



Calibration Information for TF502

Güralp Fortis — DC to 100 Hz

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Designed and manufactured by
Güralp Systems Limited
3 Midas House, Calleva Park
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England

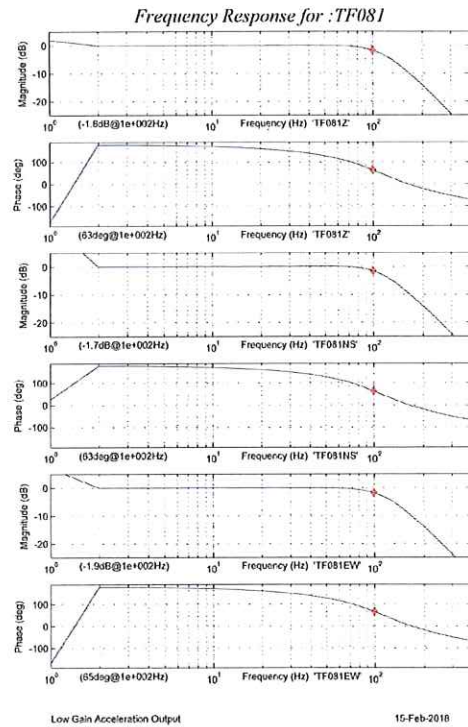
The Frequency Response

The frequency response of each component is provided in two forms: (i) three sets of magnitude and phase plots and (ii) the poles and zeroes of the sensor transfer function.

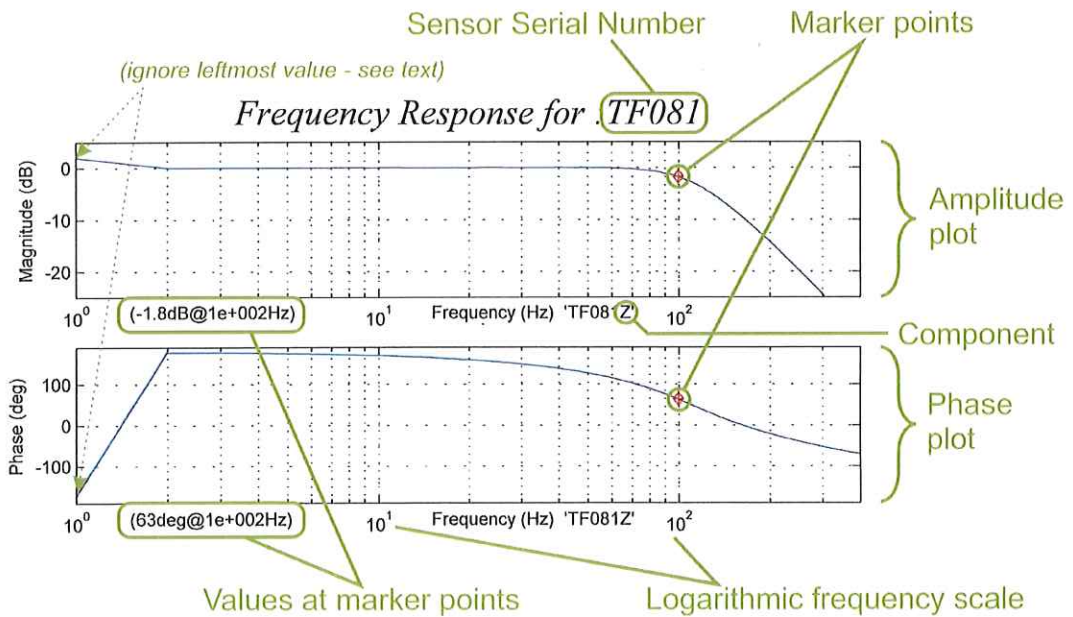
Each component, Z (vertical), N/S and E/W, of each instrument is tested individually to confirm that it meets its design specification. The tests cover a range of frequencies spanning three decades. The magnitude plots are normalized (*i.e.* adjusted to show unity gain over the passband), in order to show more clearly the corner frequency. By convention, the nominal corner frequency is quoted as the -3dB or half-power point. A representative frequency within the passband is identified in the plots by red markers and the corresponding values of magnitude and phase are printed below the plots.

Note that, because the tests involve a Fourier transform, the left-most value is not representative and can be ignored.

Records of each instrument tested are archived for future reference.



The plots for a single component are shown here, with key features highlighted:



Poles and Zeros

The poles and zeros of the sensor transfer function for a Fortis with a nominal response of DC to 100 Hz are given below, in both Hertz and radians per second.

Fortis - DC to 100 Hz - Poles and Zeros in Hertz

- Four Poles:
 - $-63 \pm 90.39 j$
 - -209.7
 - -755.9
- No zeros
- Normalisation factor at 1 Hz: $A = 1\,939\,000\,000 = 1.939 \times 10^9$

Fortis - DC to 100 Hz - Poles and Zeros in radians per second

- Four poles:
 - $-400.8 \pm 567.9 j$
 - $-4\,749$
 - $-1\,317$
- No zeros
- Normalisation factor at $2\pi \text{ rad s}^{-1}$: $A = 3\,023\,000\,000\,000 = 3.023 \times 10^{12}$



Fortis Calibration Certificate

Serial Number: TF502

Calibration date: 2018-07-27

Calibrated by: Richard

Job No: 040881

Digitizer used: MIN-AB57

| Full-scale setting | Sensitivity in V/m/s ² | | |
|--------------------|-----------------------------------|-------------|-----------|
| | Vertical | North/South | East/West |
| 0.5g | 4.018 | 4.015 | 4.019 |
| 1g | 2.017 | 2.022 | 2.024 |
| 2g | 1.017 | 1.023 | 1.025 |
| 4g | 0.520 | 0.522 | 0.523 |

NOTE: These values are measured differentially (also known as push-pull or balanced output).
If connected single-ended, a factor of ½ must be applied.

Under no circumstances should the negative outputs be connected to the signal ground. A separate signal ground pin is provided.

Frequency Response for :TF502

