In2Networks Energy ICM v1
Module Application Guide

Description

This module allows control of an In2Networks Energy ICM over TCP/IP from an Ethernet enabled, 2-Series, Crestron processor. The In2Networks Energy ICM is a simple and affordable solution that provides tools to reduce energy consumption up to 30%. The Energy ICM connects to a Honeywell IAQ thermostat.

Supported Processors

Any 2-Series processor with an Ethernet card is supported.

Compatibility			Processor Requirements	
2-Series Compatible	NOT CNMSX Compatible	System Builder Compatible	Ethernet REQUIRED	Compact Flash NOT NEEDED

Ethernet Configuration Information

To control the In2Networks Energy ICM over TCP, insert a TCP/IP client into your program. Configure the client as shown below, making sure you enter the IP address of the In2Networks Energy ICM in the "Use IP Address" field. The IP ID will vary depending on where it is inserted into the program, or the IP ID numbering scheme of the system.

If there are multiple thermostats in the system, even if there is only one Energy ICM, use one TCP/IP client symbol per thermostat.

Declare the TCP/IP client symbol as shown, making sure the port is set to 50003d.
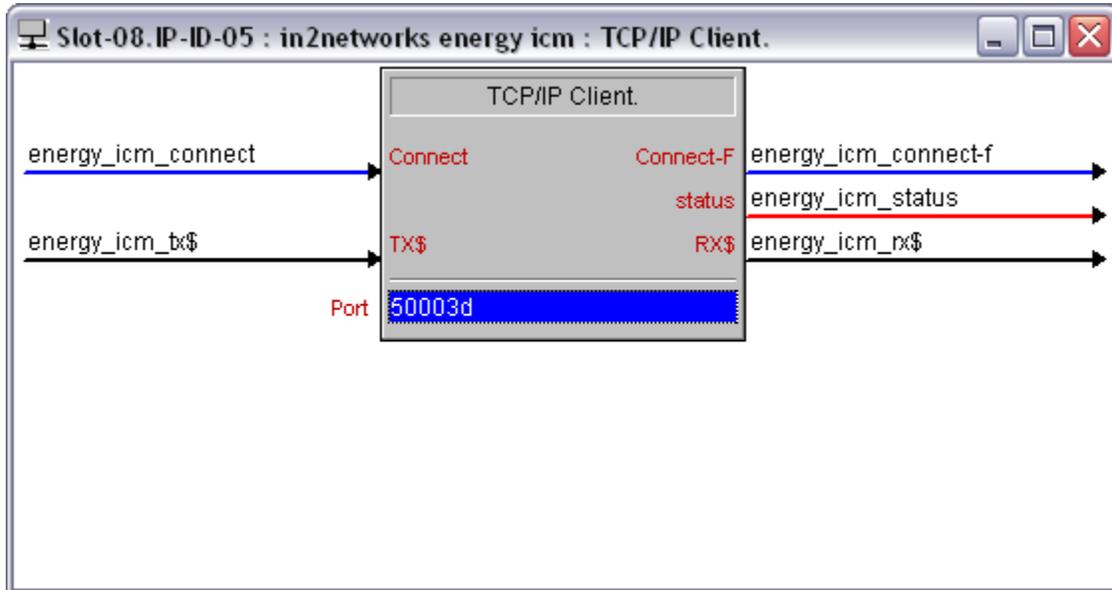
Module Application

Be sure to follow all instructions provided by In2Networks to properly configure the Energy ICM. Some features of this module are only available after activating the proper settings on the thermostat. Consult the documentation provided with the thermostat for instructions on accessing and changing the various thermostat features and settings.

Upon program startup, the Energy ICM module will auto discover the node id of the Energy ICM and set the module to only listen to that node.

Virtual Connection Logic

This module is built utilizing virtual connection logic that will allow you to right-click and drag the module symbol to a TCP/IP client symbol, select "Import Device Logic" to auto-connect the two symbols. You will be prompted to add an optional signal prefix to the auto-connected signals. SIMPL will add an underscore character at the end of the prefix you enter automatically, so a space or underscore does not need to be entered in this dialog. Due to Crestron's implementation of this feature, the programmer will still need to manually enter the port number (50003d) on the TCP/IP client symbol.
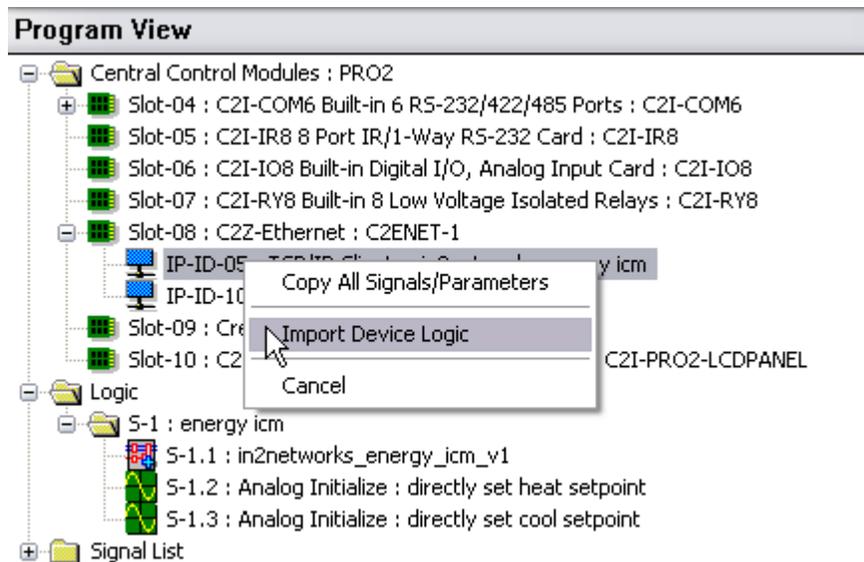
Also utilized is connection logic enabling you to right-click and drag the module symbol to a touchpanel to have the two symbols auto-connect. Right-click and drag the module symbol to a touchpanel and select "Import User Interface Logic" from the drop-down list. You will be prompted for starting join offsets and a signal prefix. Using values of 1 for all of the offsets will connect the joins to match the demo touchpanel files included in the distribution package. You may change this offset to suit the needs of your project.
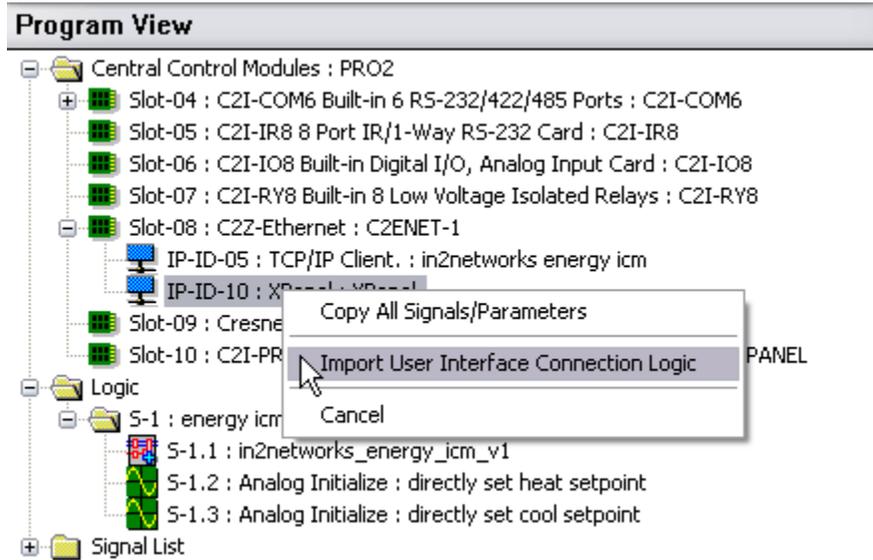
Signal And Parameter Descriptions

Bracketed signals such as "[signal_name]" are optional signals

DIGITAL INPUTS

tcp-ip_connected .... Route from the connect-f digital output of the TCP/IP client symbol. This is latched high when the client is successfully connected.

start_communication .... Pulse to initiate the TCP/IP connection to the device.

stop_communication .... Pulse to terminate the TCP/IP connection to the device.

[refresh] .... Pulse to tell the ICM to update all feedback. The unit will take up to 20 seconds or so to send all data.

[mode_heat] .... Pulse to engage heat mode.

[mode_cool] .... Pulse to engage cool mode.

[mode_auto] .... Pulse to engage auto mode.

[mode_off] .... Pulse to turn system off.

[fan_on] .... Pulse to turn fan on.

[fan_auto] .... Pulse to set fan to auto.

[fan_circulate] .... Pulse to set fan to circulate mode.

[run_program] .... Pulse to run the program. Program is set via the Energy ICM web page.

[hold] .... Pulse to hold the current setpoint, overriding the program.

[cool_setpoint_up] .... Pulse to raise the cool setpoint by one degree.

[cool_setpoint_down] .... Pulse to lower the cool setpoint by one degree.

[heat_setpoint_up] .... Pulse to raise the heat setpoint by one degree.

[heat_setpoint_down] .... Pulse to lower the heat setpoint by one degree.

ANALOG INPUTS

tcp-ip_status .... Route from the status output of the tcp/ip client symbol.

[set_cool_setpoint] .... Use this input to directly set the cool setpoint to a value. Valid range depends on minimum and maximum values set on the Energy ICM setup webpage.

[set_heat_setpoint] .... Use this input to directly set the heat setpoint to a value. Valid range depends on minimum and maximum values set on the Energy ICM setup webpage.

SERIAL INPUTS

tcp-ip_rx$ .... Route from the RX$ output of the tcp/ip client symbol.

DIGITAL OUTPUTS

tcp-ip_connect .... Route to the Connect input of the tcp/ip client symbol. Latched high when the module is requesting to be connected to the device.

[communication_enabled] .... Latched high when the module is requesting to be connected to the device and the tcp/ip client symbol is reporting that the connection is made.

[mode_heat_fb] .... Latched high when device is reporting that system is in heat mode.

[mode_cool_fb] .... Latched high when device is reporting that system is in cool mode.

[mode_auto_fb] .... Latched high when device is reporting that system is in auto mode.

[mode_off_fb] .... Latched high when device is reporting that system is off.

[fan_on_fb] .... Latched high when device is reporting that the fan is in on mode.

[fan_auto_fb] .... Latched high when device is reporting that the fan is in auto mode.

[fan_circulate_fb] .... Latched high when device is reporting that the fan is in circulate mode.

[run_program_fb] .... Latched high when device is reporting that the system is running the programmed setpoints.

[hold_fb] .... Latched high when device is reporting that the system is holding at the current setpoints.

[temporary_hold_fb] .... Latched high when device is reporting that the system is temporarily holding at the current setpoints. This occurs when the system is in run program mode and the user changes the setpoint using the up or down presses.

ANALOG OUTPUTS

[current_temperature] .... Outputs the current temperature being reported by the thermostat. Format is up to three digits, in whole degrees. 72d = 72 degrees.

[outdoor_temperature] .... Outputs the current outdoor temperature being reported by the thermostat, if an outdoor sensor is properly installed. Format is up to three digits, in whole degrees. 72d = 72 degrees. This will be 0d if there is no sensor installed.

[filter] .... Outputs the number of days remaining before the filter is due to be replaced.

[humidity] .... Outputs the current humidity being reported by the thermostat. This output is already scaled to 0%-100%.

[cool_setpoint] .... Outputs the current cool setpoint being reported by the thermostat. Format is up to three digits, in whole degrees. 72d = 72 degrees.

[heat_setpoint] .... Outputs the current heat setpoint being reported by the thermostat. Format is up to three digits, in whole degrees. 72d = 72 degrees.

SERIAL OUTPUTS

tcp-ip_tx$.. Route to the TX$ input of the tcp/ip client symbol.

[display$].. One-line status updates from the device. Emulates what would appear on the original device keypad/controller.

[current_temperature$]... Outputs the current temperature being reported by the thermostat. Formatted as a string with units and a degree symbol trailing the value.

[outdoor_temperature$]... Outputs the current outdoor temperature being reported by the thermostat. Formatted as a string with units and a degree symbol trailing the value.

[humidity$] .... Outputs the current humidity being reported by the thermostat. Formatted as a string with a percent symbol trailing the value.

[cool_setpoint$] .... Outputs the current cool setpoint being reported by the thermostat. Formatted as a string with units and a degree symbol trailing the value.

[heat_setpoint$].. Outputs the current heat setpoint being reported by the thermostat. Formatted as a string with units and a degree symbol trailing the value.

PARAMETERS

device_type .... Tells the IMC which type of thermostat to look for at startup. Currently, In2Networks supports the Honeywell IAQ.

unit_id .... Indicates which thermostat unit the instance of the module will communicate with. The Honeywell IAQ supports up to nine thermostats.

tcp-ip_port .... This parameter is here for SystemBuilder support. It has only one allowable value, 50003d.

Support

This module is supported by ControlWorks Consulting, LLC. Should you need support for this module please email support@controlworks.com or call us at 440-729-4640. ControlWorks normal office hours are 9 AM to 5 PM Eastern, Monday through Friday, excluding holidays.

Before calling for support, please ensure that you have loaded and tested operation using the included demonstration program and touchpanel(s) to ensure that you understand the correct operation of the module. It may be difficult for ControlWorks to provide support until the demonstration program is loaded.

Updates, when available, are automatically distributed via Email notification to the address entered when the module was purchased. In addition, updates may be obtained using your username and password at http://www.thecontrolworks.com/customerlogin.aspx.

Distribution Package Contents

The distribution package for this module should include:

in2networks_energy_icm_v1.umc .... Crestron User Module to control the Energy ICM
in2networks_energy_icm_engine_v1.usp .... SIMPL+ file used within the Energy ICM module
in2networks_energy_icm_engine_v1.ush .... SIMPL+ header file
in2networks_energy_icm_demo_xpanel_v1.vtp .... Demo XPANEL touchpanel file
in2networks_energy_icm_v1.smw.............................. Demo program for PRO2 processor
In2Networks_Energy_ICM_help_v1.pdf....................... Help file for Energy ICM module

Revision History

Development Environment

Version 1 of this module was developed on the following hardware and software. Different versions of hardware or software may or may not operate properly. If you have questions, please contact us.

Hardware	Firmware Version
Crestron PRO2 Processor	4.001.1012
Software	**Software Version**
Crestron SIMPL Windows	2.11.18.00
Crestron Vision Tools Pro-e	3.9.30
Crestron Database	20.04.008.00
Device Database	20.09.005.00

ControlWorks Consulting, LLC Software License Agreement

Definitions: *ControlWorks*, *We*, and *Us* refer to ControlWorks Consulting, LLC, with headquarters located at 7790 Woodlands Trail, Chesterland, OH 44026. *You* and *Dealer* refer to the entity purchasing the module. *Client* and *End User* refer to the person or entity for whom the Crestron hardware is being installed and/or will utilize the installed system. *System* refers to all components described herein as well as other components, services, or utilities required to achieve the functionality described herein. *Module* refers to files required to implement the functionality provided by the module and may include source files with extensions such as UMC, USP, SMW and VTP. *Demo Program* refers to a group of files used to demonstrate the capabilities of the Module, for example a SIMPL Windows program and VisionTools Touchpanel file(s) illustrating the use of the Module but not including the Module. *Software* refers to the Module and the Demo Program.

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Provision of Support

We provide limited levels of technical support only for the most recent version of the Module as determined by Us. We do not provide support for previous version of the module, modifications to the module not made by Us, to persons who have not purchased the module from Us. In addition, we may decline to provide support if the Demo Program has not been utilized. We may withdraw a module from sale and discontinue providing support at any time and for any reason, including, for example, if the equipment for which the Module is written is discontinued or substantially modified. The remainder of your rights and obligations pursuant to this license will not be affected should ControlWorks discontinue support for a module.

Modification of Software

You may not decrypt (if encrypted), reverse engineer, modify, translate, disassemble, or de-compile the Module in whole or part. You may modify the Demo Program. In no event will ControlWorks Consulting, LLC be liable for direct, indirect, incidental or consequential damages resulting from You modifying the Software in any manner.

Indemnification/Hold Harmless

ControlWorks, in its sole and absolute discretion may refuse to provide support for the application of the Module in such a manner that We feel has the potential for property damage, or physical injury to any person. Dealer shall indemnify and hold harmless ControlWorks Consulting LLC, its employees, agents, and owners from any and all liability, including direct, indirect, and consequential damages, including but not limited to personal injury, property damage, or lost profits which may result from the operation of a program containing a ControlWorks Consulting, LLC Module or any component thereof.

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