Next Generation Optical Monitoring Solutions
A Smarter Grid Begins with Smarter Sensors

GridView™ ADVANCED MONITORING SYSTEM

TECHNICAL OVERVIEW

The GridView™ Advanced Monitoring System is a highly accurate, optical-based sensor solution for condition monitoring of electric distribution systems, power transformers, generators and rotational equipment. This revolutionary configurable optical sensor system enables the use of voltage, current or vibration sensors in a user defined configuration for a complete holistic sensing of the platform requiring monitoring. The GridView™ Advanced Monitoring System consists of, GridView™ Medium Voltage (MV) Sensor, PHOVIS™ Vibrational Sensors and the GridProcessor™ supporting up to six sensors.

GridView Sensors™ use an optical measurement that gives the best in class measurement precision of the electrical measurements. In the presence of voltage or current theGridView Sensor can determine both voltage and current with high accuracy. This has several advantages over traditional technologies:

- Completely passive measurement of voltage and current (no electronics at the measurement point)
- High reliability and long operational life
- Signals are transmitted fiber optical and support long distances
- Supports both MV & HV current and voltage measurements

For power distribution the 3-phase GridView Sensors™ supports voltage classes from 12 kV to 46 kV with a single SKU. This specificity can result in up to a 6% increase in efficiency across the distribution system and up to a 20% reduction of outage frequency and duration. Grid View Sensors™ are electrically isolated, lightweight, and simple to install with a shotgun stick.

The PHOVIS™ Advanced Optical Sensor is a highly accurate, optical-based sensor solution for monitoring vibration, acceleration, vector and displacement. Based on Micatu’s patented technology, PHOVIS™ is a revolutionary and a completely optical approach to physical measurement. Micatu’s PHOVIS™ Advanced Monitoring System enables advanced measurements:

- Supports extremely harsh and explosion-proof environments
- Large operational temperature range
- Detection over kilometer distances
- Long operational life

Micatu provides configurable or OEM solutions of the PHOVIS™ Advanced Monitoring System for applications including aerospace, condition monitoring and standalone sensing applications. PHOVIS™ Advanced Monitoring System can support both simplistic and complex communication protocols with the ability for distributed analytics, continuously monitoring and adjustable dynamics for the complete understand of desired measurement.

The GridProcessor™ is the brain of the GridView Sense™ Advanced Monitoring System. The GridProcessor™ samples the return light from the GridView Sensor™ and/or PHOVIS™ to determine voltage, current or vibration measurements. The GridProcessor™ measures at a sample rate of 15 kHz and then translates these measurements into more than 225 digital values. This information is converted digitally through DNP3.0 or Modbus and transmits digital information through an Ethernet connected radio into a Utility’s DA network for SCADA or other communication protocol.

- Supervisory Control and Data Acquisition System (SCADA)
- Distribution Management System (DMS)
- Geographic Information System (GIS)
- Managed Maintenance System (MMS)
- Capacitor Control System (For power distribution systems)

GridProcessor™ also provides a digital to analog conversion to provide a low energy analog output or an optional high-energy analog output for local control.

GridView, LLC, A Micatu Company provides sensors that fundamentally change the way the world senses with light. We revolutionize optical sensor technologies that provide next generation measurement capabilities in the areas of smart grid, wind, power, transmission, navigation and aerospace.
## GridView™ MV Sensor Electrical Specifications

<table>
<thead>
<tr>
<th>Voltage Class</th>
<th>15kV</th>
<th>25kV</th>
<th>35kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impulse (BIL) [kV]</td>
<td>110</td>
<td>150</td>
<td>200</td>
</tr>
<tr>
<td>AC Dry Withstand [kV]</td>
<td>50</td>
<td>65</td>
<td>90</td>
</tr>
<tr>
<td>Creepage Distance [mm(in)]</td>
<td>732 (28.8)</td>
<td>732 (28.8)</td>
<td>732 (28.8)</td>
</tr>
<tr>
<td>Arcing Distance [mm(in)]</td>
<td>378 (14.9)</td>
<td>378 (14.9)</td>
<td>378 (14.9)</td>
</tr>
<tr>
<td>AC Wet Withstand [kV]</td>
<td>45</td>
<td>60</td>
<td>80</td>
</tr>
</tbody>
</table>

## GridView™ MV Sensor Dimensions

### Combination Sensor
- Sensor Weight [kg (lbs.)]: 6.2(13.6) / 6.2(13.6) / 6.2(13.6)
- Sensor Length [mm (in)]: 544(21.4) / 544(21.4) / 544(21.4)

### Voltage Sensor
- Sensor Weight [kg (lbs.)]: 6.2(13.6) / 6.2(13.6) / 6.2(13.6)
- Sensor Length [mm (in)]: 424(16.7) / 424(16.7) / 424(16.7)

### Current Sensor
- Sensor Weight [kg (lbs.)]: 6.2(13.6) / 6.2(13.6) / 6.2(13.6)
- Sensor Length [mm (in)]: 561(22.1) / 561(22.1) / 561(22.1)

## GridView™ MV Sensor Accuracy

- Voltage/Current Sensor: Within ±0.5% for both Voltage & Current measurements
- Phase Angle/Harmonics: Within ±1.0°/ 50th Voltage Harmonic
- Measurement Freq/Freq Response: 15 KHz/1.5Hz to 4.5KHz

## PHOVIS™ Vibrational Sensor Performance

- Sensitivity (V/g): 8
- Residual Noise (V): 2.00E-04
- Min /Max g: 2.5E-04 / 50 (Tunable to required application)
- Operating Frequency (Hz): DC to 2500 (Tunable to required application)

## GridProcessor™ Operating Conditions

- Storage Temperature [C(F)]: -40 (-40) to +80(176)
- Operating Temperature [C(F)]: -30 (-22) to +70(+158)
- System Frequencies Supported: 50 Hz & 60 Hz
- Battery Life: 6 hour
- Installation: Shotgun stick

For more information please contact:
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