IsoTek SMART Power Crestron Module

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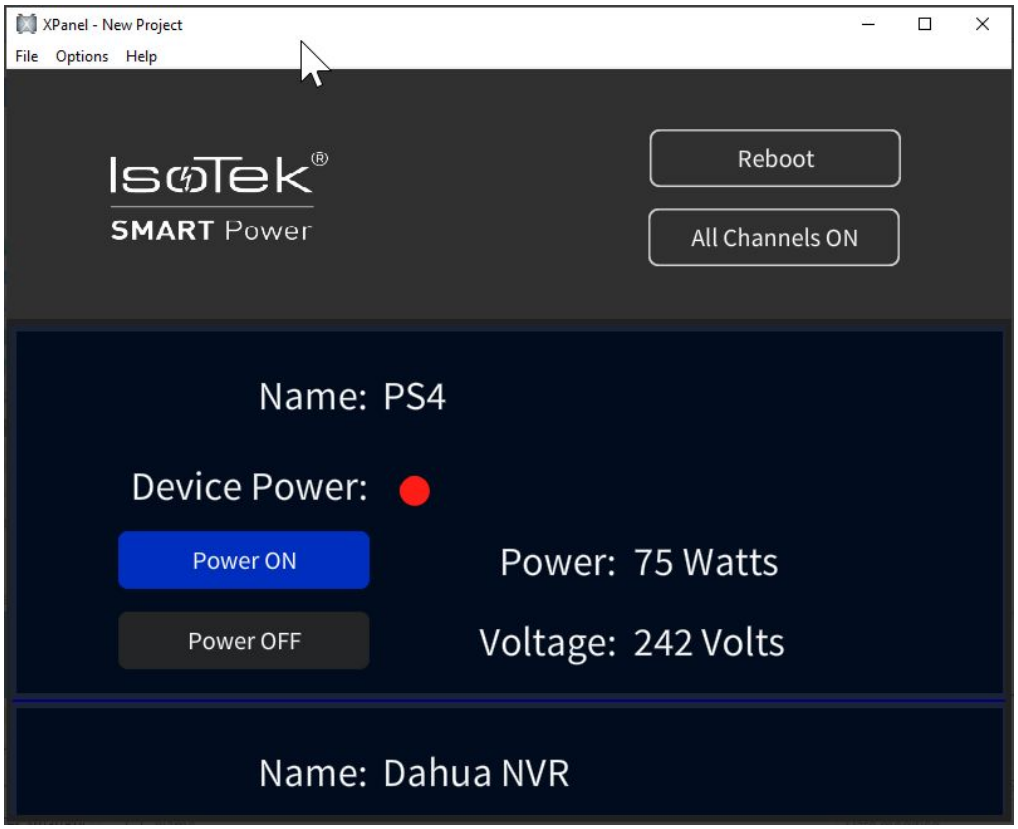
Overview

The IsoTek SMART Power set of modules is designed for control and monitoring of the IsoTek Alpha, Delta and Theta power distribution units. The module allows for control over any of the channels individually, allowing you to turn them on or off. It also provides the current power usage, voltage and the name of the connected device. Finally it is possible to configure the Channels module with an upper and lower power level that can be used to determine if the connected device is currently powered on or off.

This last option can provide for power automation. In a commercial environment this could be used to send a notification if a device that is designed to stay powered on at all times powers down.

In a residential environment it could provide a quick and easy way to power on a system for devices that have their own controls. For example, turning on a Playstation with the controller could trigger the TV and Receiver to turn on and set the correct inputs automatically.

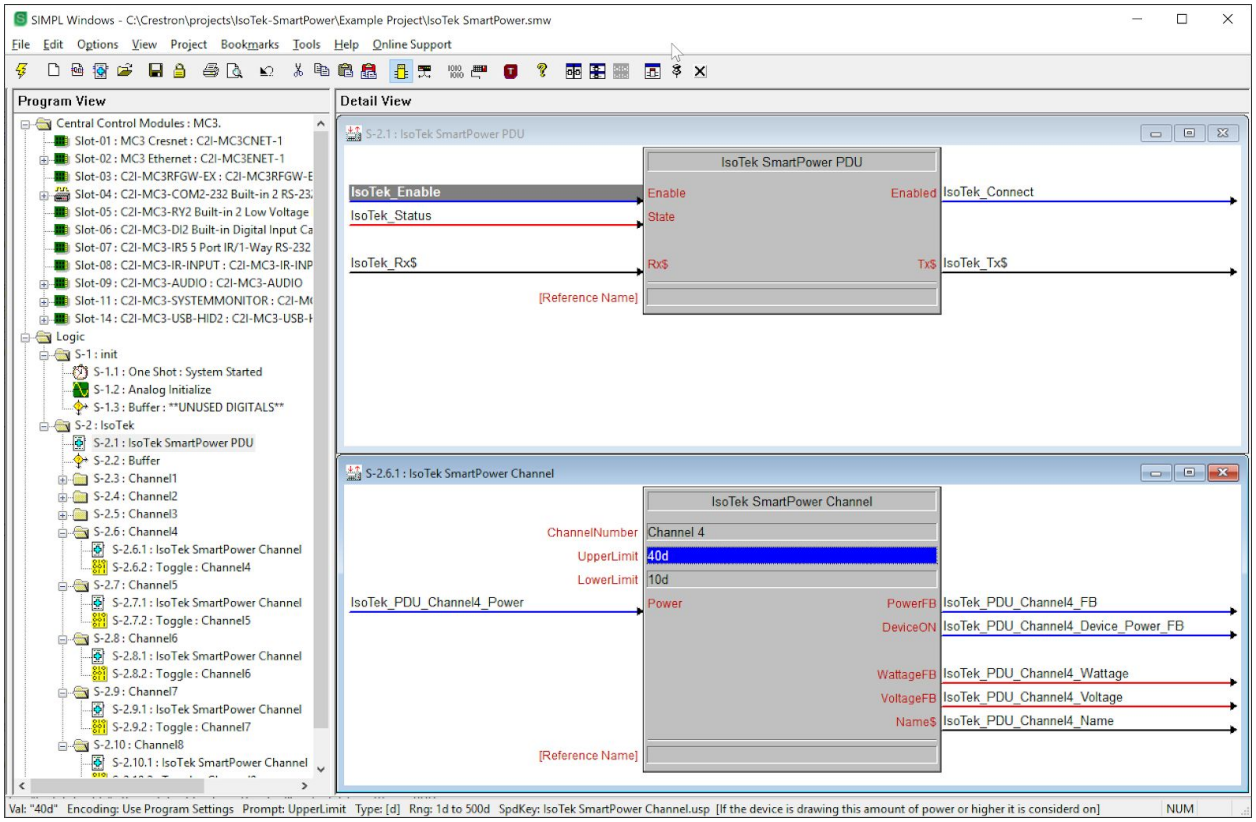


Installation

The zip file that includes this documentation has the simpl+ and simpl# modules that need to be copied into your project folder. The files were built and tested on a Crestron 3-series processor.

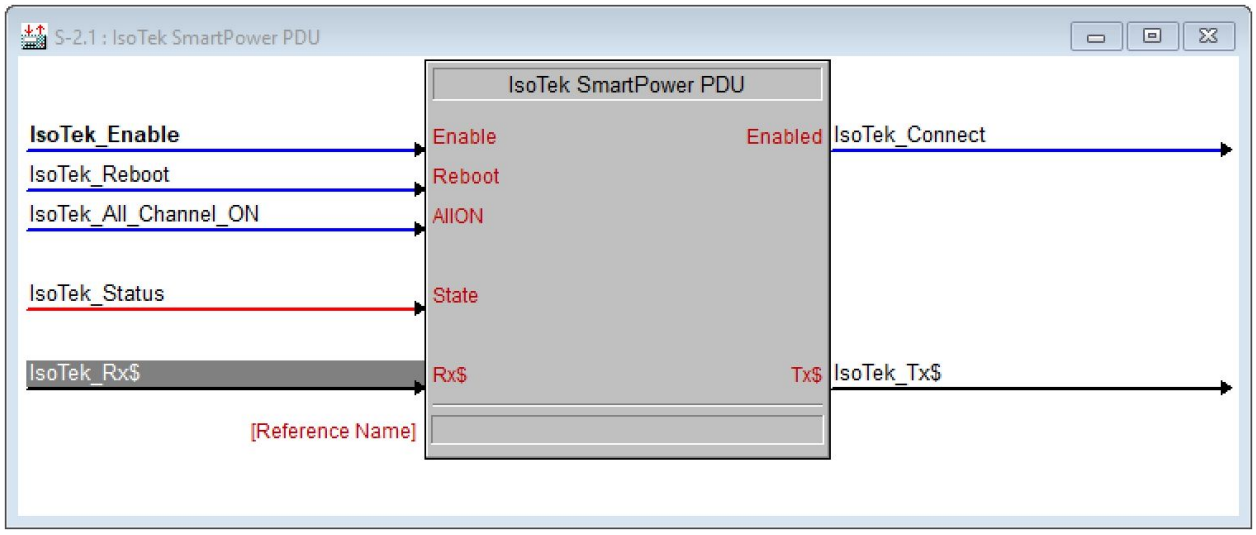
There are two simpl+ modules, one that communicates with the IsoTek device and the other is for control over a single channel. This channel control module should be added for as many channels as you are using.

The zip file also contains a SIMPL project and a VT-Pro touchscreen design that you can use for testing. Eight channels are configured in the example. You will need to adjust the configuration to suit your local configuration.



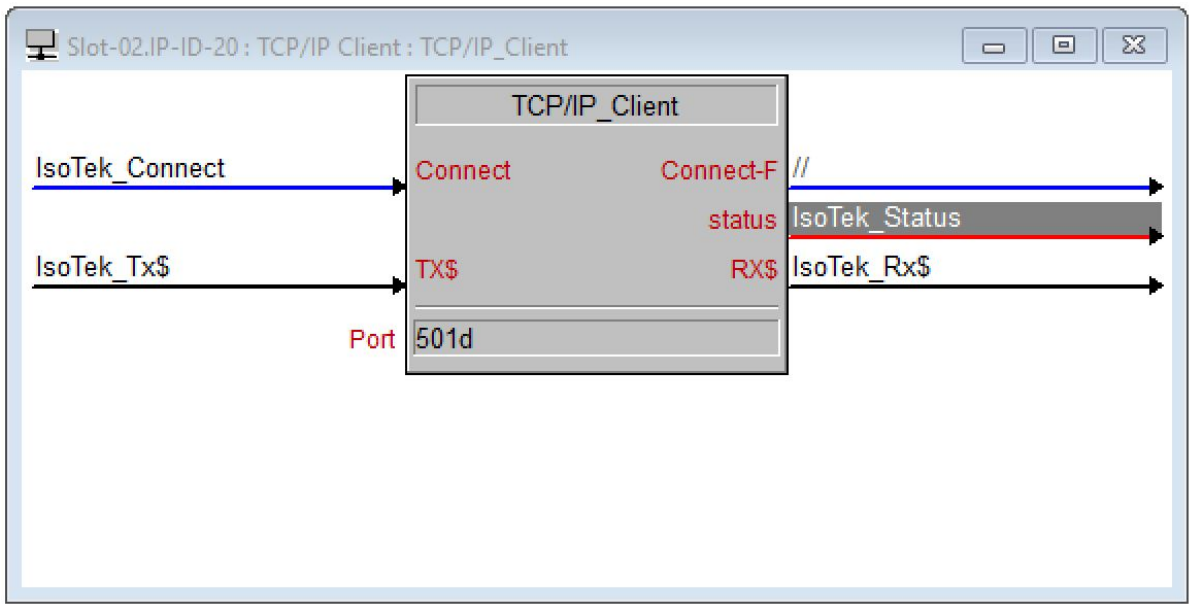
Module Configuration

This module needs to communicate via a TCP/IP Client. The Enabled pin on the PDU module should be connected to the Connect pin of the TCP/IP Client and the status should be connected to the PDU state pin. The Rx$ and Tx$ also need to be connected as shown.



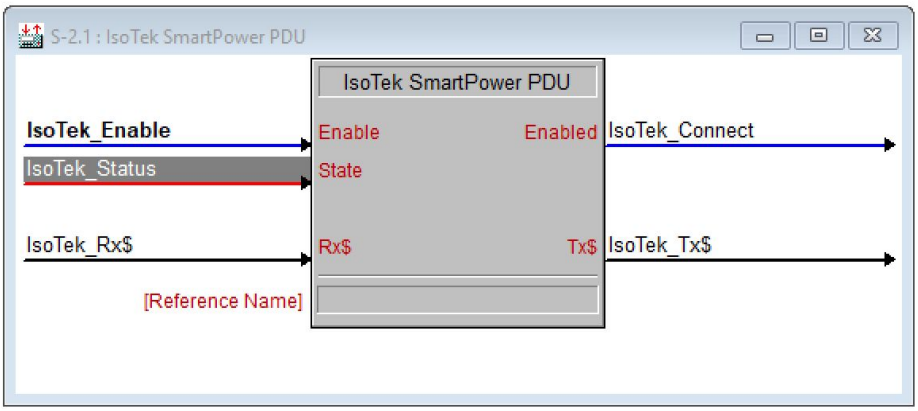
IP Connection

For IP communication you will need to include a TCP/Client. The default port is 501.



PDU Module

The PDU module handles all communication to the IsoTek SMART power device. It is responsible for connecting, disconnecting, sending and receiving data.



Input Signals

Enable [digital]

When this signal is high the module will establish a connection to the TCP/IP Client. It does this via the Enabled output. This Enabled output must be connected to the TCP/IP Client Connect input.

State [analog]

This signal needs to be connected to the TCP/IP Client symbol on the status signal. The module will not send out any data until this signal has a value of 2.

Rx$ [string]

This signal is for the PDU transmit data. It needs to be connected to the Tx$ join on your IP Client.

Feedback Signals

Enabled [digital]

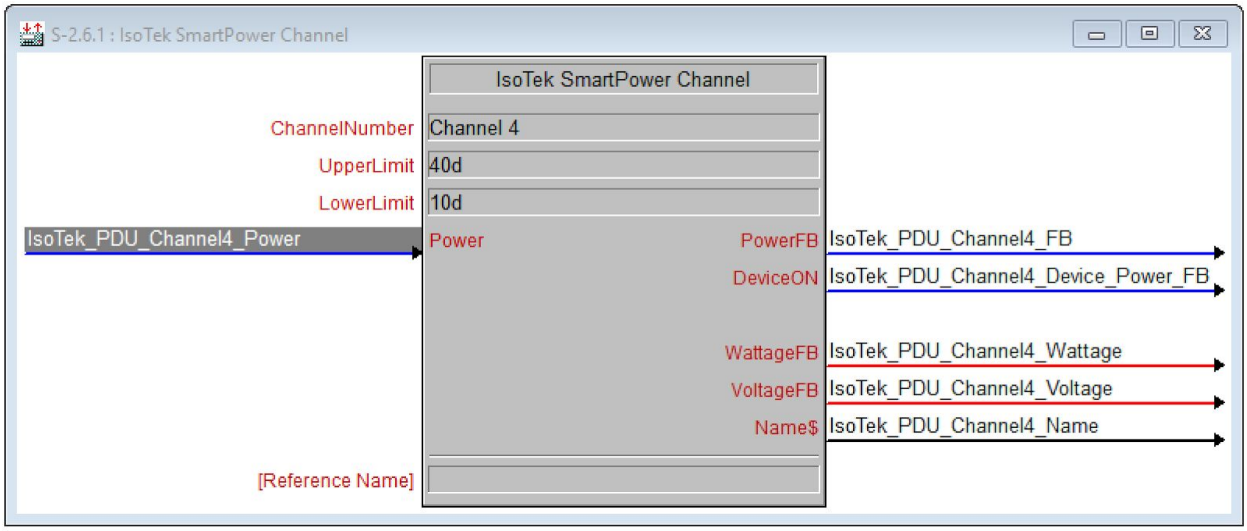
This signal will go high when the enable is set high. This signal is designed to be attached to the TCP/IP Client symbol on the Connect input.

Tx$ [string]

This signal is for the PDU transmit data. It needs to be connected to the Tx$ join on your IP Client.

Channel Module

The Channel module handles all the control and feedback for the specified channel. The channel is chosen using a parameter called Channel Number. A module needs to be included for each channel you wish to control, so if you are using 14 channels then you would load 14 of these modules.



Parameters

ChannelNumber [drop down]

The Channel number drop down allows you to select the channel this module will provide control and feedback over. The module supports up to 16 channels to allow for all the IsoTek SMART power devices.

UpperLimit [analog]

The UpperLimit parameter is used to set the power level at or above which the DeviceON signal will go high. This signal expects a decimal value that represents the power in Watts.

LowerLimit [analog]

The LowerLimit parameter is used to set the power level at or below which the DeviceON signal will go low. This signal expects a decimal value that represents the power in Watts.

Input Signals

Power [digital]

The Power input is used to power the selected channel and is a latched input. When the signal is high the power to the channel will be on. When the signal goes low the power to the channel will be set to off. The signal is designed to be connected to a TOGGLE symbol.

Feedback Signals

PowerFB [digital]

This signal will go high when the power for this channel is on and low when it is off.

DeviceON[digital]

This signal will go high when the current power being used is at or above the value specified in the UpperLimit parameter. It will go low when the power is at or below the LowerLimit parameter.

WattageFB [analog]

This signal will output the current power usage as an analog signal. The value is the power used in Watts.

VoltageFB [analog]

This signal will output the current voltage as an analog signal. The value is the signal is in Volts.

Name$ [string]

This signal will output the name of the current channel. The names are fetched automatically at startup and then refreshed periodically while the system is connected.

Setting the UpperLimit and LowerLimit power values

The DeviceON signal can provide for powerful automation to be triggered when the attached device changes its power usage. It can take some experimentation to correctly set the UpperLimit and LowerLimit values.

Lower Limit

The LowerLimit should be set at a level that represents the device being effectively powered off. This may not be 0 watts, for example a Playstation 4 in sleep mode typically draws around 6-7 Watts.

The device may need to be monitored over time to determine the best value, for example a digital set top box with recording capability might idle a low power rate, but then jump up to a higher rate if it needs to record.

You should try to get the device into all the different states that still represent what you consider to be powered off before fixing this value.

Upper Limit

The UpperLimit should be set at a level that represents the device being effectively powered on. This is the lowest power usage while still being effectively on. A Playstation 4 sitting at the menu draws considerably less power than when it's in use running a game for example.

The device may need to be monitored over time to determine the best value.

You should try to get the device into all the different states that still represent what you consider to be powered on before fixing this value.