

Tutorial 8 Unit setting and unit analysis

Tutorial 8. Unit setting and unit analysis (using data file fec0301)

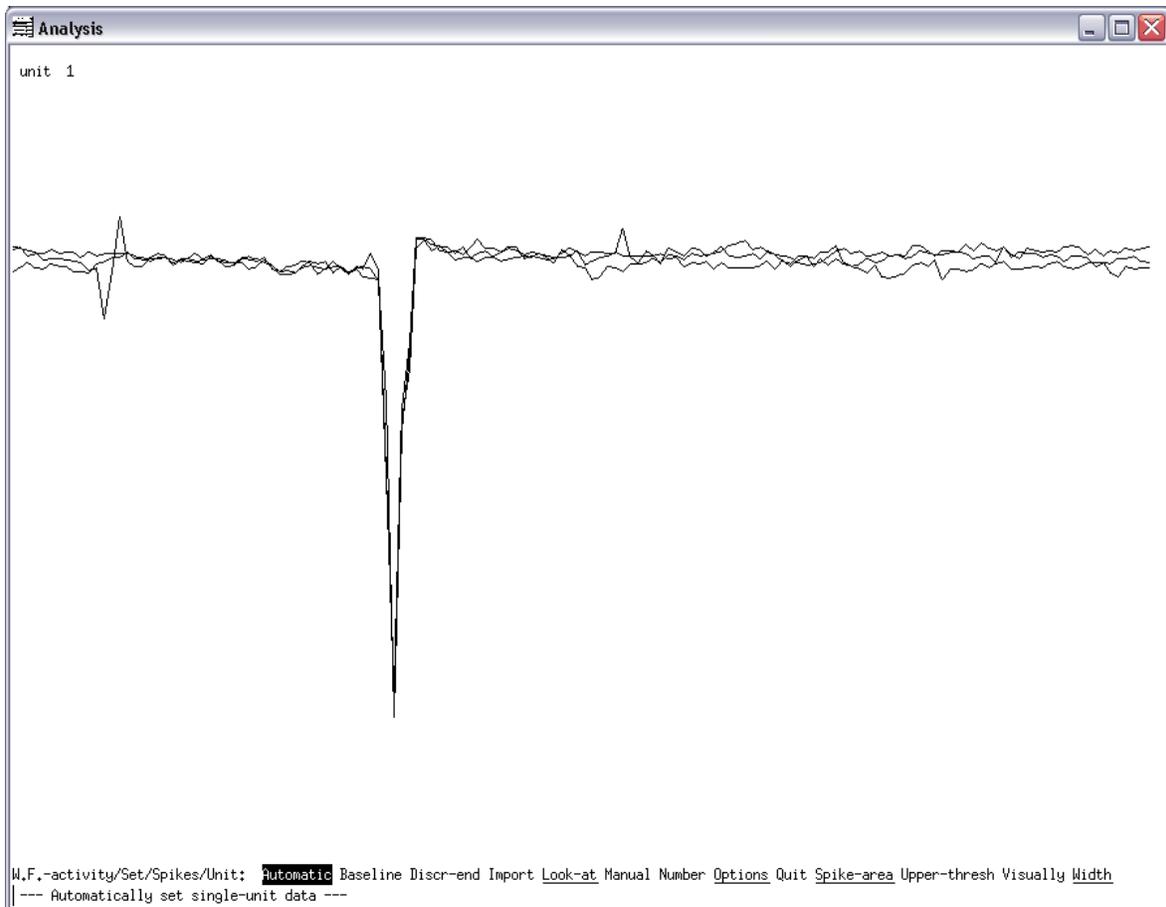
1. Set the waveform number which contains your unit recordings. If you have traces only, you may re-frame the traces and create a new waveform so in-between the traces there will be only a line without the noise on the channel. Select set, spike, waveform, number and enter waveform 13. Then return to the main menu of analysis.

Select a very small section of the waveform you have the unit on. You would want a range that is around 100 ms long and it contains the unit of interest. For the data file used for this tutorial, you can set the range from 24.1 s to 24.2 s. If you look carefully you will see that trace 93 falls into this section and you will notice the unit firing after the stimulation. Then select waveform activity from the main menu and enter 13. Then select Set, Spike, Visually. Now you should see a screen that contains a 100 ms long section from waveform 13 and the cursors are visible. Next you should set the cursors on the unit of interest. First define the start threshold, then the hysteresis and the discriminator. You should be able to use the mouse to set all of these three levels. You may want to try different setting so the selected unit match the closes the ones you consider as units of interest. On this section, there are 3 spikes that you should be able to pick up by your settings. If you have less, that is not good at all. You should change the cursor settings before you proceed. If you have more than 3 units, that is OK, you will be able to delete some of the unwanted unit in the unit setting menu, but you could be more efficient if you changed the cursors settings and select only the 3 units here. With other data files you may not be able to select only the units of interest with the spike setting menu, then it is OK to proceed. Next you will have to press D for done and from the menu select Unit analysis. First of all, you will have to set the number of single-unit waveform spike data set. You can select Number from the menu and enter 1. Note that if number is set to 0, then all of the unit setting are ignored and the spike settings are used by the analysis program. Next select Visually from the menu and then Visually. Next select the baseline of the unit (where the spike should return to) and the second discriminator by using your cursors. Then select Width from the menu to set the minimum and maximum width of the spike you accept. For this, again, you should be able to use the mouse. Then hit done and quit to get back to the unit setting menu. Next you should select automatic so

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the program selects all the units that fir the set parameters in the selected range. Since your range is small, you should see small number of units. In our case it should be 3 units as shown in figure 8.1.

Fig 8.1 Unit selected



Next you should select manually from the menu. This option will allow you to go through the selected units one by one and accept or reject them as part of setting number 1. Now go through each unit and accept all of them. By pressing N you will see the next unit. Note that number of the units in the top left corner of the screen. This information is useful for knowing what are the units that you have checked already. After you sorted the units, you press D for quitting this menu and then select Look-at from the menu. Then select current and you should

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see again all the spikes that the program accepted. This is a very similar screen as in figure x.1. Then you will quit the waveform activity setting menu and save the modified parameters and return to the main menu of analysis.

S,S,W,N: 13<CR><Esc> W:13<CR>S,S,V, set the cursors, D, U, N:1<CR>, V, set cursors, D, W,V, set cursors, D, Q, A, M, go through the units and delete the unwanted ones, D, L, C,Q,Q,Q,Q,Q,<CR>,Q.

Then you will have to set the range to a larger window and repeat almost everything as above without any change of the cursors positions. Select waveform activity: 13, and set, spikes, visually. Do not change the cursors settings, just press done. Then select Unit and set the number to number 1 and select automatic to generate the selection and overlay of units. Then select Manually to go through each unit and delete the ones that are artifacts of other unwanted spikes. W:13, S,S,V, do not change cursors, D, U, N:1,A