

This query was done on a static simulation with all sensors registered.

```
> query SOUR:SCEN:SENS:DAT?  
Accel: -0, -0, -1  
LinearAccel: -0, -0, -0  
Gravimeter: -0, -0, -1  
Gyro: 0, 0, 0  
Odometer: 0  
Odometer3d: 0, 0, 0
```

All values are zero, except those affected by the force of gravity. The Z-axis for the Accelerometer and the Gravimeter are set to -1g, or 1 x the force of gravity.

This query was done on a unit running the built in 'Circle' trajectory with diameter of 5000m and a speed of 5m/s.

```
> query SOUR:SCEN:SENS:DAT?  
  
Accel: -0.00101967, -1.82769e-07, -1  
LinearAccel: -0.00101967, -1.82769e-07, 3.95651e-07  
Gravimeter: -0, -0, -1  
Gyro: 0, 0, 0.002  
Odometer: 69.5  
Odometer3d: 39.6406, 57.0857, 3.52458e-05
```

### Normalizing Data

All available sensors can be normalized so the output is always within the expected range. This is useful when trying to simulate a sensor with a known measurement range. To enable the normalization, first set the range and then turn the normalization for that sensor on.

This query was done on a unit running the built in 'Circle' trajectory with diameter of 5,000 meters and a speed of 500 m/s. No sensors have been normalized.

```
> query SOUR:SCEN:SENS:DAT?  
Accel: -3.67067, -0.0440501, -0.998568  
LinearAccel: -3.67067, -0.0440501, 0.00143185  
Gravimeter: -0, -0, -1  
Gyro: 0, 0, 0.12  
Odometer: 3899.44  
Odometer3d: 845.501, 3770.77, 0.120117
```

If an accelerometer has a measurement range of +/- 3g, set the maximum range to 3g and the minimum range equal to -3g.

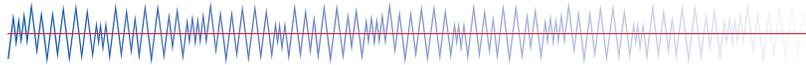
```
write SOUR:SCEN:SENS:MAX ACC, 3
```

The sensor data can also be normalized, that is, keeping outputted values in the range +/-1, where 1 corresponds to the maximum range set. If no maximum range is set, the normalize command will have no effect.

```
write SOUR:SCEN:SENS:NORM ACC, ON
```

With the ACCELEROMETER now normalized, and 3g set as its maximum range, for the same 'Circle' trajectory as above we get the following output.

```
> query SOUR:SCEN:SENS:DAT?
```



## Technical note: Sensor Simulation

Accel: -1, -0.0146834, -0.332854  
LinearAccel: -3.67067, -0.0440501, 0.00143754  
Gravimeter: 0, -0, -1  
Gyro: 0, 0, 0.12  
Odometer: 3869.44  
Odometer3d: 943.521, 3695.59, 0.117922

### Unregistering Sensors

Sensors can only be unregistered by issuing the unregister command. Once a sensor is registered in a GSG simulator, it will remain registered until the unregister command is given. Restoring factory defaults will not unregister the sensors. Like registration, the unregister commands are issued one for each sensor but can be issued in one write using the semi-colon “;” as a separator.

```
write SOUR:SCEN:SENS:UNREG ACC;SOUR:SCEN:SENS:UNREG LIN;SOUR:SCEN:SENS:UNREG GRA;SOUR:SCEN:SENS:UNREG  
GYR;SOUR:SCEN:SENS:UNREG ODO;SOUR:SCEN:SENS:UNREG ODO3D
```

For more information on the sensor commands see section 4 of the GSG SCPI Handbook.