

FAQ Maintenance Guideline from Webinterface

1. Introduction

- This procedure describes a typical monthly check of a GeoSIG system. It will give some basic information about the state of recorder and sensor.

2. Required Tools

- Recorder and sensor you want to check, running and connected to network
- Computer connected to the same network to access the recorder's webinterface
- Software to read test pulse files recorded in miniseed format (GeoDAS is recommended)

3. Check for existing Procedures

- Please check if there is a project-specific procedure for your system to follow instead. Especially if your system is tied to an alarm system as the execution of the test pulse described in this procedure may cause an alarm.

4. Access the Webinterface

- Open your webbrowser, enter the IP address of your Recorder and login as admin (default password 123456)

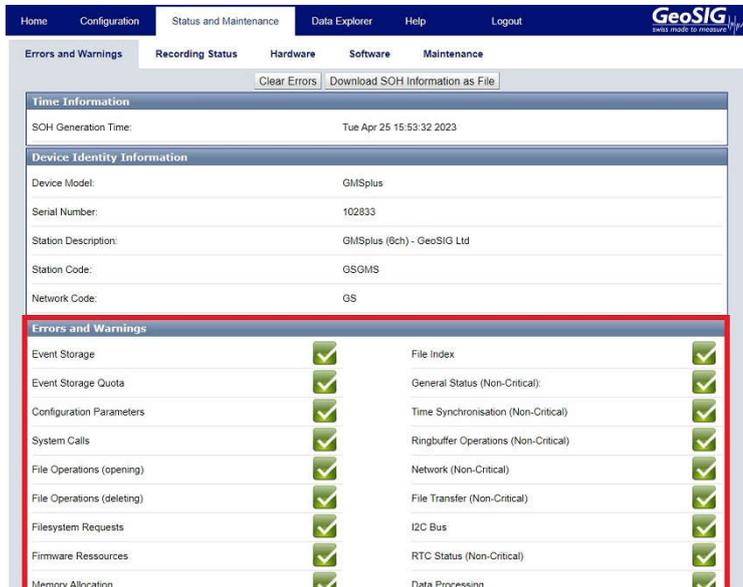


5. Check Errors and Warnings

- Choose tab **Status and Maintenance -> Errors and Warnings**



- Check the section **Errors and Warnings** and make sure no errors are present (all checkmarks green)



6. Check Battery Voltages

- Choose tab **Status and Maintenance -> Hardware**



- If the recorder is powered from AC (AC power input ON), **Current Voltage (V)** should at least show **13.5V**
- If your recorder (only GMS-xx, GMSplus and CR-6plus) has a backup battery, the **Backup Battery Voltage (V)** should be at least **3.0V**

Home Configuration **Status and Maintenance** Data Explorer Help Logout

Errors and Warnings **Recording Status** Hardware Software Maintenance

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| Hardware Status | |
|---|---|
| Linux Uptime at Site Generation: | 0 years, 1 months, 2 days, 19 hours, 36 minutes, 31 seconds |
| Last Reboot Time: | Mon Mar 27 15:29:13 2023 |
| The Reason for the last Shutdown: | RTC logged: Incorrect Switching OFF? |
| Time of the last shutdown: | Mon Mar 27 15:29:08 2023 |
| Environment Temperature: | 18.59°C |
| Available Disk Space: | 59.2 GiB |
| Free Disk Space: | 36.5 GiB |
| AC power input: | ON |
| Current Voltage (V): | 14.01 |
| Voltage Limits (V): | Switch-off: 10.60 Switch-on: 12.50 |
| Minimum Measured Voltage (V): | 14.01 |
| Backup Battery Voltage (V): | 3.25 |
| Battery-1 voltage (V): | 13.60 |
| Battery-2 voltage (V): | 14.01 |
| Primary DC/DC converter output voltage: | 14.18 |
| Digital sensor voltage (V): | unknown |

- Main battery should be replaced every 3 years (See Warnings and Safety in User Manual)
- Backup battery should be replaced every 5 years (See Warnings and Safety in User Manual)
- Battery installation date can be set under **Status and Maintenance -> Maintenance**

7. Check Time Synchronisation

- Choose tab **Status and Maintenance -> Recording Status**

Home Configuration **Status and Maintenance** Data Explorer Help Logout

Errors and Warnings **Recording Status** Hardware Software Maintenance

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- Check the field **Synchronisation Status**
- **Device Synchronises to:** should show **NTP** or **GPS** (whenever possible, an external time source such as NTP or GPS should be used)
- **Synchronisation Status** should show **Locked**

Home Configuration **Status and Maintenance** Data Explorer Help Logout

Errors and Warnings **Recording Status** Hardware Software Maintenance

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| Recording Status | |
|-------------------------------------|--------------------------|
| Total number of stored event files: | 1297 |
| Queued Events: | 0 |
| Time of Last Detected Event: | Tue Apr 25 16:28:53 2023 |
| Timestamp of the oldest Data: | Wed Apr 26 14:17:02 2023 |

| Synchronisation Status | |
|--------------------------------|--------------------------|
| Device Synchronises to: | NTP |
| Synchronisation Status: | Locked |
| Max. Synchronisation Interval: | 0 |
| NTP Synchronisation Failures: | 0 |
| Pulse Detected: | True |
| Source Valid: | True |
| Autolock Enabled: | True |
| Last Lock Time: | Wed Apr 26 14:30:22 2023 |
| Time Elapsed since last lock: | Now |
| Drift Rate of the Clock, PPS: | 0.3 |
| GPS Status: | Unavailable |

8. Remove offset

- Choose tab **Status and Maintenance -> Maintenance**

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Errors and Warnings **Recording Status** Hardware Software **Maintenance**

- In the field **Miscellaneous Requests**, choose **Request baseline correction** from the dropdown of commands -> click **[Run Command]**

Home Configuration Status and Maintenance Data Explorer Help Logout

Errors and Warnings Recording Status Hardware Software Maintenance

Data Management

Trigger by request and create a data file No manual triggers configured

Request data from ringbuffer starting from: 2023-04-26 14:33:05 Duration, seconds: 100

Delete files from the storage: All files (ALL) 2023-04-26 14:33

Status and Information

Request actual status of the system in a file:

System Commands

Ping remote host:

Miscellaneous Requests

Synchronise instrument time with PC time: Local Time Wed Apr 26 2023 16:33:37 GMT+0200

Battery maintenance command: Set main battery installation date 2023-04-26

Execute selected command: Request baseline correction

Send any command:

Device type: GMSplus Device date and time: Device date and time
 Serial number: 102833 Station description: Station description
 Station code: GS.GSOMS

Device State Summary Context Help

- A popup will appear, confirm clicking [Yes]

Running selected command

If the offset is removed from a Signal where the Sensor is not correctly placed, this will result in wrong data. Continue?

9. Request Test Pulse

- Choose tab **Status and Maintenance** -> **Maintenance**

Home Configuration Status and Maintenance Data Explorer Help Logout

Errors and Warnings Recording Status Hardware Software Maintenance

- In the field **Miscellaneous Requests**, choose **Request test pulse from sensor** from the dropdown of commands -> click **[Run Command]**

Home Configuration Status and Maintenance Data Explorer Help Logout

Errors and Warnings Recording Status Hardware Software Maintenance

Data Management

Trigger by request and create a data file No manual triggers configured

Request data from ringbuffer starting from: 2023-04-26 14:33:05 Duration, seconds: 100

Delete files from the storage: All files (ALL) 2023-04-26 14:33

Status and Information

Request actual status of the system in a file:

System Commands

Ping remote host:

Miscellaneous Requests

Synchronise instrument time with PC time: Local Time Wed Apr 26 2023 16:38:30 GMT+0200

Battery maintenance command: Set main battery installation date 2023-04-26

Execute selected command: Request test pulse from sensor

Send any command:

Device type: GMSplus Device date and time: Device date and time
 Serial number: 102833 Station description: Station description
 Station code: GS.GSOMS

Device State Summary Context Help

- A popup will appear, confirm clicking [Yes]

Running selected command

If the offset is removed from a Signal where the Sensor is not correctly placed, this will result in wrong data. Continue?

- A minised file with the recorded pulse (file prefix CAL_) will be saved to the SD-card of your recorder
- Choose tab **Data Explorer**, choose **Automatically Detected Events** from the dropdown and search for the recorded test pulse (file prefix CAL_)

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Data Explorer - 1299 files in Data/
 Automatically Detected Events The Table will update automatically every 20 seconds

| File Name | Type | Size | Modification Date |
|--|-----------------|----------|--------------------------|
| CAL_102833_20230426_144036_Trigger1.msad | Calibration | 75.5 KiB | Wed Apr 26 14:41:01 2023 |
| 102833_20230426_143815_triggered.msad | Triggered Event | 71 KiB | Wed Apr 26 14:38:15 2023 |

- You can download the file by clicking on it

10. Check Test Pulse

- The shape of the test pulse is depending on the sensor type. A reference pulse recorded at the factory is shipped for each sensor on the usb key, the file can be found in the folder Calibration\Test_files_Sensors (file prefix TP_ with the SN of the sensor). It is also recommended to record a test pulse after installation and keep it with later records for comparison.

10.1 Test pulse of AC-7x

- Double-click the file to open it in GeoDAS
- Click into the yellow part of the window to make the cursor appear
- Move the cursor to the flat part of the pulse
- Check that the value of the flat part for each axis is within the range of 0.1125g-0.1375g



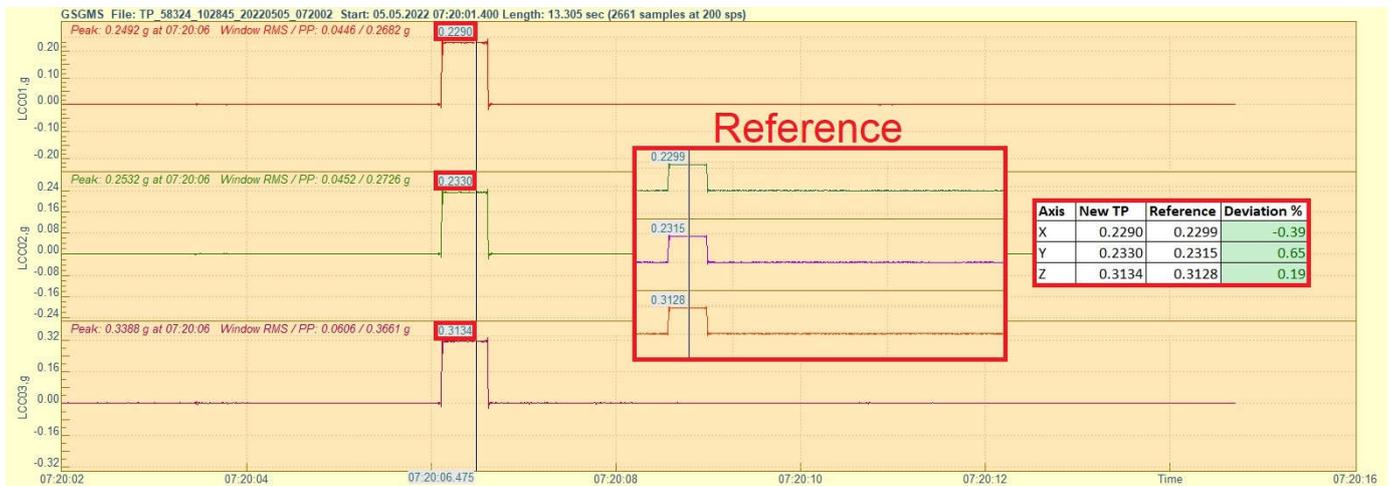
10.2 Test pulse of AC-2x

- Double-click the file to open it in GeoDAS
- Click into the yellow part of the window to make the cursor appear
- Move the cursor right after the peak, the point that forms the beginning of a straight line with some slope
- Check that the value right after the peak for each axis is within the range of 0.09g-0.11g
- Visually check that the angle of the slope is similar on all axis (compare with a reference pulse file if unsure)



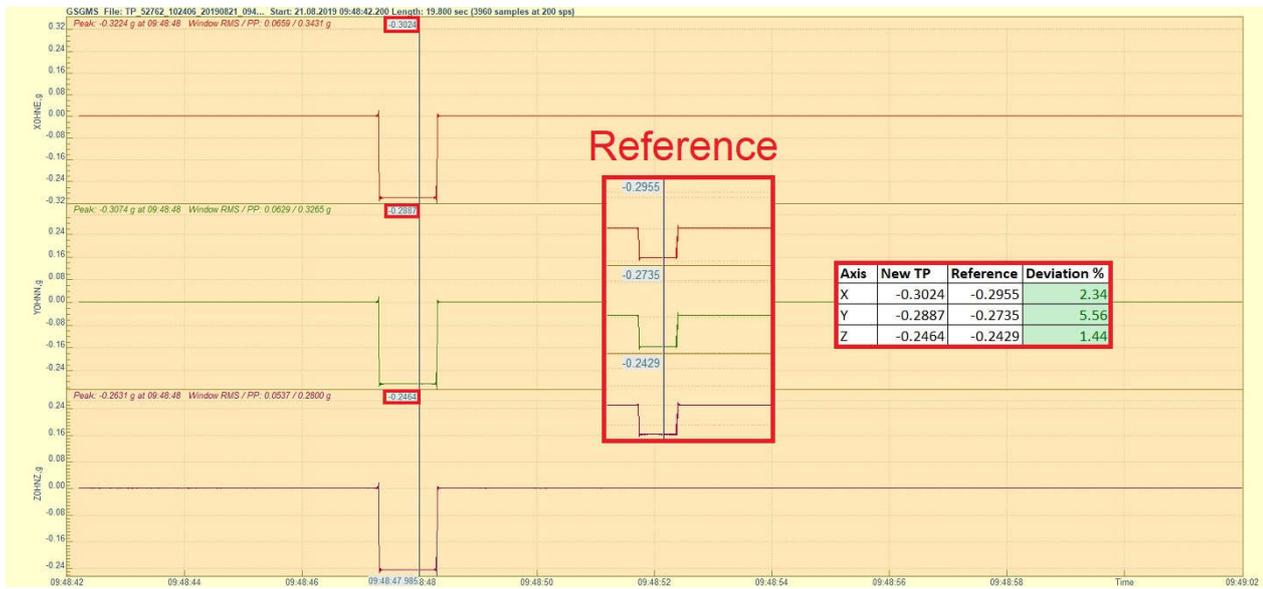
10.3 Test pulse of AC-4x

- Double-click the file to open it in GeoDAS
- Click into the yellow part of the window to make the cursor appear
- Move the cursor to the flat part of the pulse, x- and y-axis should show a similar value, the z-axis should show a higher value
- Open a reference file of the same sensor and check that the flat part for each axis on the newly recorded pulse does not deviate more than +/-10%



10.4 Test pulse of AC-6x

- Double-click the file to open it in GeoDAS
- Click into the yellow part of the window to make the cursor appear
- Move the cursor to the flat part of the pulse, depending on the sensor generation, the pulse may be negative or positive
- Open a reference file of the same sensor and check that the flat part for each axis on the newly recorded pulse does not deviate more than +/-10%



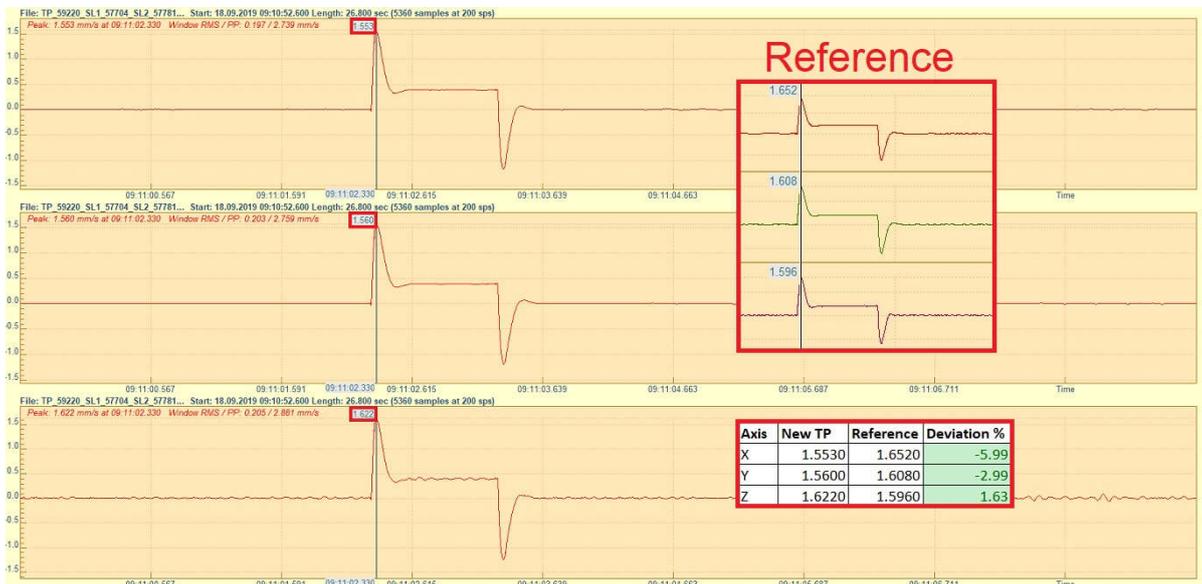
10.5 Test pulse of VE-1x

- Double-click the file to open it in GeoDAS
- Click into the yellow part of the window to make the cursor appear
- Check that the pulse is with similar shape as shown in the picture below
- Move the cursor to the peak of the positive pulse to read the value for each axis
- Open a reference file of the same sensor and check that the peak for each axis on the newly recorded pulse does not deviate more than +/-10%



10.6 Test pulse of VE-2x

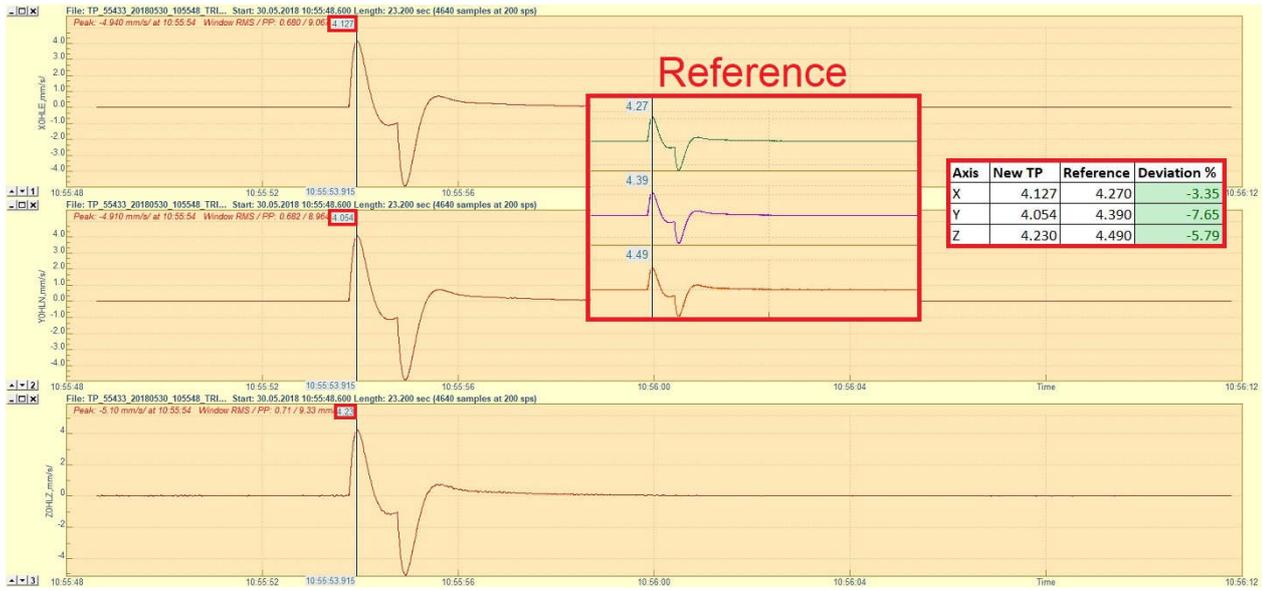
- Double-click the file to open it in GeoDAS
- Click into the yellow part of the window to make the cursor appear
- Check that the pulse is with similar shape as shown in the picture below
- Move the cursor to the peak of the positive pulse to read the value for each axis
- Open a reference file of the same sensor and check that the peak for each axis on the newly recorded pulse does not deviate more than +/-10%



10.7 Test pulse of VE-5x-SP

- Double-click the file to open it in GeoDAS
- Click into the yellow part of the window to make the cursor appear

- Check that the pulse is with similar shape as shown in the picture below
- Move the cursor to the peak of the positive pulse to read the value for each axis
- Open a reference file of the same sensor and check that the peak for each axis on the newly recorded pulse does not deviate more than +/-10%



10.8 Test pulse of VE-5x-BB

- Double-click the file to open it in GeoDAS
- Click into the yellow part of the window to make the cursor appear
- Check that the pulse is with similar shape as shown in the picture below
- Move the cursor to the peak of the positive pulse to read the value for each axis
- Open a reference file of the same sensor and check that the peak for each axis on the newly recorded pulse does not deviate more than +/-10%

