Protecting Your Critical Rotating Machinery

V400 machine protection system is a high performance fully programmable signal measurement unit capable of monitoring 4 channels of absolute vibration, relative shaft vibration or thrust position. In addition first input is available as standard for measuring speed or for use as a phase reference. The 9*9cm panel mountable module is designed specifically for machine protection applications, offering a compact and cost effective solution with a range of measurement algorithms.

The sensor interface is programmable to accept IEPE type accelerometers / velocity transducers, proximity probes (API 670 standard compliant), and active / passive speed probes. All input signals are available via a buffered interface on front end BNC connections to offer the option of further detailed signal analysis.

Two alarm relays are available, these relays are fully programmable across the alarm criteria selected. All four input channels measured values are available via a 4-20mA interface. V400 is provided with a graphic LCD display and menu drive facility to provide immediate viewing and access to the machine parameters.

### Applications
- Small to Medium Industrial Machines
- Fans, Pumps, Motors, Centrifuges and Turbines
- Shutdown Protection and Condition Monitoring

### Specifications:

<table>
<thead>
<tr>
<th>Performance Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Inputs:</td>
<td>4 channel</td>
</tr>
<tr>
<td>Signal Types:</td>
<td>Accelerometer, Velocity Sensor, Proximity Probes or Analog Signals (mA or VDC)</td>
</tr>
<tr>
<td>Signal Conditioner:</td>
<td>Amplifier/integrator to obtain velocity or displacement response by integration</td>
</tr>
<tr>
<td>Analog Outputs:</td>
<td>Four 4-20mA outputs</td>
</tr>
<tr>
<td>Buffered Outputs:</td>
<td>Two Buffered Outputs per channel (BNC and Screw Terminal)</td>
</tr>
<tr>
<td>Frequency Response:</td>
<td>Acceleration and Velocity and Displacement: 2 to 10,000 Hz Thrust / Position DC</td>
</tr>
<tr>
<td>Dynamic Range:</td>
<td>60 db</td>
</tr>
<tr>
<td>Power:</td>
<td>85-264VAC, 50/60 Hz or 24VDC (1 Amp)</td>
</tr>
<tr>
<td>Accuracy:</td>
<td>1% Full Scale</td>
</tr>
<tr>
<td>Measurement Unit System:</td>
<td>User Defined (English or Metric)</td>
</tr>
<tr>
<td>Signal Detection:</td>
<td>RMS, Peak or Peak to Peak (User Defined)</td>
</tr>
<tr>
<td>Sensor Power:</td>
<td>Internal 4.5 mA Constant Current Diode for IEPE type Sensor</td>
</tr>
<tr>
<td>Sensor OK Detection:</td>
<td>Continuous Monitoring of Sensor Voltage</td>
</tr>
<tr>
<td>Number of Alarms/Relays:</td>
<td>9 (4 Alerts, 4 Danger, 1 malfunction)</td>
</tr>
<tr>
<td>Trip Multiply Function:</td>
<td>Terminal for None, variable 10 to 90% Alarm Trip multiply</td>
</tr>
<tr>
<td>Reset Function:</td>
<td>Push Button / Terminal for Remote Reset if Latching Alarms Selected</td>
</tr>
<tr>
<td>Alarm Indication:</td>
<td>OK = Green LED, Alert = Yellow LED, Danger = Red LED</td>
</tr>
<tr>
<td>Relay Specification:</td>
<td>Form C, SPDT, 1 Amp 110 VAC, Latching or Non-Latching Selectable Normally Energized or Normally De-Energized (User Defined) Bypass Relay or Active Relay Selectable</td>
</tr>
<tr>
<td>Alarm Time Delay:</td>
<td>1 to 60 Seconds (User Defined)</td>
</tr>
<tr>
<td>Case:</td>
<td>Aluminum Alloy</td>
</tr>
<tr>
<td>Terminals:</td>
<td>Push In Type, 24 AWG min., 12 AWG max.</td>
</tr>
<tr>
<td>Display Type:</td>
<td>TFH Graphic LCD 128*64 Pixels</td>
</tr>
</tbody>
</table>

### Diagnostic Specifications:
- Sample Rate: Up to 4 KHz synchronous sampling rate (user defined in software)
- Resolution: 12bit
- Phase Linearity: (0.1 Hz to 10 kHz ) ±1 deg
- Programming: Software and Serial Cable Included (Windows™ Required)
- HMI Communication: HMI : Modbus (RS485/RS232)

### Environmental Specifications:
- Operating Temperature: -15 to +75°C
- Storage Temperature: -40 to +80°C
- Relative Humidity: 10 - 90% Non-Condensing
- Enclosure Rating: IP55

### Mechanical Specifications:
- Housing Material: Gray Aluminum, Die-Cast
- Mounting: 9x9 cm Panel Mounting
- Dimensions: 90 x 90 x 200mm
- Weight: 25 oz. (700g)
- Certifications: CE Approved - EN 60950-1
V400 Features and Benefits

**Power Supply**
- +24V DC-700mA

**Mechanical**
- Panel mounted unit with compact size 90mm x 90mm x 200mm including connectors.

**Communication Interface**
- Modbus RTU Protocol (RS-485/RS-232)
- Connect to HMI Software Monitoring Vibration Values and Trend

**Sensor Inputs**
- Fully configurable interface with -24V and IEPE, voltage and current options.

**Buffered Outputs**
- Dynamic sensor signals available for Data Collector

**Summary LEDs**
- Overall module alarm status and health monitoring

**Alarm Relays**
- 2 available relays per channel
- 1 Malfunction Relay

**Diagnostic Module**
- Serial Port (RS-485/RS-232) connection to #Vibsens-CMS for online Diagnostic

**Software features**
- Time wave, Spectrum, Waterfall, Orbit, Order, Bode Plot, Nyquist Diagram, Trend, phase plot, Machine Diagnostic Toolkit

**Buffer Output for Data Collecting**

**Trip multiply Signal**

**Accelerometer Sensors**
- Velocity
- Displacement Probe
- Keyphasor

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**PLC, DCS**
- Vibsens Protocol (Rs-232/485)

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