165 GDS Helpsheet

World Leaders in Computer Controlled Testing Systems for Geotechnical Engineers and Geologists

Software

General

Calibrating a GDS USB Device using the Field Cal tool

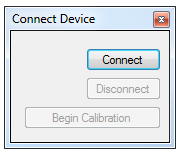
Available for download at: https://www.gdsinstruments.com/information/software-downloads

1) Connect the controller to the PC and turn on. If GDSLab is running close close it to allow a new connection to the controller.

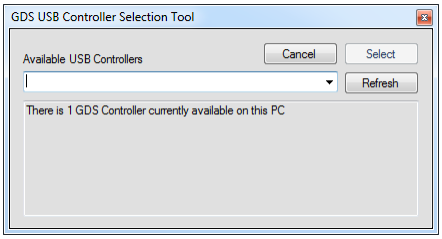
2) On the file sent to you (if not done already) delete the part of the name 'removethis' leaving only FieldCalTool.exe

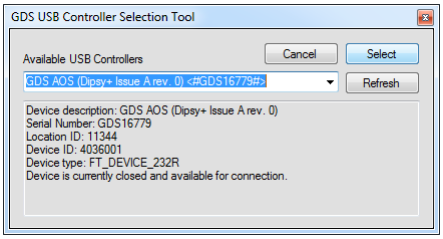
3) Open the application.

4) The following box will appear on your PC, select 'Connect'.

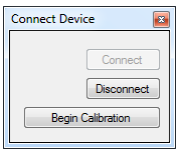


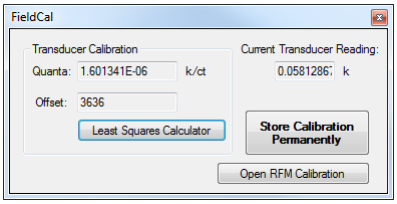
5) Select the device you wish to calibrate from the drop down list. If your device does not appear, make sure all connections are firm and that the device is switched on, then press the refresh button. Click "Select" to choose the device.



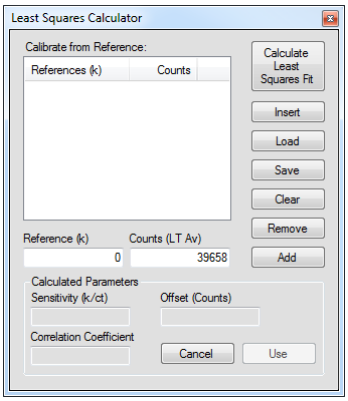


6) The connect device start box will now allow you to click the "Begin Calibration" button. Click here to open up the calibration window. The "FieldCal" window shows the current calibration sensitivity in terms of units/count, the offset in raw counts and the current transducer reading in Engineering units.



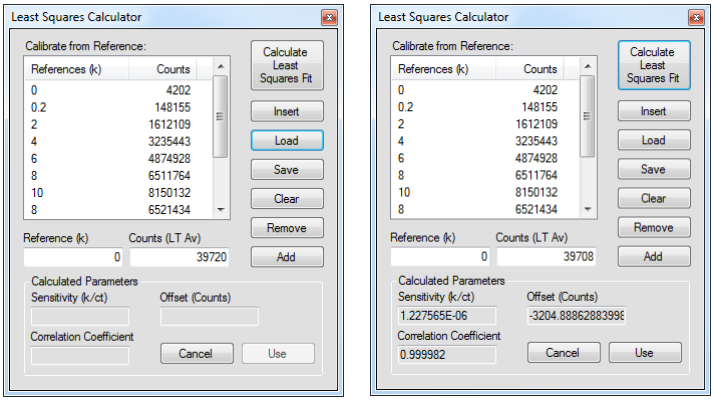


7) To start a calibration, click the “Least Squares Calculator” button. Another pop up window will appear that allows you to perform a calibration on the internal transducer.



8) The purpose of this box is to record the known pressure applied to the transducer against raw counts read. It is generally recommended to work up and back down through the working range in order to take account of hysteresis that may be present in the transducer. Eg for a 1MPa pressure controller test at 0, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 900, 800, 700, 600, 500, 400, 300, 200, 100 & 0kPa.

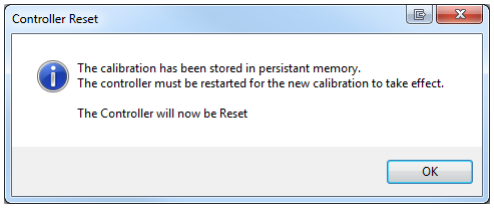
9) Type the applied value into the “Reference” input box then press the “Add” button before moving onto the next reference.



10) When all the known pressures have been recorded, select ‘Calculate Least Squares fit’ making sure the ‘Correlation Coefficient’ is as close to 1 as possible. It is also possible to save to and load the raw values from a *.csv file using the “Save” and “Load” buttons.

11) If you are happy with the calibration values select ‘Use’. The “Least Squares Calculator” window will close automatically. The new calibration values will now be shown in the FieldCal window. To store these values in the device permanently click the “Store Calibration Permanently” button.

12) The following dialogue box will appear. When you click “OK” the device will be automatically restarted, updating the calibration in the permanent memory.



13) Close the FieldCalTool application. First click the “Disconnect” button, then close the “Connect Device” window using the x in the top right corner.

14) Check the calibration data has been stored on the device (on the Smart Keypad press CMD Menu – 0 (system menu) – System Calibration.)

Note: It is also possible to **Calibrate an RFM** connected to the USB device using this tool. The process is very similar to that for the parent device, but you must first click on the “Open RFM Calibration” button in the FieldCal window. From there you can follow steps 7 to 13 as with the main device.