

OIL COOLED TRANSFORMER RECTIFIERS

Impressed current cathodic protection power supplies



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Our range of oil cooled transformer rectifiers are specifically for the cathodic protection of steel structures including jetties, pipelines and tank farms. They have been designed to comply with the most stringent industry specifications and perform in arduous environmental conditions where continual operator safety and reliability are paramount.

The transformer rectifiers are in the ONAN (Oil Natural Air Natural) cooling category and so have an inherently greater reliability than oil circulated and forced air designs.

Cable terminations are located within an enclosure on the side of the tank to allow vertical cable entry. Exposed terminals operating above 50 volts are covered for personnel protection.

All units are manufactured to rigorous safety regulations and thorough quality assurance procedures under our ISO 9001 certification are in full compliance with all applicable British and European standards.

APPLICATIONS

Our oil cooled transformer rectifiers are ideally suited to heavy duty applications in demanding environments with ambient temperatures up to 55°C, and are available with current ratings of up to 900A. Our in-house design and manufacturing process allows us to build multiple output channels within a single transformer rectifier unit.

Units are designed and manufactured with a wide variety of innovative features and every aspect of their design can be customised to suit a particular application or client specification.

To accommodate every possible application, we are able to incorporate a wide range of specialised features into our customised transformer rectifiers, including local and remote monitoring of output voltage, current, permanent reference electrode potential monitoring, and remote control of output voltage and current.

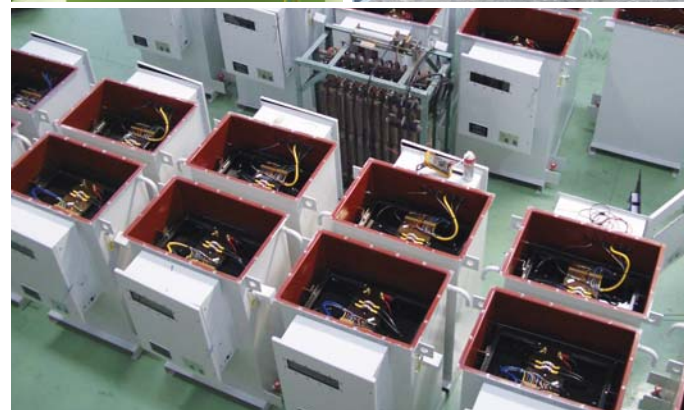
FEATURES

Enclosures – Sealed to a protective category of IP66

- Mild steel heavy duty welded with flame zinc spray and two-part epoxy/polyurethane coating
- Painted stainless steel heavy duty welded grades 304 or 316
- All opening covers are fitted with neoprene gaskets to prevent the ingress of dust and moisture

Control

- Continuously variable transformer (Variac)
- Discrete step switching in 16, 20, 25 or 63 steps (step control)
- Constant current/Constant voltage
- Automatic potential control



Input Supply

- 115V to 240V single phase
- Up to 480V three phases

Additional Features

- GPS synchronous current interruption
- Data logging of output voltage, current and reference cell potential
- Remote monitoring and control over the internet, satellite, GSM mobile or RS232/RS485 interfaces
- Trip alarms for output voltage, output current, reference electrode potential, AC input voltage, phase failure

Enclosure and Fittings	
Oil level gauge	✓
Oil filling pipe	✓
Oil drain valve	✓
Breather - silica gel	✓
Skid under base	✓
External/earth bolt	✓
Sunshade	✓
ID label	✓
Rating plate	✓
Dial type thermometer	✓
Operation and maintenance manual	✓
First filling of oil to BS148/IEC296	✓
Laminated circuit diagram	○
Anchor bolts	○
Lifting lugs	✓
Meter viewing window	✓
Padlock facility	✓
Hinged lid	○
Lid toggle latches	○
Cable entry	○ Glands (armoured) ○ Glands (un-armoured)

Metering	
Output voltmeter and ammeter	● Analogue 90° Scale † ○ Analogue 240° Scale † ○ Digital 3.5 digit ○ Digital 4.5 digit
Reference potential meter	○ Analogue 90° Scale † ○ Analogue 240° Scale † ○ Digital 3.5 digit ○ Digital 4.5 digit
Input voltmeter	○
Input ammeter	○
Hours run counter	○
Kilowatt hour meter	○
Output meter monitor sockets (4mm)	○

† Also available hermetically sealed and tropicalised, if required.

Electrical	
Input MCB	✓
External isolator	○**
Surge/lightning arrester DC	✓
Surge/lightning arrester AC	○
AC healthy neon	○
Input RCD/ELCB	○
Door interlocked isolator	○**
Over temperature trip	○
Anti-condensation heater and switch	○
Rectifier fuses	○*
Smoothing/efficiency circuit	○*
RFI suppression filters	○
Auxiliary AC socket (to suit client requirements)	○
Output termination	● Studs ○ Terminals
Output protection	● Fuse ○ MCB

Monitoring	
Transducer for output current	○
Transducer for output voltage	○
Transducer for reference potential	○
DC low output/failure alarm	○
Failure alarm	○ AC ○ DC
AC phase monitor (3 phase only)	○
Current interruption	○ Synchronous ○ Non synchronous ○ GPS synchronous
Timer link (for portable timer)	○
Remote monitoring and control unit	○
Data logger units with GPS synchroniser	○

* Included as standard in CC-CV and fully automatic units.

** Included as standard in 3-phase CC-CV and 3-phase fully automatic units.

Key

- ✓ = Included as standard
- = Included as standard but other options available
- = Optional extra

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Typical Sizes and Weights

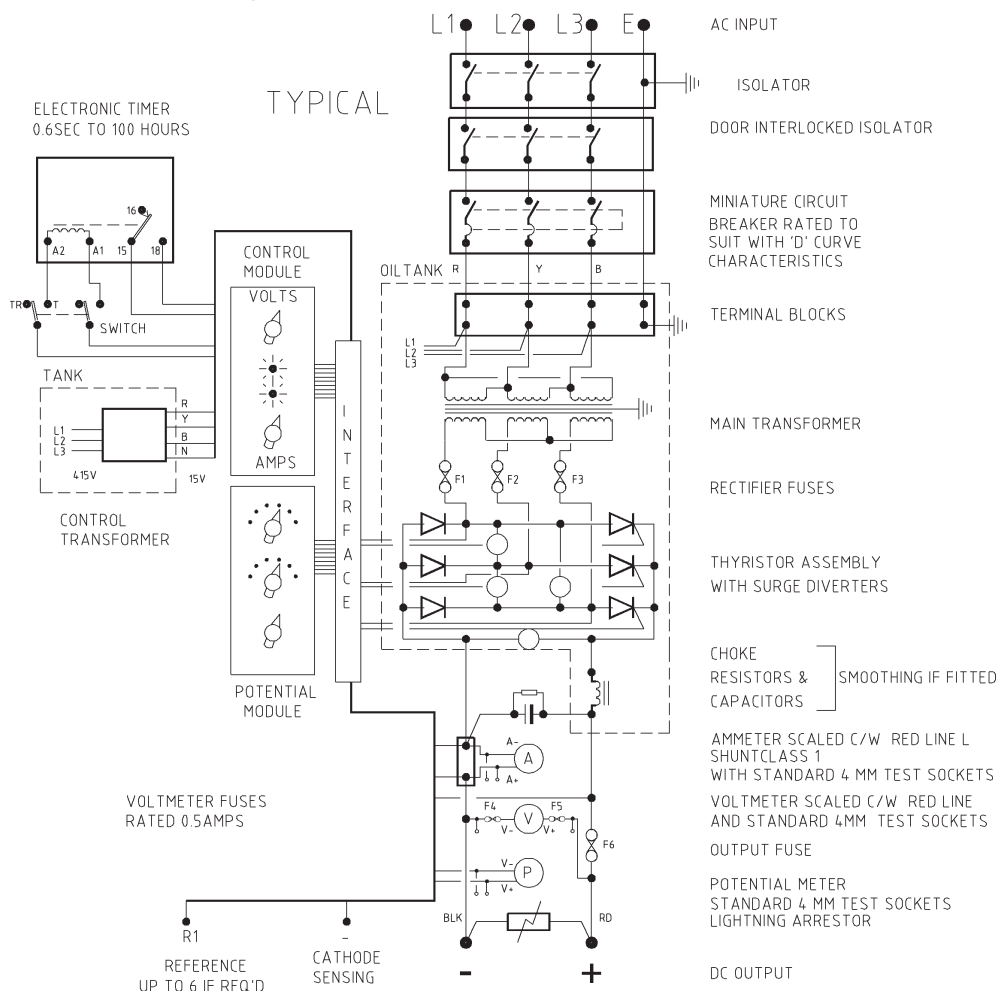
Max power output (power = DC voltage x DC current) CC/CV auto	Type		Dimensions (Excl. sunshade) H x W x D mm	Nominal weight (kg)	Oil required (l)	
	Three-phase 415V manual	Single-phase 240V manual				
2,200	3,300	1,500	DX 1	1400 x 650 x 650	300	140
3,700	6,100	3,000	MX 1	1150 x 1000 x 800	500	280
5,400	7,800	3,800	MX 2	1400 x 1000 x 800	600	360
8,700	13,900	6,100	LX 1	1550 x 1500 x 950	1200	770
18,500	29,400	13,000	LX 1 + 4R	1550 x 1500 x 1100	1300	800
28,000	45,000	20,000	LX 1 + 8R	1550 x 1500 x 1250	1400	830

Sizes based on 55°C Ambient temperature, in cooler climates sizes may be reduced.

Units based on standard specification with no optional extras. With optional extras depth and weight may increase.

DIAGRAM 1

Typical Oil Cooled TR Circuit Diagram



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