# Window lifter requirements:

Window lifter is the module responsible to control the window movement. **[SHR-01]**

Window lifter is controlled by two switches that indicate the direction of the window movement. **[SHR-02, SHR-03]**

## Window behavior:

For this purpose the window has to be emulated using a 10 led bar. **[SHR-04]**

The color of this led bar has to be RED. **[SHR-04]**

The movement of the window has to be simulated turning on/off the LEDS creating the animation of the window movement. **[SHR-05]**

The time between each transition shall be 400 msec. **[SHR-06]**

Window movement graphical description: **[SHR-07, SHR-08, SHR-09, SHR-10, SHR-11]**

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CLOSED OPEN

There are two possible window movements: **[SHR-12]**

-Up

-Down

Each window movement has to be indicated trough a led color. Depending on movement each led has to be turn on. **[SHR-13, SHR-14]**

|  |  |
| --- | --- |
| Movement | LED indicator color |
| UP | BLUE |
| Down | GREEN |

## Button Behavior:

In order to consider a validate button press; the button has to be pressed at least 10 msec. **[SHR-15]**

The module has to be able to detect fail button press **[SHR-16]**. In that case the button press or button combination has to be considered as invalid. **[SHR-16]**

In case than a valid button press is detected the module has to follow the next behavior depending on the button pressed. **[SHR-17]**

|  |  |  |
| --- | --- | --- |
| Button Press | Time | Action |
| UP | >500 msec | The window shall UP until get totally CLOSED while the button keep press. **[SHR-18, SHR-19]** |
| DOWN | >500 msec | The window shall DOWN until get totally OPEN while the button keep press. **[SHR-22, SHR-23]** |
| UP | <500 msec | The window shall UP until get totally CLOSED automatically. (Function one touch) **[SHR-20, SHR-21]** |
| DOWN | <500 msec | The window shall DOWN until get totally OPEN automatically. (Function one touch) **[SHR-24, SHR-25]** |

## Anti pinch functionality:

Anti pinch is a feature than prevents accidents between window and some human body parts like arms, hands, head…. ) **[SHR-26]**

In this case the signal than indicates to the module the detection of a pinch will be a push button. **[SHR-27]**

Anti pinch button press has to follow the same characteristics than UP and DOWN buttons for valid press. **[SHR-15]**

This signal just can be considered as valid when the movement is UP. **[SHR-28]**

If this signal is valid then the module has to stop the UP Movement and then DOWN the window until the window get totally OPEN. **[SHR-29]**

After window is totally OPEN the module has to ignore during 5 seconds all button press. **[SHR-30]**

After this time the module has to recognize every button press. **[SHR-31]**