

LabView driver for the SRS PTC10

Stanford Research Systems
Programmable Temperature Controller model #10
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Initialize



Global



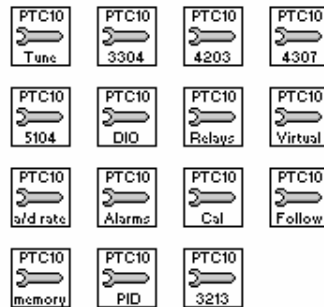
Application



Close



Configuration



Action



Status



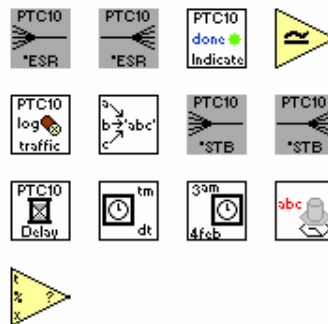
Data



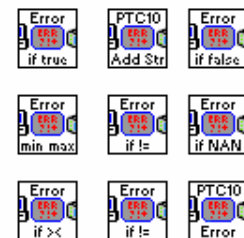
Communication



Utility



Error



Application VIs (example applications)

SrsPtcAppGraph.vi: This application monitors and graphs one data channel on an SRS PTC10 Programmable Temperature Controller

SrsPtcAppInteractive.vi: The PTC10 Interactive Terminal sends commands & queries and receives replies from an SRS PTC10 Programmable Temperature Controller.

SrsPtcAppMonitor.vi: Monitors up to four data channels on an SRS PTC10 Programmable Temperature Controller. This stand-alone application should not be called from another program.

SrsPtcAppSaveDataLog.vi: This application saves one SRS PTC10 data log channel to the local disk. The LabView VISA / SRS PTC10 comm traffic log is NOT the same as the SRS PTC10 data log.

Instrument / LabView control VIs

SrsPtcInstInitialize.vi: Initializes LabView VISA communication with an SRS PTC10 Programmable Temperature Controller

SrsPtcInstClose.vi: Closes communication with an SRS PTC10 Programmable Temperature Controller

SrsPtcInstGlobal.vi: Contains the global variables for this device driver

Action VIs

SrsPtcActionOutputEnable.vi: PTC10 Output Enable turns all outputs on or off

SrsPtcActionReset.vi: PTC10 Reset executes one of the PTC10 reset functions

SrsPtcActionSelftest.vi: Executes an IEEE-488 *TST? query to a PTC10. An error is added to the error cluster if the selftest fails.

Data VIs

SrsPtcDataInfo.vi: Queries information about the PTC10 Programmable Temperature Controller

SrsPtcDataRead.vi: Reads data from one channel of an SRS PTC10 Programmable Temperature Controller

SrsPtcDataWaitTillStable.vi: Reads data from one channel of an SRS PTC10 Programmable Temperature Controller until the data becomes stable near the expected value. Generates an error if it doesn't.

Status VIs

SrsPtcStatus.vi: Do PTC10 status

- Read *STB? (IEEE-488 Status Byte)
- If the Event Summary Bit is set, read *ESR? (IEEE-488 Event Status Register)
- If the Alarm Status Bit is set, read *ASR? (PTC10 Alarm Status Register)

See also:

SrsPtcUtilEsrBitsIn
SrsPtcUtilEsrBitsOut
SrsPtcUtilStbBitsIn
SrsPtcUtilStbBitsOut

Configuration VIs

SrsPtcConfigAdRate.vi: Configure the A/D rate of the SRS PTC10 Programmable Temperature Controller

SrsPtcConfig3213.vi: Configure a PTC3213 RTD reader input channel

SrsPtcConfig3304.vi: Configure a PTC3304 thermocouple reader input channel

SrsPtcConfig4203.vi: Configure a PTC4203 AC heater driver output channel
SrsPtcConfig4307.vi: Configure a PTC4307 DC heater driver output channel
SrsPtcConfig5104.vi: Configure a PTC5104 analog I/O channel
SrsPtcConfig5203Dio.vi: Configure a PTC5203 digital I/O channel
SrsPtcConfig5203Relay.vi: Configure a PTC5203 relay output channel
SrsPtcConfig5203Virtual.vi: Configure a PTC5203 virtual I/O channel
SrsPtcConfigAlarm.vi: Configure a PTC10 input channel alarm
SrsPtcConfigCal.vi: Configure the calibration parameters of a PTC10 input channel
SrsPtcConfigPid.vi: Configure the PID parameters of a PTC10 output channel
SrsPtcConfigMemory.vi: Configure one PID memory parameter set for a PTC10 output channel
SrsPtcConfigTune.vi: Configure the PID tuning parameters of a PTC10 output channel
SrsPtcConfigFollow.vi: Configure the "follow mode" parameters of a PTC10 output channel

Low Level Communication VIs

SrsPtcCommSet.vi: Sends a VISA set command to a PTC10.
SrsPtcCommSetFloat.vi: Sends a VISA set command and a floating point data value to a PTC10
SrsPtcCommSetInteger.vi: Sends a VISA set command and an integer data value to a PTC10
SrsPtcCommSetString.vi: Sends a VISA set command and an arbitrary string data value to a PTC10
SrsPtcCommQuery.vi: Sends a VISA query to a PTC10 & gets the (single line) reply
SrsPtcCommQueryTx.vi: VISA Query is broken into two parts: Transmit the query string (TX) and receive the reply (RX). This is the "transmit the query string" part. It is similar to SrsPtcCommSet.vi.
SrsPtcCommQueryRx.vi: VISA Query is broken into two parts: Transmit the query string (TX) and receive the reply (RX). This is the "receive the reply" part.
SrsPtcCommQueryPara.vi: Sends a command over a VISA interface and receives a multi-line paragraph back
SrsPtcCommQueryParaRx.vi: VISA Query Para is broken into two parts: Transmit the query string (TX) and receive the multi-line reply (RX). This is the "receive the reply" part. It reads until there are no more reply lines and RX times out.

Error VIs

SrsPtcErr.vi: Inserts an error, message, and the error location into the LabView "error out" cluster. All conditional SRS PTC10 error VIs use this.
SrsPtcErrAddString.vi: Adds extra information to a LabView error cluster
SrsPtcErrIfFalse.vi: Generates an error if the condition is false
SrsPtcErrIfTrue.vi: Generates an error if the condition is true

SrsPtcErrIfMinMax.vi: Generates an error if the data is below the minimum or above the maximum

SrsPtcErrIfOutOfRange.vi: Generates an error if the data is not close enough to the target value

SrsPtcErrIfNotEqual.vi: Generates an error if the data (integer) is not equal to the expected value

SrsPtcErrIfNotNumber.vi: Generates an error if the data (string) does not start with a number

SrsPtcErrIfStringMismatch.vi: Generates an error if the string does not match the expected value. Control inputs specify the type of matching.

Utility VIs

SrsPtcUtilEsrBitsIn.vi: Convert a cluster of *ESR & *ESE register bits into a byte value

SrsPtcUtilEsrBitsOut.vi: Convert a byte value into a cluster of *ESR & *ESE register bits

SrsPtcUtilIndicator.vi: Sends a string to the output and sets the "done" indicator when called

SrsPtcUtilsClose.vi: Determines if two numbers are "close" to each other

SrsPtcUtilLog.vi: Sends a string and a floating point number to the LabView VISA / SRS PTC10 comm traffic log file. The LabView VISA / SRS PTC10 comm traffic log is NOT the same as the SRS PTC10 data log.

SrsPtcUtilQuoteString.vi: The SRS PTC10 Programmable Temperature Controller requires that commands with spaces be quoted and parameters with spaces be quoted. You can concatenate and then quote up to 3 sub-strings to build your PTC10 commands.

SrsPtcUtilStbBitsIn.vi: Convert a cluster of *STB & *SRE register bits into a byte value

SrsPtcUtilStbBitsOut.vi: Convert a byte value into a cluster of *STB & *SRE register bits

SrsPtcUtilTimeDelay.vi: Holds the program for a time delay and logs it to the LabView VISA / SRS PTC10 comm traffic log

SrsPtcUtilTimeRecToString.vi: Converts a LabView time/date record into two strings describing the time and date. The time & date strings are readable by both humans and the PTC10.

SrsPtcUtilTimeStringToRec.vi: Converts a PTC10 text time string and a text date string into a LabView date/time record.

SrsPtcUtilTimeStringToStamp.vi: Converts a PTC10 text time string and a text date string into a LabView timestamp.

SrsPtcUtilValueInRange.vi: Determines if a value is close enough to the target