SWAC
Intelligence in Automation

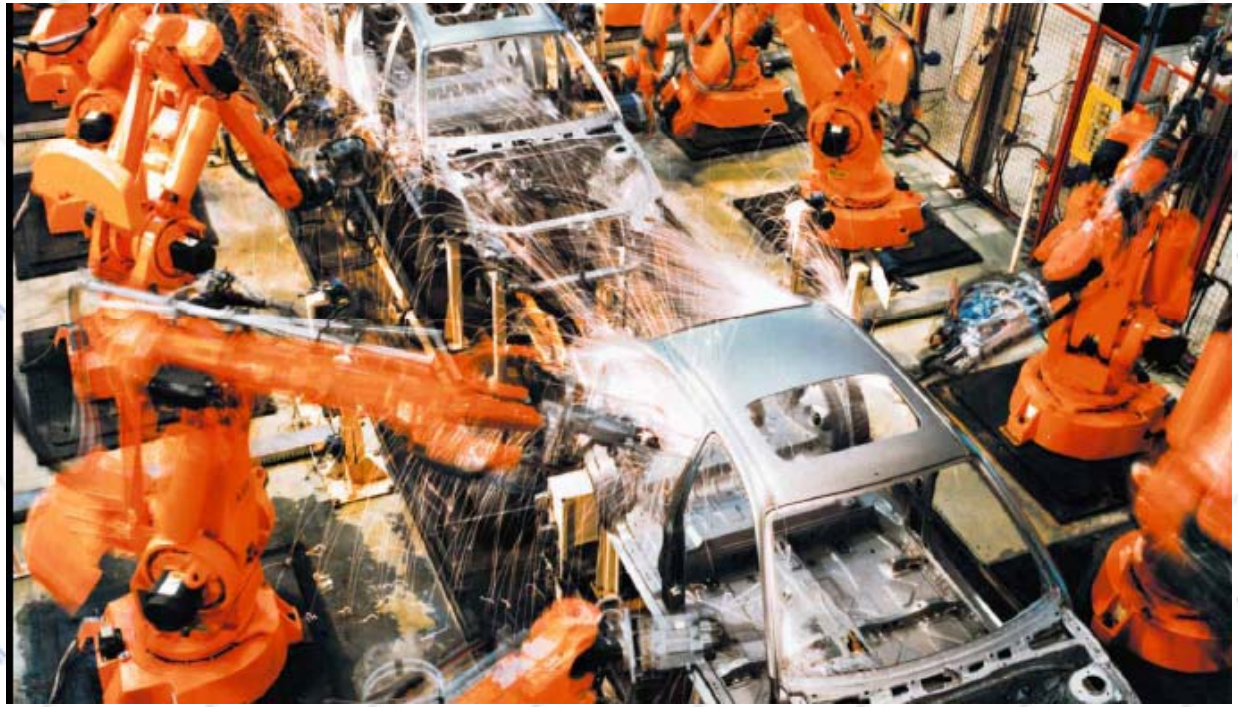
SAFEWELD®
Technology

SMArt Sensor

Safeweld Measurement Acquisition real time
14,834,954 – Force Measurements recorded to date.

SAFEWELD® Technology

Controlling the weld process using existing weld control technology coupled with the use of high resolution detailed, real time force feedback, would prevent these weld expulsions from occurring



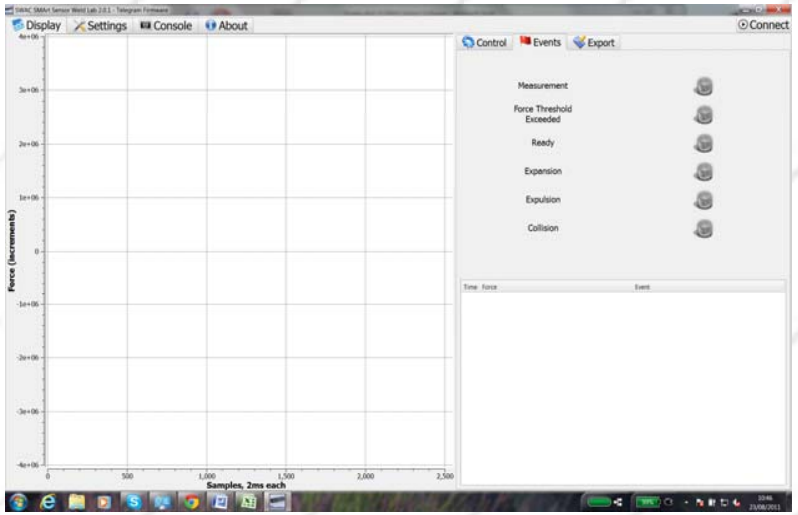
SMArt Sensor from SWAC enables real time force measurement resistance welding equipment.

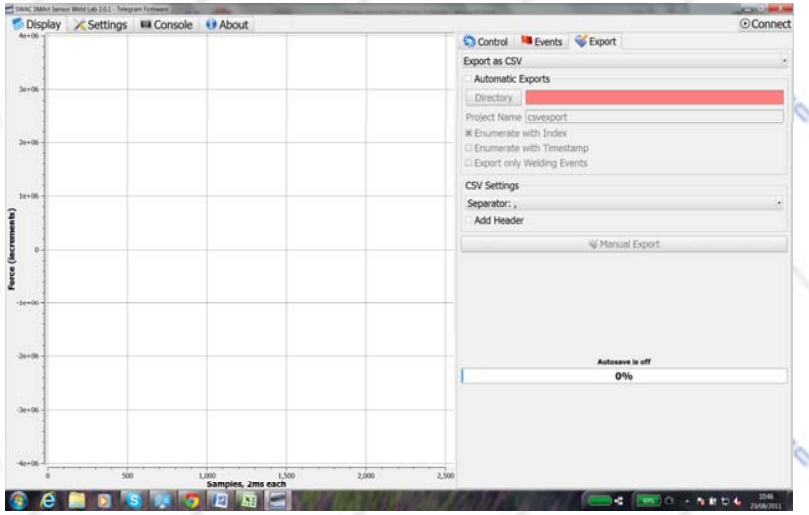
The sensor can be retrofitted to a non invasive location, but within the dynamic load area of the welder.

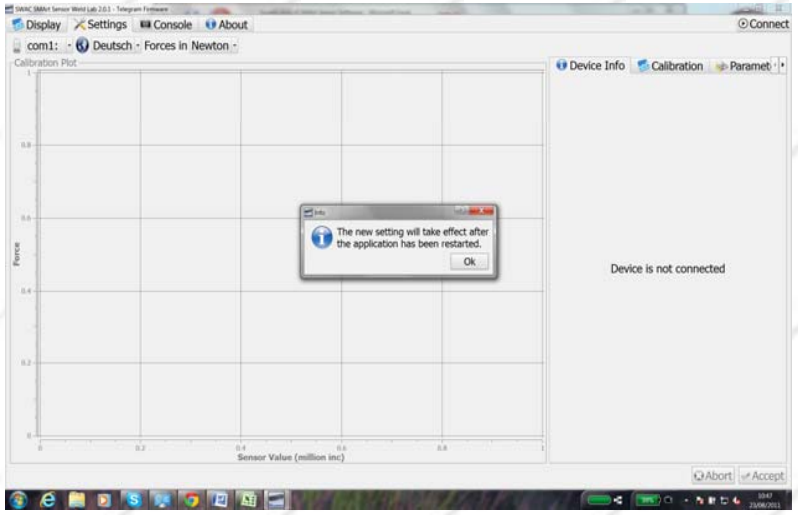
There are no torque settings, the fixing method ensures the security of the unit without inparting any load to the force measurement material.

Calibrated before use it can thereafter be used to collect and store data that is recorded by the cpu on the electronics board, integral inside the sensor housing.

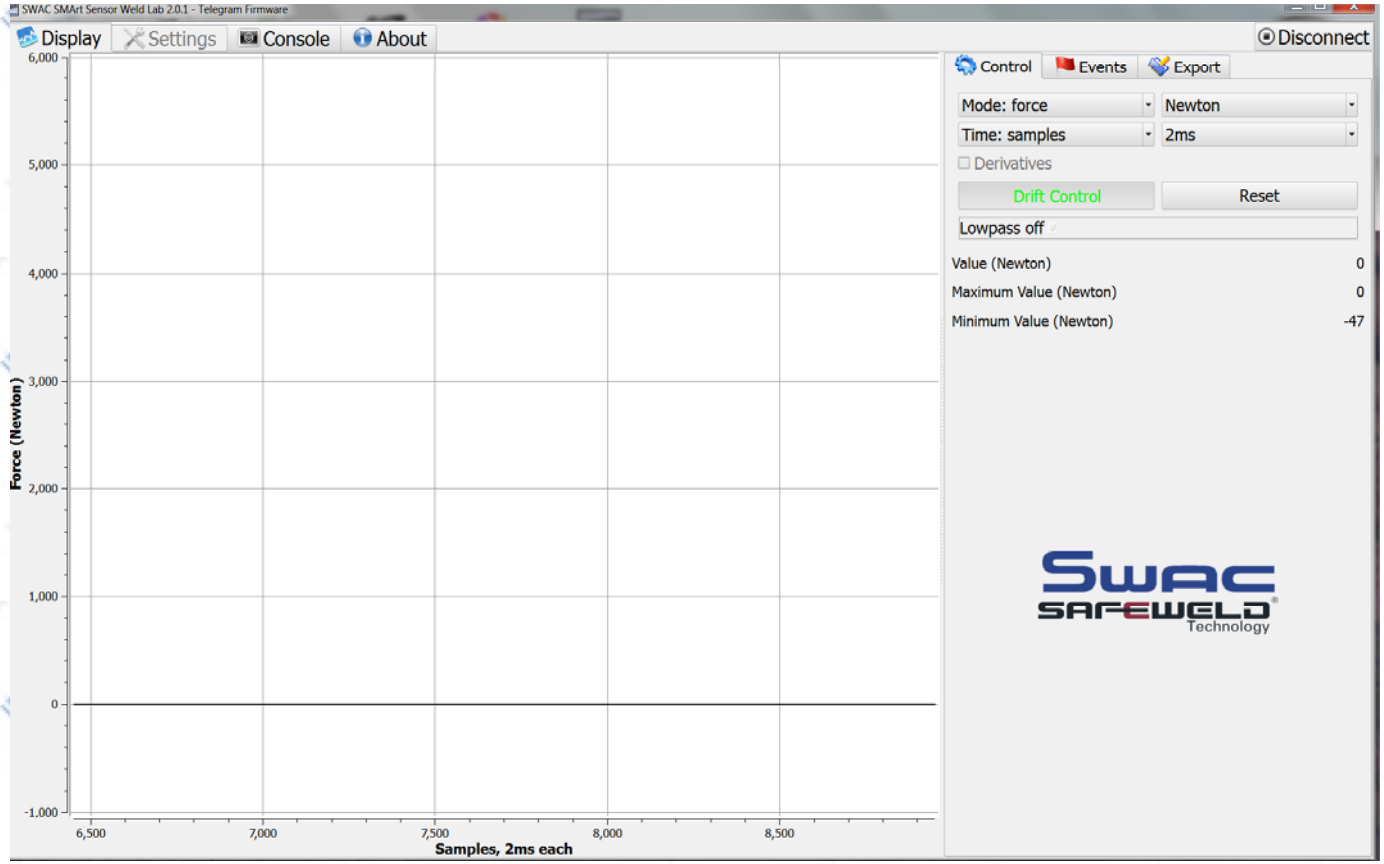
Here you see three screenshots indicating various tabs that are accessible for the various functions, programs and calibration units that individual customers can select to fine tune the system to there local requirements.



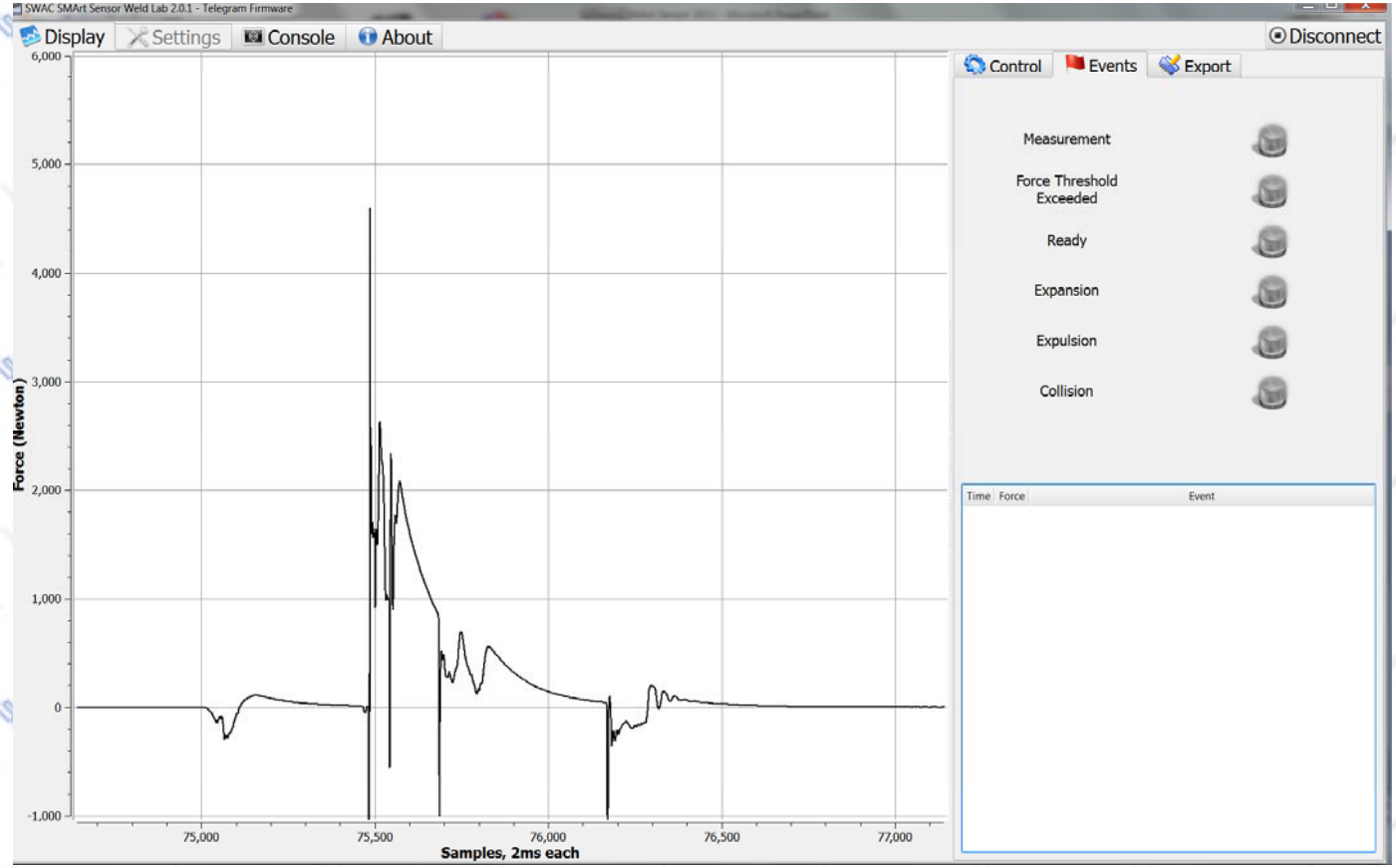




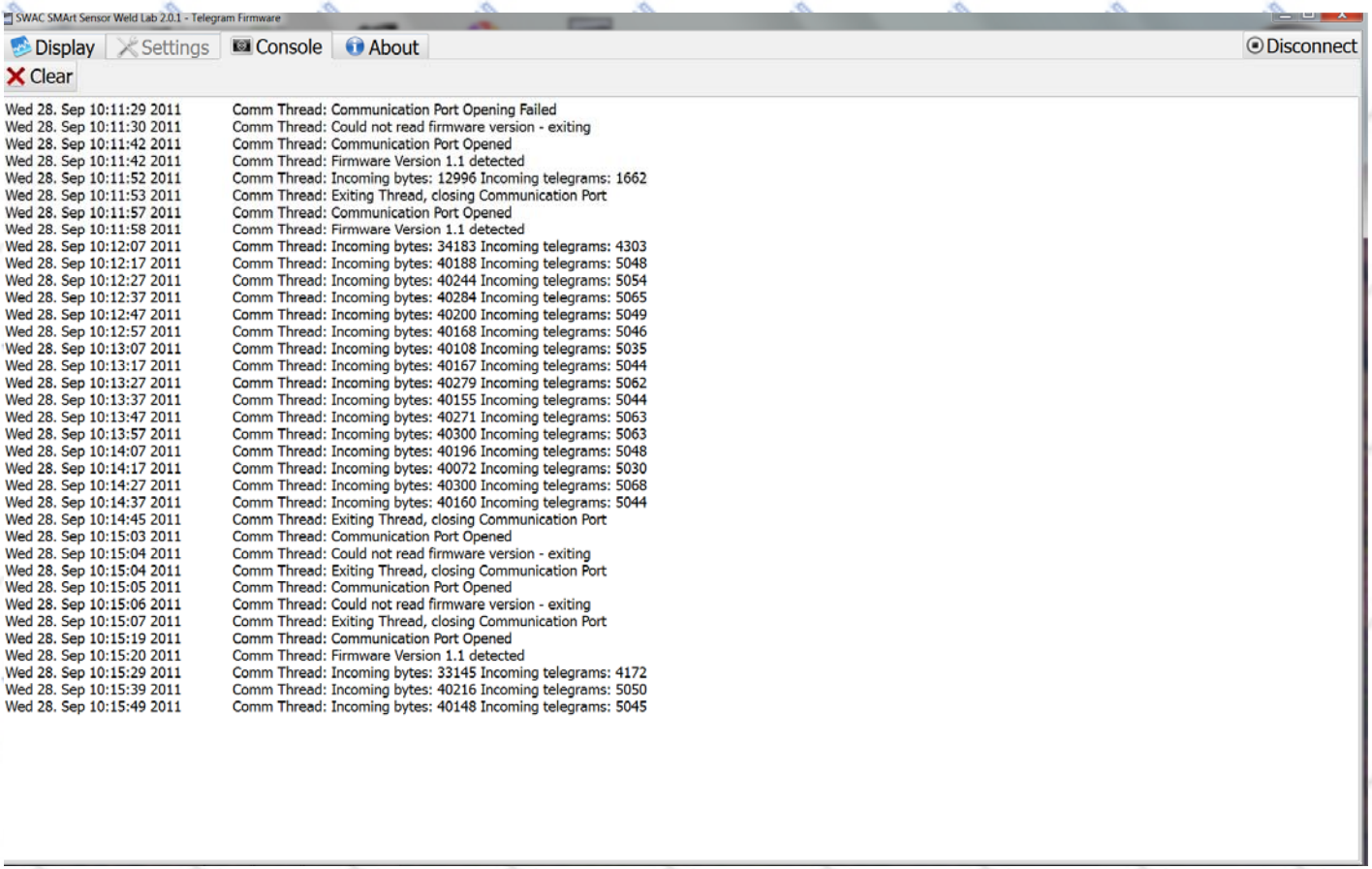
This screenshot shows the flat line output with Drift Control on to provide a stable platform for the force measurement to begin at zero point.

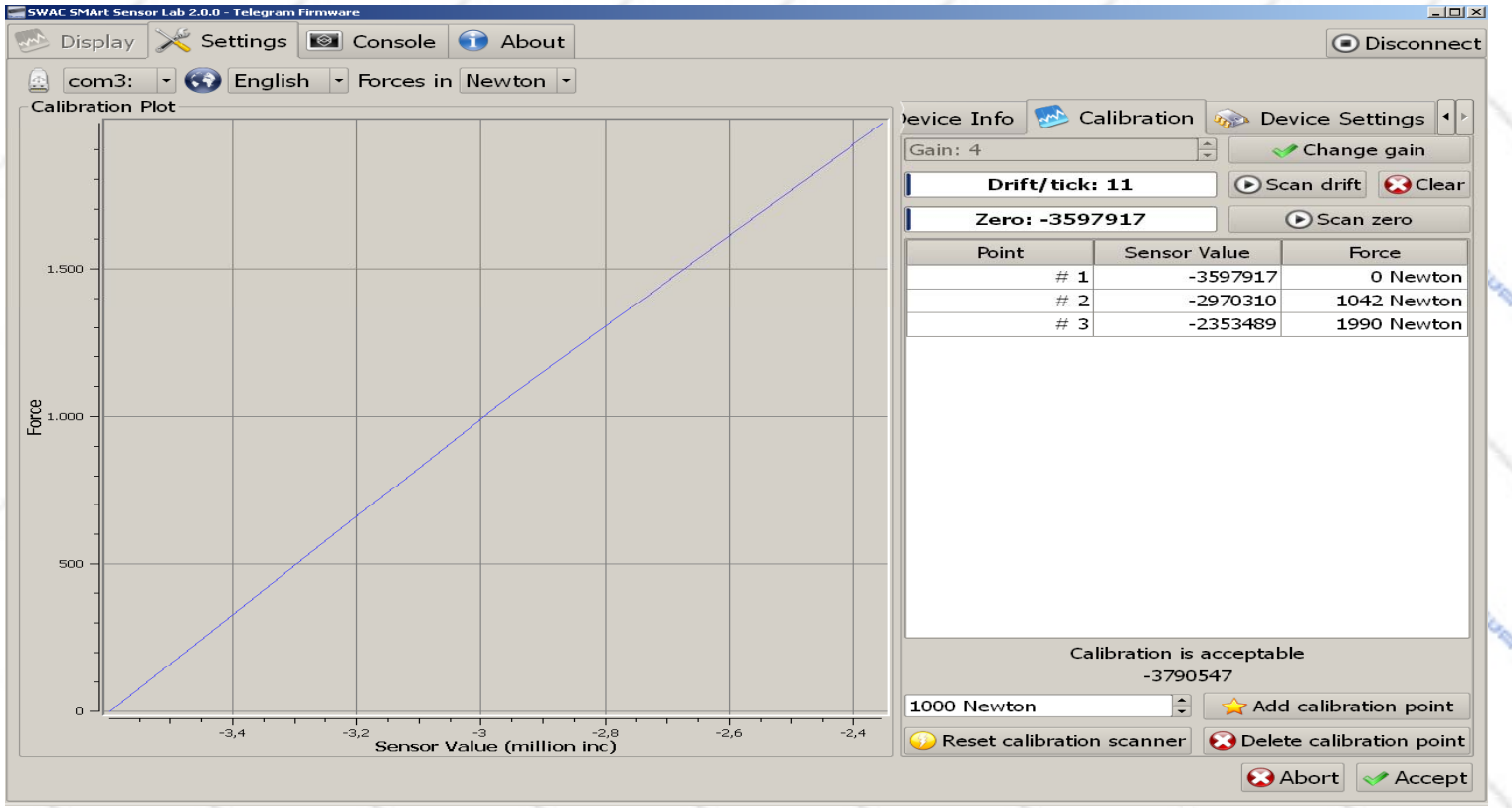


This screenshot shows the sensitivity of the sensor where hand pressure creates an output signal with force measurement.



In the consolde tab you can see the communication thread and related information of occuring events.

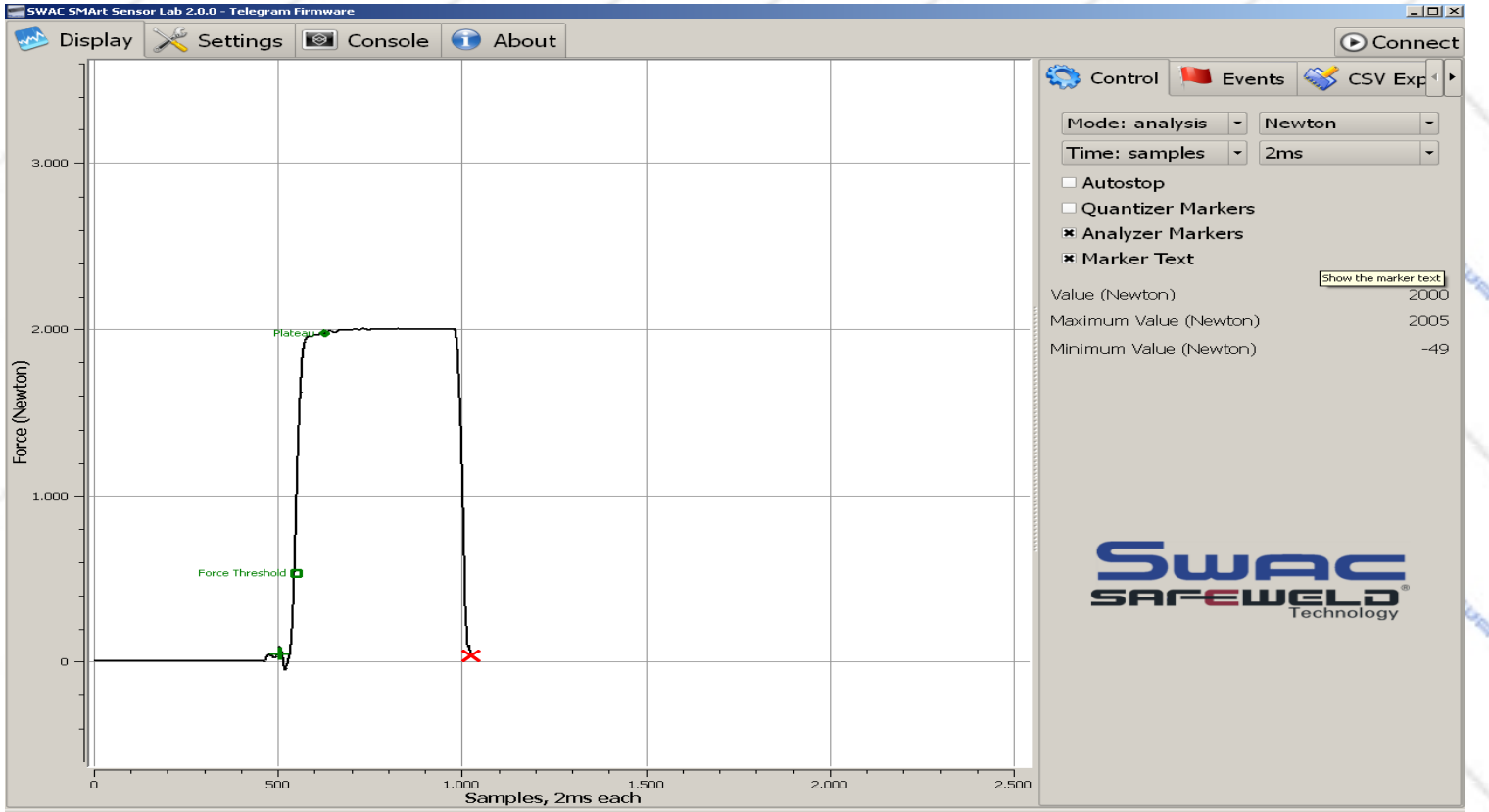




Calibration.

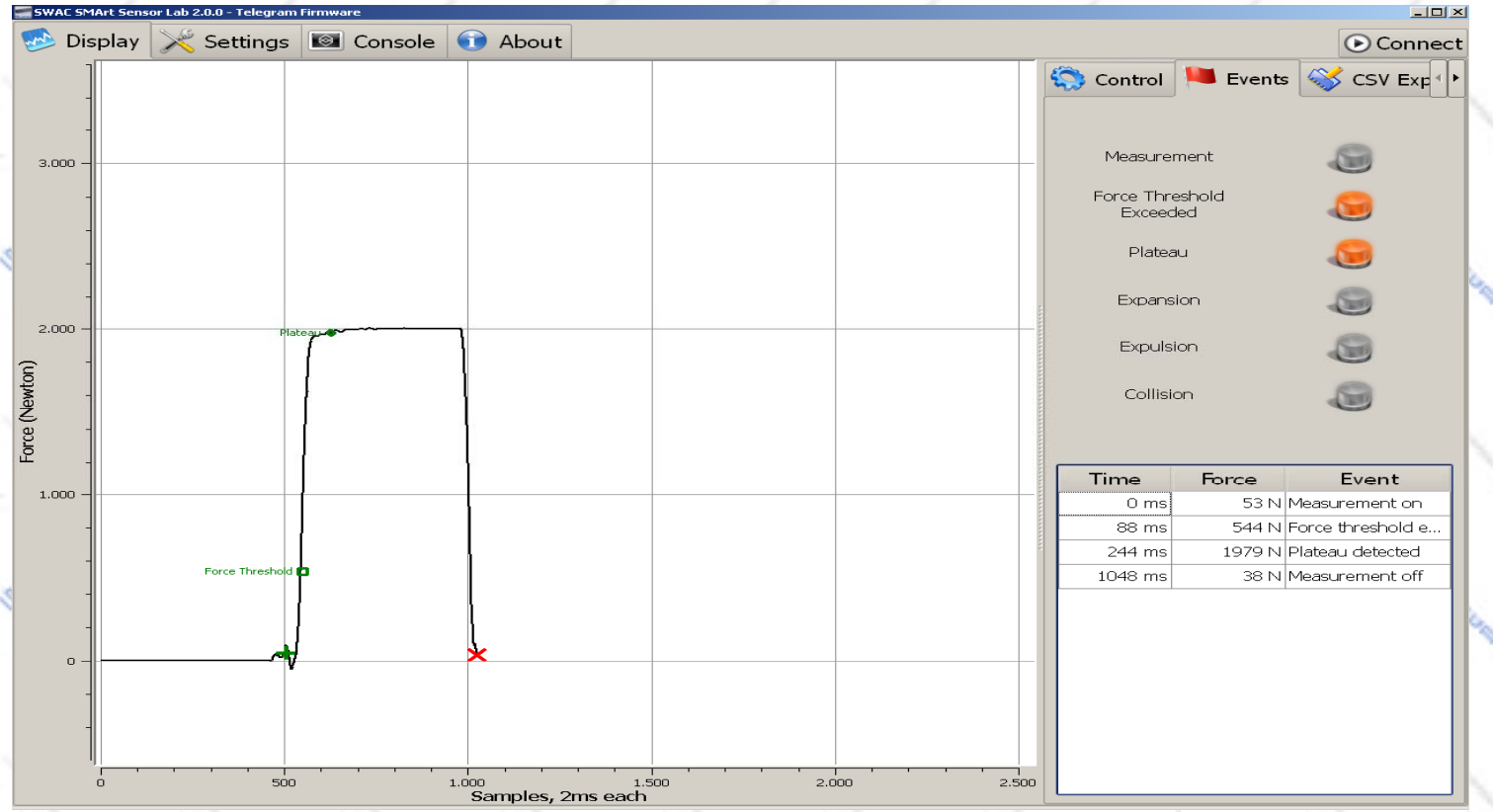
A minimum of 2 calibration points are necessary to ensure accuracy, but the operator can add more as required to satisfy there protocol.

Once calibrated and accepted, the sensor is ready for real time use.



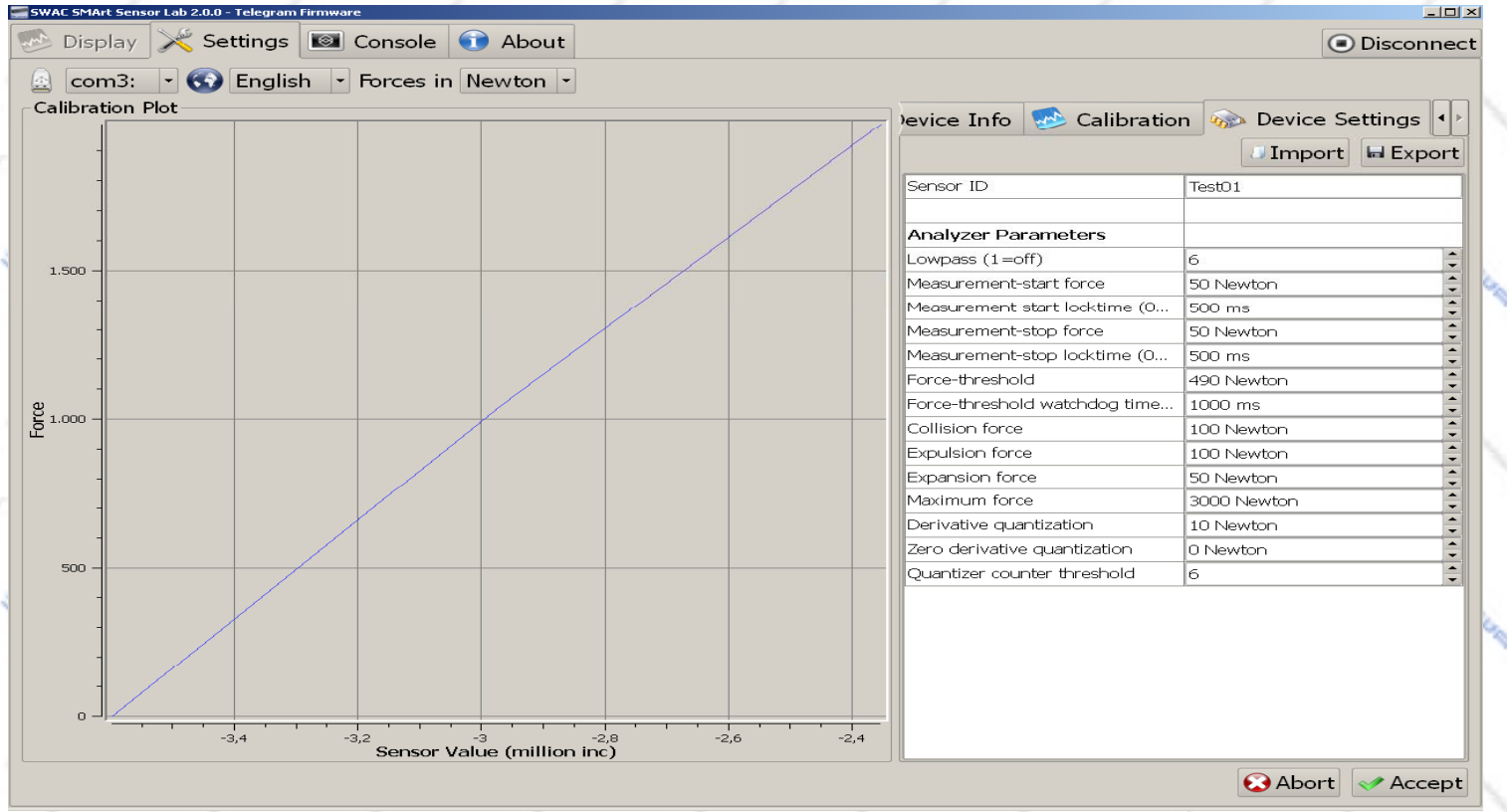
Analysis Mode

Here you can see analyser and marker text, which allows the customer to implement there own information relative events, so that they can determine and evaluate welding events relative to force measurements.



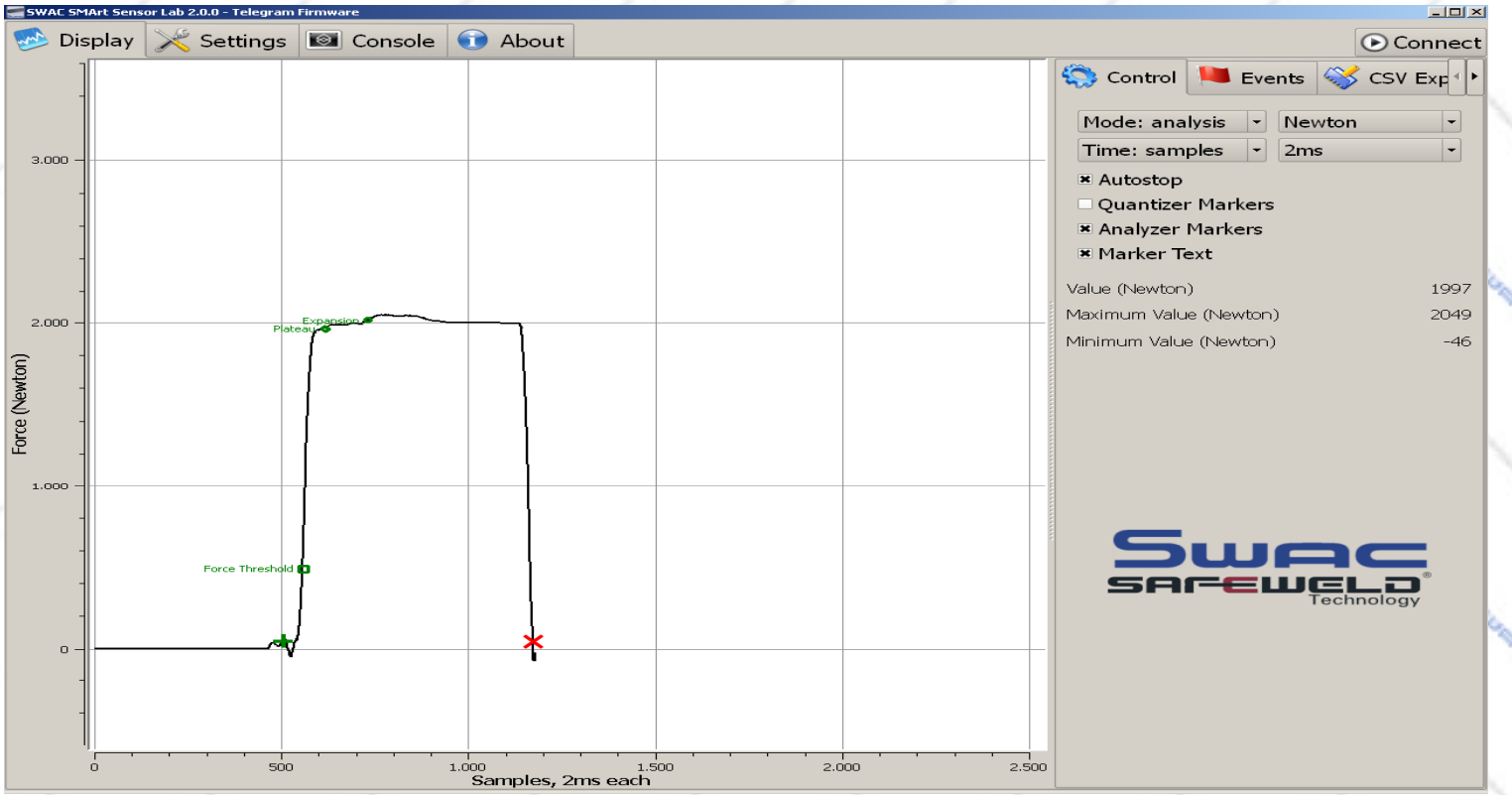
Events

In this graphic you can see that the Force Threshold and Plateau limits have been reached and the corresponding orange lights are illuminated.



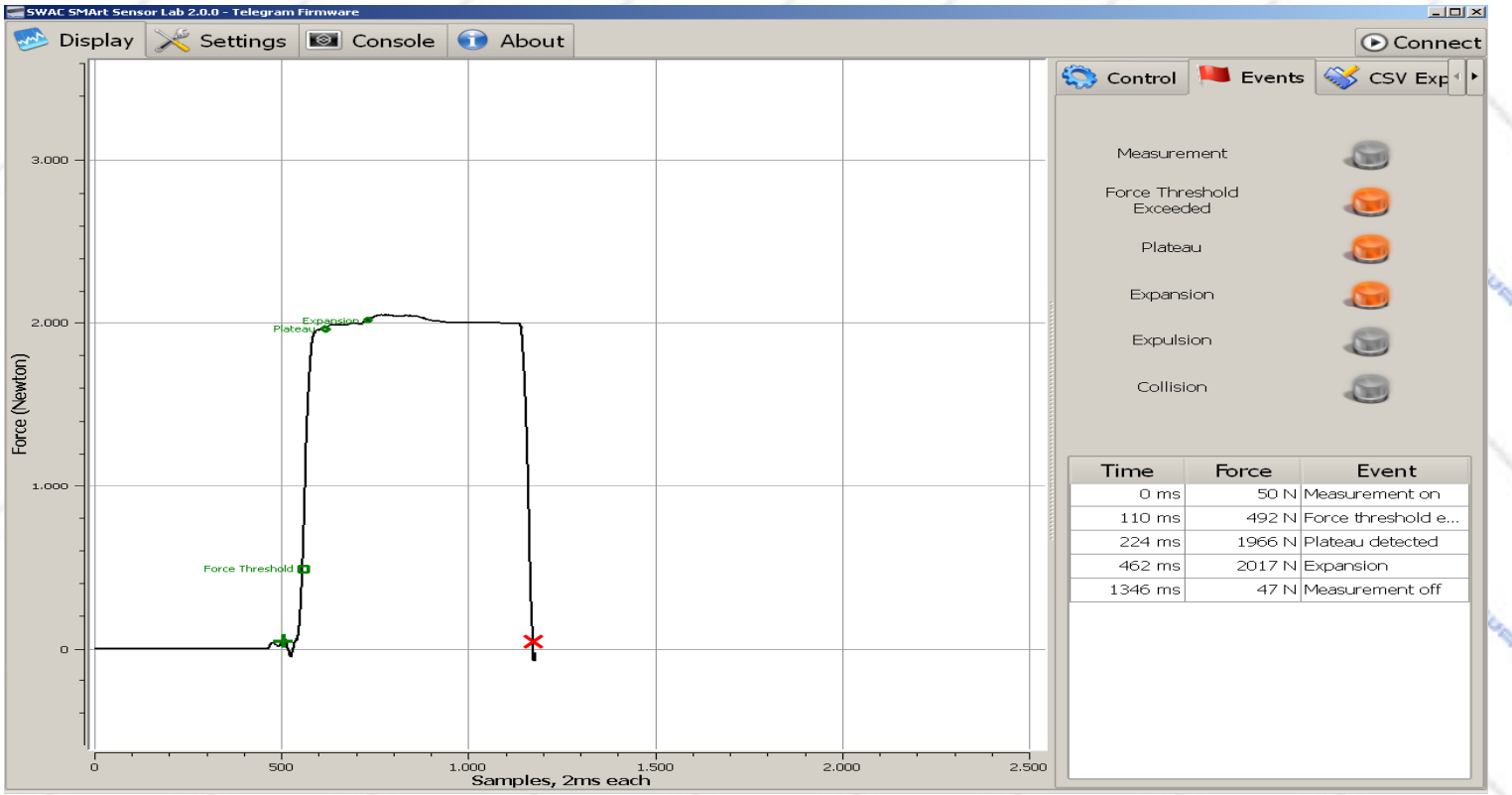
Settings

In Device Settings you can set analyser parameters so that you only obtain measurements that occur when a guaranteed welding process is in action. There is no point setting the measurement force start at 0 newtons due to sensitivity and accuracy of sensor. Far better to wait for a specific forcea achievement in a specific millisecond time frame.



Weld

In this graphic and control tab you can see the start of the weld, force threshold achievement, plateau of force and the expansion force during nugget growth and finally force reduction and the final measurement stop point.



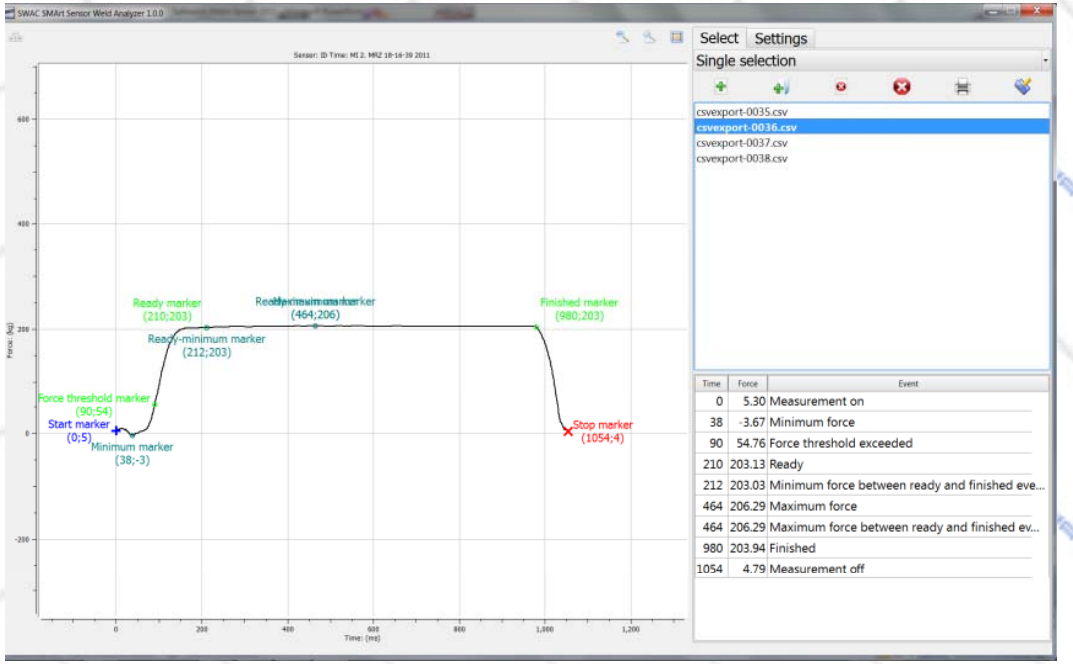
Weld Events

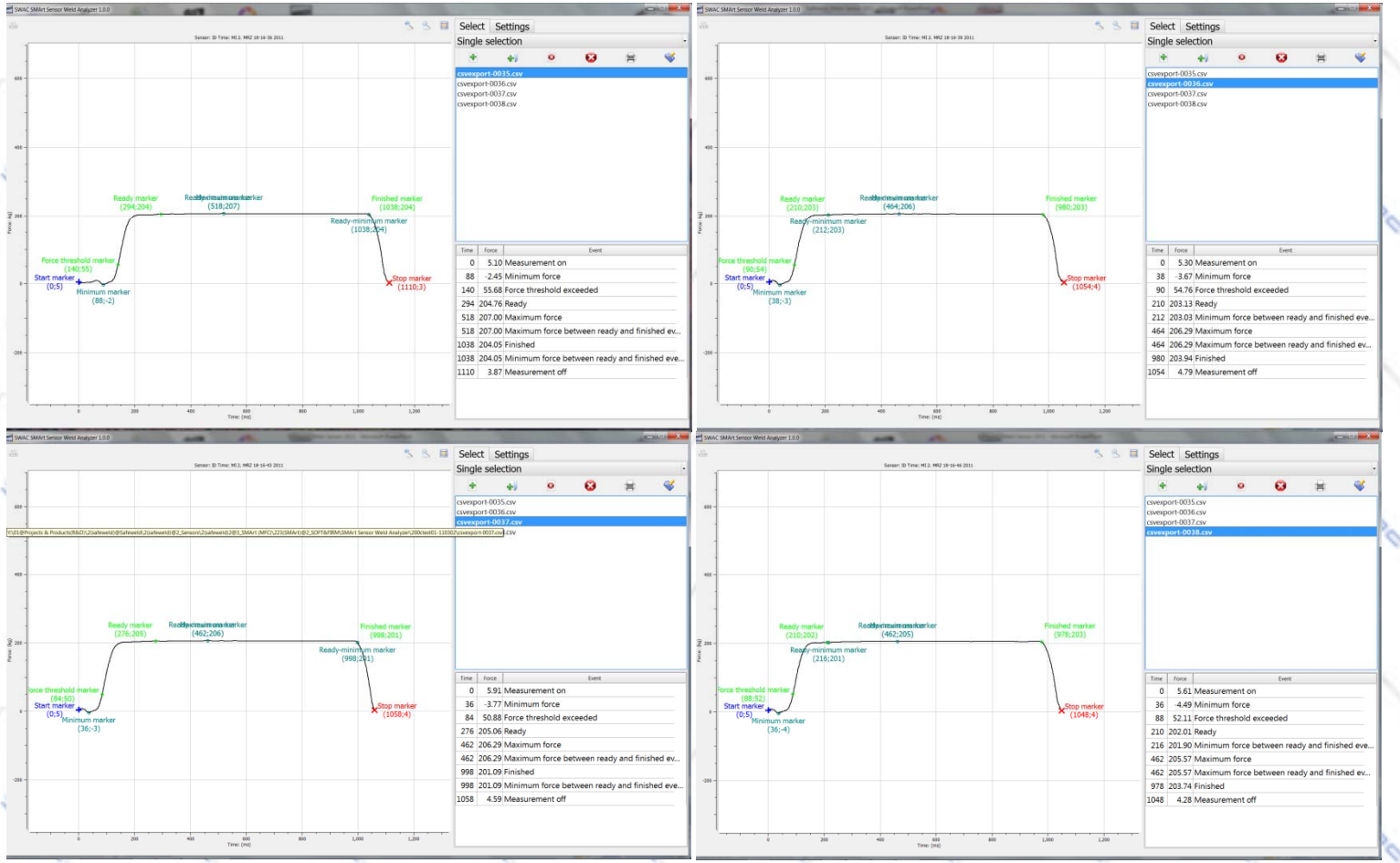
In this same graphic and events tab you can see the orange event lights have illuminated indicated that Force Threshold was exceeded, Plateua was reached and an Expansion measurement was obtained.

The time and force reading is recorded in the table below the lights.

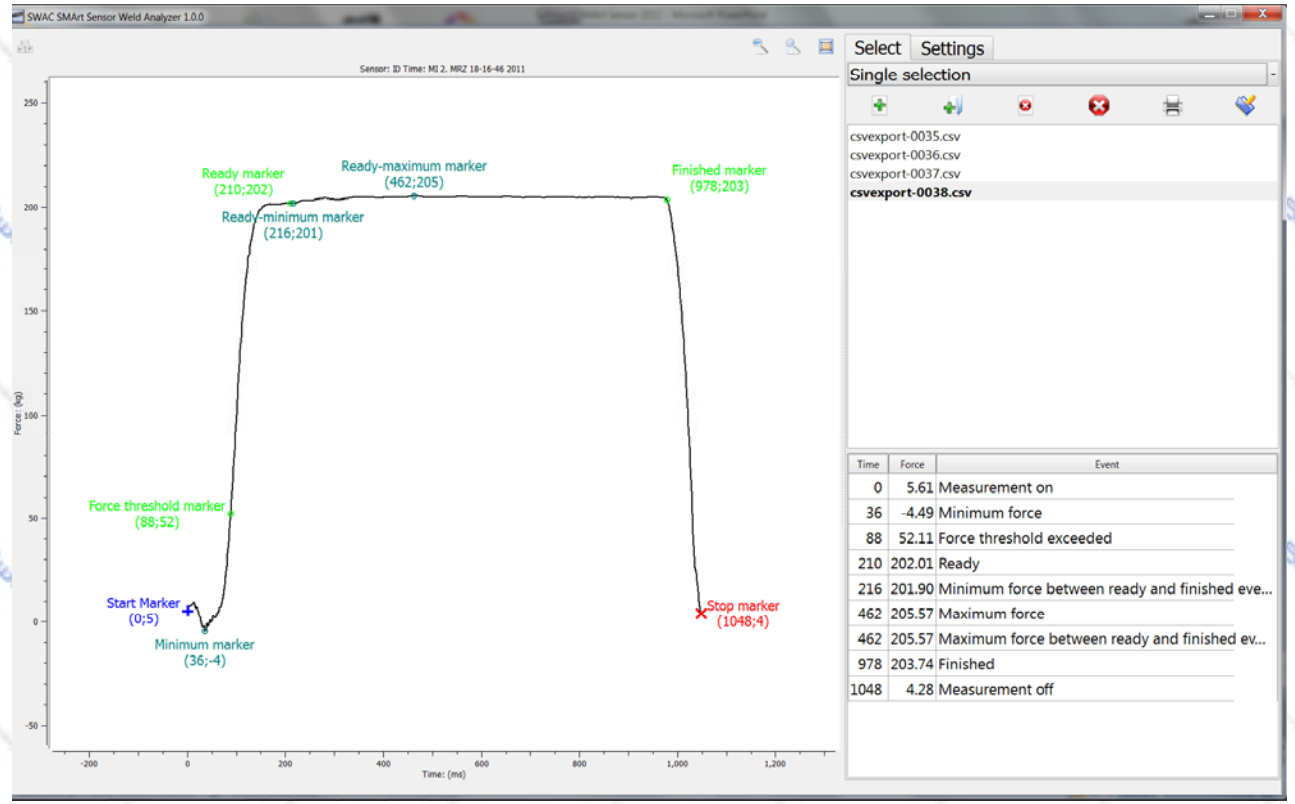
The CSV export tab enables the data to be exported to an sql database or laptop for analysis.

Analyser Software – is available to enable customers to investigate and compare weld events on specific locations recorded in there production welding system. Details of this software tool to compliment the SMArt Sensor follows: -

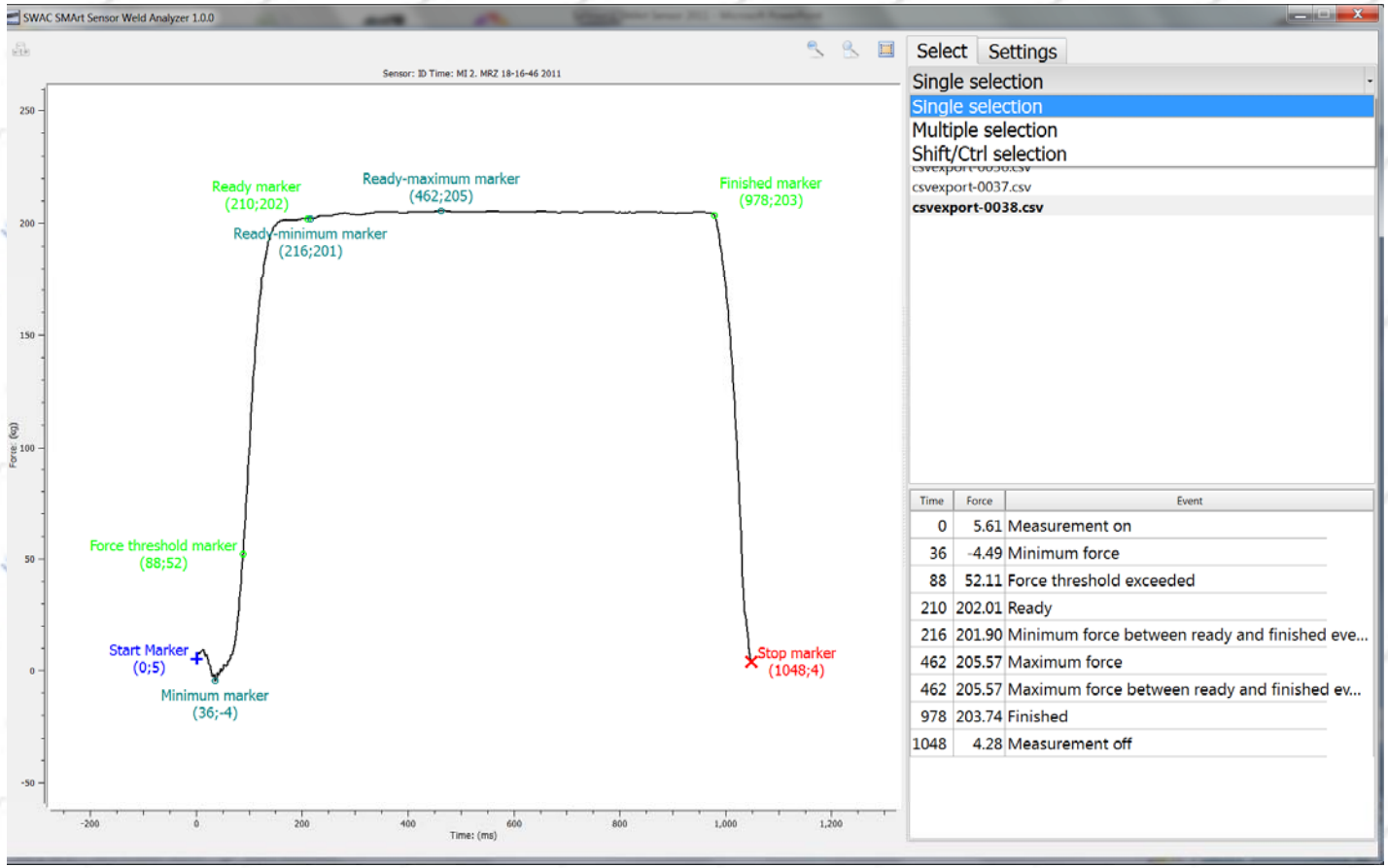




Analyser Software – available as part of a project with a one off license fee per provided Dongle – multiple licenses available.



Analyser Software – Single selection



Analyser Software – Multiple selection drop down tab

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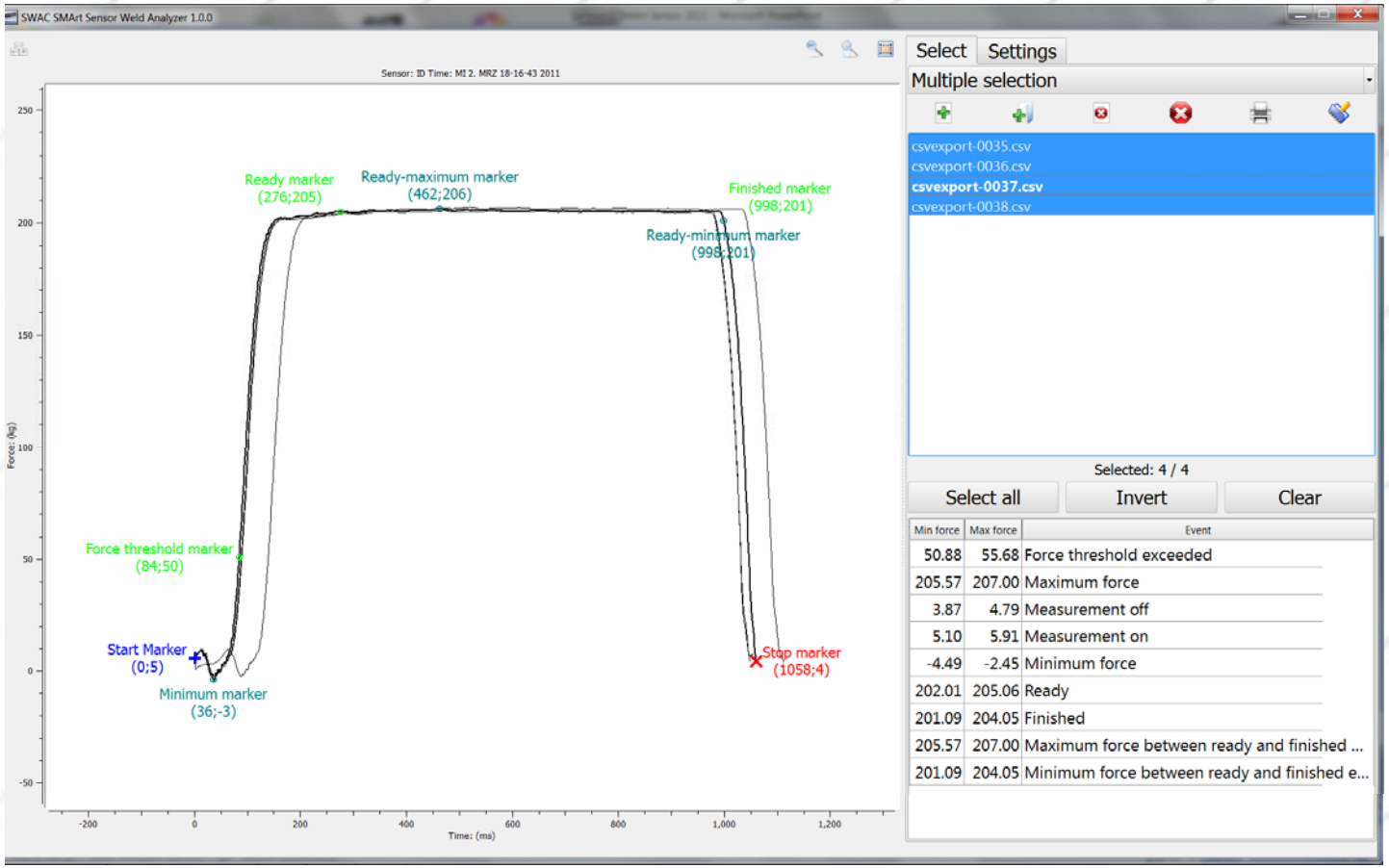

Analyser Software – Multiple selection – 4 overlay

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