Advanced RF Power Diagnostic for Plasma Processing Applications

- for CW or Pulsed RF Plasmas
  - Dissipated Power
  - Voltage & Current Waveforms
  - Phase Shift
  - Impedance
  - Harmonics

Customized to your application
Plug & Play diagnostic
High Power rating

USERS
- RESEARCHERS
- R&D ENGINEERS
- PROCESS ENGINEERS
- EQUIPMENT MAINTENANCE ENGINEERS

APPLICATIONS
- STUDY OF RF DISCHARGES
- DEVELOPMENT OF PROCESSING TOOLS
- PROCESS CONTROL
- TROUBLESHOOTING OF RF SYSTEMS

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SOLAYL
RF MEASUREMENT & CONTROL
The Vigilant™ Power Monitor tracks the RF power delivery in your plasma processing reactor by complete and accurate measurements of RF parameters (power, voltage, current, phase shift, impedance, harmonics...) with minimal perturbation. The probe can be inserted before or after the matching unit inside your plasma system.

We combine many proprietary innovations to offer what is probably the most advanced RF power diagnostic for plasma applications commercially available today:

- Customizable high performance electrical sensors: wide-band, robust, low-perturbation and compact voltage and current sensors developed through extensive experimental work and electromagnetic modeling. The characteristics of these sensors are customized during calibration to maximize performance for your application (maximized sensitivity and power rating while minimizing the perturbation).
- High speed, high resolution cutting edge acquisition electronics with USB connectivity to sample directly and simultaneously the RF voltage and current waveforms.
- Automated highly accurate calibration process to ensure the best measurement accuracy and probe-to-probe repeatability. Our calibration process is NIST-traceable and uses the best available electronic test instruments in a temperature and EMI controlled environment.

- Powerful and intuitive user interface software (Vigilant™ RF Lab) to display in real-time the measured data transforming your PC into a state of the art RF laboratory.

Specifications

<table>
<thead>
<tr>
<th>Frequency band</th>
<th>1-500MHz (max) *</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF excitation mode</td>
<td>Single frequency (CW, pulsed, frequency agile)</td>
</tr>
<tr>
<td>Max power</td>
<td>10kW **</td>
</tr>
<tr>
<td>Accuracy of power measurement</td>
<td>+/- 2% on a matched load at the excitation frequency ***</td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>&lt;0.5% at the excitation frequency</td>
</tr>
<tr>
<td>Connections</td>
<td>50Ω coaxial line with customized input &amp; output connectors</td>
</tr>
<tr>
<td>Size</td>
<td>90mm x 220mm x 40mm (without the connectors)</td>
</tr>
</tbody>
</table>

(*) The frequency band depends on the RF excitation frequency.
(**) The ratings depend on the RF excitation frequency and the type of connector installed.
(***) Accuracy decreases when the power reflection coefficient increases.

Ordering information

In order to provide you with the best suitable probe for your application, please use the following model numbering: **VPM-FREQ-POWER-IN-OUT** (Example: VPM-13.56-1000-1F-1M)

<table>
<thead>
<tr>
<th>Code</th>
<th>Details</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREQUENCY</td>
<td>Excitation frequency in MHz</td>
<td>2, 3.39, 4, 6.78, 13.56, 27.12, 40.68, 60, 81.36</td>
</tr>
<tr>
<td>POWER</td>
<td>Max generator power in Watt</td>
<td>30, 60, 100, 300, 600, 1000, 3000, 6000, 10000</td>
</tr>
<tr>
<td>IN</td>
<td>Input connector and gender</td>
<td>0: No connector (M5 threaded hole) C: Custom 1F: N Female 2F: HN Female 3F: 7/16 Female 4F: LC Female</td>
</tr>
</tbody>
</table>

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