

Using the Tekscan ELF LabVIEW VI's

Installation

Copy the Tksn-ELF.llb file onto your computer. This file contains all of the VI's used with Tekscan's ELF. To use the VI's, open the Tksn-ELF.llb from LabVIEW and select the desired VI. Details about each individual VI are listed later. The selected VI will usually be added into a VI created by the user, though the 'Getting Started' VI can be used directly.

VI's

All V I's - All ELF VI's include Error In and Error Out connectors. This allows errors generated early in the VI sequence to stop processing in later VI's. They also force data dependencies that force VI's to be executed in a specific order.

VISA Sessions

If you use the separate VI's instead of the Getting Started VI, you must manage the VISA session used to communicate to the sensor.

Create one VISA session for each sensor used (e.g. one session for COM1, another session for COM2 if used) by using the Initialize VI and passing it the serial port number. Pass the created VISA session to other VI's such as Sensitivity VI and Read VI. You must eventually close all open VISA sessions by sending the session to the Close VI.

Getting Started VI

This is the easiest VI to use, since it is completely self-contained. However, for multiple readings, it is slower than using the separate Initialize, Read and Close UI's.



Serial Port varies from 1 to the number of serial ports on your system. 1 = COM1, 2 = COM2 etc. The serial ports defaults to 1 if not connected.

Error In is a standard error structure. If not connected a default structure, set to no error, is used. If Error In indicates a previous error, the VI provides no output and passes the error unmodified to Error Out. Data Read is an integer (U8) which is the pressure reading from the sensor. It can vary from 0 to 255. If either an error occurs internally, or an error is indicated on Error In, no output is produced.

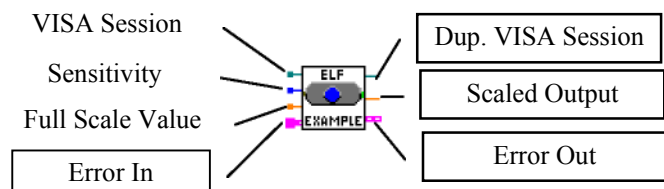
Error Out sends errors to the next VI. This error can either be an error duplicated from Error In, or an error produced in the VI itself.

One data reading is produced for each invocation of the VI. The serial port is opened and closed with each invocation, making it slower than the Read VI (which requires an already opened VISA session).

When viewed as a panel, it shows a strip chart of the current and previous readings.

Tekscan-ELF App Example

This VI shows an example ELF application. This VI requires an open VISA session (which is supplied by the Initialize VI). The VISA session must eventually be closed, by sending it to the Close VI.



This VI shows using the ELF with sensitivity adjustment and scaling the output value (calibration).

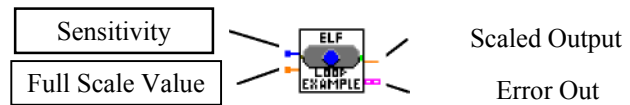
VISA Session Represents an open serial port. This must originate from the Initialize VI. Sensitivity Adjusts the sensitivity of the sensor. It can vary from 1 to 20, with the default being 10.

Full Scale Value Is the calibrated reading which is displayed when the sensor outputs full scale (255 raw). Error In is a standard error structure. If not connected a default structure, set to no error, is used. If Error In indicates a previous error, the VI provides no output and passes the error unmodified to Error Out. Data Read is an integer (U8) which is the pressure reading from the sensor. It can vary from 0 to 255. If either an error occurs internally, or an error is indicated on Error In, no output is produced.

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Tekscan-ELF Loop Example

This example VI is similar to Tekscan-ELF App Example, except that it manages the

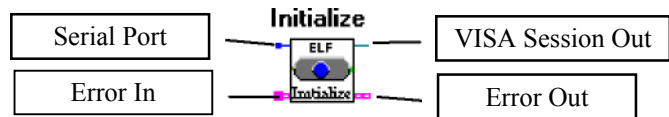


VISA session internally. There is a switch on the soft panel that indicates whether to continue reading the sensor or to stop. Set the switch on and run the VI. The VI will continually read the sensor until the switch is set off.

The inputs and outputs have the same meanings as for the Tekscan-ELF App Example

Initialize

The Initialize VI opens the selected serial port and produces a VISA session that can



be passed to other ELF VI's. The VISA session must eventually be sent to the Close VI to close the serial port.

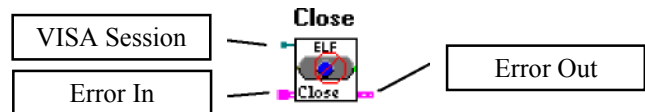
Serial Port varies from 1 to the number of serial ports on your system. 1 = COM1, 2 = COM2 etc. The serial ports defaults to 1 if not connected.

Error In is a standard error structure. If not connected a default structure, set to no error, is used. If Error In indicates a previous error, the VI provides no output and passes the error unmodified to Error Out. VISA Session Represents an open serial port. This may be passed to other VI's, but must be sent to the Close VI when complete.

Error Out sends errors to the next VI. This error can either be an error duplicated from Error In, or an error produced in the VI itself.

Close

The Close VI closes the given VISA session (thereby closing the serial port). All VISA

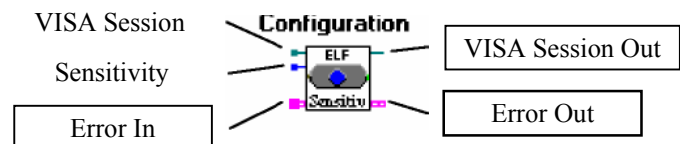


sessions opened by the Initialize VI must be closed by the Close VI when processing is complete.

Error In is a standard error structure. If not connected a default structure, set to no error, is used. If Error In indicates a previous error, the VI provides no output and passes the error unmodified to Error Out. VISA Session Represents an open serial port. This session is closed when the VI runs.

Error Out sends errors to the next VI. This error can either be an error duplicated from Error In, or an error produced in the VI itself.

Sensitivity



This VI sets the sensitivity of the ELF sensor. The sensitivity can vary from 1 to 20, with the default at 10. A higher sensitivity produces a higher reading for the same force. The sensitivity stays in place until the VISA session is closed

VISA Session Represents an open serial port. This must originate from the Initialize VI.

Sensitivity Adjusts the sensitivity of the sensor. It can vary from 1 to 20, with the default being 10.

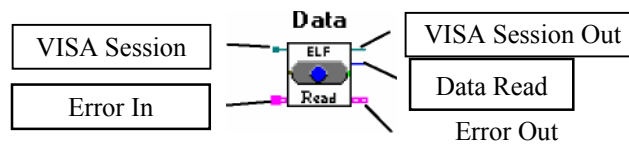
Error In is a standard error structure. If not connected a default structure, set to no error, is used. If Error In indicates a previous error, the VI provides no output and passes the error unmodified to Error Out.

VISA Session Out Represents an open serial port. This may be passed to other VI's, but must be sent to the Close VI when complete.

Error Out sends errors to the next VI. This error can either be an error duplicated from Error In, or an error produced in the VI itself.

Read

This VI gets a single reading from the sensor. The reading is a single byte (0 – 255).



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