

MQCO: Iontrapping experimental control software

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1 Overview

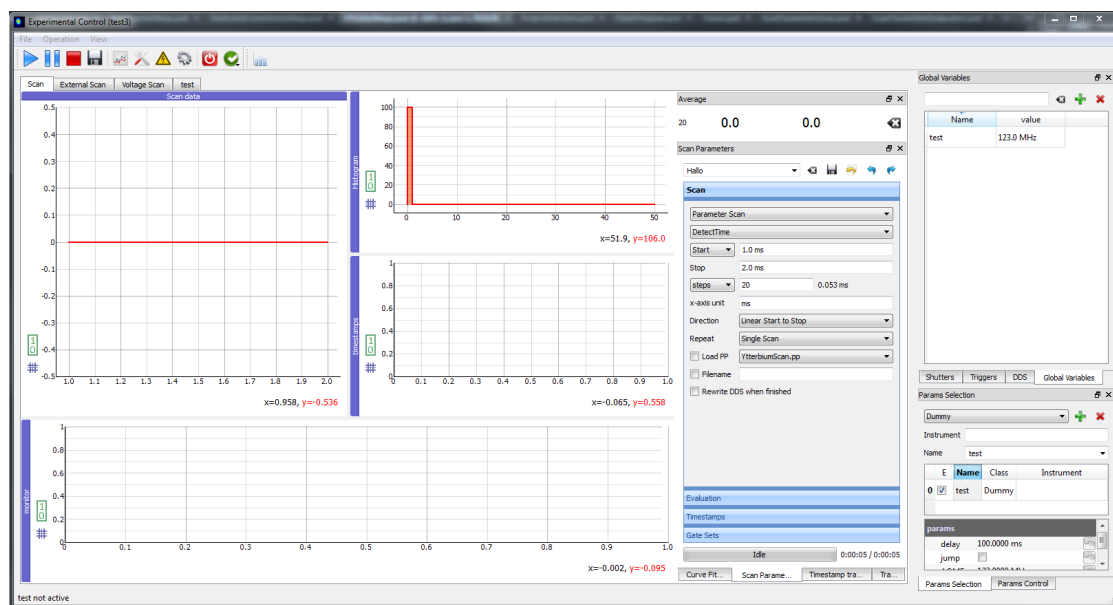


Figure 1: Main window.

2 Project Selection

The control program defines a "Base directory". The folders in the Base directory are considered Projects. Each Project has dedicated gui settings and data directories. The configuration data of the control program is saved in the folder .gui-config in the Project directory. It is recommended to create a folder "config" for the pulse program files and

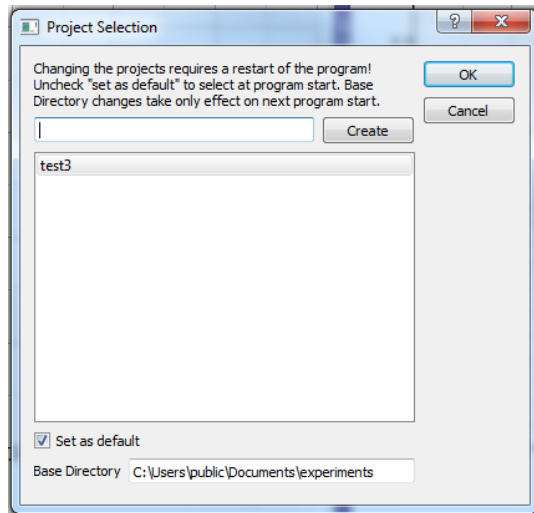


Figure 2: Project Selection. Folders in the base directory are considered projects. All configuration data and result data is saved in the project folder.

other configuration files. Data is saved by default in a directory structure consisting of year, month and day directories. This window is shown on first startup of the control program.

If "Set as default" is checked the control program will start with the default project. In this case the project can be changed by selecting File → Project.

3 FPGA settings

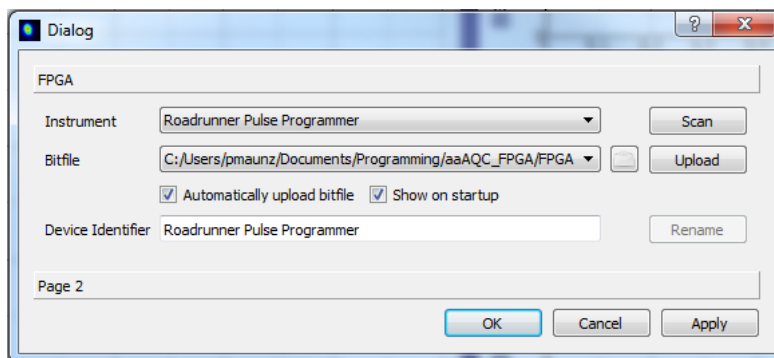


Figure 3: Main window.

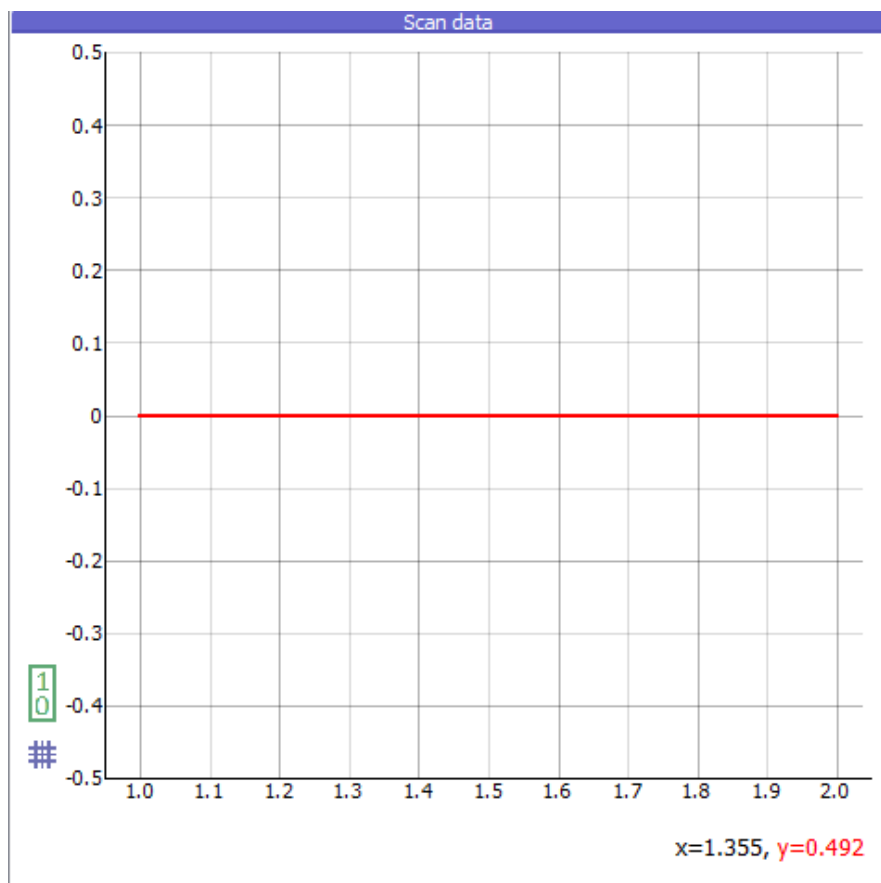


Figure 4: Main window.

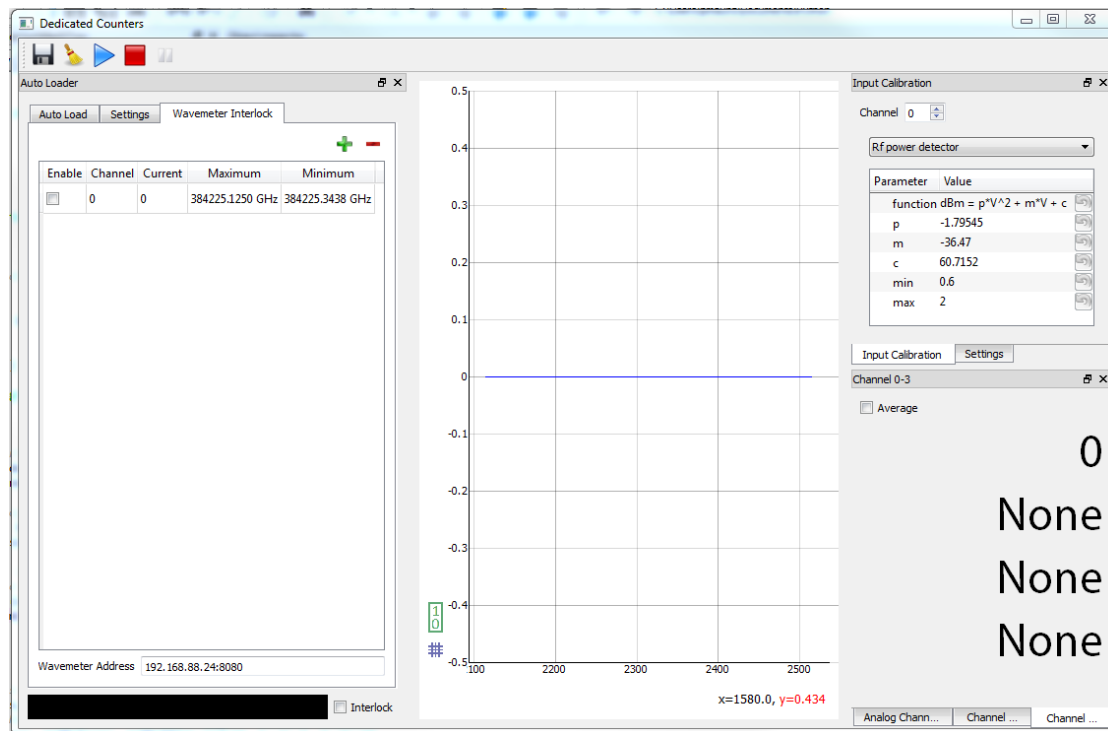


Figure 5: Main window.

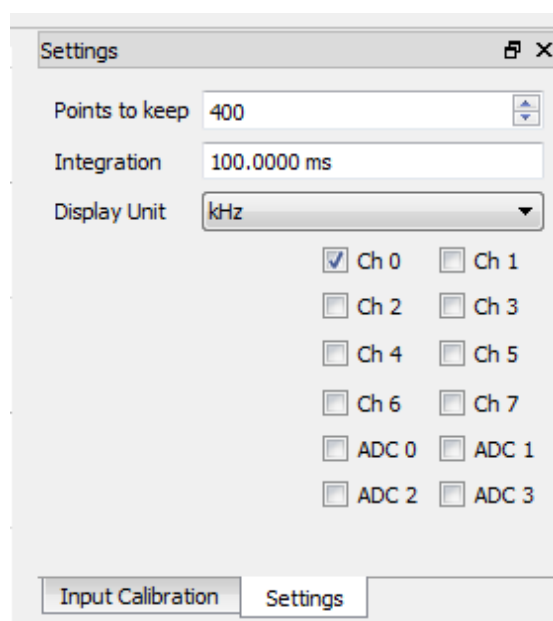


Figure 6: Main window.

4 Plot display

5 Dedicated Counters

5.1 Autoload

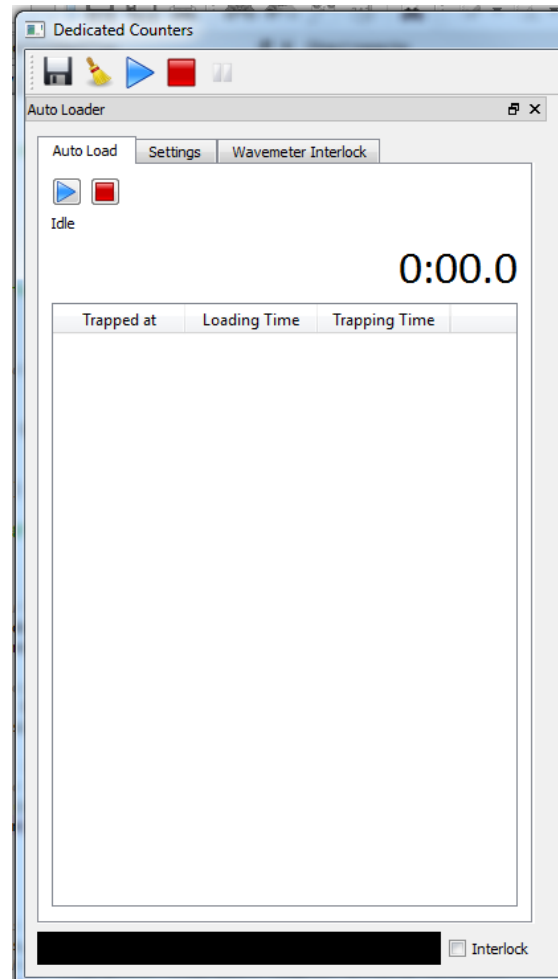


Figure 7: Main window.

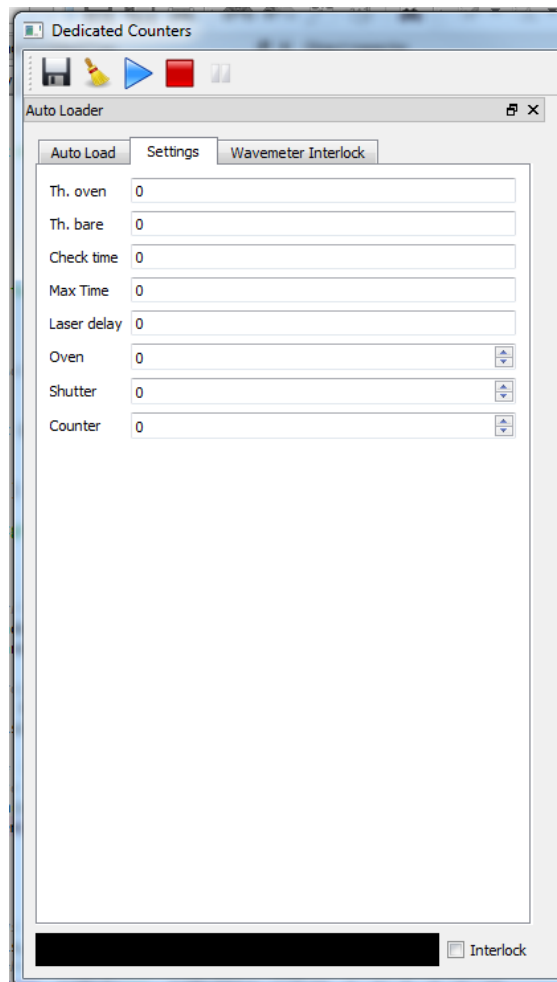


Figure 8: Main window.

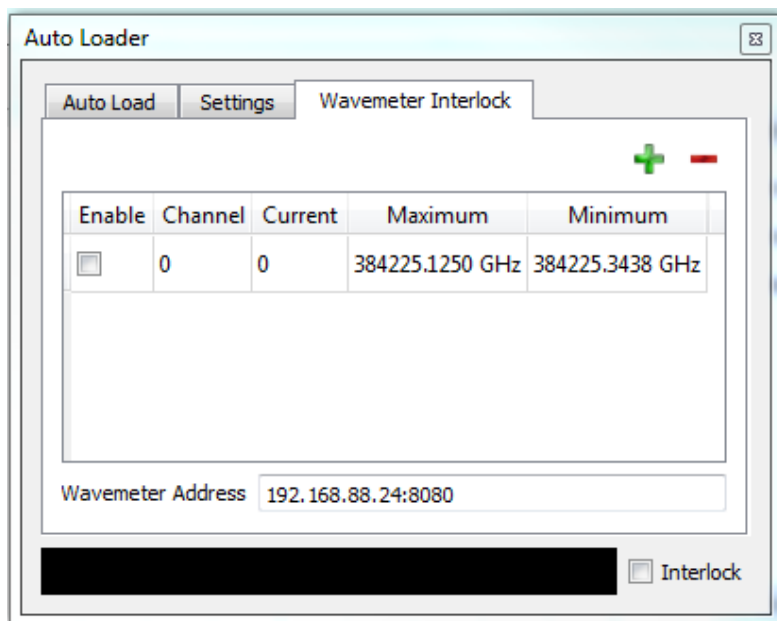


Figure 9: Main window.

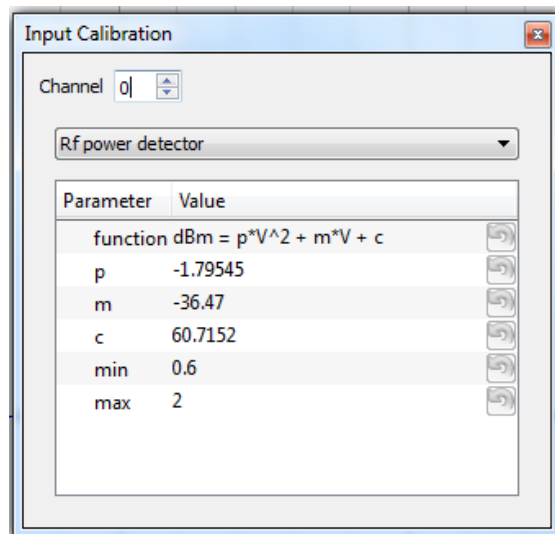


Figure 10: Main window.

5.1.1 Settings

5.1.2 Interlock

5.2 Analog Inputs

6 Global Variables

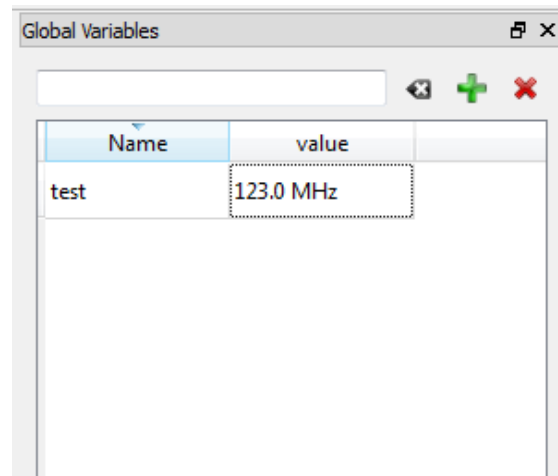


Figure 11: Main window.

DDS

Channel	Frequency	Phase	Amplitude
	0.0000 MHz	0.0000 rad	0
	0.0000 MHz	0.0000 rad	0
	0.0000 MHz	0.0000 rad	0
	0.0000 MHz	0.0000 rad	0
	0.0000 MHz	0.0000 rad	0
	0.0000 MHz	0.0000 rad	0
	0.0000 MHz	0.0000 rad	0
	0.0000 MHz	0.0000 rad	0

☐ Apply directly ☐ Write on startup

Figure 12: Main window.

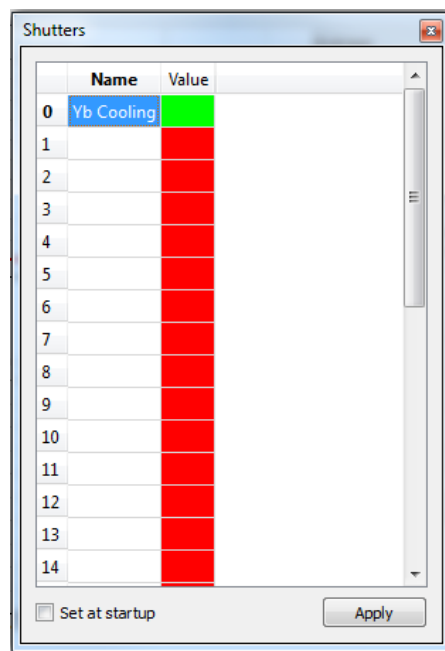


Figure 13: Main window.

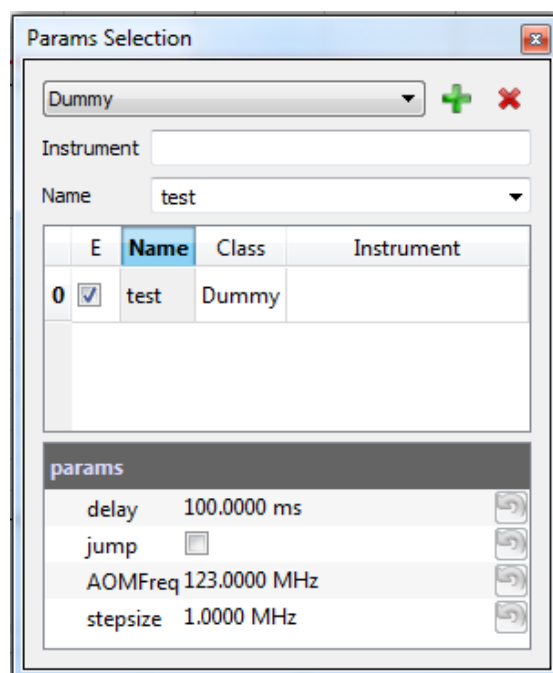


Figure 14: Main window.

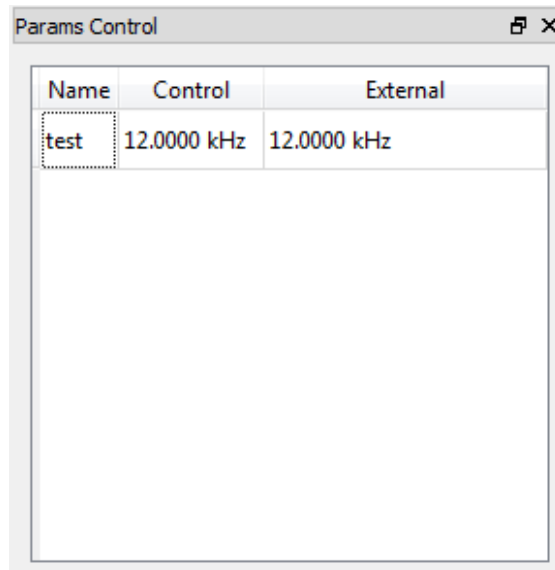


Figure 15: Main window.

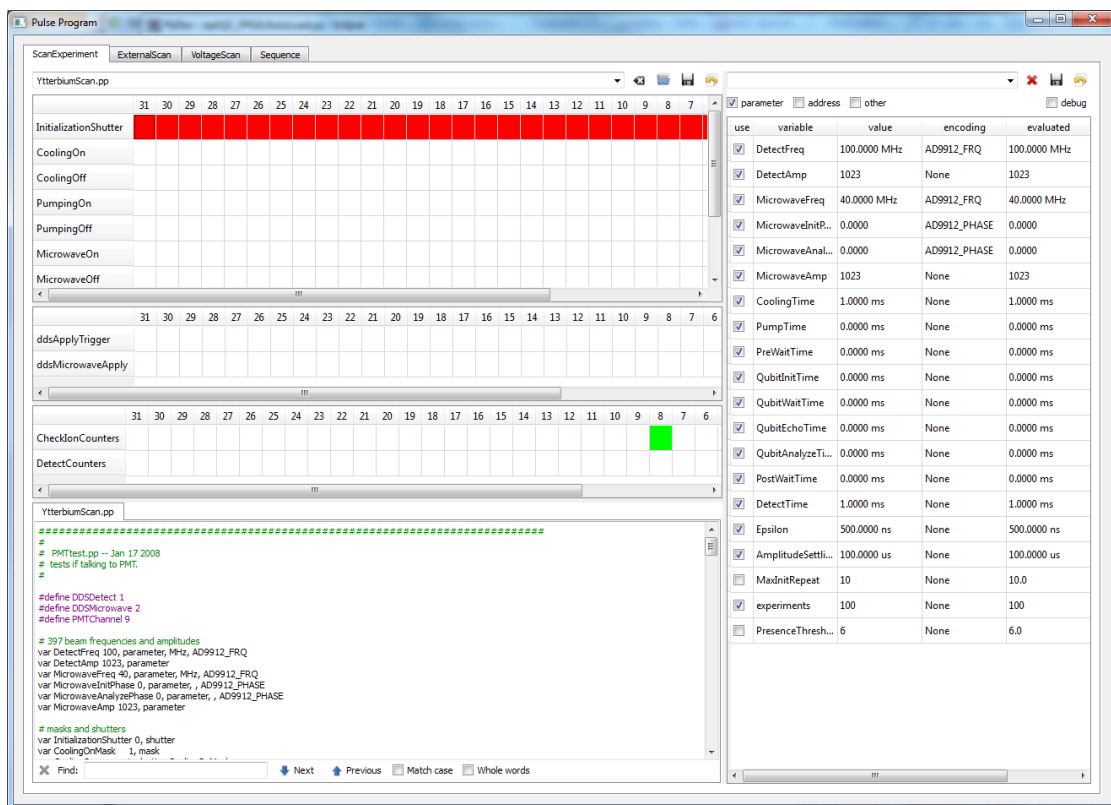


Figure 16: Main window.

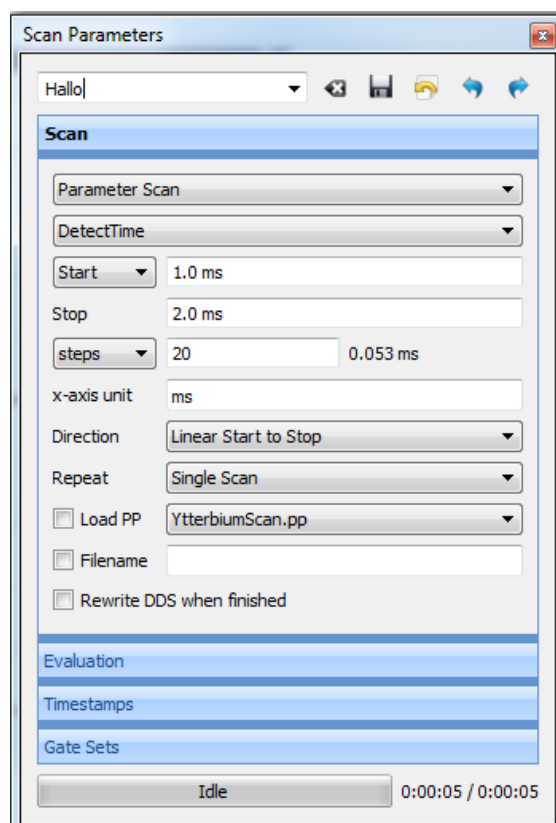


Figure 17: Main window.

7 Static settings

7.1 DDS

7.2 Shutters

7.3 Triggers

8 External Instruments

8.1 External Instrument Selection

8.2 External Instrument Control

9 Pulse Program

10 Scan configuration

10.1 Scan settings

10.2 Evaluation settings

10.3 Timestamp settings

10.4 Gate Sets settings

11 Curve fitting

12 Traces

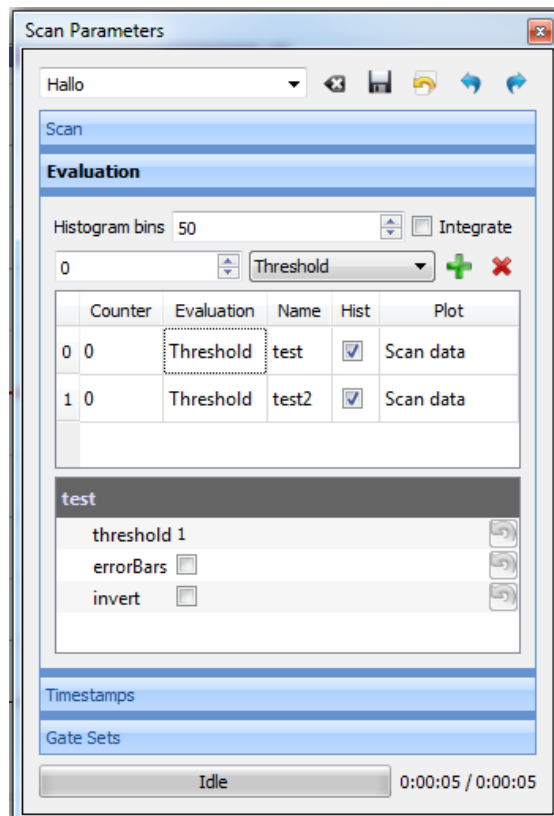


Figure 18: Main window.

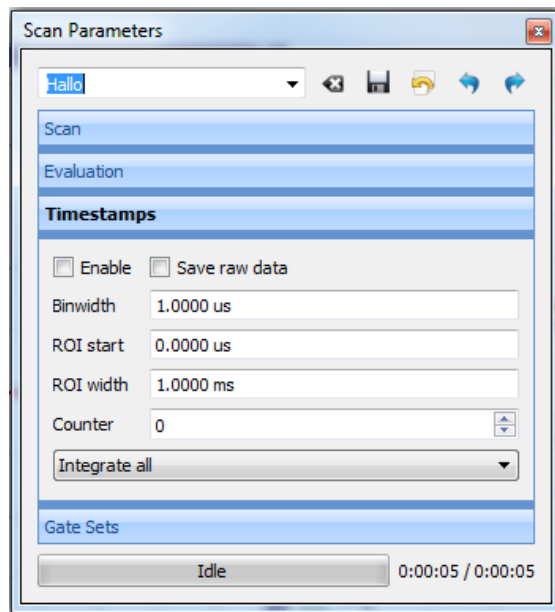


Figure 19: Main window.

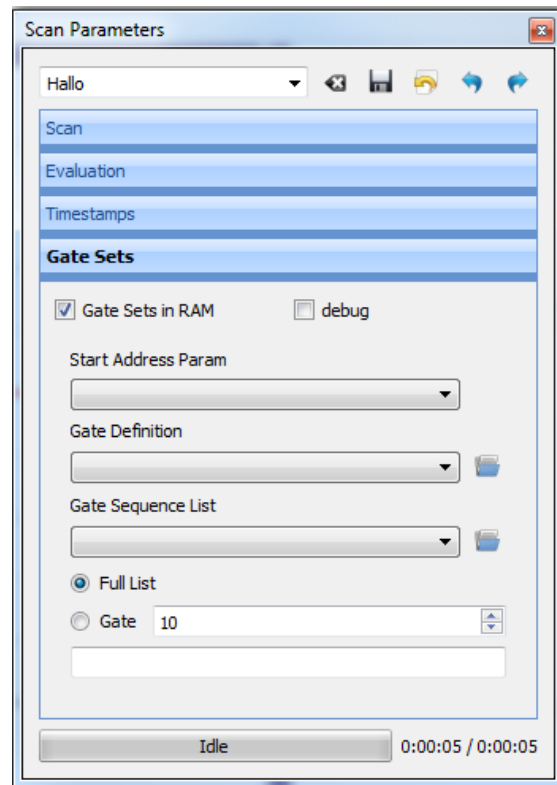


Figure 20: Main window.

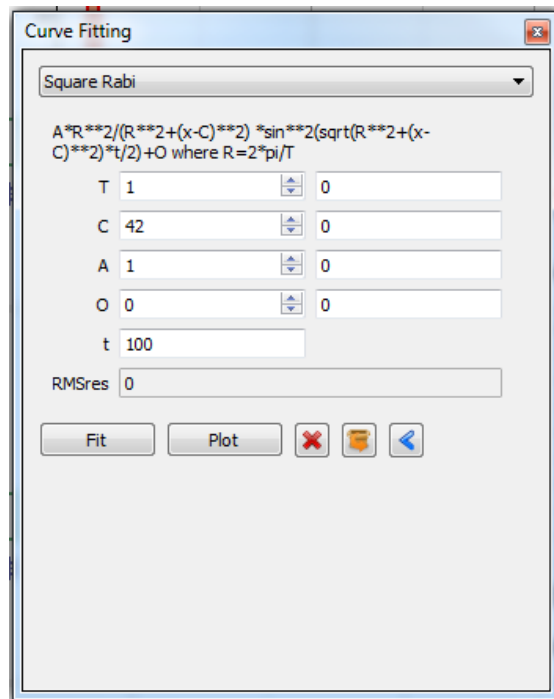


Figure 21: Main window.

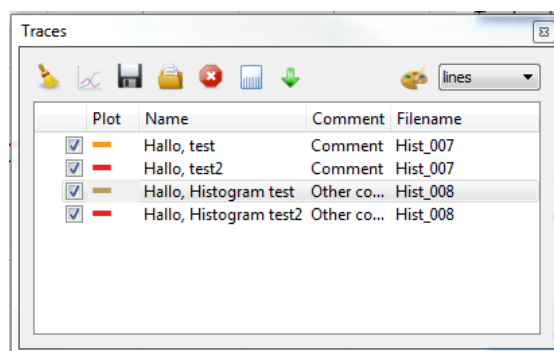


Figure 22: Main window.