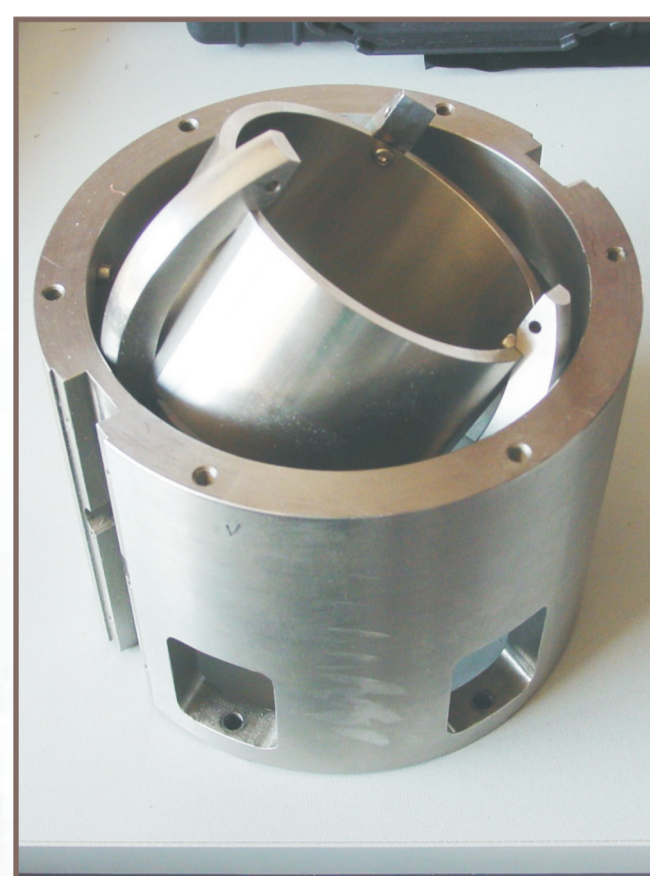




The CMG 3T/5TB



Originally designed for custom projects in the US and Switzerland, the CMG-3T/5TB combines with a downhole Guralp CMG-DM24 digitizer to create a complete seismic station in a single borehole.

The CMG-3T/5TB can be installed in boreholes over 500 m deep. Individual gimbal cradles for each component (left) allow installation in boreholes with an inclination up to 15°. For narrower boreholes (to 89 mm) a 3° range tilt base is provided.

Data is transmitted from the instrument to the surface over an RS232, RS422 or optional fibre optic link.

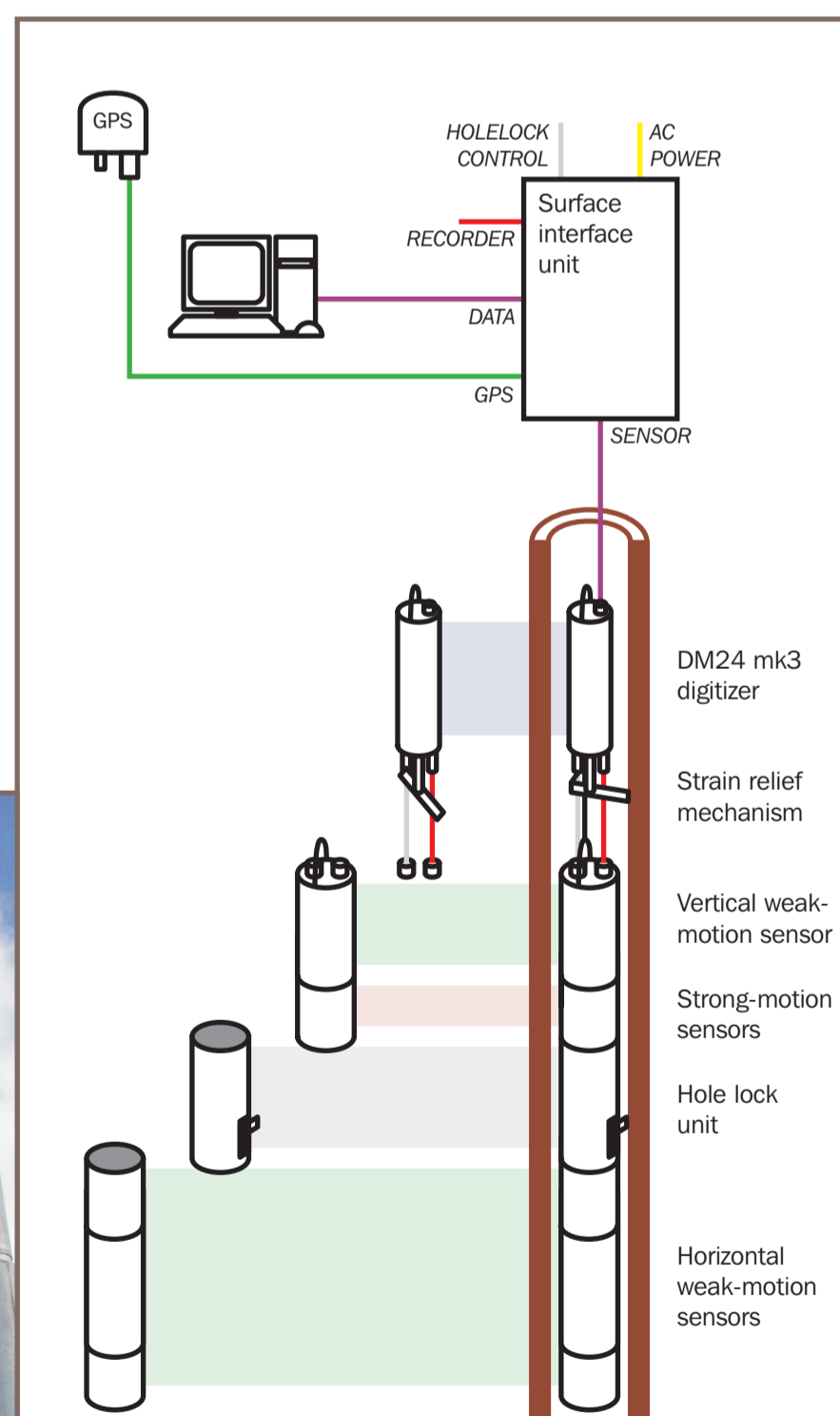


Data flow

The CMG-3T/5TB is designed to connect to a 7-channel DM24 digitizer in a separate sonde mounted a short distance above the instrument. The digitizer outputs 3 full-rate channels from the weak motion components, 3 from the strong motion components and a further 1 for an auxiliary sensor or calibration signal.

The digitizer package also includes a strain relief mechanism to safeguard the cabling and isolate the sensor, and full lightning and surge protection systems.

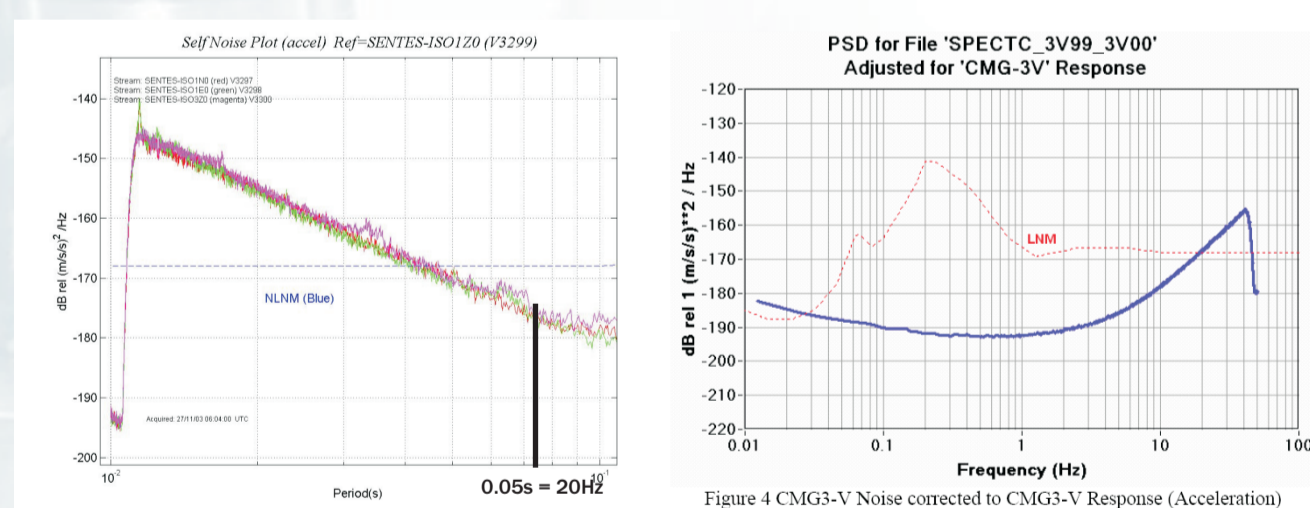
As an option, the CMG-3T/5TB can be supplied with TCP/IP output from the borehole or surface interface units. Alternatively, a CMG-DCM unit can be added to the digitizer package, providing a Linux-based interface to the station with support for various telemetry methods.



Weak motion components

The weak motion components of the CMG-3T/5TB are based on the mechanics of Guralp Systems' CMG-3 sensors.

Self noise < -195 dB rel. to 1 m²/s⁴/Hz at 1 Hz
Frequency response options from 360 s to 50 Hz
Sensitivities from 2*750 up to 2*20,000 V/m/s

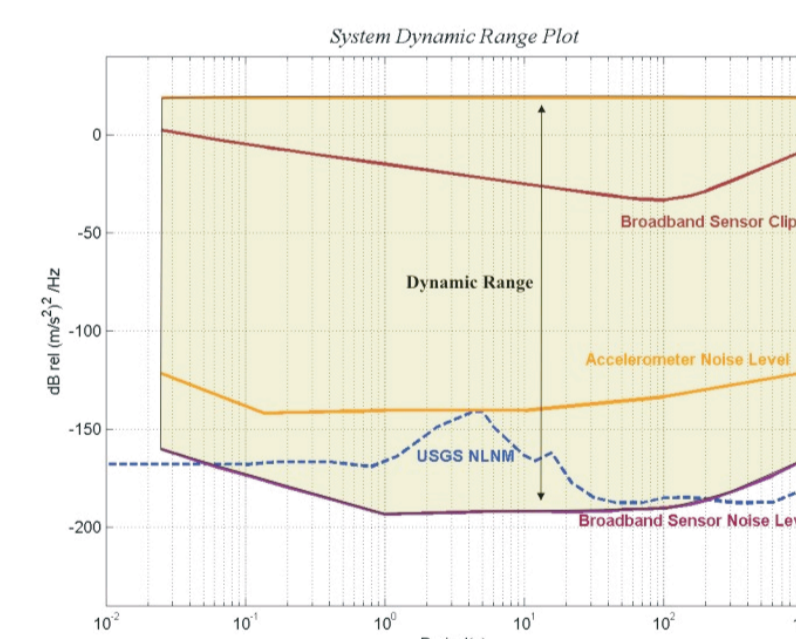


The plot above left shows the *measured* self-noise of 4 different CMG-3 borehole sensors, crossing the USGS NLNM at over 20 Hz in each case. The right-hand plot shows a verification of the self-noise properties of the CMG-3, conducted by the Sandia National Laboratory, USA.

Strong motion components

The strong motion components of the CMG-3T/5TB are based on Guralp Systems' CMG-5 strong motion accelerometers.

Clip level > 4.2 g (4.0 g instrument)
Frequency response options from DC to 200 Hz
Sensitivity from 0.1 g up to 4.0 g



Taken together, the weak- and strong-motion components of the CMG-3T/5TB form a seismic station capable of realizing over 200 dB of dynamic range.