Technical Support
Knowledge Center Open

Get all waveform data in U2701A or U2702A

KEYSIGHT TECHNOLOGIES

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Frequently Asked Questions (FAQs)

Summary

Introduce how to get all waveform data in U2701A or U2702A.

Question

How can user get all waveform data in U2701A or U2702A?

Answer

U2701A has the capability to 32Mpts of waveform data. You can refer to the IVI help file to understand better the readwaveform and readfullwaveform. The main difference is that readwaveform only grab 1250points whereas readfullwaveform is to grab the memory depth depending on your settings with and without interleaving.
We have the VEE based example that can show how to do full memory depth acquisition. Please also refer to AMM manual on how to grab full memory if you're interested. However, for AMM, the result is a binary file that needs further conversion. Users may make their own converter or we can supply a conversion program in VEE for illustration. Please refer to attached VEE program for detail information.

Data size in the scope's buffer

Operation Mode	Single Shot Operation	Continuous Operation
1 Channel ON	32M (64M when interleave)	16M (32M when interleave)
2 Channels ON	32M	16M

There are 2 buffers in the U2701/2A USB modular scope. Each buffer can store either 16M of data (Continuous Mode operation) or 32M of data (Single Shot operation).

Under Single Shot operation:

- If both channels are turned ON, buffer 1 will store 32M of data from ch1 and buffer 2 will store 32M of data from ch2.
- If only 1 channel is turned ON, interleave will happen. Buffer 1 will capture all the odd numbers data points (1st, 3rd, 5th, ..) , while buffer 2 will capture all the even numbers data points (2nd, 4th, 6th, ..) detected by the ON-ed channel. User need to read both buffers in a zig-zag manner in order to achieve 64M of data.

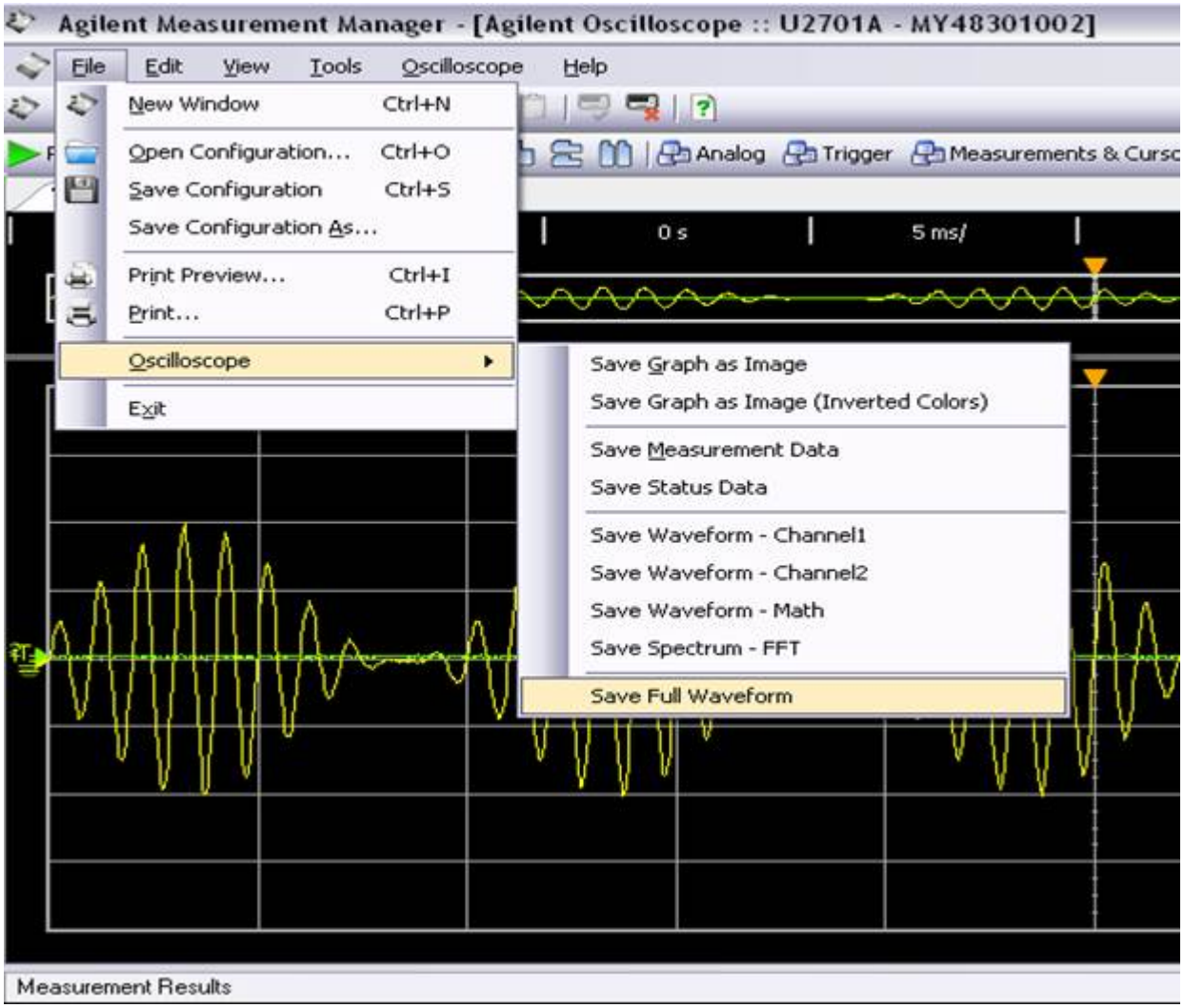
Under Continuous operation:

- If both channels are turned ON, buffer 1 will store 16M of data from ch1 and buffer 2 will store 16M of data from ch2.
- If only 1 channel is turned ON, interleave will happen and the condition is the same as in Single-channel Single Shot operation.

There are 2 ways to get points
1. Why only 1250 points and not the whole 32/64Mpts? (single channel acquisition
You can refer to the IVI help file to understand better the readwaveform and readfullwaveform. The

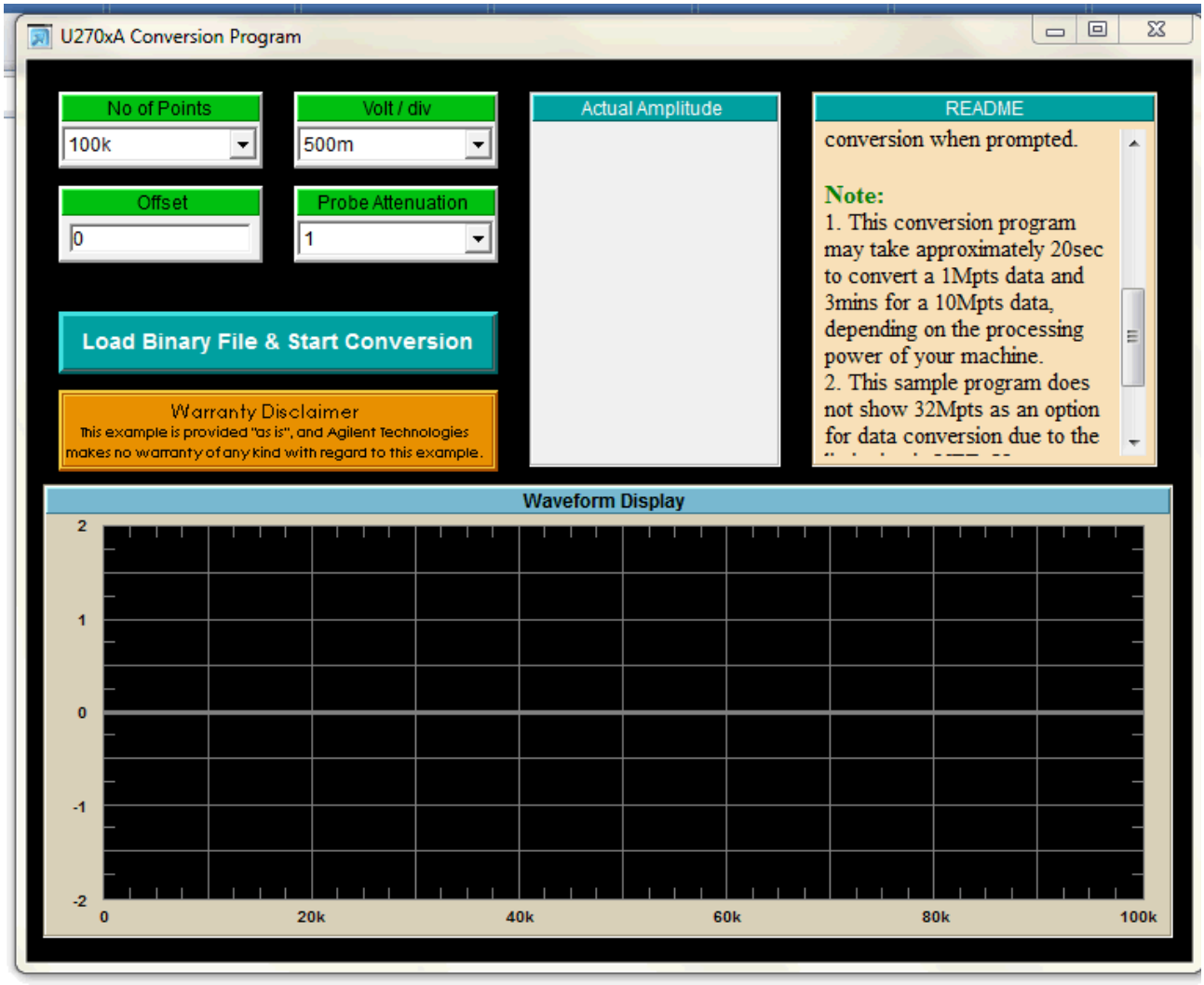
main difference is that readwaveform only grab 1250points whereas readfullwaveform is to grab the memory depth depending on your settings with and without interleaving.
Please keep in mind that the FFT is 1250 points (for 500 ns and above).
For example the 250 Video frame sample, the frame period should be 5 seconds which make up 250 x 5 = 1250 (Number of point display)

2. How can we acquire / display (and save) the whole 32Mpts in AMM?
You can use AMM to create the Full waveform 32 MB BIN files.

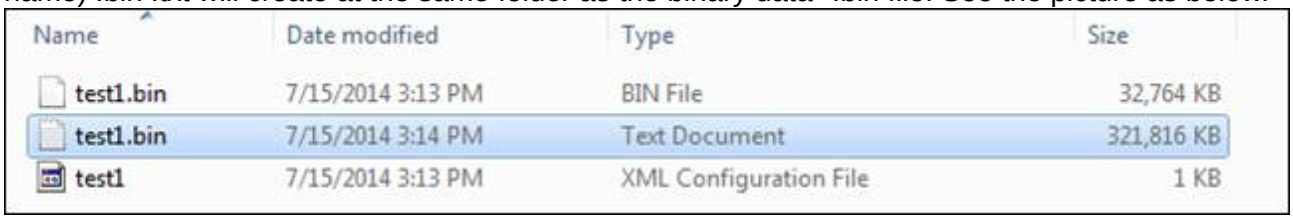


The BIN file is useful when using with VEE converter program as attached. Once we had converted the file by using the VEE, a different data as text file is created. The file name is (binary file name) .bin .txt. You may refer to the bin.txt to use it as the ASCII file. You need to open the bin.txt file with notepad ++ cause the file size is very big (32 million rows). BTW, notepad ++ is a free software and it is available to download.
Note: If open with notepad, an error with occurred.

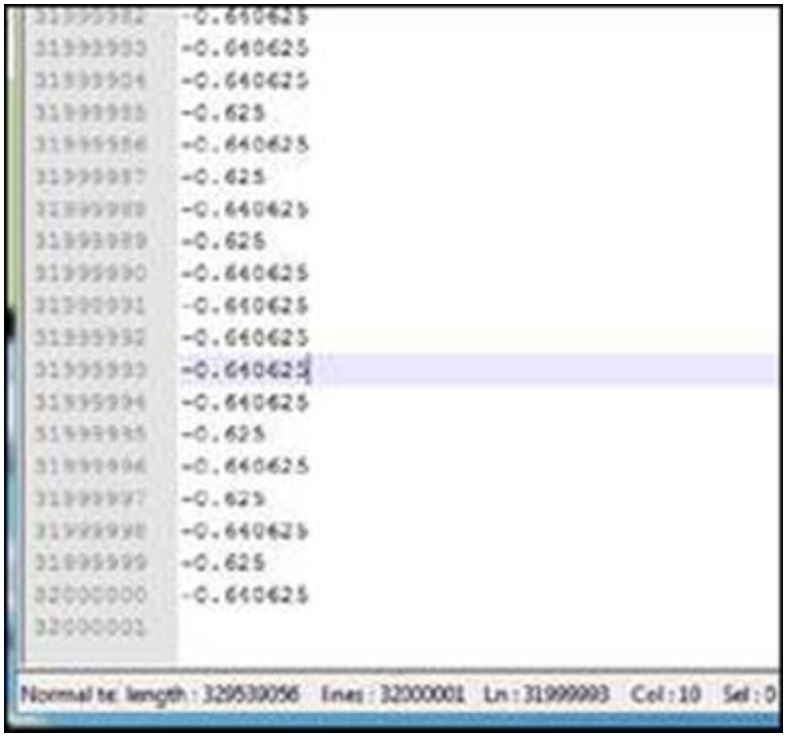
The picture is U270xA conversion program.



Once we had converted the file by using the VEE, the file name with “Type” (binary file name) .bin .txt will create at the same folder as the binary data *.bin file. See the picture as below.



The text file open by using the notepad ++



Note: We are not able to convert the BIN file (created by AMM) to CSV format excel file as there is limitation on the csv format. For your information, there is only 1 million rows in csv format. Hence, our bin file which contain about 32 million rows cannot convert into csv format. If we insist to convert, an error will occur. That is one of the reasons why we are not provide data in csv format.

Attachments

U270xA_Readfullwaveform
U270xA_Convesion_Program32M

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