

# TexNet Seismic Station Requirements

Version 05.06.19

**The minimal requirements for a portable station to be used for earthquake location within TexNet is:**

1. Sensor:
  1. 3-component orthogonal axis seismometer
  2. Nominally flat velocity sensor response 10sec to 100Hz
  3. Steel case for posthole/direct burial installation
  4. Sensor cable should have a 1000PSI connector
  
2. Datalogger:
  1. 24-bit digitizer
  2. Sampling rate at least up to 200 sps
  3. Integrated seedlink server for continuous streams of both waveform data and State-of-Health
  4. File transfer via ethernet to the TexNet Hub
  5. Timing using GPS
  6. Communication preferably using a web based user interface
  7. Local storage
  
3. Enclosure, power, and communication
  1. Ensure autonomous operation through solar power
  2. Ensure autonomous operation on solar power for a minimum of two (2) years.
  3. A pole mounted water-tight enclosure with mountable solar panel on top. Enclosures must remain functional during deployments lasting at least two (2) years or longer.
  4. Preferably two 110Ah batteries, a power regulator (with a user defined fail-safe shutoff voltage) and a 160W solar panel or comparable set up
  5. Data should be sent by telemetry to TexNet in real time
  
4. Other requirements
  1. Sensor installation depth should be from 3-6 ft

2. Orientation preferably should be so that horizontal orthogonal components are to North (magnetic) and East. If not, azimuth clockwise from North (magnetic) should be defined.
3. Provide metadata information in the form of: (a) Dataless SEED<sup>[1]</sup>, (b) Response files<sup>[2]</sup>, and (c) FDSN Station XML<sup>[3]</sup>
4. Station uptime should be more than 95%
5. Station should be fenced to avoid noise

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<sup>[1]</sup> <http://ds.iris.edu/ds/nodes/dmc/data/formats/dataless-seed/>

<sup>[2]</sup> <https://ds.iris.edu/ds/nodes/dmc/data/formats/resp/>

<sup>[3]</sup> <https://www.fdsn.org/xml/station/>