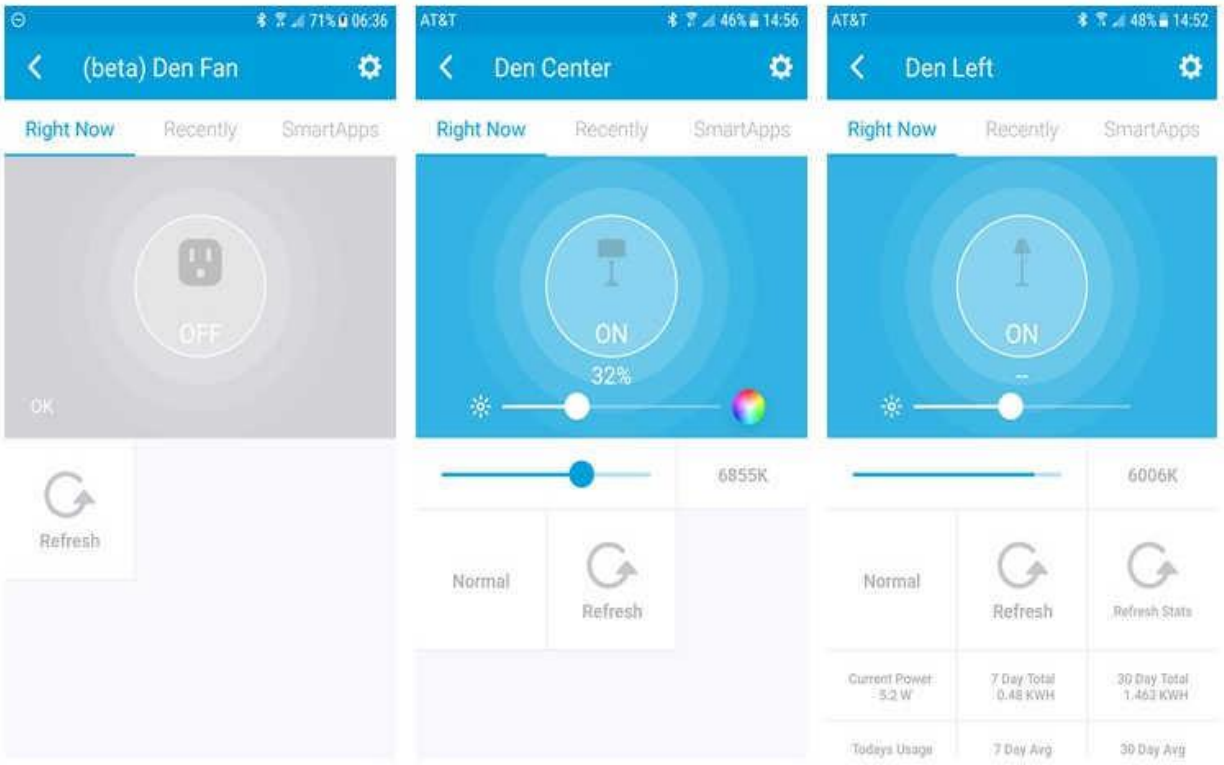
TP-Link Device SmartThings Interface



This document describes the operations of the TP-Link devices with the SmartThings app interface. This is a single document for all supported devices. Separate installation instructions as well as a separate Cloud Service Manager operating instructions are provided in other files..

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Supported Devices, Device Handlers, and Functionality

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1. Supported Devices, Device Handlers, and Functionality

All the TP-Link HS- and LB- series devices are supported with the following. The table below indicates the functionality of each device type using the provided device handlers.

Devices	On/Off	Bright-ness	Color Temp	Circadian	Color	Energy Monitor
HS-Series	**X**					

HS110	**X**					**X**
LB100	**X**	**X**				
LB110	**X**	**X**				
LB110 EM	**X**	**X**				**X**
LB120	**X**	**X**	**X**	**X**		
LB120 EM	**X**	**X**	**X**	**X**		**X**
LB130	**X**	**X**	**X**	**X**	**X**	
LB130 EM	**X**	**X**	**X**	**X**	**X**	**X**

Device capability integrated into SmartThings

Test Status. All devices have undergone developer testing except the HS110, LB100, and LB110. For the LB100 and LB110, testing has been completed on both the LB120 and LB130, devices which use the same firmware. The developer has also tested the basic plug functions for the HS110.

For the HS110, a user has provided feedback that the system functions acceptably.

State Machine. The application is designed as a state machine. In this implementation, setting the device through SmartThings will send a command through the Cloud or Hug to the device. The device then returns the state that is used by SmartThings to update the internal (displayed) state based. The only exception are the transition state of "Waiting" which is set internally when a command is sent.

2. Functional Description

This section is in reference to the main screen for each device (accessed by depressing the device label (name) on the SmartThings application. Below are the main screen for the LB-30 with Energy Monitor and HS-Series. All others are derived from subtracting from this main screen of the LB130 with Energy Monitor.

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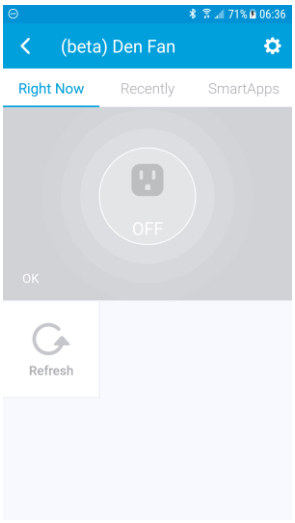
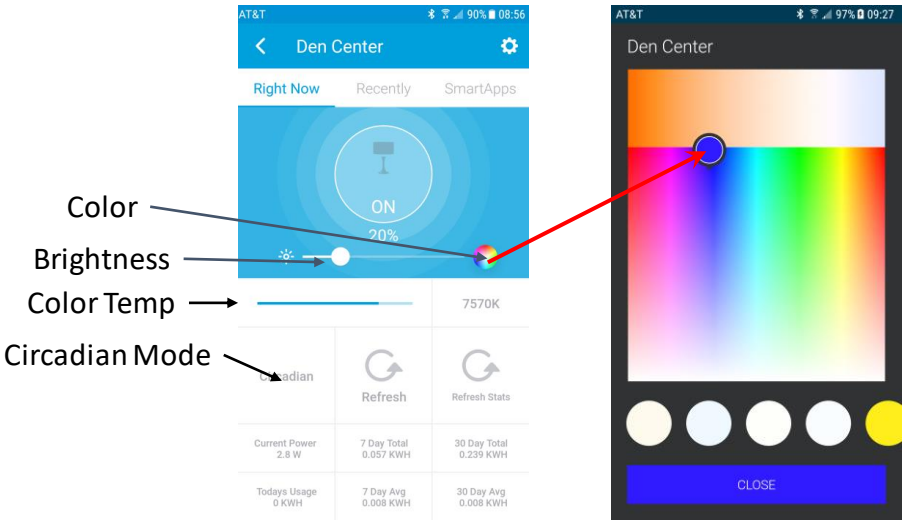


HS-Series



LB30 with EM

Function: On/Off

Applicable: All.

Action: Touch the on-off button to toggle power.

Display states:

a. **ON. Color is blue.**
b. **WAITING** – SmartThings sent a command to the device and is waiting for the return state from the device. **Color is green**. Applies to all commands.
c. **OFF. Color is white.**
e **Comms Error** – There is an error in the bridge to device communications stream. **Color is orange**. Applies to all commands.

Notes (bulbs only):

1. Off. Turning bulb off when in circadian mode will also set the bulb to normal mode (this is a bulb function).
2. On. When turning on the bulb, it will turn on to the setting at the last off state. Exception: Circadian Mode. It will return the brightness and color temperature to the last setting made by Circadian Mode..

Function: Brightness

Applicable: All bulbs.

Action: Touch and slide the slider to change brightness.

Display: Displays the interger value of bulb brightness (0 - 100). This display scrolls with the Error Message display (discussed later).

Notes:

a. If the bulb is off, changing the brightness will turn on the bulb at the new brightness.
3. For the above, if the bulb is was color when turned-off, it will return to the previously selected color.
4. If you change the brightness to “0”, the bulb will go to the lowest possible brightness; however, the status will state brightness as “0”.
5. If the brightness is “0” and you turn on the bulb, the bulb will act as above.

Function: Color Temperature

Application: LB-120 and LB-130 bulbs.

Color Temperature Ranges:

a. LB-120: 2700 to 6500.
b. LB-130: 2500 to 9000.

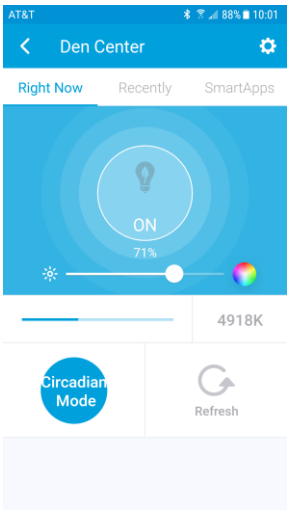
Action: Touch and slide the slider to change color temperature.

Display: Right of the slider is the Color Temperature value.

Notes:

1. If the bulb is off, changing the color temperature will turn on the bulb.
2. On the LB-130, the color temperature will appear as zero when a color has been selected.
3. On the LB-130, changing color temperature from zero will return the bulb to non-color at the selected color temperature.

Function: Circadian (and Normal)



Application: LB-120 and LB-130 bulbs.

Action: Touch the tile labeled “Circadian” to toggle to Circadian.

Notes:

1. Selecting Circadian will automatically turn the bulb on.
2. Circadian emulates outside light levels by controlling brightness and color temperature.
3. Turning the bulb off, changing level, or selecting a color will transition the bulb to Normal (this is a bulb function).

Function: Color

Application: LB-130 bulb.

Action: Touch the color wheel on the power tile. Then select the desired color either by touching the desired color on the color tile or selecting the preset color at the bottom of the page.

Notes:

1. If the bulb is turned off, the bulb will automatically turn on when selecting a color.
2. Selecting Circadian or changing the color temperature will return the bulb to non-color.

Function: Refresh

Applicable: All plugs, switches, and bulbs.

Action: Touch the Refresh button. This will update the state by sending a command to the device.

Use: Automatically run every 15 minutes. Occasional user use if the device state does not match the device state.

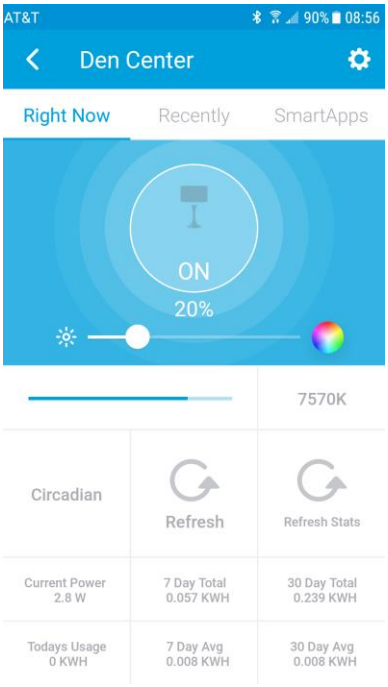
Function: Energy Monitor Display

Applicable: HS110, LB110, LB120 and LB130 with EM

Energy monitor functions have been added to the relevant devices capable of Energy Monitor Functions. The following tiles are added:

a. Current power in watts.
b. Today's Usage in kilo watt-hours.
c. 7 Day Total
d. 7 Day Average
e. 30 Day Total
f. 30 Day Average
g. Refresh Stats

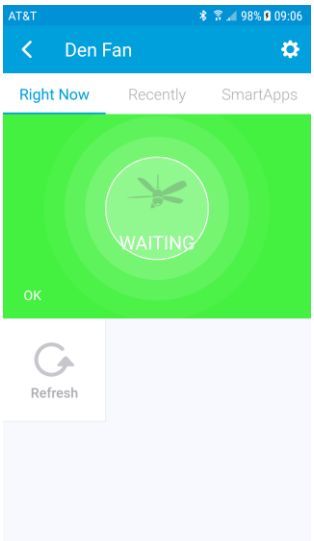
The Refresh function will refresh the bulb state as well as update the Current Power and Today's Usage tiles. Refresh is scheduled every 15 minutes and can also be activated manually.



The new Refresh Stats function will update the weekly and monthly stats. This is scheduled to run at 12:30 AM every day. It can also be manually updated.

3. ERROR INDICATIONS AND CORRECTIVE ACTIONS

Continuous Waiting State



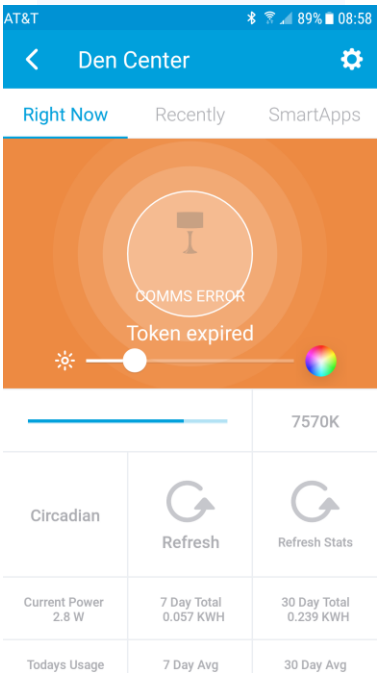
Applicable: All.

Indication: The ON/OFF tile is a steady green and the cue "WAITING". This indicates that SmartThings attempted to send a command, but no response was received from the Service Manager or Hub

Corrective Action:

1. Press the '>' at the top left then return to the device.
2. Press REFRESH on the device being controlled. If corrected, it is probably transitory.
3. HUB - Check the hub hardware and software status; including, the log file (looking for error conditions).

Communications Error



Applicable: Cloud versions only

Indication. The ON/OFF tile is a steady orange with the cue 'COMMS ERROR". Additionally, the message area contains a short-form of the error for the command.

Messages, Indications, and Corrective Actions:

a. 'Device is offline'. The TP-Link Cloud can't communicate with the device. It is either physically turned-off or the WiFi is not currently connected. Try removing power from the device and then returning power, wait 1 minute, and try the command again.

b. 'Account is not binded to the device'. The TP-Link Cloud thinks the device is not in Remote Control. Use the Kasa app and assure the device is in 'Remote Control' mode (and not 'Local Control Only'.

c. 'Token expired'. The token that is captured by the Service Manager has expired and the Service Manager has not automatically updated. This should self-correct within 5 minutes; however, if not, open the Service Manager application and select Update Token.