

Cathodic Protection Transformer Rectifiers

Product Overview

Transformer Rectifier Units (TRUs) are the backbone of impressed current cathodic protection (ICCP) systems, providing a stable and adjustable DC power supply to protect buried or submerged metallic structures from corrosion. Designed for high efficiency and durability, these units convert AC power into precisely controlled DC output, ensuring optimal protection for pipelines, storage tanks, marine structures, and industrial facilities.

Available in air-cooled, oil-cooled, and explosion-proof designs, TRUs are engineered to operate in extreme environments, offering robust electrical insulation, overload protection, and efficiency. Advanced options include remote monitoring and control, allowing real-time adjustments and diagnostics to optimize system performance.

With customizable voltage and current outputs, transformer rectifier units provide a reliable and long-lasting solution for cathodic protection applications, ensuring maximum corrosion prevention and system longevity.

Its unique ability to synchronize multiple rectifiers via GPS satellites (optional) enables pipeline diagnostic work without the need for costly external interrupters.







Cathodic Protection Transformer Rectifiers

50V / 20A TR Unit

Specifications

Input Voltage	230V 50/60 Hz (±%20)
Output Voltage	0.25 – 50V DC
Output Current	0 – 20A DC
Output Fuse	32A Semiconductor Fuse
Short Circuit Protection	Electronic
Thermal Protection	90°C ± 5°C (Heat Sink Temperature)
Efficiency	>%85
Operating Temperature Range	-30, +60°C
Output Voltage Meter	0-81.92V DC (±%1 +0.25V)
Output Current Meter	0-25.5A DC (±%1 +0.1A)
Pipe to Soil Voltmeter	±10V DC (±%1 +20mV)
IP Protection	IP54
Dimensions	820 x 990 x 520 mm
Power Control Method	High Frequency DC-DC Converter with MOSFET switch
High Voltage Protection	Protection over all inputs and outputs
Operating Modes	"Automatic, Adjustable Voltage Limit Automatic, Adjustable Current limit Manual, Constant Current, Interrupted Manual, Constant Current, Continuous Manual, Constant Voltage, Interrupted Manual, Constant Voltage, Continuous"



Cathodic Protection Transformer Rectifiers

50V / 20A TR Unit

Specifications	
Interrupted Mode of Operation	
On Time Adjustment Range	0.1 – 99.9s (0.1 sec resolution)
Off Time Adjustment Range	0.1 – 99.9s (0.1 sec resolution)
Reference Electrode	1 true differential isolated input
Input Voltage Range	±10V DC (±%1 +20mV)
Filtering	50-60Hz Notch Filter allows unaffected DC measurements with superimposed AC voltages up to 18V
SCADA Output 1	RS485-MODBUS RTU(YYY=MB)
SCADA Output 2	"3 Channels 4-20mA Self Powered • Anode - Cathode Current • Anode - Cathode Voltage • Reference Electrode Voltage"
Contact Outputs	"4 Pcs Dry Contact Outputs • Automatic / Manual Operation • Interrupted / Continu- ous Operation • Faulty / Healthy • Power On / Off"
Statistical Datalog	Modbus Readable Last 30 Error Records
Warranty	2 years (componensts and workmanship)
Parts and Service Warranty	10 Years



Cathodic Protection Transformer Rectifiers

50V / 50A TR Unit

Specifications

Input Voltage	230V 50 Hz (±%20)
Input Current	18A
Output Voltage	0 - 50V DC (±0,25V)
Output Current	0 - 50A DC (±0,25A)
Output Fuse	63A Semiconductor Fuse
Short Circuit Protection	Electronic
Thermal Protection	90°C ± 5°C (Heat Sink Temperature)
Efficiency	>%85
Operating Temperature Range	-30, +60°C
Output Voltage Meter	0 - 81,92V DC (±%1 +0.25V)
Output Current Meter	0 - 61,44A DC (±%1 +0.25A)
Pipe to Soil Voltmeter	±10V DC (±%1 +20mV)
IP Protection	IP54
Dimensions	1190 x 750 x 530 mm
Power Control Method	High Frequency DC-DC Converter with MOSFET switch



Cathodic Protection Transformer Rectifiers

50V / 50A TR Unit

Specifications	
Interrupted Mode of Operation	
High Voltage Protection	Protection over all inputs and outputs
Operating Modes	"• Automatic, Continuous • Manual, Constant Current, Interrupted • Manual, Constant Current, Continuous • Manual, Constant Voltage, Interrupted • Manual, Constant Voltage, Continuous"
On Time Adjustment Range	0.1 – 99.9s (0.1 sec resolution)
Off Time Adjustment Range	0.1 – 99.9s (0.1 sec resolution)
Reference Electrode	1 true differential isolated input
Input Voltage Range	±10V DC (±%1 +20mV)
Filtering	50-60Hz Notch Filter allows unaffected DC measurements with superimposed AC voltages up to 13V
SCADA Output 1	RS485-MODBUS RTU (Standard)
SCADA Output 2 (Optional)	"3 Channels 4-20mA Self Powered • Anode - Cathode Current • Anode - Cathode Voltage • Reference Electrode Voltage"
Contact Outputs	"4 Pcs Dry Contact Outputs • Automatic / Manual Operation • Interrupted / Continu- ous Operation • Faulty / Healthy • Power On / Off"
Warranty	2 years (componensts and workmanship)
Parts and Service Warranty	10 Years



Cathodic Protection Transformer Rectifiers

100 V / 50A TR Unit

Specifications

Input Voltage	400V 50/60 Hz (±%10), 3 Ph
Input Current	10A
Output Voltage	0 - 100V DC (±0,25V)
Output Current	0 - 50A DC (±0,25A)
Output Fuse	63A Semiconductor Fuse
Short Circuit Protection	Electronic
Thermal Protection	90°C ± 5°C (Heat Sink Temperature)
Efficiency	>%85
Operating Temperature Range	-30, +60°C
Output Voltage Meter	0 - 120V DC (±%1 +0.25V)
Output Current Meter	0 - 61,44A DC (±%1 +0.25A)
Pipe to Soil Voltmeter	±10V DC (±%1 +20mV)
IP Protection	IP54
Dimensions	1180 x 750 x 532 mm
Power Control Method	High Frequency DC-DC Converter with MOSFET switch
High Voltage Protection	Protection over all inputs and outputs
Operating Modes	• Manual, Constant Current, Interrupted • Manual, Constant Current, Continuous • Manual, Constant Voltage, Interrupted • Manual, Constant Voltage, Continuous



Cathodic Protection Transformer Rectifiers

100 V / 50A TR Unit

Specifications	,
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Interrupted Mode of Operation	
On Time Adjustment Range	0.1 – 99.9s (0.1 sec resolution)
Off Time Adjustment Range	0.1 – 99.9s (0.1 sec resolution)
Reference Electrode	1 true differential isolated input
Input Voltage Range	±10V DC (±%1 +20mV)
Filtering	50-60Hz Notch Filter allows unaffected DC measurements with superimposed AC voltages up to 20V
SCADA Output 1	RS485-MODBUS RTU (Standard)
SCADA Output 2 (Optional)	"3 Channels 4-20mA Self Powered • Anode - Cathode Current • Anode - Cathode Voltage • Reference Electrode Voltage"
Contact Outputs	"4 Pcs Dry Contact Outputs • Automatic / Manual Operation • Interrupted / Continu- ous Operation • Faulty / Healthy • Power On / Off"
Warranty	2 years (componensts and workmanship)
Parts and Service Warranty	10 Years