CRESTRON
HELP FILE DOCUMENT

Manufacturer: Philips
Model: Hue Bridge
Device Type: LED Lighting

CONTACT SUPPORT: (please fill out carefully)

COMPANY NAME:	
SUPPORT CONTACT:	Chip Moody
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ADDRESS:	
NOTES:	

GENERAL INFORMATION

SIMPLWINDOWS NAME:	Philips hue Bridge
CATEGORY:	Lighting
VERSION:	1.0
SUMMARY:	TCP/IP control of up to 50 lights associated with Philips hue bridge. Supports power, brightness, hue/saturation and color temperature settings.
GENERAL NOTES:	Philips hue lamps have their color set using one of three modes – "hue / saturation", "color temperature" and "xy". Currently only the first two modes are supported by this module; however, the reported status of a lamp may indicate "xy" mode if another application has most recently set a lamp's color using that method. The current color mode is determined by the most recently applied type of setting. (I.E., setting either hue or saturation values will put the lamp in "hue / saturation" mode, setting color temperature will put the lamp in "color temperature" mode, etc.) The color temperature range represents a constrained line through the hue's supported color space. (Please reference this illustration: http://developers.meethue.com/assets/themes/twitter/img/cie-colorspace.png) If the lamp's color has been set using either H/S or XY methods, the color temperature value **closest** to that color is reported, even though the lamp is not in color temperature mode. For this reason, it is important to note which color mode a lamp is currently in, as only the reported values related to that mode can be considered relevant. Please also make note of the green triangle in the illustration – the area it encloses represents the range of colors the hue lamps are capable of recreating.

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	The hue bridge is only capable of applying color settings to a single lamp at a time, and requires a minimum 1/10th of a second between commands. You may apply values to the inputs of this module for up to 50 lamps at the same instant; however, the commands will be queued up and sent to the lamps over the following 5 seconds.
	The bridge does not report changes made by other interfaces. For instance, a change made with the hue iPhone app will not be automatically reported to this module. If you need to check for changes possibly issued by other interfaces, please trigger the "Poll_All" input to query the current state of each lamp.
	Similarly, commands sent to change a single setting may affect others; however, those other values are not reported in the response. Setting a lamp's color temperature will most likely affect its hue/saturation and xy values as well, but the response to the color temperature command will only confirm the color temperature setting.
	If you are familiar with the GET and PUT commands used by the Philips hue API and have the need to issue any not provided by this module, you can create a string containing the command and send it to the "Direct_Command$" input. Both GET and PUT commands require a carriage return as a delimiter, while PUT commands require a TAB character ("\t") between the URL portion and the JSON content portion. In both cases, only the portion of the URL following the user name is required. For example, to get the status of lamp 1 only, send this string in to "Direct_Command$":
	"/lights/1\r"
	And to put lamp 3 into colorloop mode:
	"/lights/3/state\t{"effect":"colorloop"}\r"
	This module has only been tested by the author with the hue starter kit's 3 bulbs, however, it has been reported that it works successfully with "Friends of hue" lights as well.
	DISCLAIMER: "Hue Personal Wireless Lighting" is a trademark owned by Koninklijke Philips Electronics N.V., see www.meethue.com for more information. The author of this module is in no way affiliated with the Philips organization.
CRESTRON HARDWARE REQUIRED:	Ethernet enabled 2 or 3-series processor.
SETUP OF CRESTRON HARDWARE:	Crestron processor must be able to connect with hue bridge's IP address over LAN. Discovery function requires internet access and correct DNS settings.
VENDOR FIRMWARE:	01006390
VENDOR SETUP:	Module provides features to locate and register with bridge. Bridge must already be

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		configured on LAN and have lamps associated.
CABLE DIAGRAM:		n/a

CONTROL:

Enable	D	Rising edge: module attempts to connect with bridge, retrieve lamp info, and then enables lamp control inputs. Falling edge: prevents further connections to bridge (except for registration functions), disables lamp control inputs
Configuration group:		
Discover_Bridge	D	Pulse to search for hue bridge(s) on LAN. (Requires Crestron processor and bridge to have internet access and correct DNS settings)
IP_Address_Entry$	S	Used to provide IP address of bridge in "xxx.xxx.xxx.xxx" format.
Set_IP_Address	D	Pulse to have module attempt registration status check with bridge using supplied IP address.
Register_With_Bridge	D	Press to have module attempt bridge registration. Button on bridge must have been pressed within 30 seconds before triggering this function.
Debug_Enable	D	Latching high allows module to generate debugging messages on corresponding serial output. When low, critical messages will be entered into processor's log.
Direct_Command$	S	Allows for manual issuing of hue API "GET" and "SET" commands.
Poll_All	D	Pulse to have module get current list of lamps and lamp details from bridge.
Lamp group(s):		
Lamp_XX_On_p	D	Pulse to turn lamp on.
Lamp_XX_Off_p	D	Pulse to turn lamp off.
Lamp_XX_Brightness_Set	A	Analog value between 0 and 255 used to set brightness level of lamp. 0 is dimmest, but is not off.
Lamp_XX_Hue_Set	A	Analog value between 0 and 65535 used to set hue value of lamp. Hue begins with

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		red at 0, progresses through orange, yellow, green, blue, violet and returns to red at 65535. Due to lamp color limitations, deep greens and light blues are not represented. Hue path passes through a section of white between green and blue.
Lamp_XX_Saturation_Set	A	Analog value between 0 and 255 used to set saturation level of lamp. A value of 255 will result in the most saturated color represented by Hue value. As this value approaches 0, lamp color becomes less saturated, approaching white. Please reference the green triangle shown on graphic at http://developers.meethue.com/assets/themes/twitter/img/cie-colorspace.png, Most saturated values follow the outline of the green triangle shown in the color space as hue value varies between 0 and 65535. As saturation levels approach 0, the color moves inward from the green outline border towards the white center.
Lamp_XX_Color_Temp_Set	A	Analog value between 153 and 500 used to set color temperature of lamp. 153 represents 6500K (blue-white) while 500 represents 2000K. (yellow-white)

FEEDBACK:

Enable_FB	D	High when module is enabled and able to communicate with bridge. Will go low if Enable input is dropped, or if module is not registered with bridge.
Configuration group:		
User_Unauthorized	D	Indicates that module is not registered with bridge.
Unable_To_Connect	D	Indicates that module is unable to connect with bridge at specified address.
Current_IP_Address$	S	Reports the address currently used by the module to connect with bridge.
Discovery_Status$	S	Reports steps involved with bridge discovery process.
Discovered	D	Indicates that the module has located a bridge on the network.
Discovered_And_IP_Matches_Current	D	Indicates that the discovered bridge address matches the address already in use by the module.
Not_Discovered_Or_Multiple_Found	D	Indicates that the module was unable to locate a bridge on the network, or found more than one bridge.
Discovered_IP_Address$	S	Indicates the IP address of the discovered bridge, assuming one was located.
Registration_Status$	S	Reports steps involved with bridge registration process.

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Registered_With_Bridge	D	Indicates that registration with a bridge was successful.
Not_Registered_With_Bridge	D	Indicates that registration with a bridge has failed.
Debug_Message$	S	Reports messages generated during operation of module while Debug_Enable input is high.
TCP_Status	A	Reports status changes during connection process to bridge. Useful for testing/debugging.
Lamp group(s):		
Lamp_XX_Name$	S	Lamp name reported by brige.
Lamp_XX_Online	D	Indicates when module has been enabled and lamp is online with bridge.
Lamp_XX_On	D	Indicates lamp is on.
Lamp_XX_Off	D	Indicates lamp is off.
Lamp_XX_Brightness	A	Reports lamp brightness level as a value between 0 and 255.
Lamp_XX_Hue	A	Reports lamp hue value in the range 0 to 65535.
Lamp_XX_Saturation	A	Reports lamp saturation level as a value between 0 and 255.
Lamp_XX_Color_Temp	A	Reports lamp color temperature level as a value between 153 and 500.
Lamp_XX_Color_Mode	A	Reports current lamp color mode. 0 = unknown, 1 = hue/saturation, 2 = color temperature, 3 = xy.
Lamp_XX_Color_Mode_Text$	S	Reports current lamp color mode as text. Possible values: "n/a", "Hue / Sat", "Color Temp" or "XY".
Lamp_XX_Alert_State$	S	Reports lamp alert state. Possible values "none", "select" or "lselect".
Lamp_XX_Effect_State$	S	Reports lamp effect. Possible values "none" or "colorloop".

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PARAMETERS:

None		

TESTING: (please fill out carefully)

OPS USED FOR TESTING:	3-Series: 1.7.19, 2-Series: 4.1.1012
SIMPL WINDOWS USED FOR TESTING:	4.02.38
DEVICE DB USED FOR TESTING:	54.05.004.00
CRES DB USED FOR TESTING:	44.00.002.00
SYMBOL LIBRARY USED FOR TESTING:	888
SAMPLE PROGRAM:	Philips hue Bridge Demo MC3 and Philips hue Bridge Demo QMRMC
REVISION HISTORY:	1.0 – Initial Release