



# ***CATHODIC PROTECTION TRANSFORMER RECTIFIERS***



- ★ **Air and oil cooled types**
- ★ **Manual and automatic control options**
- ★ **Custom Built – to meet the most demanding specifications**

D P Energy Services Ltd  
Units 5-6 Heron Avenue  
Wickford, Essex SS11 8DL  
Tel: +44(0) 1268-560040  
Fax: +44(0) 1268-560261  
Email: [info@dpenergyservices.com](mailto:info@dpenergyservices.com)  
Web: [www.dpenergyservices.com](http://www.dpenergyservices.com)

# CATHODIC PROTECTION TRANSFORMER RECTIFIERS

## Introduction

Cathodic protection T/R's from DP Energy Services Ltd offer numerous advantages. First, there is no need to compromise on the specification. We will design and build the T/R to meet all your requirements. Second, since we have gained a reputation for manufacturing robust, high quality products, you can rest assured that your structure will be adequately protected from the environment. The unit will operate reliably, require minimal maintenance and will not be prone to spuriously tripping out. Third, there is full technical back-up, from design to after sales service. This leaflet should provide a good overview of the equipment we can supply. Please contact our Power Supplies Sales Department for technical advice and prices.

## Typical Applications

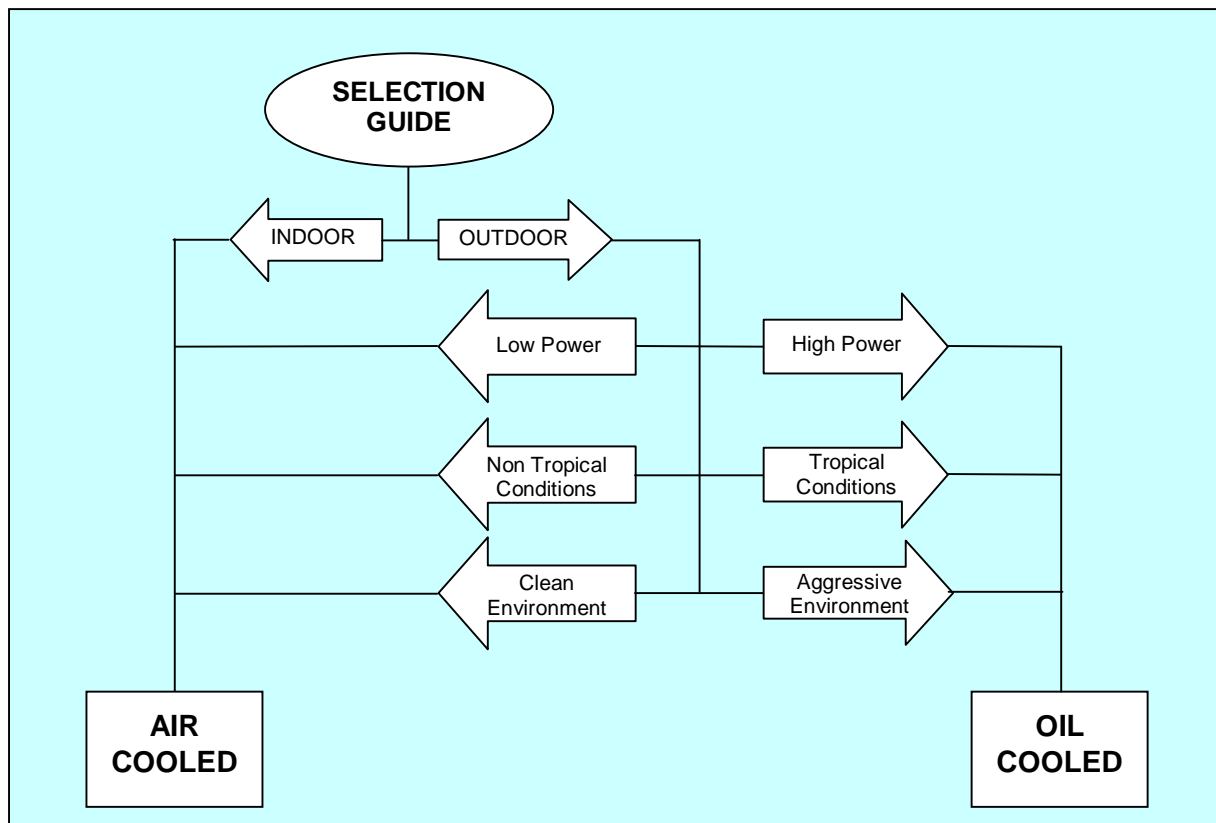
Onshore pipelines, concrete rebar protection, storage tanks, offshore structures, ships, jetties, loading bays and outfalls.

## Electrical Input

All single and three phase input voltages can be specified. Frequencies 50 or 60 Hz.

## Electrical Output

We build T/R's to provide whatever output is required. Where structures can be more efficiently protected with multiple T/R's we will be pleased to advise on the most economic unit ratings.



## Selection Guide Terminology

### Low Power

Typically < 100 amps d.c. output.

### High Power

Typically > 100 amps d.c. output.

### Tropical Conditions

Typically > 35°C ambient, high humidity.

### Non Tropical Conditions

Typically < 35°C ambient, normal humidity.

### Clean Environment

Free from dust, sand, salt and other airborne contaminants.

### Aggressive Environment

Dusty, sandy, salt laden air and/or any other airborne contaminants.

## Control Options Terminology

### Manual

Output control settings adjusted manually.

### Automatic

Choice of either:

- (A) Constant Current Control – this maintains the manual settings by compensating for variations in load resistance and/or input supply voltage.
- (B) Constant Potential Control – this maintains a preset level by monitoring a signal from a permanent reference electrode.

### Bolted Links

Output set manually via tapping links; typically a choice of 6 or 15 steps.

### Rotary Tapping Links

Output set manually via rotary switches; typically 6, 15 or 63 steps.

### Regulator

Output set manually via stepless variable regulator. Control range 0 – 100%.

### Motorised Regulator

Output maintained automatically via motorised stepless variable regulator. Control range 0 – 100%.

### Electronic Regulator

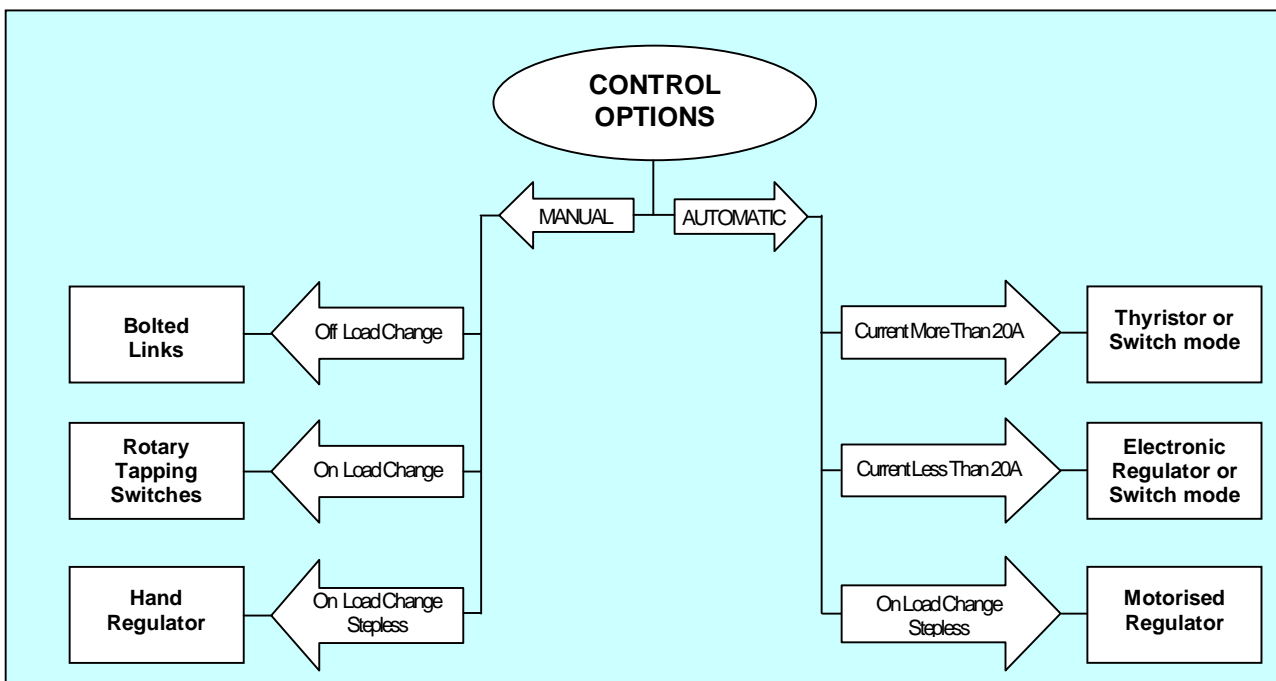
Output maintained automatically via transistor controlled stabilised regulator. Control range 0 – 100%.

### Thyristor

Output maintained automatically via thyristor controlled regulator. Control range 0 – 100%.

### Switch Mode

Output maintained automatically via switch mode technology. Control range 0 – 100%.



## IP Rating – protection against the ingress of dust and liquids

The degree of protection offered by the cabinet as defined in EN 60.529/ IEC 529 is indicated by a three digit number. However, since in most cases it is only the first two digits that are of concern, we have limited our specifications to these. For reference the ratings are:

### 1<sup>st</sup> digit – protection against solid objects

- 0 = no protection
- 1 = protection against solid objects >50mm (e.g. accidental touch by hand)
- 2 = protection against solid objects >12mm (e.g. fingers)
- 3 = protection against solid objects >2.5mm (e.g. tools and wire)
- 4 = protection against solid objects >1mm (e.g. tools and small wires)
- 5 = protection against dust, limited ingress permitted, but no harmful deposits
- 6 = totally protected against dust

### 2<sup>nd</sup> digit – protection against liquids

- 0 = no protection
- 1 = protected against vertical falling drops of water (e.g. condensation)
- 2 = protected against dripping water up to 15° from the vertical
- 3 = protected against dripping water up to 60° from the vertical
- 4 = protected against splashing water (limited ingress permitted)
- 5 = protected against water jets
- 6 = protected against heavy seas
- 7 = protected against immersion
- 8 = protected against submersion

## Standard Specification

### Mounting

Free standing, plinth, wall or pole.

### Weather Protection

Air cooled – up to IP65.

Oil cooled – up to IP66.

Sun shields where specified.

### Transformers

Transformers are manufactured and routinely tested in accordance with BS171 (IEC76). A safety earth screen is provided between the primary and secondary windings.

### Rectifiers

Three basic methods of rectification are used, silicon diode, thyristor and switch mode. Clients may specify their preferred method of rectification, or, leave the choice to us in which case we will select the most cost effective option.

### Meters

Moving coil meters to BS89 class 1.5 are fitted as standard. On request, other types of meter can be fitted including hermetically sealed, dual range and digital types.

### Protection

Input protection, depending upon size and type:

- (i) Switchfuse
- (ii) Moulded case circuit breaker
- (iii) Miniature circuit breaker
- (iv) RCD (earth leakage)

Rectifier

Thyristor and Silicon Diode Rectifiers are protected by high speed semiconductor fuses. In all cases, transient voltage surges are eliminated by use of metal oxide suppressors. Output circuits are protected with lightning arresters.

### Enclosures – Oil Cooled T/R's

The oil tank and control housing are fabricated in steel. Controls, terminals, meters and fuses are accessed through a hinged door. Meters are viewed through sealed windows. Fittings will normally include: oil drain, oil sight gauge, oil filler, thermometer, silica gel breather and lifting lugs.

### Enclosures – Air Cooled T/R's

Fabricated in steel, GRP (glass reinforced plastic), or stainless steel as appropriate.

Single Phase			Air Cooled		Oil Cooled	
Output current	Output voltage	Input current at 240V	Size (mm) W x D x H	Weight (kg)	Size (mm) W x D x H	Weight (kg)
10A	25V	1.4A	620x460x820	70	700x600x900	175
25A	25V	3.6A	620x460x820	95	700x600x900	195
50A	25V	7.2A	620x460x820	150	800x700x1000	230
75A	25V	10.8A	620x460x820	180	800x700x1000	280
25A	50V	6.8A	620x560x820	165	700x600x900	260
50A	50V	13.6A	620x560x820	180	800x700x1000	350
75A	50V	20.4A	620x560x1020	220	1000x700x1150	410

Three Phase			Air Cooled		Oil Cooled	
Output current	Output voltage	Input current at 415V	Size (mm) W x D x H	Weight (kg)	Size (mm) W x D x H	Weight (kg)
100A	25V	4.3A	620x560x1020	180	1000x700x1150	360
150A	25V	6.4A	620x560x1020	235	1200x700x1150	410
200A	25V	8.6A	620x600x1150	260	1200x700x1250	500
100A	50V	8.1A	620x560x1020	250	1200x700x1150	450
150A	50V	12.2A	620x600x1150	340	1200x700x1250	490
200A	50V	16.2A	620x600x1150	400	1200x900x1400	600
75A	100V	11.8A	620x560x1020	310	1200x700x1150	500
100A	100V	15.8A	620x600x1150	420	1200x900x1400	560
150A	100V	23.7A	620x690x1250	510	1200x1100x1400	640
200A	100V	31.6A	620x690x1250	560	1200x1100x1400	780

## Information required for quotation

8. Application
9. Location – indoor or outdoor
10. Input voltage
11. Output current and voltage
12. Air or Oil Cooled
13. Ambient working temperature
14. Weather protection / IP rating
1. Specification compliance requirements (if any)
2. Mounting option
3. Control option – see guide
4. Rectifier preference (if any)
5. Special meters (if any)
6. Quantity

The company reserves the right to make changes to any of the information shown on these leaflets in the interests of product development and improvement.