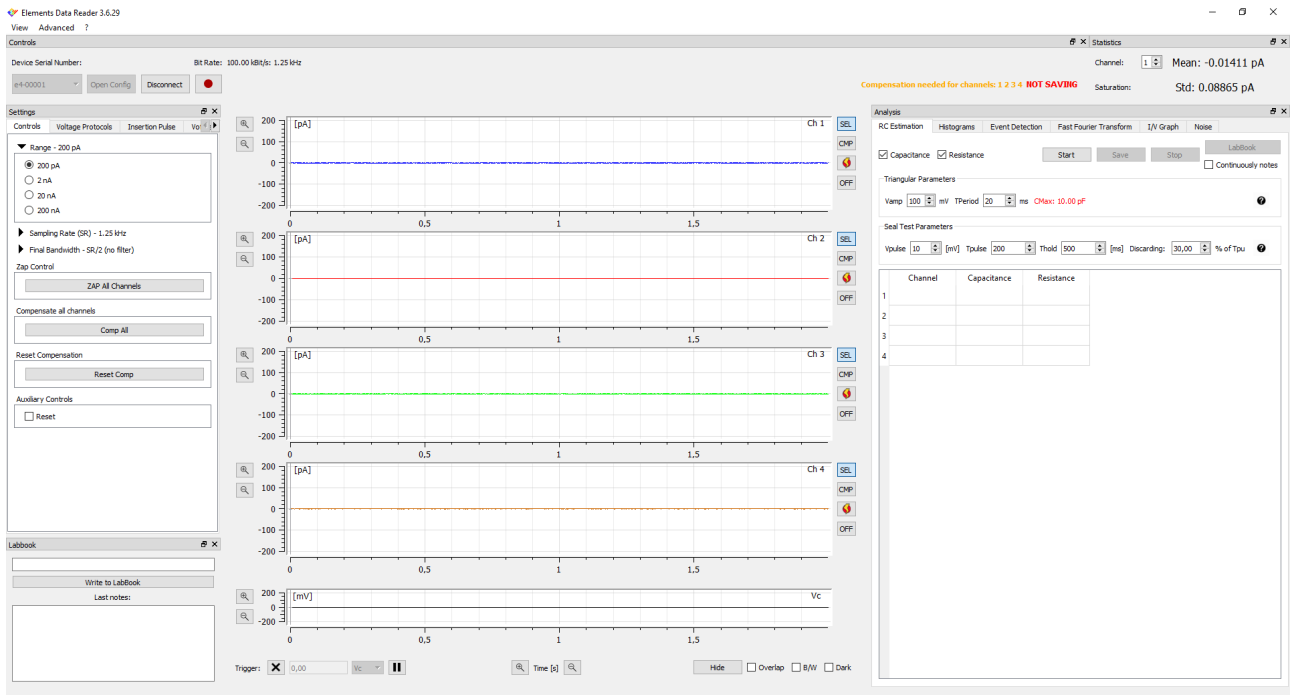


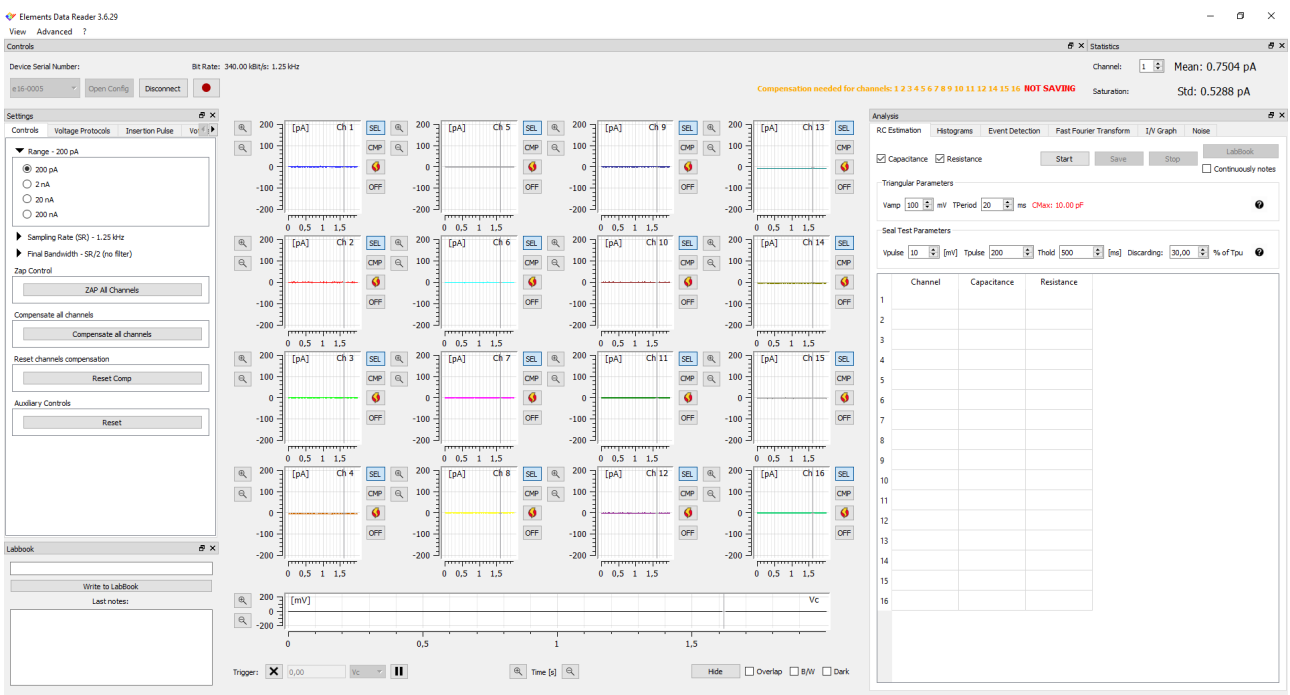
Features for multi-channel devices

This document describes EDR features that can be used with multi-channel devices.

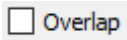
4 channels:



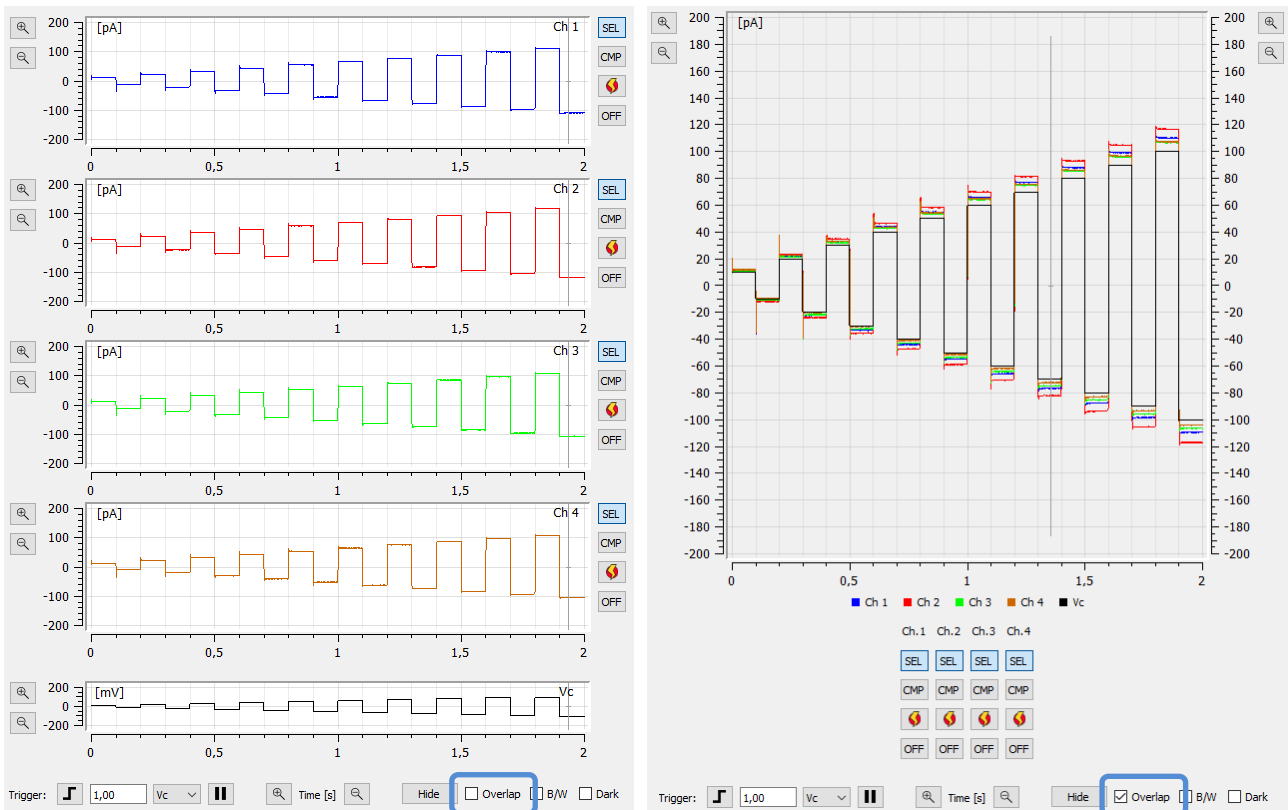
16 channels:



Overlap plots



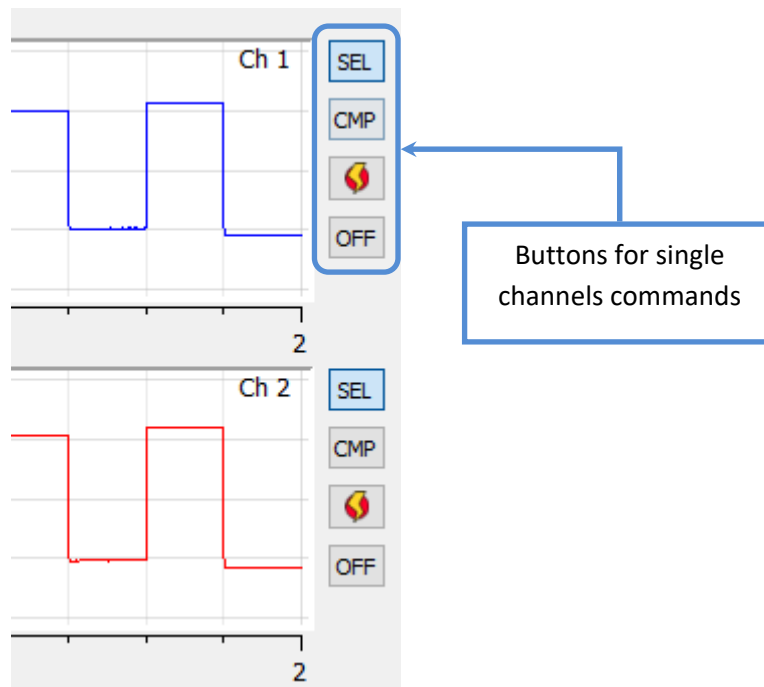
This button can overlap all traces in a single plot or split them in separate plots (by default plots are split: box unchecked). In overlap mode there are 2 separate y-axis: the one on the left is for current traces, while the one on the right is for the voltage trace.



Overlap/Split
plots

Single channel commands

EDR offers commands to control single channels in multi channels devices. These commands are available as buttons on the right side of each current plot:

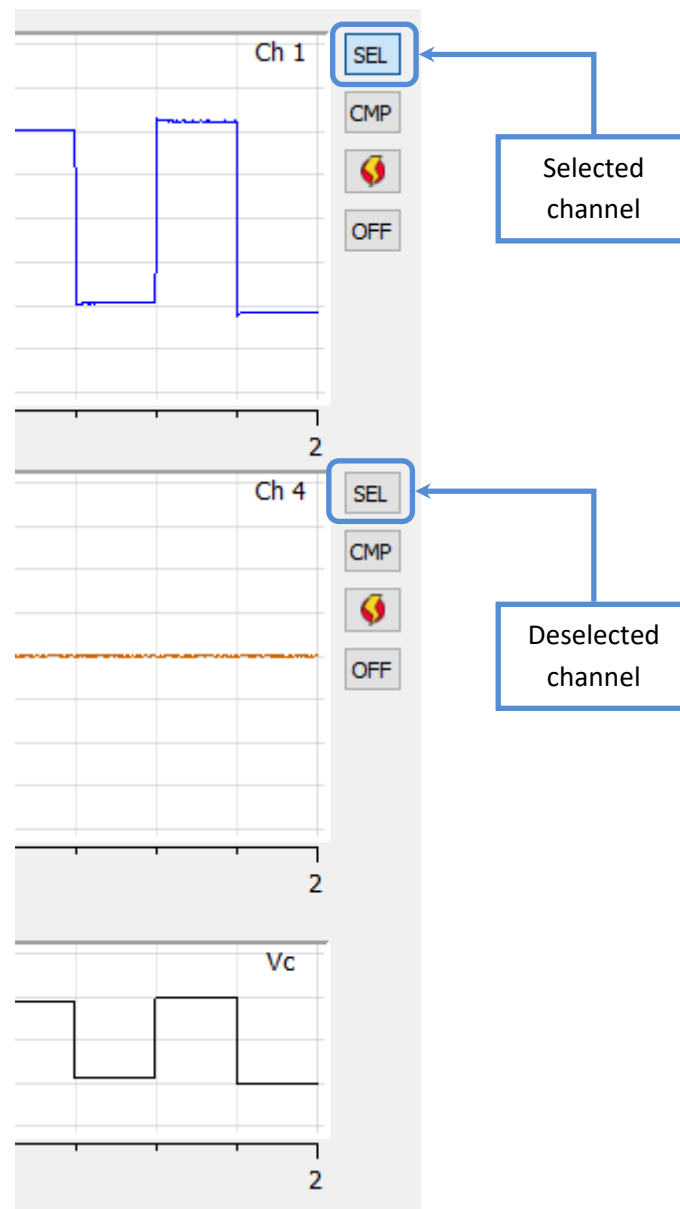


The following chapters will briefly describe the functionalities implemented by these commands.

Select channel for voltage protocol



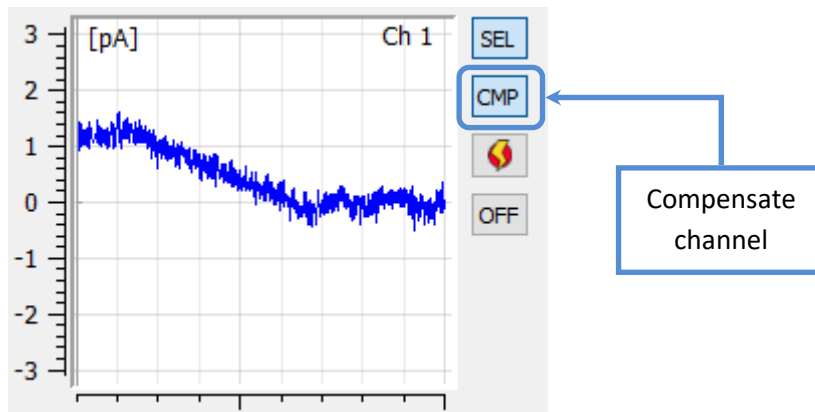
Pressing this button will select/deselect a channel for voltage protocols application (all channels are selected by default: button pressed). This feature allows the application of a voltage protocol to a subset of the available channels while leaving the other channels alone.



Digital offset compensation



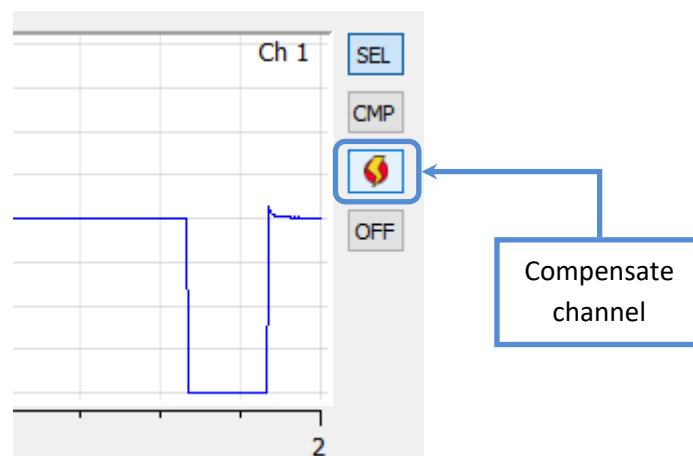
Pressing this button will activate/deactivate the digital offset compensation procedure on a channel (by default digital offset compensation procedures are deactivated: button released). The digital offset compensation corrects/modifies the voltage applied to the device under test in order to compensate for electrode voltage offset. This way, when the user applies 0 V the actual potential applied on the DUT is slightly different so that the net current flowing is 0.



Zap



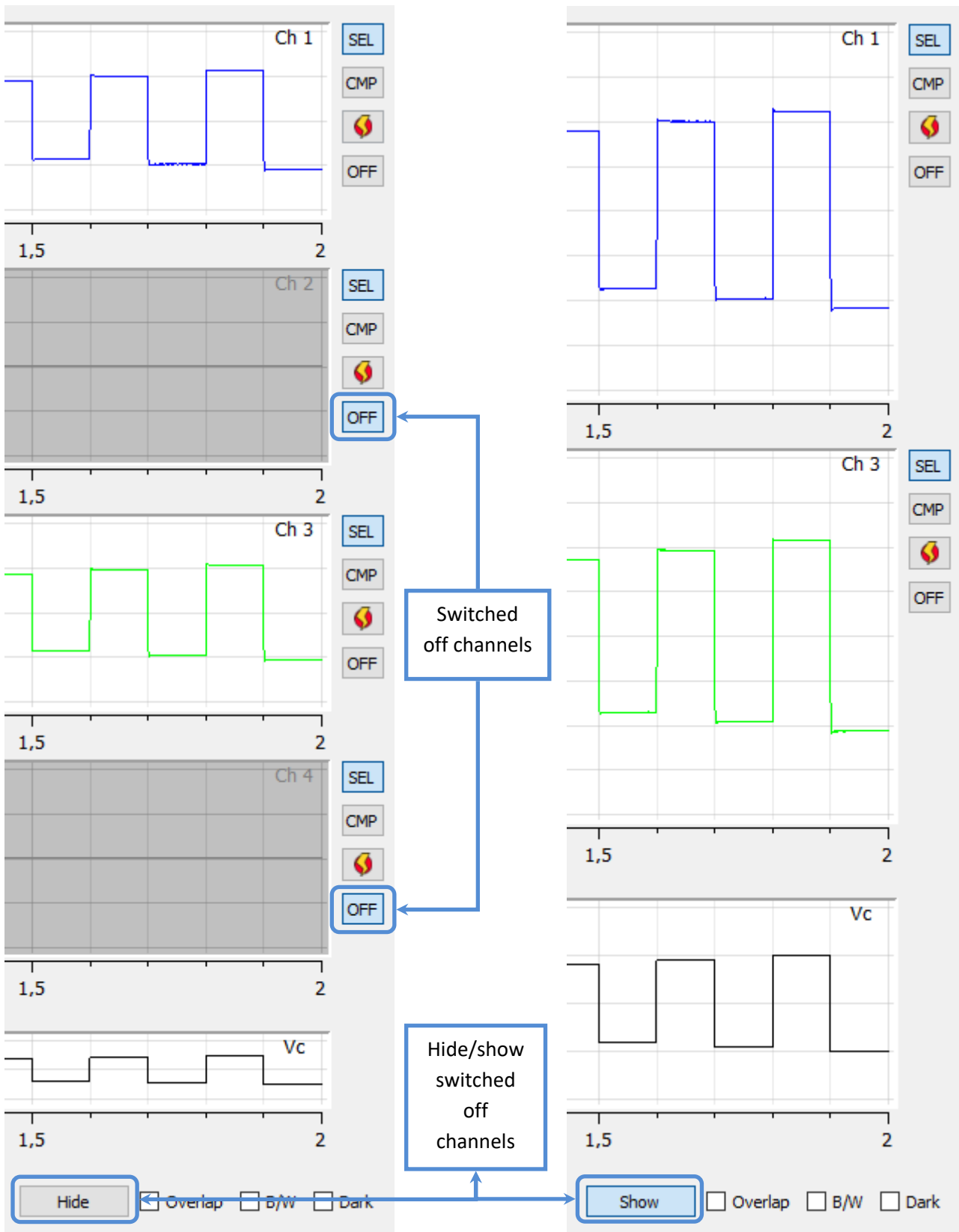
This button applies a zap to a channel. The zap applies -1V for 100ms and is typically used to break the lipid bi-layer when it is badly formed, e.g. a clog.



Switch off channels



Pressing this button will switch on/off a channel (all channels are switched on by default: button released). Switching of a channel is useful to neglect irrelevant data, such as data coming from a broken bi-layer, and concentrate on more meaningful data. Switched off channels are easily recognizable since their plot are grayed out and their trace is identically 0. They can also be removed using the button “Hide” or brought back using the button “Show” on the bottom right corner of the plots.



Note also that in order to minimize cross-talk with the switched channels (recall that a common use case is for broken bi-layer, which means very low resistances and thus very high currents), voltage protocols are not applied on switched off channels and their current offset is continuously digitally compensated.