



Air cooled Transformer/Rectifiers

Datasheet DS 033

Rev.02

Transformer/Rectifier units are the heart of any Impressed Current Cathodic Protection (ICCP) System.

Air-cooled transformer/rectifiers offer an **affordable and competitive solution for low to mid-power application** in a wide range of climatic conditions.



Our units are designed and built with **quality in mind and superior attention to heat-management.**

IP-rated filtered air intakes and outlets allow fresh air to circulate inside the cabinet, maintaining a sufficient IP rating (54 min.) and blocking ingress of dust and powder.



In addition, our air-cooled units are provided with a **self-starting forced air extractor** that greatly improve air circulation in case of detection of high internal temperatures.



A sunshade prevents direct sun radiation and protects the units from rain.

Internal heaters with thermostatic control maintain a proper internal temperature even in **extremely cold climates** avoiding the condensation of humidity.

Our T/R units are entirely **made in Italy**, produced in our facilities with only high-grade industrial components and **self-built transformers.**

Each T/R is **factory tested** to ensure safety and full functionality.





Air cooled Transformer/Rectifiers

Datasheet DS 033

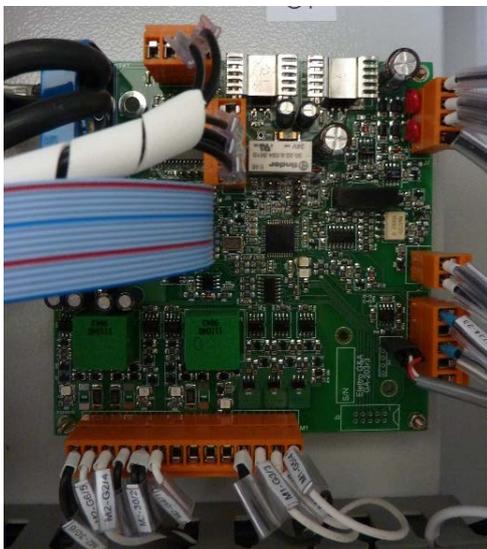
Rev.02

Air cooled T/R units can be designed for both wall and plinth mounting, and the external enclosure is available in both galvanized & epoxy painted carbon steel and **AISI 304 or 316L stainless steel**.

Our Transformer/Rectifier are available in both **manual mode** and **automatic mode**.

- In manual mode, output parameters can be adjusted by the user acting on a handgrip, multi-step selector or a potentiometer to regulate output voltage (constant voltage operation, CV) or output current (constant current mode, CC).
- In automatic mode, the T/R will read the actual structure-to-soil potential using an **external reference electrode** (Cu/CuSO₄, Zinc or even MMO Titanium) and automatically regulates output current to maintain the structures at the appropriate protection potential via microprocessor control.

Automatic control allows our T/R to compensate for any changes in soil or water resistivity, structure's insulation and protection current requirement **without the need of an operator**.



Control and adjust of output values can be performed via multi-tap transformers or **VARIAC** (only for fully-manual T/R) or using high efficiency – low noise **Thyristor-controlled full wave rectifier** with microprocessor control (for both manual and automatic T/R's).



Our T/R's are available both in single-channel or **multi-channel** option, where multiple and fully independent units are integrated in a single cabinet.

The T/R's front panel will house control devices and analogic/digital **measuring instruments**, which can be proposed in standard version or even fully **tropicalized**.

Input and output lines (electrode and anodes) are protected by high-speed fuses, varistors or **integrated surge diverters** according Customer's requirements.

Our T/R's are fully compatible with our **remote monitoring and control system**, which allows the user to operate on the T/R from a remote control room and keep under control output parameters and **alarm signals** like faults and over-temperature.

Optional dry contacts for alarm signaling, as well as **4-20 mA** interfaces for output parameters remote reading are available on request.



Air cooled Transformer/Rectifiers

Datasheet DS 033

Rev.02

Standard Technical Characteristics	
Electrical characteristics:	
Input voltage	220 V single-phase or 380-400 V three-phase.
Input voltage allowed fluctuations	Up to $\pm 15\%$.
Input protection	EMI filter, high-speed fuses, circuit breaker and overvoltage protection.
Signaling devices	Phase-presence lamps (one per phase), indicators for power-on, operating mode, over-temperature, ON-OFF insertion, alarms, etc.
Maximum output voltage	50 V DC (75V, 100V, 150V or higher voltages available on request).
Maximum output current	50 A DC (Typ).
Output parameters stability	$\pm 2\%$ Max.
Output voltage ripple	$< 5\%$ (standard). Up to $< 2\%$ with upgraded output filter.
Output protection	High-speed fuses and overvoltage protection.
Panel instruments	Class 1.5 voltmeters and ammeters. $\varnothing 4$ mm sockets for direct measurements. Digital instruments available on request.
Mechanical characteristics:	
Standard temperature range	$-10 \div +55^{\circ}\text{C}$. Other ranges available on request.
Casing	Galvanized & epoxy painted carbon steel or stainless steel AISI 304 or AISI316L.
IP rating	IP 54 Min. – IP 67 Max (on request)
Cooling	Air – natural circulation.
Construction features:	Plinth mounting, lifting eyebolts, anti-condensation heater, self-starting air extractor, optional panel window.
INOX Nameplate	Manufacturer name and address, manufacturer's serial number, input and output ratings. Further information according customer's requirements.
Functional characteristics:	
Fully Manual type:	Output adjustment via VARIAC, multi taps transformer or SCR microprocessor-controlled rectifier.
Manual/Automatic type	Standard SCR microprocessor-controlled rectifier, multi-turns potentiometers to adjust output current or protection potential.
Main Optional features:	
<ul style="list-style-type: none"> • ON-OFF programmable current interrupters – stand-alone or GPS synchronized. • 4-20 mA current transducer for output voltage, current and Cathodic Potential. • Dry contacts for alarms. • Datalogger. 	
Standard factory tests:	
<ul style="list-style-type: none"> • Visual & dimensional check. • AC and DC isolation of main transformer and equipment. • Functional test, light load test and simulation with dummy load. • Power efficiency test. • Long run test – 24 h at full rated power. 	

