVAL	S.Solgi	Z.Asadi	H.Taherkhani
REV.	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED



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<b>Document Title:</b>	Transformer Rectifier –SCR & REG-3 PH-50V 50A	<b>Rev:01</b>
<b>Document No.:</b>	PGP-NN-002-DSH-011	Page 2 of 5

GENERAL DESIGN DATA				
<b>1. SITE CONDITION</b>				
1.1 Site elevation .....2000... Meters above sea level				
1.2 Max. ambient temperature +50 degree centigrade , Sun Metal temp. Max +85 degree centigrade				
1.3 Min. ambient temperature -10 degree centigrade				
1.4 Relative humidity -90-- percent				
1.5 Earth quake -0.3-- g (m/s <sup>2</sup> ) UBC Zone 4				
1.6 Lighting Storm isoceraunic level -60-- storm days /year				
1.7 Service location	indoor <input type="checkbox"/>	outdoor <input checked="" type="checkbox"/>		
1.8 Unusual conditions	Windy <input checked="" type="checkbox"/>	Snowy <input checked="" type="checkbox"/>	Dusty <input checked="" type="checkbox"/>	
1.9 Atmosphere	Sal ferrous <input checked="" type="checkbox"/>	Dusty <input checked="" type="checkbox"/>	Chemical Vapors <input checked="" type="checkbox"/>	
<b>2. DEGREE OF INGRESS PROTECTION</b>				
2.1 <input type="checkbox"/> Explosion proof				
2.1.1 Area classification	<input type="checkbox"/> Zone 0	<input type="checkbox"/> Zone 1	<input type="checkbox"/> Zone 2	<input checked="" type="checkbox"/> Safe area
2.1.2 Explosion Protection	<input type="checkbox"/> Exd	<input type="checkbox"/> Exe	<input type="checkbox"/> Exn	
2.1.3 Group of Gas in site	<input type="checkbox"/> II A	<input type="checkbox"/> II B	<input type="checkbox"/> II C	
2.1.4 Temperature class	<input type="checkbox"/> T3	<input type="checkbox"/> T4	<input type="checkbox"/> T5	
2.2 <input checked="" type="checkbox"/> Weather proof				
2.3 <input checked="" type="checkbox"/> Corrosion resistance				
2.4 <input checked="" type="checkbox"/> General Propose				
2.5 IP 55				
<b>3.COOLING SYSTEM</b>				
3.1 Type of transformer	<input checked="" type="checkbox"/> Oil Immersed		<input type="checkbox"/> Dry type	
3.2 Type of cooling	<input checked="" type="checkbox"/> ONAN	<input type="checkbox"/> AN	<input type="checkbox"/> AF	<input type="checkbox"/> ONAF
<b>4.MOUNTING</b>				
4.1 <input checked="" type="checkbox"/> Pad mounted (Plinth Mounted)		4.2 <input type="checkbox"/> Pole mounted	4.3 <input type="checkbox"/> Wall mounted	4.4 <input type="checkbox"/> free standing
4.2 Neutral Earthing		<input type="checkbox"/> Resistor	<input checked="" type="checkbox"/> Solidly	
<b>5.COLOR FINISHING</b>				
5.1 Sun shade RAL 7035. 70M zinc rich as Primer+ 130~150m Epoxy as Intermediate+ 50~70m Polyurethane as Top coat				
5.2 Door RAL 7035 70M zinc rich as Primer+ 130~150m Epoxy as Intermediate+ 50~70m Polyurethane as Top coat				
5.3 Meter panel RAL 7035 70M zinc rich as Primer+ 130~150m Epoxy as Intermediate+ 50~70m Polyurethane as Top				
5.4 Outside RAL 7035 70M zinc rich as Primer+ 130~150m Epoxy as Intermediate+ 50~70m Polyurethane as Top coat				



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<b>Document Title:</b>	Transformer Rectifier –SCR & REG-3 PH-50V 50A	<b>Rev:01</b>
<b>Document No.:</b>	PGP-NN-002-DSH-011	Page 3 of 5

<b>6. DIMENSIONS &amp; WEIGHT</b>							
<b>6.1 Body Dimension</b>		Height 100 cm	Depth 65 cm	Width 60 cm			
<b>6.2 Overall Dimension</b>		Height 140 cm	Depth 95 cm	Width 90 cm			
<b>6.3 Weight (Net)</b>		214 kg					
<b>6.3 Weight (Gross)</b>		350 kg					
<b>7. TRANSFORMER OIL</b>							
<b>7.1 Capacity</b> 170 Liter				<b>7.2 Class</b> 1			
<b>8. TERMINALS</b>							
<b>8.1 Input terminal</b>		<input checked="" type="checkbox"/> Phase	<input checked="" type="checkbox"/> MP	<input type="checkbox"/> Half Cell	<input type="checkbox"/> M 10	<input type="checkbox"/> Brass	<input checked="" type="checkbox"/> Rail Mounted
<b>8.2 Earth Terminal</b>		<input checked="" type="checkbox"/> M10	<input type="checkbox"/> Brass	<input type="checkbox"/> Rail Mounted			
<b>8.3 Output terminal</b>		<input checked="" type="checkbox"/> +DC	<input checked="" type="checkbox"/> -DC	<input type="checkbox"/> Alarm	<input type="checkbox"/> M 10	<input type="checkbox"/> Brass	<input checked="" type="checkbox"/> Rail Mounted <input type="checkbox"/> AIO/DIO
<b>9. CASE CONFIGURE</b>							
<b>9.1 Thickness (all parts of transformer (main tank, cover, <u>except</u> sun shade) )</b>				<input type="checkbox"/> 2mm		<input checked="" type="checkbox"/> 3mm	
<b>9.2</b>		<input checked="" type="checkbox"/> Carbon Steel <input type="checkbox"/> Stainless Steel					
<b>10. HOUSING TYPE</b>							
<input type="checkbox"/> O 1	<input type="checkbox"/> A 1	<input checked="" type="checkbox"/> O 2	<input type="checkbox"/> A2	<input type="checkbox"/> O 3	<input type="checkbox"/> A3	<input type="checkbox"/> O 4	<input type="checkbox"/> A4
<input type="checkbox"/> O5	<input type="checkbox"/> A5	<input type="checkbox"/> O6	<input type="checkbox"/> A6	<input type="checkbox"/> U1	<input type="checkbox"/> U2	<input type="checkbox"/> U3	<input type="checkbox"/> U4
<b>ELECTRICAL CHARACTERISTICS</b>							
<b>11. AC INPUT RATING</b>							
<b>11.1 Phase</b>		<input type="checkbox"/> 1 Ph.		<input checked="" type="checkbox"/> 3 Ph.			
<b>11.2 Input voltage</b>		<input type="checkbox"/> 230V		<input checked="" type="checkbox"/> 400V			
<b>11.3 Input current</b>		6 Amp (full load)		0.1 Amp (no load)		15 Amp (max inrush current)	
<b>11.4 Variation</b>		± 10%					
<b>11.5 Frequency</b>		50 HZ ± 5%					
<b>12. DC OUTPUT RATING</b>							
<b>12.1 Output DC voltage</b>		50 Volt		<b>12.2 Ripple voltage</b>		<= 2 %	
				<b>12.3 Output current</b>		50 Amp	
<b>13. DC OUTPUT CONTROL</b>							
<b>13.1 63 Step</b> <input type="checkbox"/>							
<b>13.2 Constant Voltage &amp; Auto Trans</b> <input type="checkbox"/>							
<b>13.3 Constant Current</b> <input type="checkbox"/>							
<b>13.4 Constant Voltage &amp; Constant Current</b> <input type="checkbox"/>							
<b>13.5 Constant Voltage &amp; Constant Current &amp; Reference Potential</b> <input type="checkbox"/>							
<b>13.6 Constant Voltage &amp; Constant Currents and Regavolt</b> <input checked="" type="checkbox"/>							
<b>13.7 Reference Potential &amp; Constant Voltage &amp; Constant Currents and Regavolt</b> <input type="checkbox"/>							



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<b>Document Title:</b>	Transformer Rectifier –SCR & REG-3 PH-50V 50A	<b>Rev:01</b>
<b>Document No.:</b>	PGP-NN-002-DSH-011	Page 4 of 5

## 14.RECTIFYING UNIT

- 14.1 Stack Element                      SCR  Selenium  Silicon
- 14.2 Rectifier Mode                      1 Phase                       3 Phase
- 14.3 Rectification type                       Full Wave Half Control Bridge  Full Wave Full Control Bridge(6 pulse)  
 Full Wave Full Diode Bridge
- 14.4. Peak inverse voltage              1200 Volt

## 15.POWER TRANSFORMER RATING

- 15.1. No. of phase --3-- Ph.
- 15.2. Frequency 50 Hz.
- 15.3. Primary input voltage -400—Volt
- 15.4. .Rating Secondary Power    3.4 KVA (Apparent power)    3 KW (Active power)
- 15.5. Primary input Current 5.8 Amps.
- 15.6. Secondary output voltage (V<sub>OUTPUT AC</sub>) 47 Volt.
- 15.7. Secondary output Current 42 Amps(AC).
- 15.8. Vector Group DD0
- 15.9. Winding Insulation Class F & Temperature Rise Class E  
Winding temp. rise: 60.9K  
Insulation Oil temp. rise: 55.9K  
Winding Hot spot: 73.9K
- 15.10. Efficiency Full Load--95-- %
- 15.11. Cos  $\phi$  = -0.9--
- 15.12. Isolation: Double wounded    –    Electro Static shield : 2 KV

## 16.PROTECTION

- |  |  |
|--|--|
| 16.1. Surge Protection for input <input checked="" type="checkbox"/>       | 16.9. Over Voltage Protection for Output <input checked="" type="checkbox"/> |
| 16.2. Surge Protection for output <input checked="" type="checkbox"/>      | 16.10. Suppressor Protection <input checked="" type="checkbox"/>             |
| 16.3. Current limit for DC circuit <input checked="" type="checkbox"/>     | 16.11. Oil gage protection <input checked="" type="checkbox"/>               |
| 16.4. phase monitoring relay for input <input checked="" type="checkbox"/> | 16.12. Humidity protection <input type="checkbox"/>                          |
| 16.5.Volt meter fuse <input checked="" type="checkbox"/>                   | 16.13. Temperature Oil protection <input checked="" type="checkbox"/>        |
| 16.6. Input MCB <input checked="" type="checkbox"/>                        | 16.14. Controller fuse <input type="checkbox"/>                              |
| 16.7. Input MCCB <input type="checkbox"/>                                  | 16.15. Output Fast DC MCB <input checked="" type="checkbox"/>                |
| 16.8. Fast fuse <input type="checkbox"/>                                   | 16.16. Over Voltage Protection for Input <input checked="" type="checkbox"/> |

## MEASURING INSTRUMENT

### 17. MECHANICAL MEASUREMENT DEVICE

- 17.1 Dial time thermometer scale from 0 To 120 °C
- 17.2 Oil Gage



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<b>Document Title:</b>	Transformer Rectifier –SCR & REG-3 PH-50V 50A	<b>Rev:01</b>
<b>Document No.:</b>	PGP-NN-002-DSH-011	Page 5 of 5

## 18. ELECTRICAL MEASUREMENT DEVICE

18.1 <input checked="" type="checkbox"/> Analog multi meter	18.2 <input type="checkbox"/> Digital multi meter	18.3 <input type="checkbox"/> PLC base
18.3.1 <input checked="" type="checkbox"/> AC input voltmeter scale from .....0.... To...300V...(Signal lamp type voltmeter)		
18.3.2 <input type="checkbox"/> AC input Ammeter scale from ..... To.....		
18.3.3 <input checked="" type="checkbox"/> DC output voltmeter scale from ...0.....To...75V...		
18.3.4 <input checked="" type="checkbox"/> DC output Ammeter scale from ...0.....To...75A.....		
18.3.5 <input type="checkbox"/> Reference cell voltage scale from .....To.....		
18.3.6. <input type="checkbox"/> hour meter		
18.3.7. <input checked="" type="checkbox"/> Temperature Meter		
18.3.8. <input checked="" type="checkbox"/> Oil Meter		
18.3.9. <input checked="" type="checkbox"/> Phase Meter		

## 19. FITTING REQUIRED

19.1. lifting lugs <input checked="" type="checkbox"/>	19.6. Padlock for isolating means <input checked="" type="checkbox"/>
19.2. Oil level site gage <input checked="" type="checkbox"/>	19.7. Provision for remote alarm <input type="checkbox"/>
19.3. Oil Drain Cock <input checked="" type="checkbox"/>	19.8. Schematic circuit diagram plate <input checked="" type="checkbox"/>
19.4. Sun shade <input checked="" type="checkbox"/>	19.9. Oil breather <input checked="" type="checkbox"/>
19.5. Rating plate <input checked="" type="checkbox"/>	19.10. Maximum noise level 65 Db(A)

## 20. OPERATION

20.1. Continues & Timer Selector Switch <input checked="" type="checkbox"/>	
20.2. Timer Controller (from 1 to 300 sec ) <input checked="" type="checkbox"/>	20.4 SCR & Variac switch <input checked="" type="checkbox"/>
20.3. Constant voltage/ Constant Current /RP Switch <input type="checkbox"/>	20.5 Constant Voltage & Constant Current <input checked="" type="checkbox"/>

## 21. MONITORING

Power line carrier <input type="checkbox"/>	Radio <input type="checkbox"/>	GSM <input type="checkbox"/>
GPRS <input type="checkbox"/>	Optical fiber <input type="checkbox"/>	Wifi <input type="checkbox"/>

## 22. SPARE PART

B. <input checked="" type="checkbox"/> No <input type="checkbox"/> yes.	B. <input checked="" type="checkbox"/> No <input type="checkbox"/> yes.
22.1 COMMISSIONING	22.2 TWO YEARS SPARE PART