

KineticSystems Soft Front Panel “SoftView™”

A good soft front panel application is a key tool for quickly learning, evaluating—and in some cases using—a new instrument. KineticSystems’ new soft front panel application “SoftView” is a simple yet powerful tool that integrates KineticSystems’ entire line of CompactPCI/PXI instruments into a single software package.

The screenshot displays the KineticSystems SoftView™ software interface. The main window is titled "SoftView" and shows the instrument configuration for "cp213" (Vendor: 11f4, Model: 213). The interface is divided into several sections:

- Instrument:** A dropdown menu showing "cp213" and "Vendor: 11f4 Model: 213". A checkbox "Enable Device When Not Selected" is present.
- Operations:** A vertical stack of buttons: "calibrate", "reset", "start", "stop", "verifyAllThermocoupleChannels", "clear Events", "clear Status", and "clear Configuration".
- Configure:** A vertical stack of buttons: "Global", "Analog Channel", "Digital Channel", "Counter Channel", "Frequency Channel", "Event Type", "Analog Connector", and "I/O Connector".
- Graph:** A window titled "Graph" with a "Digital" tab. It displays a plot for "AnalogChannel1(volts)". The plot shows three waveforms: a red sine wave, a yellow square wave, and a blue sawtooth wave. The vertical axis ranges from -13.333 to 3.3333, and the horizontal axis ranges from 9.6667 to 10.0000. The plot is labeled "Display".
- Events:** A section with a "start.Operation" button.
- Status:** A section with a "Status" label.

A dialog box titled "cp213 Analog Channel Configuration" is open, showing a table of channels:

Enable	Name	Input Range	Level Check Mode
<input checked="" type="checkbox"/>	AnalogChannel1	-10V to 10V	Off
<input type="checkbox"/>	AnalogChannel2	-10V to 10V	Off
<input type="checkbox"/>	AnalogChannel3	5V to 5V	Off
<input type="checkbox"/>	AnalogChannel3	2V to 2V	Off
<input type="checkbox"/>	AnalogChannel4	-1V to 1V	Off
<input type="checkbox"/>	AnalogChannel5	-500mV to 500mV	Off
<input type="checkbox"/>	AnalogChannel6	-200mV to 200mV	Off
<input type="checkbox"/>	AnalogChannel6	-100mV to 100mV	Off
<input type="checkbox"/>	AnalogChannel7	-50mV to 50mV	Off

A "Help" dialog box is also open, showing the description for the "ks213_setAnalogChannelEnable" property:

Description
ks213_setAnalogChannelEnable marks an analog channel as enabled or disabled.

Enable
The enable status of the channel.

- VI_TRUE - enabled
- VI_FALSE - disabled

At the touch of a button, the user can invoke operations on the instrument: calibration, reset, data acquisition start and stop. A touch of another button brings up a dialog for configuring all of the instrument’s properties such as overall sample rate, individual channel enable, filter range, and input level properties. In addition, each property has a help window that displays detailed information about the property and its various options.

After the instrument is configured, the start button activates data acquisition: the instrument is placed in run mode, and the input signals from enabled channels are displayed in a real-time graph window or a numeric table. Autonomous events (interrupts) are displayed as well. With just a few simple mouse clicks, the user can

explore the instrument's functionalities and properties, adjust filter, input range, debounce, and other settings, as well as start acquisition and test the results immediately.

Digital and analog output channels are driven by a simple expression syntax that combines discrete and continuous generation functions with arithmetic operators and conditional logic to create waveforms of arbitrary complexity. This expression syntax can also be applied to input channels, allowing real-time scaling, offsets, change of units, polynomial curve fitting, even synthesizing results from more than one channel. Output channels can be expressed in terms of analog or digital input values, or triggered in response to autonomous events.

SoftView can manage multiple instruments simultaneously, providing the ability to test a complex system of cooperating instruments. Data from digital and A/D input instruments is collected, manipulated and displayed, and can also be used to drive digital and analog outputs on other instruments.

SoftView is built on two underlying software libraries: the SoftView library manages the instruments in the system, while the Stream library manages input and output data from the instruments. In addition to controlling and querying instruments, the SoftView library provides the ability to query for the operations an instrument supports, including all of the instrument's properties, options, and help texts.

The Stream library contains the expression syntax engine, as well as all of the logic to convert raw data to final engineering units and record the data to a file — it even provides the real-time graph images displayed by SoftView. Application Programming Interfaces (APIs) are available for both of these libraries that greatly simplify the task of putting together a custom application featuring the capabilities of the basic SoftView package. Additionally, 3rd party instruments—including VXI, LXI and USB instruments—can be fully integrated under the Softview library to create multi-vendor, multi-platform based applications.

SoftView represents a new standard for CompactPCI/PXI instrumentation software. Other vendors provide minimal written documentation, sample code, and maybe a simple application that hardly demonstrates the instrument's capabilities. SoftView not only provides immediate access to *all* of an instrument's capabilities and features through a simple point-and-click graphical user interface, but it also allows the user to easily construct fully integrated multi-instrument systems, with no programming required.

For further information or to request a demo contact T. R. Livesey, Senior Software Engineer for KineticSystems brand products, DynamicSignals LLC, Web: www.kscorp.com, Email: mkt-info@kscorp.com, Tel: 1-815-838-0005, Fax: 1-815-838-4424.