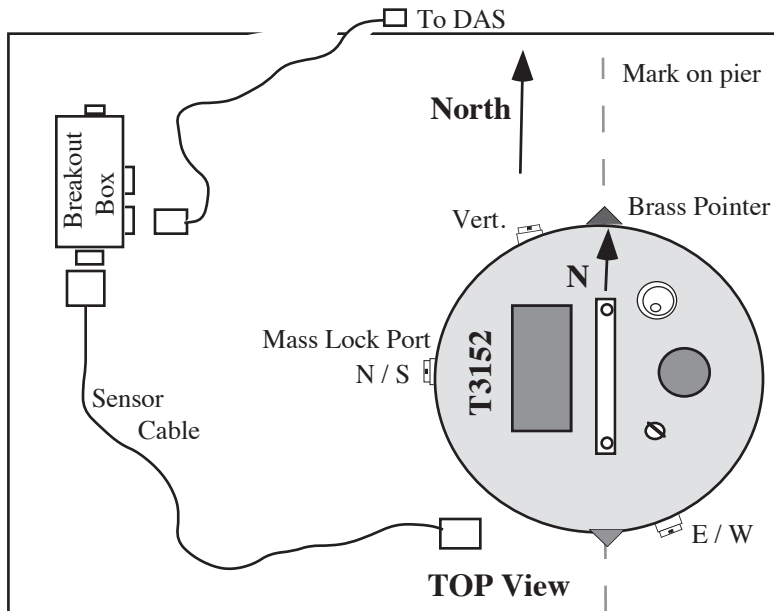


## Summary Sheet for PASSCAL Sensor

### Guralp CMG-3 ESP



#### Channel Order

(positive voltage on DAS channel means ground moved in given direction)

- 1 Up
- 2 North
- 3 East

#### Sensitivity

2000 Volts / meter / second

#### Calibration constant

1 volt input ~ 1 volt output

#### Typical DAS parameters:

Gain 1

#### Calibration Parameters:

vary by datalogger

#### Physical Characteristics:

**Size** cylinder 16.8 cm diameter, 38 cm height

**Weight** 14 kg.

**Shipping Weight** 65 lbs. **Size** 13x13x24 inches (Gbox)

**Power consumption** 70 mA @ 12 VDC  
pulses of 400 mA required for centering

#### Frequency Response:

**Natural Freq.** 0.033 Hz. (30 seconds)

**Damping** 0.707 critical

**Zeros** two at zero

**Low FQ Poles**  $-0.147 + 0.147i$

$-0.147 - 0.147i$

#### Installation Tips: (These are tips, not complete instructions)

1. The sensor pad should be within 5° of level, marked with line oriented north. Construction of the sensor enclosure is critical to data quality.
2. Align the sensor using small pointers extending from the base, the brass one points north. Level the sensor by adjusting the feet to center the bubble level on top. When level, twist the foot lock ring down (clockwise) onto the bottom of the slot to lock the foot from turning.
3. Attach the sensor cable. Secure the sensor cable so that tugs on it (inadvertent or otherwise) do not budge the sensor and that it does not wiggle around near the sensor.
4. Unlock the masses using the 3 mm hex key provided on the breakout box. It should be clean before use
5. Cover the sensor with insulation. Insulate the vault and close the vault.
6. Connect the sensor cable to the Guralp breakout box's "sensor" port, attach a different cable to the breakout box at the "recorder" port and attach the other end to the datalogger (aka DAS). The sensor will be powered by the DAS.
7. Center the sensor using the "enable" and "centre" buttons on the breakout box. The voltage should be within one volt of zero. If after more than 3 attempts an element mass position voltage still has not crossed zero, consult the Guralp Field Note for further instruction.