File contents:

K-Function Generator5x.vi: a LabVIEW ver 5 example program
Required sub Vis:

compute func gen waveform 5.vi
display subVI 5.vi
func gen globals 5.vi
funct gen subVI 5.vi
manage radio buttons for generators 5.vi

K-Function Generator6x.vi: a LabVIEW ver 6 example program
Required sub Vis:

compute func gen waveform 6.vi
display subVI 6.vi
func gen globals 6.vi
funct gen subVI 6.vi
manage radio buttons for generators 6.vi

Hardware Requirements:
An analog output board capable of paced mode analog outputs and DriverLINX driver. Examples of appropriate hardware are: KPCI-3108, KPCI-3116, KPCI-3110, KPCI-1801HC, KPCI-1802HC, DAS-1802AO, etc.

NOTE: the KPCI-3102, KPCI-3104 and KPCI-3130 Series are not compatible with this example and will generate an invalid clock error message. These boards do not support paced mode (clocked) analog output.

Use Consideration:

When using the K-Function Generator6x.vi, one should be aware of software issues related to this example. First, you cannot re-Run the program with out properly stopping the software driver using the Stop command button in the dialog window. For example, if you attempt to re-Run this example without first using the Stop command button and chose the Abort execution (compiler termination); the VI will generate the following error upon subsequent Run execution.

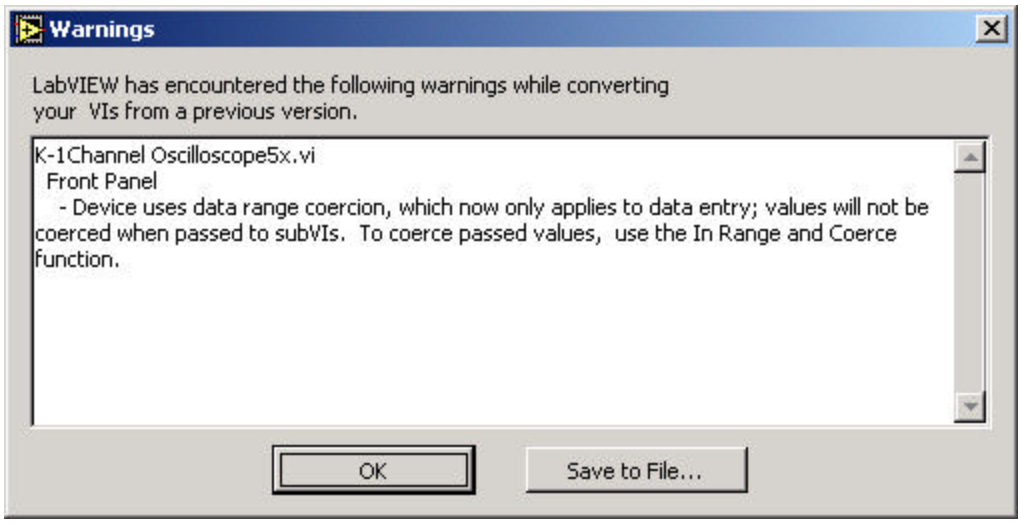
This error is due to the fact that the DriverLINX software driver requires explicit stopping of an active task before a new one (at a new output rate) can be attempted. The Stop command button activates a subVI property that stops the active AO Task.

The other noticeable features are:

1. Frequency (knob) will not update when in Run mode. You need to make your frequency adjustments and then Stop and re-Run the application. At present, the Keithley AO Clock Config subVI does not support a rate change at the end of the current buffer iteration.
2. The example defaults to analog output Channel 0 of your data acquisition card

3. The device number is set to 1 and requires this LabVIEW device number assignment in the DriverLINX Configuration Panel(LabVIEW tab) for your installed DriverLINX device
4. The Frequency (knob) will adjust only AO update rate between 1,000 to 10,000 updates a second. This update range is constant for 1, 10, 100 and 1k range settings.
5. The "choppy" output in the 1K Hz range is due to only 10 data points representing one cycle. The algorithm employed by this VI uses 10,000 data points to represent one complete cycle at one Hz. For rates faster than 1Hz, the algorithm determines the number of steps per cycle or resolution by dividing 10,000 by the selected range. In the case of the 1KHz range, this leaves only 10 points to comprise a cycle. If this is does not meet your requirements, you can use the Keithley Buffered AO.vi example (KI DAQ Examples folder) which uses a different algorithm called Compute Waveforms.vi to generate the signal data.

Finally, there are two function generator examples made for specific LabVIEW versions 5.x and 6.x. Unfortunately, the 5.x version will generate the following error in LabVIEW 6.x when converting the program.



Therefore, a customized 6.x example version has been provided. If you still have a need for more information on the above topic, National Instruments' web site has two relevant documents (Document ID 202G75XC and 203FKJXC) that cover available workaround for version related LabVIEW issues.

Please Note: This example program was developed and tested by a Keithley Applications Engineer for technical support purposes. This code may not be completely tested and verified with each new revision of LabVIEW and DriverLINX software drivers.