PT2060/20 SEIS Seismic Module

ProvibTech's PT2060/20 SEIS seismic module will process the incoming signal from the case mounted (seismic) sensors, compare it with the alarm set-point and output the appropriate status information for the following type of vibration measurements:

- ✓ Acceleration, Velocity and Displacement **(4 channels)**
- ✓ Low Frequency Velocity or Displacement **(4 channels)**
- ✓ Absolute Shaft Vibration(**2 channels**)
- ✓ Case Expansion (**4 channels**)

The PT2060/20 SEIS module has the ability to be grouped into (2) groups. Each group can be programmed independently and used for different functions. For example, channel one and two can be a velocity measurement and channels three and four can be programmed to measure case expansion.

The SEIS module has a built in integrator which converts an accelerometer input signal to velocity output or a velocity input into a displacement output.

The PT2060/20 SEIS module is designed to work with virtually any seismic sensor (including from other manufacturers). These sensors include: accelerometers (TM0782A), velocity transducers (TM079V) and low frequency displacement sensors (TM079VD).

The PT2060/20 SEIS module also provides additional information such as, module status, alarm status, alarm history and system events. This information can be accessed via Modbus or the configuration software.

The PT2060/20 SEIS module is also equipped with local status indication. There are three LEDs which display the status of the monitoring channels.

- ✓ OK/TX LED indicates that both the module and the proximity probe systems in the field are working
- ✓ Alarm LED indicates the current alarm status of the module.
- ✓ Bypass LED indicates the channels have been programmed to be in the Bypass mode.

Specifications

Electrical

Power Supply:

Internally converted by the rack power supply module

8.0W total typical for this module

Electrical Continued

Current Mode Sensor Power:

Current source:

4.0mA nominal @ 25°C

Proximity Probe Power:

-24VDC, current limited. Less than 50mA on each channel.

Signal Input:

Up to four sensors

Input impedance:

> 20KΩ

Vibration Sensitivity:

Accelerometer:

100mV/g (TM0782A) or any sensitivity specified

Velocity sensor:

4 mV/mm/sec (100mV/in/sec). TM0793V type or any sensitivity specified

Displacement sensor:

4mV/um (100 mV/mil) TM079VD type or any sensitivity specified

8mm proximity probe:

8mV/g (200mV/mil)

LVDT Sensitivity:

Any sensitivity specified

Signal Conditioning:

Vibration Frequency Response (normal frequency):

Acceleration: 4 to 4.0 kHz (240 to 240,000rpm), ±3dB

Velocity: 2 to 2.0 kHz (120 to 120,000rpm), ±3dB.

Displacement: 10 to 4.0 kHz (600 to 240,000rpm), ±3dB

Vibration Frequency Response (low frequency):

Acceleration: 0.5 to 100.0Hz (30 to 6,000rpm), ±3dB

Velocity: 0.5 to 100.0Hz (30 to 6,000rpm), ±3dB

Displacement: 0.5 to 100.0Hz (30 to 6,000rpm), ±3dB

Accuracy:

< ±1% FS @25°C

Signal processing:

The input signal can be processed with:

- ✓ Peak
- ✓ Peak to peak
- ✓ RMS
- ✓ DC

Static and Status Values:

Each of the options for this monitor module has been defined with static values. Those values can be accessed via the 4-20mA output or from the digital communication protocols.

Vibration:

Direct, GAP, OK, Alert, Danger, Bypass, Trip-multiply

Case Expansion:

Direct, GAP, OK, Alert, Danger, Bypass

Absolute shaft vibration:

Direct (peak to peak), GAP, OK, Alert, Danger, Bypass, Trip-multiply

Overall in 4-20mA Output:

Proportional to monitor full-scale; each channel has its own overall vibration output. The short of the 4-20mA will not affect system performance.

Maximum Load:

300Ω

Resolution:

Less than 0.33% FS

Buffered Output:

On the front panel, each channel has one BNC connector. The output is the unfiltered raw signal.

Output Impedance:

150Ω

Alarm:

Alarm set-point:

Each channel has two alarm set-points which can be field adjusted from 0 to 100% FS

Set-point accuracy:

Better than 0.1% FS

Set-point repeatability:

Within 0.1% FS

Electrical Continued

Alarms:

Normally latching or normally non-latching

Alarm delay:

Alert delay can be set from 1 to 60 seconds with a time interval of 1 second.

Danger delay can be set from 1 to 60 seconds with a time interval of 1 second.

Danger delay also includes a 0.1 second option.

LED Indicators:

OK/TX: green, on off or flash

Alarms: red

Bypass: red

Barriers (future expansion):

Barriers will be designed to the back panel of the module. This option can be used in hazardous areas. Approval includes CSA and ATEX.

CE Marks

Each monitor module will have a CE approval in terms of EMC conformity.

Environmental

Temperature:

Operation: -20°C to +65°C

Storage: -40°C to +85°C

Humidity:

95% non-condensing

Physical

Each module comes with two components- the front panel assembly and the back panel assembly.

Dimensions:

241mm (9.5in) X 24.5mm (0.96in)

Mounts in any of the 14 remaining slots. Slots 15 and 16 of system rack are reserved for the Power Supply and SIM modules.

Weight: 1.0 kg (2.0 lbs)

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Order Information

PT2060/20-AX

AX: Back panel IO module

A0: Current mode accelerometers and velocity sensors

A1: Current mode accelerometers and proximity sensors

A2: Electro-magnetic type seismic velocity sensors, normal frequency

A3: Low frequency sensors (TM079VD)

A4: LVDTs

Back Panel Connectors Layout