ElectraTherm’s Power+ Generator™ produces fuel-free, emission-free power from low grade waste heat using the Organic Rankine Cycle (ORC) and proprietary technology. The company’s proven, patented twin screw expander enables its heat-to-power generating system to make electricity from waste heat instead of fossil fuel. ElectraTherm’s Power+ Generator™ represents a dramatic change from radial or axial turbine technologies, providing a more cost efficient, robust machine to generate fuel-free and emission-free electricity from a variety of heat sources.

ElectraTherm’s twin screw expander offers distinct advantages for small-scale ORCs. These advantages include a simple and compact design, low speed operation with the ability to handle heat input variations and dual phase flow of the working fluid, significant part load capability, no gear box or oil pump, attractive payback and proven technology.

**4200 Power+ CONFIGURATIONS - Up to 35kWe**

ElectraTherm’s Power+ Generator™ is available in two configurations:

**4200 Stand Alone Specifications**
- Dimensions: 2.4 x 2.0 x 2.3 m
- Weight: 3,600 kg / 7,920 lbs
- Customizable balance of plant
- Indoor or outdoor installation

**4200-FL Specifications**
- Dimensions: 12 x 2.4 x 2.9 m
- Weight: 14,515 kg / 32,000 lbs
- Turnkey inc. liquid loop radiator, working fluid, start up and commissioning, hot water bypass (if required)

**HEAT TO POWER APPLICATIONS**

ElectraTherm generates electricity from various heat sources, including:

- Stationary Engines
- Biomass/Biogas
- Boilers & Process Heat
- Oil & Gas, Geothermal
- Solar Thermal
### Hot Water Input Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot water input temp range</td>
<td>170 - 240°F [77 - 116°C]</td>
</tr>
<tr>
<td>Thermal input range</td>
<td>1.02 - 2.22 MMBTU/hr [300 - 650 kWh]</td>
</tr>
<tr>
<td>Flow rate range</td>
<td>50 - 200 gpm [3.2 - 12.6 l/s]</td>
</tr>
</tbody>
</table>

### Water Cooled Condensing Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling water input temp range</td>
<td>40 - 150°F [4 - 65°C]</td>
</tr>
<tr>
<td>Heat rejected to cooling water range</td>
<td>1.3 - 2.0 MMBTU/hr [380 - 600 kWh]</td>
</tr>
<tr>
<td>Cooling water flow rate</td>
<td>220 gpm [13.9 l/s]</td>
</tr>
</tbody>
</table>

### Liquid Loop Radiator (LLR)*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLR approach to ambient air temp</td>
<td>20°F [11°C]</td>
</tr>
<tr>
<td>Heat rejected to LLR</td>
<td>1.3 - 2.0 MMBTU/hr [380 - 600 kWh]</td>
</tr>
</tbody>
</table>

#### PERFORMANCE CHARACTERISTICS

- **Nominal Rating**: Up to 35kWe@ 380 - 500V / 3 phase / 50 & 60 Hz
- **Ambient Operation**: 0°F - 38°F (32°F - 100°F)*
- **Power Factor Correction**: Load and Site Dependent - from 0.9 to 1
- **Total Harmonic Distortion**: 2% for Voltage; 10% for Current
- **Emissions**: Zero (Closed Binary Cycle)

#### DESIGN ATTRIBUTES

- **Refrigerant Plumbing**: Built to ASME and CE Standards
- **Energy Block**: Twin Screw Expander
- **Generator**: Grid-Tied Induction (Brushless Construction, Asynchronous)
- **Heat Exchangers**: Compact, Brazed Plate Construction
- **Design Life**: 20 Years
- **Lubrication**: Process Lubrication
- **Transient Voltage/Surge Suppression**: Basic Protections are Standard
- **Grid Protective Relay (GPR)**: External Additional GPR Interface Included

#### SYSTEM DESCRIPTION

- **Working Fluid**: R245fa (Pentafluoroethane)
- **Heat Source**: Hot Water 77°C - 116°C (170°F - 240°F)
- **Cooling Requirement**: Water 4°C - 65°C (40°F - 150°F)
- **Controls**: Custom Controls Software using Standard Programmable Logic Controller
- **Remote Monitoring**: Will Support Internet Protocol, 3G Cellular, Satellite Communications, Wireless
- **Operation**: Designed for Unattended Operation
- **Cabinet**: NEMA 3R Outdoor Rated / IP 54 Compliant
- **Shipping**: Ships from Reno, NV, USA
- **Dimensions**: Various Configurations Available (see first page)
- **Weight**: Various Configurations Available (see first page)
- **Sound Pressure**: 80db at 1 meter. Sound Attenuated Option: <72db at 1 meter

#### FEATURES INCLUDE:

- Automated Control System
- Remote Monitoring
- Low Maintenance
- Modular and Scalable
- Robust, Twin Screw Expander Power Block
- CE Certified
- Zero Emissions, Zero Toxic By-products and Zero Fossil Fuel Requirements
- Dual-Heat Stream Input + Radiator Option Available