



Global Model CP8550  
ARGENTINA

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ISO 9001:2000 Registered

## CATHODIC PROTECTION SYSTEMS

### FOR THERMOELECTRIC GENERATORS

## NACE

National Associations of Corrosion Engineers  
Member Company

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### GENERAL

Corrosion is the problem and cathodic protection is the solution. To ensure that a cathodic protection system is an economically feasible solution the system must include a cost effective method of impressing current. GLOBAL thermoelectric generators are the answer.

GLOBAL thermoelectric generators (TEGs) are the industry leader in highly reliable, economically sound, low maintenance sources of D.C. electrical power, GLOBAL thermoelectric generators are used when AC grid power is unavailable or simply too costly. Because thermoelectric conversion is a solid state phenomenon, TEGs have no moving parts and operate reliably for long periods of time without maintenance or supervision. Electrical power is generated by the direct conversion of heat from the combustion of fuel into electricity. Today's users of cathodic protection are highly cost conscious, and most expenditures are based upon sound economic analysis to justify capital and operational costs. GLOBAL thermoelectric generators are proven to be a reliable source of continuous current, and should always be considered for cathodic protection applications.

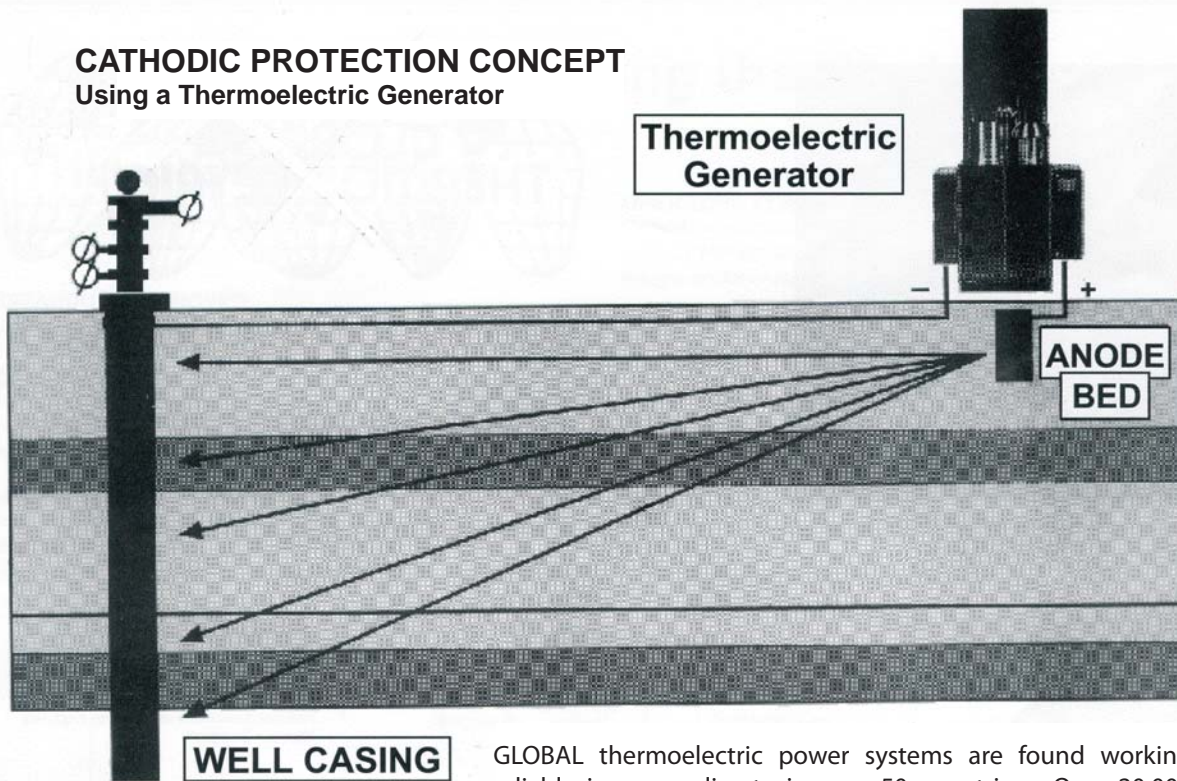
Only GLOBAL THERMOELECTRIC offers TEGs with an extended design lifetime and minimal annual maintenance.

GLOBAL's CP-TEGs are normally located near the ground bed, and supplied with fuel from tanks or from wellhead or pipelines. The current output can be adjusted by means of an integral variable resistor so that output current is matched to the ground bed resistance. There are "NO" batteries in the system, unlike costly solar sites.

### GLOBAL CP-TEGs SHOULD BE CONSIDERED WHENEVER:

- \* DESIGN CONSIDERATIONS INCLUDE RELIABILITY AND COST EFFECTIVENESS.
- \* POWER REQUIREMENTS ARE BETWEEN 10 VA AND 1.5 KVA.
- \* GRID POWER MAY BE INTERMITTENT OR TOO EXPENSIVE.

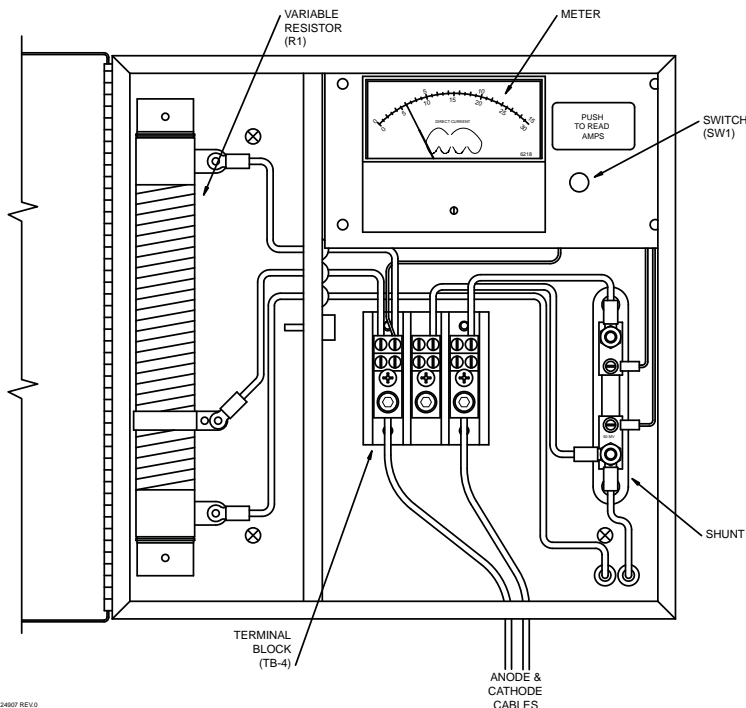
## CATHODIC PROTECTION CONCEPT Using a Thermoelectric Generator



GLOBAL thermoelectric power systems are found working reliably in every climate in over 50 countries. Over 20,000 generators have been shipped, for use on mountain tops and deserts, from the Arctic Islands to the southern Sahara and the Australian desert to the rain forest of Africa.

With over 30 years of experience in supplying DC power to the cathodic protection industry, GLOBAL thermoelectric generators offer:

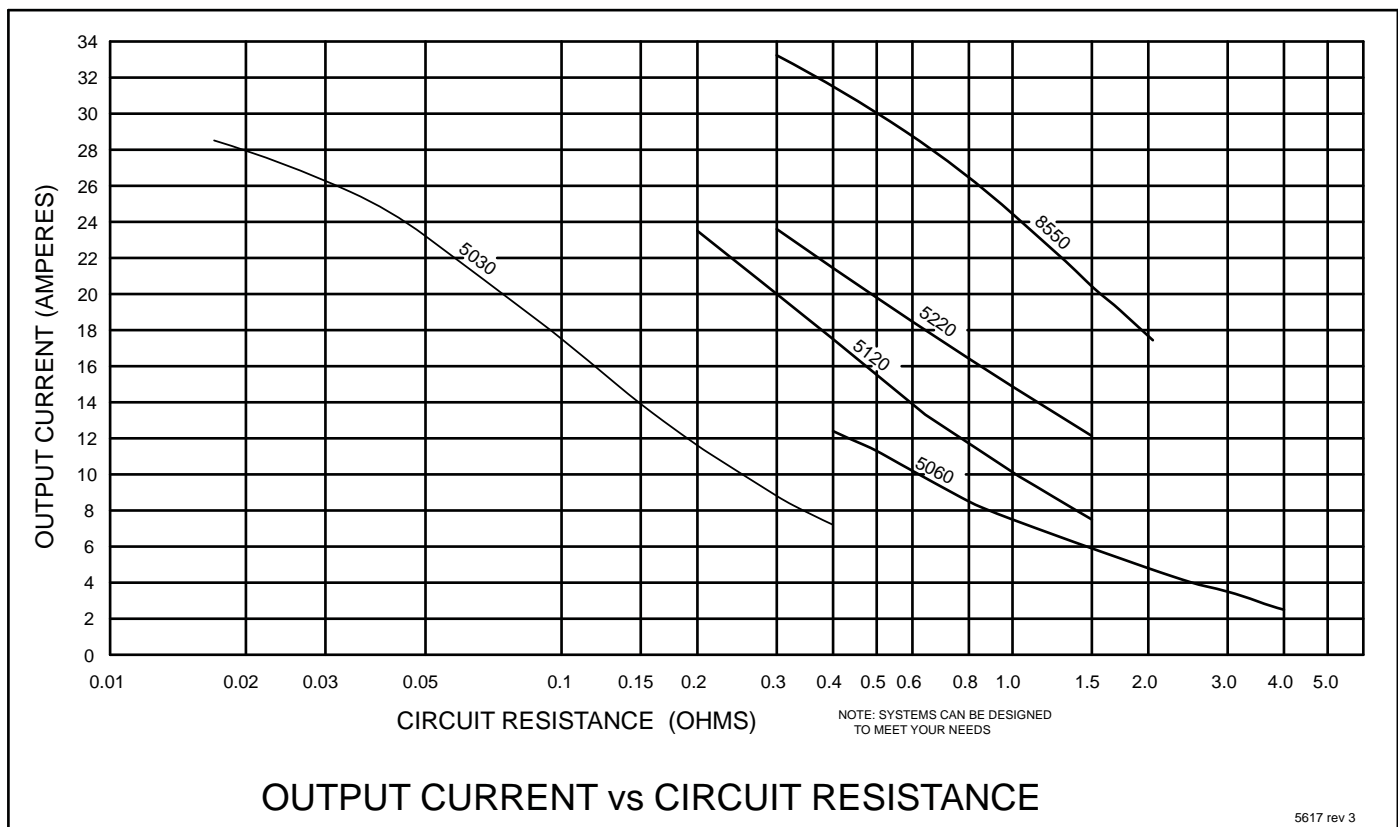
- Solid State design ensures high reliability and low maintenance.
- Stainless Steel, weatherproof construction means NO sheltering required.
- Quiet, ecologically sound service.
- Extended design lifetime, with limited minimal maintenance.
- Operation on propane, butane, natural gas.



GLOBAL'S cathodic protection package include:

- Lockable, Stainless Steel enclosure
- Easy to read Volt/Ammeter.
- Terminal Block for up to 9 mm (00 AWG) cable.
- Variable resistor to control current output.
- Optional: split current package allows 1 generator to supply 2 cathodic loads.

Note: The CP Interface design may vary for different generator models.



**OUTPUT CURRENT vs CIRCUIT RESISTANCE**

5617 rev.3

## The Economic Advantages

The true cost of a cathodic protection system includes not only the initial purchase and installation costs, but also the cost of supervising and operating the system, and the periodic replacement of failed or consumed components, such as anodes and batteries.

A GLOBAL thermoelectric powered system can be cost effective in all areas. No supervision is required, and the preventative maintenance intervals can be up to one year.

Fuel consumption is minimal. For example, a GLOBAL generator can impress 10 amps continuously into a 1 ohm ground bed, at 10 volts, and consume just 1100 U.S. gallons of LPG or 114 MCF of natural gas per year.

## The Product

Most GLOBAL CP generators are offered complete with: Lockable Stainless Steel CP Interface Enclosure, Volt/Ammeter, Output Terminal Block accommodating AWG 00 conductors to CP circuits, and a Variable Slide Resistor for current control. Each generator is shipped with operating and maintenance instruction manuals.

Perhaps most importantly, there is no need for batteries, TEGs operate continuously, and are equipped to reignite automatically in the event of fuel interruption. No backup or reserve is required. Battery dependent systems can be effective, of course, but the cost implications of purchasing, sheltering, and periodically replacing batteries should be a part of any alternative power study.

Analysis of specific system proposals usually shows that both initial costs and system lifetime costs are significantly lower with GLOBAL TEGs than with other alternative power sources. GLOBAL marketing engineers are available to assist with analysis and to provide information for your own feasibility study.

GLOBAL also offers thermoelectric generators approved for hazardous areas, meeting Class 1 Division I and Division II Group D Atmosphere specifications. These models are certified by Canadian Standards Association and Factory Mutual Corporation.



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# Leading the World in Remote Power

## HAZARDOUS APPROVED

Global's model 1120 is approved for hazardous locations, meeting Class 1 Division I and Division II Group D atmosphere and T3 temperature code specifications. This model is certified by Canadian Standards Association and Factory Mutual Research Corporation. The ideal model for offshore applications when restricted by safety requirements and space limitations.

## MAINTENANCE

Preventative maintenance consists of cleaning or replacing a fuel filter and fuel orifice once per year. Maintenance is performed on site in a few hours, with basic hand tools and mechanical skills.

## OPERATING TEMPERATURE

Operation in ambient temperatures from +150°F (+65°C) to -77°F (-65°C). No rainfall, snowfall or wind limitations apply, except that the generator must not be flooded or inundated.

## ACCESSORIES

GLOBAL has all the necessary accessories for a complete power generating system using thermoelectric generators, stands, propane tanks and hoses, gas depressurization systems, DC to DC converters, batteries and equipment shelters.

## LARGER SYSTEMS

Thermoelectric generators can be combined to meet high power requirements. These systems may combine multiple generator models electrically connected in series or parallel. Systems have been designed and installed providing over 3.0 KVA.

Model	Power Specifications @ 20°C	Fuel Consumption				Dimensions L x W x H	Weight
		Propane		Natural Gas Std. 1000 BTU/SCF (37.7 MJ/SM)			
		US Gal/Day	Liters/Day	/Day	M	mm (inches)	kg (lb)
5030	21 watts @ 12 volts 21 watts @ 24 volts	0.8	3.0	74	2.1	347 x 355 x 449 (14 x 14 x 18)	18 (40)
5060	60 watts @ 6.7 volts 54 watts @ 12 volts 54 watts @ 24 volts 54 watts @ 54 Volts	1.5	5.7	155	4.4	629 x 372 x 987 (25 x 15 x 39)	41 (100)
5120	120 watts @ 6.7 volts 108 watts @ 12 volts 108 watts @ 24 volts 108 watts @ 48 volts	3.0	11.4	311	8.8	757 x 370 x 987 (30 x 15 x 39)	60 (132)
5220	220 watts @ 12 volts 176 watts @ 24 volts	7.4	28.0	700	19.7	797 x 417 x 1275 (31 x 16 x 50)	97 (214)
8550	480 watts @ 12 volts 550 watts @ 24 volts 480 watts @ 48 volts	20.1	76.0	1695	48.0	1549 x 1549 x 1016 (61 x 61 x 40)	102 (225)
1120 <small>Hazardous Approved (Class 1, Div. 2)</small>	110 watts @ 6.7 volts 100 watts @ 12 volts 100 watts @ 24 volts 100 watts @ 48 volts	3.0	11.4	311	8.8	801 x 532 x 1150 (32 x 21 x 45)	127 (280)
1500 <small>Hazardous Approved (Class 1, Div. 2)</small>	500 Watts @ 24 volts	N/A	N/A	1695	48.0	1410 x 1410 x 2990 (55.5 x 55.5 x 117.5)	680 (1500)

\* Specifications subject to change without notice

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