

# **IN-PIPE TURBINE GENERATOR (IPTG)**

**US Patented**

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**INTRODUCING: Lightning Master's innovative In-Pipe Turbine Generator (IPTG)  
RELIABLE, 24/7, OFF-THE-GRID GREEN POWER FOR YOUR SCADA AND OTHER  
BATTERY CHARGING NEEDS.**



Lightning Master's innovative IPTG system is designed to provide electricity at remote locations lacking commercial power. It generates power using the flow of natural gas through the pipeline without combustion of fossil fuels.

The IPTG is an electric generator contained in a two-foot section of 6" stainless steel pipe. It is installed using standard industry flanges. Feed piping may be flanged up or down to that size. The IPTG is tested to 2,040 PSI.

Magnetic flux generated by the rotation of magnets within the pipe produce electric current in coils mounted around the exterior of the pipe. The generator outputs through an umbilical cable to its control box that may be remotely mounted conveniently near the site batteries and SCADA system. The generator output may be monitored remotely through the existing site SCADA system or a dedicated monitoring system.

The IPTG overcomes the shortcomings of solar panels, thermal-electric generators, diesel generators, combustion turbine generators, and wind. It is less expensive, requires little maintenance, is resistant to damage and corrosion, and burns no fuel, reducing the site environmental footprint. The In-Pipe Turbine Generator is designed to generate power 24 hours a day and be maintenance-free for extended periods.

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## MECHANICAL:

- Generator weight - approximately 300 pounds
- Generator outside dimensions:
  - pipe - 24" length, 6" diameter flanges
  - Class 600 - O.D.14"
  - generator enclosures - 11" cube around pipe
- Control box dimensions: 12" x 12" x 6" deep
- 30' umbilical cord between generator and control box
- Does not compromise the structural integrity of the pipeline
- Hydro-tested to 2000 PSI
- Easy installation -uses industry standard flanges to bolt into the pipeline
- Stainless Steel construction - H2S/corrosion resistant
- Designed for use in a Class 1, Division 1 area/CSA & Atex certification pending
- Minimum product flow restriction - approximately 5-10 PSI pressure differential in normal operations
- Theft resistant

## ELECTRICAL:

- 250w output at 24VDC with nominal flow of 5-7 Mcfd. through a 6" pipe
- Available in 12, 24 or 48 volt output
- IPTG's may be run in series for additional power
- Interchangeable modular turbine sections accommodate different gas flow rates

## ENVIRONMENTAL:

- Green design - generates electricity without burning fossil fuel
- No combustion or pollution
- Zero emissions

## MONITORING:

- Output to communicate generator operating parameters (RPM, voltage, wattage and temperature) through customer's SCADA system (MODBUS, RS232, RS485, or ETHERNET)
- 380 day data logging

## MAINTENANCE:

- Rotating components are modular with slide-out/slide-in replacement of the entire rotating section
- Assuming no mechanical damage, there should be no maintenance required on the components external to the pipe.

**PATENT #9,506,370**  
**Other patents pending**

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