

Working with the Insteon Thermostat

http://www.smarthome.com/insteon-2441th-thermostat.html

The HCA User Guide covers using Thermostats and how to view and change the heat and cool setpoints and how to view and test on the current temperature and humidity.

This tech tip relates to creating programs that respond when changes to the mode, setpoints, temperature, and humidity occur.

In the Add Wizard on step 3 choose "Insteon" as the manufacturer and then press the Next button. In step 4 press the dialog button to put the PowerLinc into linking mode <u>before</u> pressing the set button on the device to complete the link.

	Address and type: 22.1A.2A 2441TH - Thermostat
	For devices always powered on - switches, wired-in keypads, modules, etc.
-	Step 1. Press this button to put the PowerLinc into linking mode PowerLinc linking mode
2	Step 2: Place the device you are adding to your HCA design into Linking mode. Press and hold the "Set" button on the face of the device and then release it. Some devices beep when they have reported their address Step 3. Come back to the computer and the device's address and type should be displayed above
	For wireless devices - motion sensors, keypads, etc. Step 1. Place the device into linking mode
-	Step 2. Press this button to put the PowerLinc into linking mode PowerLinc linking mode Step 3. The device's address and type should be displayed above
	If the above procedure doesn't work, configure the device manually: Manual Configuration

After the thermostat is added to your design choose the linking tab and link it to HCA. Several commands are sent to the thermostat to configure to report status as it changes.



Name	Notes	Туре	Insteon	Linking	Options	Triggers	Restart	Icon	Display	Log	Groups
When keypa In this or swi	i you link id button same wa tch padd	an Inste ortapth ay, you c letapped	on keypad e switch pa an link a k d, HCA rec	or switch addle. eypad but eives the	to a devic tton or swit Insteon me	e, the devi ch paddle essage and	ce is cont to HCA.) you can	rolled w When th use that	hen you pr ne button is t as a trigge	ess the pressed er for	
Link To bu	link a ke	ypad bu	tton, switch	n paddle, s.	or module	sense to H	CA, press	the "Lir	nk Device 1	to HCA"	
					ink Device	to HCA					

The way this reporting mechanism works is that the thermostat sends two pieces of data when changes happen. The first piece tells you what changed and the second piece tells you the value it changed to. These are encoded as:

Code	Meaning
110	Ambient temperature changed
111	Humidity changed
112	Mode / Fan status changed
113	Cool setpoint changed
114	Heat setpoint changed
115	External temperature changed

For code 110 the second piece of data is the temperature and is reported as twice the actual value. Divide by two to get the actual value.

For code 111 then second piece of data is the humidity as a value from 0 to 100.

For code 112 the second piece of data is encoded as:

Code	Meaning
0	Off mode
1	Heat mode
2	Cool mode





3	Auto mode
4	Program mode
16	Off mode and fan on
17	Heat mode and fan on
18	Cool mode and fan on
19	Auto mode and fan on
20	Program mode and fan on

For code 113 the second piece of data is the cool set point.

For code 114 the second piece of data is the heat set point

For code 115 the second piece of data is the external sensor temperature

To create a program to handle these status messages create the program as usual. Then on the "Advanced" tab make sure to configure the program for parameters.

amo	Notes	Triggers	Visual Programmer	Advanced	Restart	lcon	Display	Log	Schedule	References	
lcor	1										
C) Change	d by progra	am								
(Change	ed automati	ically								
If th	e trigger i	s received	while the program is r	unning:							
0	lgnore i	t									
C	Restart	the progra	m from the Start Here	element							
C) Start a	copy of the	program and run it c	oncurrently							
C	Add it to	a receive	d trigger queue and s	tart the prog	ram with it	when it	stops after	proces	sing the curre	ent trigger	
	This pro	ogram supp	orts parameters	are element	When sta	rted from	another p	rogram	using Start-Pr	ogram,	
	Parame the act This al	eters are de tual objects lows you to	s are selected to use to have sections of you	when elemer ur design def	nts of this p ined by pr	orogram ograms t	operate up hat are use	oon one ed to im	plement comp	olex	
	Parame the act This al actions	eters are de tual objects lows you to s on differei	s are selected to use to have sections of you not objects without dup	when elemer ur design def plicating the j	nts of this p ined by pro program e	orogram ograms t lements.	operate up hat are use	ed to im	plement comp	olex	
	Parame the act This al actions	eters are de tual objects lows you to s on differe	s are selected to use b have sections of you nt objects without dup	when elemer ur design def olicating the p	nts of this p ined by pro program el	orogram ograms t lements.	operate up	oon one ed to im	plement comp	olex	



If you ate not familiar with parameterized programs it may be a good idea to review this topic in the HCA User Guide Programs chapter.

Create a trigger for the thermostat status reporting.

Vhen Home - Thermostat	sends Thermostat report	
Device sending comman	d	
Dev: Home - Thermost	st	•
Component:	*	
Command		
On	🔿 Fast On	
Off Off	🔘 Fast Off	
🕐 Dim		
O Bright		
Fade Start		
Fade Stop		
🕐 All On		
🔿 All Off		

Unlike other triggers there is no need to specify a command. The program triggers on any of the thermostat changes. The program itself must to test to see if the status reported is one that the program wants to process.

When the program is triggered the first piece of data is assigned to the first parameter and the second piece of data. In this example program the parameter names are cmd1 and cmd2.



The data and state	ram element is used to	start this program it provides the actual data for these parameters.
Ine data can eitner	pe an object - a select	ed device, program, group, or room - or a simple value - a number or string
In the elements of th	is program you refer to	the parameters by their name and when the element is
executed the actual	values supplied by the	statung program are used.
Provide each param	eter a unique name an	d specify if it is used for an object or value.
Parameter count:	A V	
Parameter 1 name:	cmd1	Value 👻
Parameter 2 name:	cmd2	Value 🔻
Falameter 2 fiame.		
raiameter 2 name.		
Falameter 2 hame.		
raiameter 2 hame.		

Within the program you can then test the values of the parameters using the Compute-Test element. For example this tests to see if the thermostat is reporting that it is in cool mode.

(\$cmd1 == 112) ar	nd (\$cmd2 == 2)	