

## **FlexiDim Home Automation Protocol V2**

Issue 2.0 - February 2018

A connection should be established to the FlexiDim Controller using TCP on port 15300. A single connection is accepted.

A user must be defined (in the configuration app) with the name HA followed by the IP address of the automation system (no rooms/switches need to be allocated to this user and the security key and remote access switch are not used). If no HA user is defined, the connection is disabled.

e.g.: if the IP address of the automation system is 192.168.2.35 then the username should be HA192168002035 *Note that the IP address is padded with zeros and the periods are removed.*

If the user is named HA255255255255 then a connection is accepted from any address.

There is no explicit acknowledgement of messages as TCP deals with this at lower levels of the protocol stack, however the system responds with a notification of a switch press (in response to a Switch Command) and Channel Update, assuming that channel is being monitored, in response to a Channel Update Command.

### **General format**

All commands/responses start with a \$ character and end with a ! character

### **Switch Command**

A Command is sent to FlexiDim, a Notification is received from FlexiDim

Note that switch and button numbers are 3 characters in length, with leading zeros

`$$<switch number 1-128>B<button number>!`

e.g.: `$$003B001!`

Buttons 1 through 8 are scene buttons

Button 12 is On/Off button

Version 1 Switch Controllers auto-repeat the dim up/down codes

Button 9 is Dim Up button press

Button 10 is Dim Down button press

Version 2 Switch Controllers use discrete Up & Down notifications

Button 80 is Dim Up button press

Button 88 is Dim Up button release

Button 81 is Dim Down button press

Button 89 is Dim Down button release

While responses will reflect the codes generated by the Switch Controller, commands may use either method to achieve dim up & down.

Switch Responses sent as the result of a real (physical) switch being pressed are sent with \$W (Wall Plate notification) instead of \$\$S. Sending a command with \$W instead of \$\$S has the same meaning - i.e. the system sees the switch press as being virtual - i.e. from a software interface, rather than as physical switch. The response to a \$W command, would therefore still be a \$\$S response.

Unless your application particularly needs to know the origin of a switch press, \$\$S and \$W messages can be considered identically.

### **Switch-Button validation**

Only valid as a Notification from FlexiDim. This message will be ignored if sent as a command. Note that switch and button numbers are 3 characters in length, with leading zeros

\$P<switch number 1-128>B<button number 1 - 10 or 12>!

e.g.: \$P002B002!

e.g.: \$P003B104!

This message indicates that a scene has been invoked from the switch-button specified.channels. It can be used to apply a highlight on the display of the switch.

Button numbers offset by 100 indicate that the second scene on a toggle button was invoked (subtract 100 to get the actual button number).

Note that when a scene is invoked, each switch that has a button that could have invoked the scene will receive a \$P message. When multiple buttons *on the same switch* could have invoked the scene, only the first button is indicated.

### **Switch-Button invalidation**

Only valid as a Notification from FlexiDim. This message will be ignored if sent as a command. Note that switch and button numbers are 3 characters in length, with leading zeros

\$C<switch number 1-128>B<button number 1 - 10 or 12>!

e.g.: \$C002B002!

This message indicates that channels associated with that button have changed and the scene invoked by the button no longer matches the brightness of the lights. It can be used to remove a highlight on the display of the switch. Any switches that had a \$P message as a result of a scene invocation will receive the corresponding \$C message when the scene is no longer valid.

Button numbers offer by 100 indicate that the second scene on a toggle button was invalidated (subtract 100 to get the actual button number).

### **Channel Update**

A Command sent to FlexiDim to adjust a specific channel brightness/value.

Note that channel number, value and transition values are all 3 characters in length, with leading zeros

\$U<channel number 1-256>V<value 0 - 100>T<transition time 0 - 60>!

e.g.: \$U014V075T002!

Transition time is in 0.5 second increments - from 0 to 30 seconds (000 - 060)

### **Channel Refresh**

Only valid as a Notification from FlexiDim. This message will be ignored if sent as a command.

Note that channel number and value are 3 characters in length, with leading zeros

\$R<channel number 1-256>V<value 0 - 100>!

e.g.: \$R014V075!

These message are generated whenever an update occurs to channels being monitored. As well as updates, there is a refresh of the current value immediately following the \$M command. Note: \$R messages are only sent for monitored channels.

### **Monitor Channel / Ignore Channel**

A Command sent to FlexiDim. Never sent as a response.

\$M<channel number 1-256>!

\$I<channel number 1-256>!

\$M000! Monitor all

\$I000! Ignore all

\$M and \$I messages may be extended with multiple channels - each with three digits. For example: \$M001002003004005006!

This allows up to 64 channels to be set/reset for monitoring with a single message.

A typical strategy is to send \$I000! followed by the required \$Mxxx! messages.

### **Keep Alive Message**

The FlexiDim System will send a \$H! message every 5 seconds to use as a keep alive indication.

### **Determining Switch & Channel numbers**

Switch and Channel numbers can be obtained from a CSV file generated from within the Configuration App. There is an *Email Configuration* button on the Equipment/Modules page.