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 acceleration, Velocity or Displacement **(4 channels)**
- ✓ Case Expansion
  - Case expansion output—paired **(2 channels)**
  - Case expansion output—single **(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. **Note**: Integrator type can not work in low frequently condition.

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 / IO LED indicates that both the module and the seismic sensor 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

Current mode sensor power:
4.0mA nominal @ 25℃

LVDT sensor power:
20VDC, current limited. Less than 50mA on each channel

Signal Input:
Up to four sensors

Input impedance:
> 20KΩ

Nominal Sensitivity:
Accelerometer:
100mV/g (TM0782A) or similar sensor

Electrical Continued

Velocity sensor:
4 mV/mm/sec (100mV/in/sec). TM0793V type or similar sensor
Displacement sensor:
4mV/μm (100 mV/mil). TM079VD type or similar sensor
LVDT Sensor:
0.4V/mm (10V/in): TM0602-A01
0.2V/mm (5V/in): TM0602-A02
0.1V/mm (2.5V/in): TM0602-A03
Any sensitivity specified.

Signal Conditioning:
Vibration Frequency Response (normal frequency):
Acceleration:
240 to 240,000RPM (4 to 4.0 kHz), -3dB
Velocity:
120 to 120,000RPM (2 to 2.0 kHz), -3dB
Vibration Frequency Response (low frequency for non-integral):
Acceleration:
30 to 6,000RPM (0.5 to 100.0Hz), -3dB
Velocity:
30 to 6,000RPM (0.5 to 100.0Hz), -3dB
Displacement:
30 to 6,000RPM (0.5 to 100.0Hz), -3dB

Accuracy:
< ±1% FS @25℃

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

Overall in 4-20mA output:
Max transfer distance: 300m (1000ft)
Proportion to the 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 PT2060/20-Front panel, each channel has one BNC connector. The output is the unfiltered raw signal.
Max transfer distance:
300m (1000ft)

Output impedance:
550Ω

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
Alarms:
Normally latching or normally non-latching
Alarm delay:
Alert delay can be set from 1 to 60 seconds with time interval of 1 second
Danger delay can be set from 1 to 60 seconds with time interval of 1 second
Danger delay also includes a 0.1 seconds option

LED Indicators:
OK / IO: green, on off or flash
Alarms: red
Bypass: red

Approvals:
CE;
CSA:
Non-incendive, class I, div.2, GrpABCD, T4
-40℃ to +75℃
Certification Number: 2011996

Environmental

Temperature:
Operation: -20℃ to +65℃
Storage: -40℃ to +85℃

Humidity:
95% non-condensing

Physical

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

Dimensions and Location:

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

For 19″ rack, they can be mounted in any slot from 1 to 12.

For 12″ rack, they can be mounted in any slot from 1 to 6.

Weight:

1.0 kg (2.0 lbs)

Ordering Information

PT2060/20-AX

AX: Back-panel IO module

A0: Current mode accelerometers and velocity sensors

A3: Low frequency sensors (TM079VD)

A4: LVDTs

Optional Accessories:

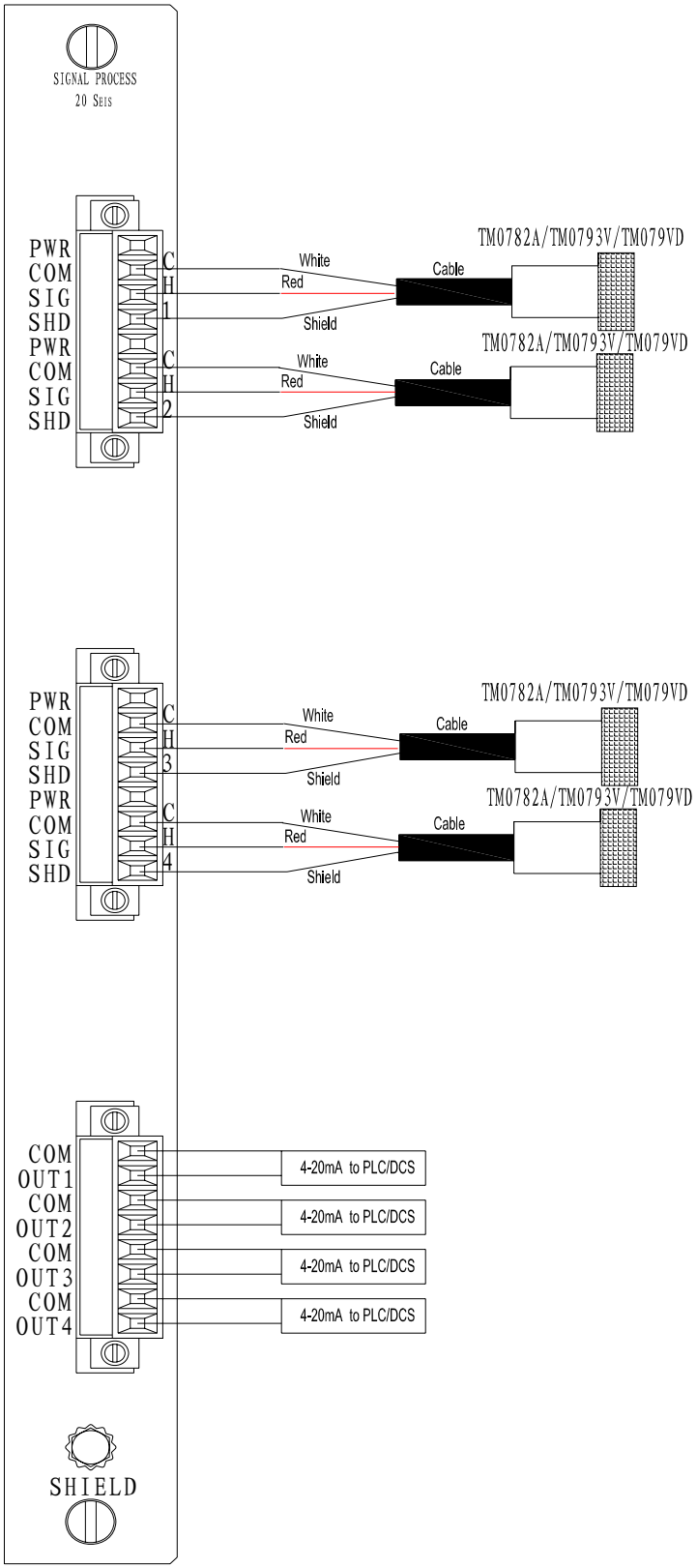
PT2060-002000: PT2060/20 Front panel

PT2060-002001: PT2060/20 Back panel

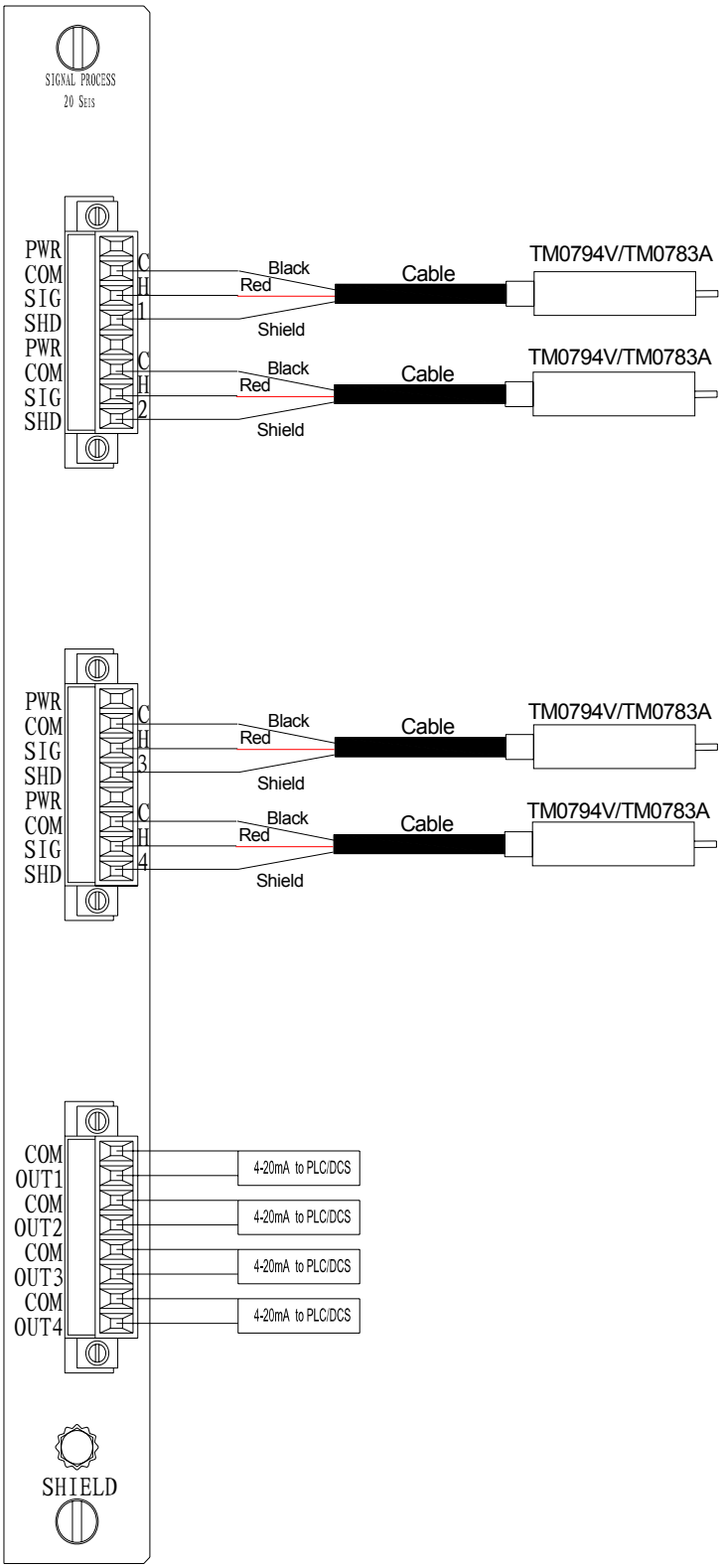
Back Panel Connectors Layout

Field-wiring Diagram

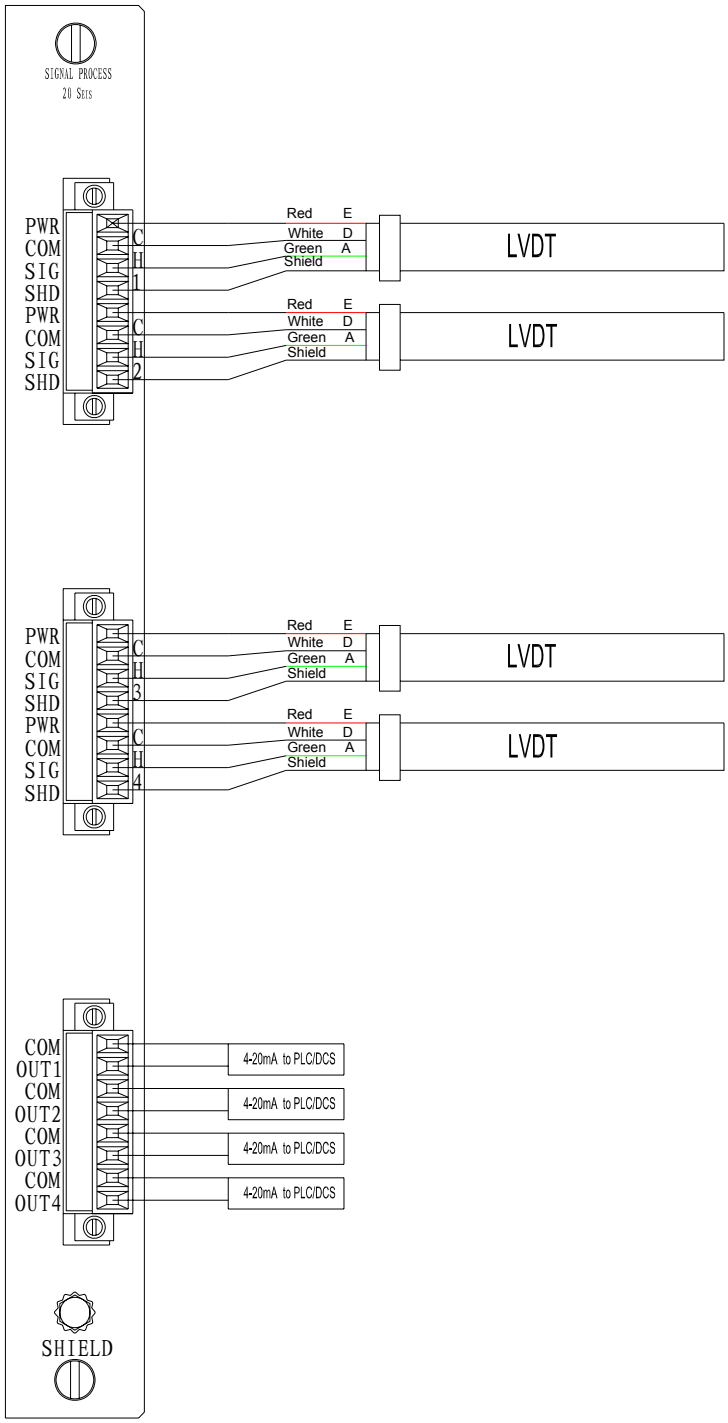
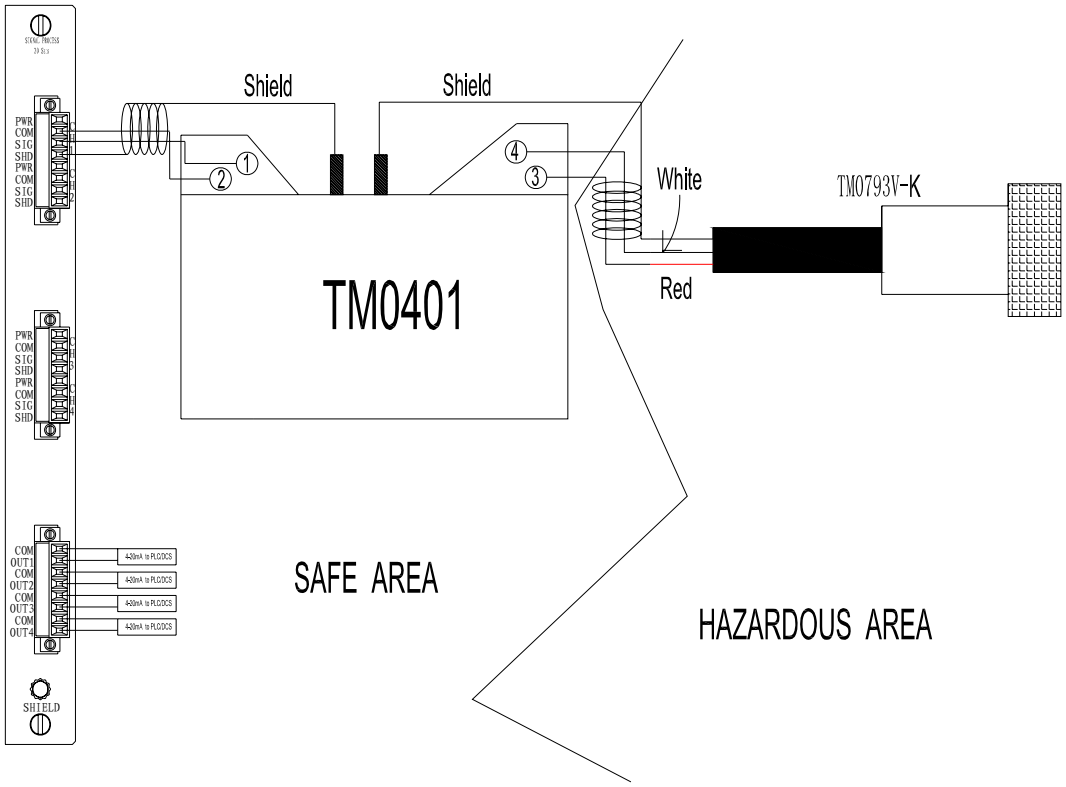
For TM0782A/TM0793V/TM079VD or Similar Sensors



For TM0794V/TM0783A or Similar Sensors



For LVDT Sensor



Field-wiring Diagram for Hazardous Area Application