



Cathtect

Engineering (Pty) Ltd.

Switchmode Cathodic Protection Rectifiers

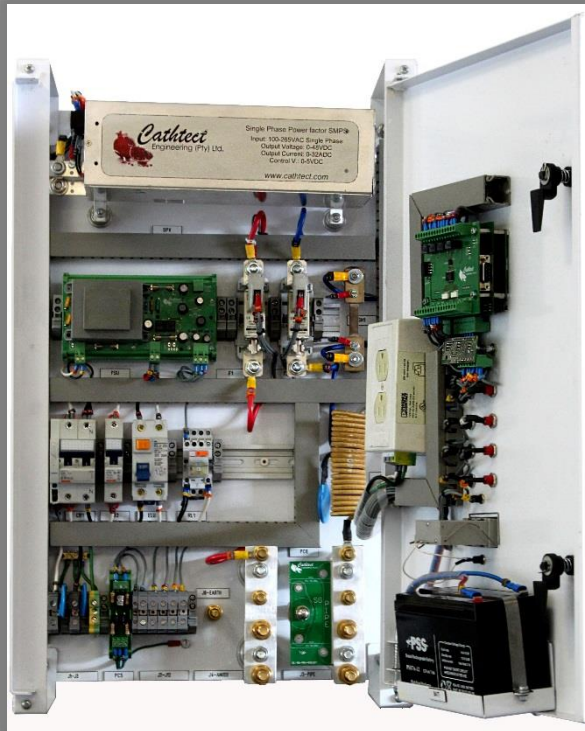


WHAT IT TAKES!

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Switchmode Cathodic Protection Rectifiers



SMR FRONT VIEW WITH DOOR



SMR SIDE VIEW WITH DOOR

Switchmode rectifiers are known for their quality, efficiency, service life and workmanship. Switchmode rectifiers have been used for many years and this demonstrates its quality service it provides and many extra features can be installed in order to fit the specific Cathodic Protection need. The switchmode rectifier is a newer technology and is significantly more advanced than transformer rectifiers utilising high frequency switching devices resulting in far greater feedback responsiveness, efficiency and service life.

Switchmode Cathodic Protection rectifiers can typically be used with corrosion protection on pipelines, tank farms and other vulnerable metals, that are at risk of corrosion, where impressed DC currents are required.

Benefits and Features of Cathtect's Switchmode Cathodic Protection Rectifiers

Benefits of Switchmode Cathodic Protection Rectifiers

- High efficiency of up to 95%
- Significantly lower cost than a Transformer rectifier
- $\pm$ Half the size of a Transformer rectifier
- Single phase and more efficient rectification across the output range
- Light weight design
- 30% less operating temperature than a Transformer rectifier
- Output DC ripple is less than 200mV
- Integrated remote monitoring



Some Features of Switchmode Cathodic Protection Rectifiers

- Automatic PID output feedback control (Constant voltage , constant current, constant reference potential and iterative instant off)
- Heavy duty power factor correction rectification
- Single phase wide range voltage input 90– 260 VAC
- Input frequency range 47– 63 Hz
- High frequency switching for maximum efficiency of up to 95%
- Digital metering with backlight for voltage, current and reference potential

*Please see technical datasheet for all products specifications

Switchmode Ordering Codes

Switchmode Designs are according to power ratings. We have 3 standard switchmode power ratings: 150W, 300W and 1500W. Within these power ratings, switchmodes have different maximum output voltages: 12V, 24V and 48V. Their maximum current varies accordingly.

Use the ordering code in the table provided below to select your switchmode rating.

Switchmode ordering code	Power	Output Voltage	Output Current
RECS-12-12,5	150W	12V	12.5A
RECS-24-6,25	150W	24V	6.25A
RECS-48-3,125	150W	48V	3.125A
RECS-12-25	300W	12V	25A
RECS-24-12,5	300W	24V	12.5A
RECS-48-6,25	300W	48V	6.25A
RECS-12-125	1500W	12V	125A
RECS-24-63	1500W	24V	63A
RECS-48-32	1500W	48V	32A

- **GSM Module (For GSM module add G after your switchmode ordering code)**

⇒ Optional GSM Modem using RS232 for telemetry. Modem can send instantaneous values of output voltage, current and reference potential measurement, 24 Hour period logged values, 8 bit user defined alarms including phase failure , circuit breaker and fuse rupture. Modem can also relay present control mode and has the ability to change control mode, set up parameters and boundary values. This requires a registered sim card.

- **Manual Control (For manual control add M after your switchmode ordering code)**

⇒ This is a feature where the user can switch over from automatic control to manual output voltage using a potentiometer style knob accessible from the inner door.

*For other options please contact us, these include and are not limited to:

Current sharing

Switchmodes can be arranged in parallel in current sharing mode for special high power applications up to 4200W

Replacement parts

Lightning equipment, fuses, LEDs, metering equipment, electronic PC boards, electrical components etc.

Switchmode Enclosure Details

Our Standard enclosures are made from a grade of stainless steel called 3CR12 (also designated as UNS S40977/ S41003 or 1,4003) This material is a chromium fabricated by modifying the properties of grade 409 steel. It is resistive to mild corrosion, wet abrasion and it is easy to weld and punch.

Switchmodes come in 3 standard enclosure sizes depending on the power output. The enclosures are 0,063 inches thick with a grey (RAL7032) powder coated finish. Ingression is IP 65.

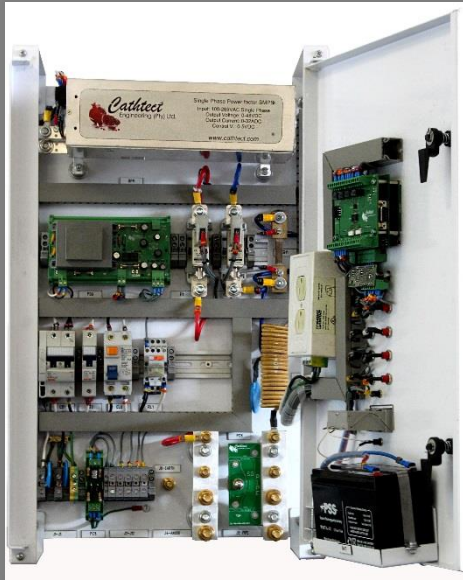


Switchmode Type	Enclosure 1 Dimensions (mm)	Enclosure 2 Dimensions (mm)	Glass door viewing area (mm)	Mounting Plate (mm)	Internal Door (mm)
<u>Fit into Enclosure 1</u> • RECS-12-12.5 • RECS-24-6.25 • RECS-48-3.125 • RECS-12-25 • RECS-24-12.5 • RECS-48-6.25	600 x 500 x 220		470 x 320	530 x 430	520 x 430
<u>Fit into Enclosure 2</u> • RECS-12-125 • RECS-24-63 • RECS-48-32		700 x 600 x 270	570 x 420	630 x 530	620 x 530

*Under special request, we can modify or customise cabinets suited to the client.

- Enclosure 304 Stainless steel. Mild steel and Polycarbonate enclosures can be requested
- Weather proof according to IP ratings– IP 54, IP 55, IP 65, IP 66, IP 68
- Colours to select from (Electric orange, Canary yellow etc.)





SMR FRONT VIEW

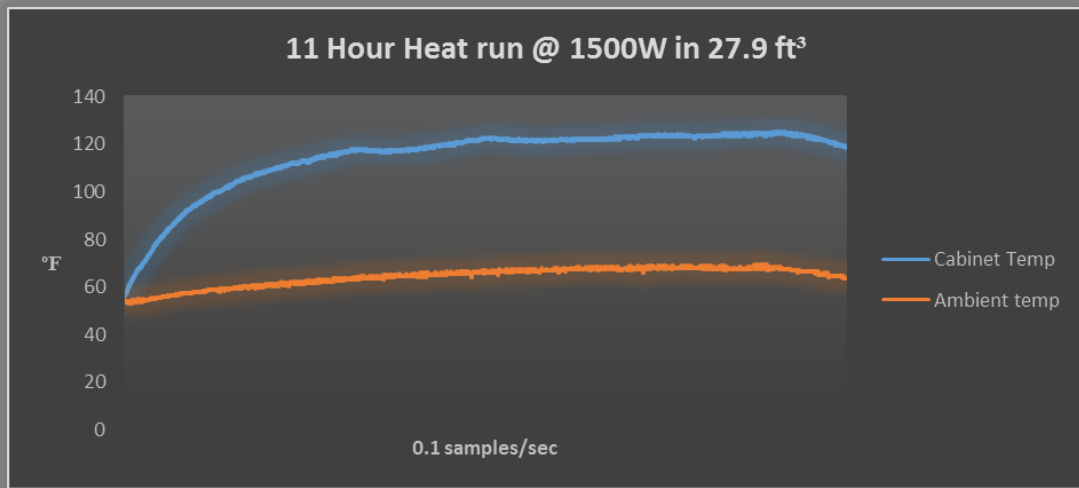


SMR DOOR VIEW

Typical Thermodynamics

Switchmodes, at their optimum efficiency, perform well in small enclosures within ambient temperatures of up to 158°F (70°C). A heat run was conducted in an enclosure with no ventilation at full load and over a period of 11 hours. The inside enclosure temperature was recorded against the ambient temperature at a sampling rate of every 10 seconds.

Starting the heat run at an ambient temperature of 50°F (10°C), the enclosure temperature exponentially increases with time due to its rate of heat dissipation. The rate of heat dissipation tends to a constant temperature value over 10 hours, this maximum cabinet temperature is 122°F (50°C) and is uniform throughout the switchmode enclosure. After 10 hours the ambient temperature decreases and then the enclosure temperature decreases accordingly as a result. The thermodynamics of the enclosure is internally stable and is now being influenced only by external variables.



SMR SIDE VIEW WITHOUT DOOR



SMR DOOR