UPECView Quick Start Guide

This guide is a quick introduction to the UPECView software bundled with Sensima's UPEC line of Eddy current instruments.

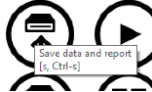## 1. Quick start procedure

1. (Optionally) Install the UPECView software on your PC. See "Software installation" below.

2. Plug the probe into the Fischer connector on the front panel of the UPEC tester with the appropriate cable.

3. Connect the UPEC tester to the tablet of PC using the provided USB cable

4. Start the UPECView software on the tablet or PC

   a. Choose the appropriate COM port in the dialog box (if there is only one, which is standard, you can directly click on OK)

5. Press ⊙ ("Play" button). The acquisition starts immediately and the button changes to ⊕ ("pause").

6. Put the probe on your calibration sample or on the front panel of the instrument outside of a notch.

7. Press ⊕ ("Balance" button). The signal shifts to zero.

8. Perform the scan over the calibration sample or across the notches on the UPEC tester front panel.

9. Press ⊕ ("Pause" button) to stop the acquisition. Depending on preference settings, a dialog box asking if you want to save data may appear; you can safely answer "No" at this point.

10. If necessary, adjust how the signal is displayed by using any of the following methods

    a. Press the "Autoscale" button

    b. Touch and drag (or click and drag with a mouse) in the plot area to pan the signal

    c. "Pinch" with two fingers to zoom in or out (use the mouse wheel or the scroll gesture on a trackpad if using a non-tactile display)

11. If necessary, rotate the signal according to your standard procedure using the "Phase angle" dial

12. Press the ⊗ ("Toolbox button"). A panel opens and then press the ⊕ ("Save" button). A dialog box appears giving you the opportunity to add comments and other information about the acquired data. For now, leave it empty and press "OK". Then the standard "Save" dialog asks you for a file name. Enter a name with the on-screen keyboard or your keyboard and press "Save". Your data is now saved on the hard disk of you tablet or PC.

2.   The tactile interface

The interface is design to be comfortable with both a tactile display and a more traditional PC one with mouse and keyboard. We give here a few tips useful across the whole application.

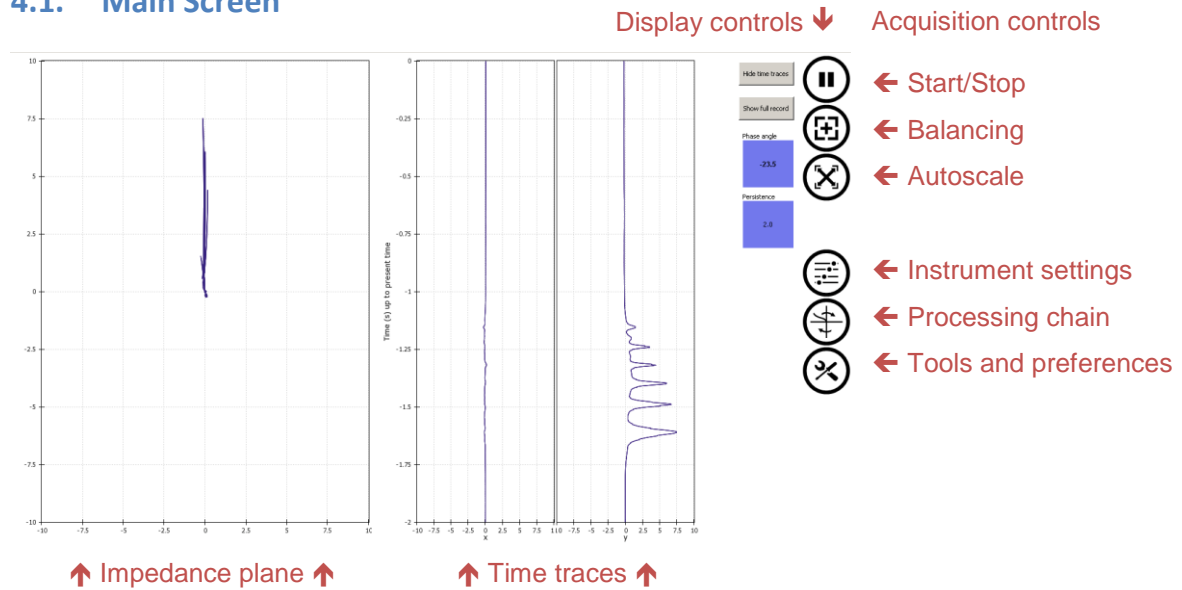|	Description	Tactile	Mouse & keyboard
Dials Phase angle 0.0	Many settings can be changed through these dials which combine the functions of a slider and an editable box	Touch and drag to change the value continuously. You can drag in any direction (horizontally or vertically) Touch and release to edit the value with the keyboard.	Click and drag to change the value continuously. You can drag in any direction (horizontally or vertically); you can use the CTRL and SHIFT keys to make fine or coarse adjustments respectively. Touch and release to edit the value with the keyboard.
Tooltips Save data and report [s, Ctrl-s]	Most of the buttons and dials can display a short summary of their function.	Touch the button or dial and leave your finger on it until the tooltip appears.	Hover over the button or dial with the mouse pointer until the tooltip appears
Shortcuts	Some functions can be accessed by a simple key (e.g. toggling between full screen and windowed views with 'f').	Not relevant	The equivalent keyboard shortcut is shown in the help tooltip in square brackets ('[…]')
Panels	Settings are grouped in panels which are opened and closed by clicking on the corresponding button.	Touch the corresponding button.	Click the corresponding button.

3. Impedance plane and time traces controls:

	Tactile	Mouse & keyboard
Panning	Touch anywhere inside a plot area and drag	Click anywhere inside a plot area and drag
Zoom	"Pinch" in or out around the region of interest	Move the mouse pointer over the point of interest and use the mouse wheel to zoom in or out (or the "scroll" gesture on a trackpad)
Zoom box	(Not really relevant, but you can use the on-screen keyboard and follow the "mouse & keyboard" procedure).	Press the 'Z' key. The mouse pointer changes to a magnifier shape. Click and drag around the region of interest
Zoom back to original	(Not really relevant, but you can use the on-screen keyboard and follow the "mouse & keyboard" procedure).	Press the 'ESC' (escape) key.
Show/ hide time traces	Touch the "Show time traces" button to show a rolling chart of the horizontal and vertical components.	Click the "Show time traces" button to show a rolling chart of the horizontal and vertical components.
Show/ hide full record	Touch the "Show full record" to display the totality of the last scan. This option is accessible only when the measurement is stopped.	Click the "Show full record" to display the totality of the last scan.
Navigate the full record	The portion of the data displayed on-screen can be selected in the box on the right of the time traces. Touch and drag to select a zone. The selected region will be highlighted in blue. You can touch within this region and drag to move it. This feature is enabled only if the "Time slice selection viewer" is activated in the preferences.	Click and drag to select a zone within the time selection box on the right of the time traces. The selected region will be highlighted in blue. You can click within this region and drag to move it.

4. Overview of the interface

Important note: the actual look of the interface may differ slightly from the ones presented here. This depends on the software version and on the actual instrument you are using.
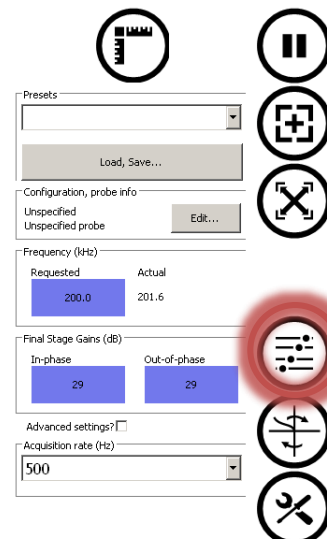
4.1. Main Screen

Display controls ↓   Acquisition controls

← Start/Stop

← Balancing

← Autoscale

← Instrument settings

← Processing chain

← Tools and preferences

↑ Impedance plane ↑   ↑ Time traces ↑

The three buttons on the top are the most used ones: starting and stopping the acquisition, performing a balancing and autoscaling the data. The three other open specific additional panels as described below.

4.2. Instrument settings panel

Depending on your instrument and software version, the instrument settings panel will look like this.

It is a collection of dials, buttons, selectors and text fields grouped by functions.

4.2.1. Presets

Presets provide an easy way to recall settings. To recall a preset, simply select it from the drop-down list. Settings are immediately applied to the instrument. There are no limits to their number.
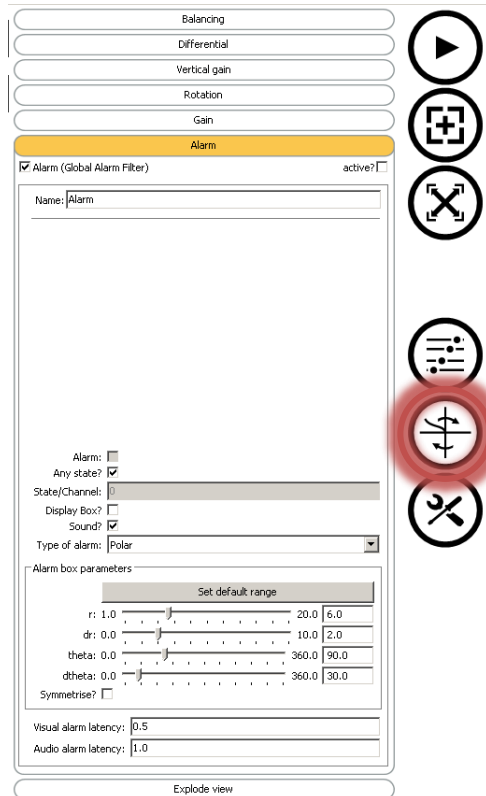
4.2.2. Saving instrument settings

Acquisition settings can be saved in two ways:
1. As a normal file you can store anywhere
2. As a preset to be reused quickly on the same machine

Clicking on the *"Load, Save"* button below the list of presets brings a dialog allowing you to manage settings files and presets. To save a preset, open the dialog box, give a name and click the *Add to presets* button.

4.3. Processing chain settings

The processing chain is made of filters transforming the measured raw signal. Each filter can be renamed and activated or deactivated at any time. In case of multichannel acquisition, certain filters will automatically give access to channel-by-channel settings in addition to global ones (e.g. the rotation/phase angle filter gives a global rotation angle and one per channel).

The processing chain or filter panel looks like this.

The filters are applied to the data in the order shown on screen.

Clicking on a filter unfolds to reveal its control panel. In the presented screenshot, the alarm filter settings are shown.

Filters have global parameters, which apply to all channels, as well as channel settings. The global parameters are useful to adjust all channels at once, such as in the case of an array with a homogeneous response. The channel settings serve to compensate for small element-to-element variations.

4.4. Tools and preferences panel

Save data and report ➔

Load data ➔

Edit preferences ➔

Full screen toggle button ➔

Quit application ➔

The tools button opens the data management and application tools panel represented here.

4.4.1. Save data and report

Activating this button brings the report editor window up. In this window you can add comments about the saved data contents (e.g. indications) and other information about the inspection (location, inspected part, etc.). All these are saved with the data and used to generate the report. Everything you enter here is remembered by UPECView, so that the fields are already filled with the previous values the next time you want to save data. The fields are presented in a way that the ones that should be changed les frequently are near the bottom of the panel (e.g. the picture file for the company logo). Clicking "OK" opens the file selection dialog in which you choose the data file name and location. Once done, UPECView saves a data file (with extension '.sidata') and, if the corresponding options are on in the preferences, a HTML report ('.html' extension) and a Word report ('.docx' extension). The current view of the data as you see it on screen is used inside the report.

4.4.2. Load data

Clicking on the "Load data" button allows you to select a data file ('.sidata' extension) and display it in a separate window. You can edit any of the processing chain parameters and save the modified data again if you want.

4.4.3. Other tools

Global software preferences are accessed by the "Edit preferences" button. Different tabs are presented allowing to parameterize different aspects of the software. For instance, you can select whether the application should start in full screen or not or if you want the control buttons on the left-hand side or right-hand side of the screen. Some of these require to restart the software to be effective. One of the panels presents the inspection data associated with the reporting so that it can be prefilled before starting the measurement campaign.

The two other buttons are for toggling between full screen and windowed modes and for quitting the software.

5. Software installation

You can install the UPECView software which you find on the provided USB key on as many PCs or tablet as you want. The software is tested on Microsoft Windows 8.1 and on a selected range of hardware (list on request).[i] Sensima inspection can provide assistance on request.

5.1. Installation procedure

IMPORTANT: Please install software and device drivers BEFORE connecting the UPEC tester to your PC or tablet.

1. Connect the provided USB key to your tablet or PC.
2. Start `UPECView setup.exe` (double-click) which you find in the root directory of the key
3. Follow the installation wizard instructions. The installer will install the device driver as well.
4. In case of a problem with the driver installation, a driver installer is provided in `CDM20824_Setup.exe` in the 'drivers' directory.

Document revisions
2014-11-12 rev-002
2014-09-10 rev-001 (original)

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[i] The software should however run on any Microsoft Windows XP with SP3 or newer (Windows 7, 8.x) and on any recent PC.