

switching mode transformer/rectifiers

Datasheet DS 004
Rev.00

The heart of an Impressed Current Cathodic Protection (ICCP) System is the Transformer/Rectifier unit (T/R), which draws electric power from the main distribution line and delivers the rectified current to the anode's system.

Tecnoseal Industry S.r.l. is proud to offer an innovative range of Transformer/Rectifiers using Switching Mode technology to achieve a new level of stability and control. Switching mode technology allows high-power delivery using small, reliable and lightweight units. High efficiency also means no power wasted and minimal heating of the unit. Switching Mode T/Rs can work in both manual and automatic mode. In manual mode, output voltage and current are set and regulated by hand by an operator (through multi-steps or potentiometers). In automatic mode, the T/R will read the actual protection potential of the structure using a standard Cu/CuSO₄ reference electrode, and regulate the output current by itself in order to maintain the structure at the potential set by the user.

Our Switching Mode T/Rs use a proprietary controller unit to regulate the output power with a never-reached speed and precision, extremely low output ripple even when running at low current values, overcoming most of the problems that characterized other regulation systems. Automatic control allows the T/R to compensate for the changes in soil or water resistivity and structure's insulation and current need, without the need of an operator.

Thanks to their high efficiency, our Switching Mode T/Rs suffer only minimal heating, and our units are air-cooled type. The T/R's are housed in a high-quality AISI 316L stainless steel cabinet for superior corrosion resistance and durability also in marine and aggressive climates.

Our stainless steel enclosures are certified up to IP67 rating according IEC 60529, suitable for outdoor installation also in the harshest conditions. Every cabinet will be equipped with an IP rated window to allow an easy and immediate check of T/Rs functionality.

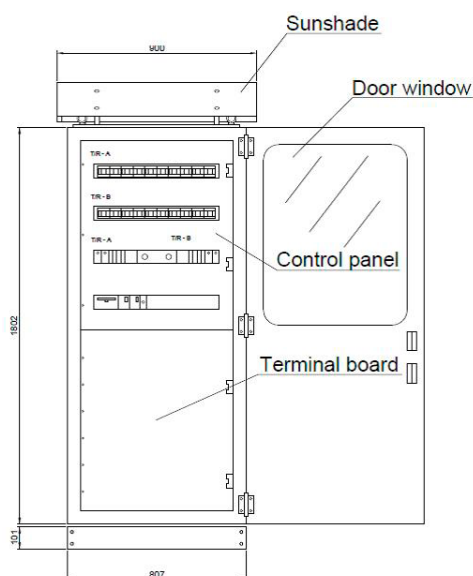
Our T/Rs are available both in single-channel or multi-channel option, where multiple fully-independent units are integrated in a single cabinet. In this case, only one power feeding cable will be necessary for all the T/Rs because the cabinet will be

equipped with all the necessary internal terminal boards.

Our T/R's are available for both 220 V single phase and optional 400V tri-phase input; switching mode technology will maintain a fine regulation even in presence of massive input voltage and frequency variations.

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

Input and output lines (electrode and anodes) can be protected via high-speed fuses, varistors or integrated surge diverters according to customer's requirements.



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Our T/R 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 the output parameters and alarm signals like faults and over-temperature. A built-in 4-20 mA interface allows easy reading and acquisition of output values and parameters.

Optional dry contacts for alarm signaling are available on request. To perform instant-off potential measures, Tecnoseal Industry offers a wide complete range of On-Off cyclic current interrupters.

Technical characteristics:

Electrical characteristics:

Input voltage	220 V single-phase or optional 400 V three-phase
Input voltage allowed fluctuations	± 15% min.
Input protection	Circuit breaker and overvoltage protection
Signaling devices	Phase-presence lamp, LED indicators for power-on, operating mode, over-temperature, ON-OFF insertion, alarms, etc.
Maximum output voltage	48 V DC
Maximum output current	150 A DC (typical)
Output parameters stability	± 2% Max.
Output voltage ripple	< 150 mVp-p
Output protection	High-speed fuses and overvoltage protection
Panel instruments	Class 1.5 Voltmeters and ampere-meters, fully tropicalized. ø 4 mm sockets for direct measurements.

Mechanical characteristics:

Standard temperature range	-20 ; +70°C. Other ranges available on request.
Casing	AISI 316L Stainless Steel
IP rating	IP 54 Min. – IP 67 Max (on request)
Cooling	Air cooled – optional forced ventilation
Construction features:	Plinth mounting, lifting eyebolts, panel window.
Nameplate	Manufacturer name and address, manufacturer's serial number, input and output ratings. Further information according customer's requirements.

