## State Key

| | | | |
|---|---|---|---|
| LOWER_LIMIT | Limit switch pressed by bottom of sash when closed | TRUE or FALSE | Input |
| UPPER_LIMIT | Limit switch pressed by pusher when fully up | TRUE or FALSE | Input |
| ACTIVTY_TIMER | Amount of time left before automatic close | NUMBER > 0 | Input |
| OVERRIDE_TIMER | Amount of time left in manual override mode | NUMBER > 0 | Input |
| MOTOR | Direction the motor is turning | OFF, UP, or DOWN | Output |
| LED | LED indicator for the user | OFF, RED, YELLOW, GREEN | Output |

## Event Key

| | | |
|---|---|---|
| activity | Camera detects motion | Camera |
| obstruction | There is an obstacle in the way of the sash | (Not Implemented) |
| activity_timeout | There has been no activity for a while | ACTIVITY_TIMER: >0 --> 0 |
| manual_override | The user presses the manual override button | MANUAL_OVERRIDE: FALSE --> TRUE |
| override_timeout | The override expires | OVERRIDE_TIMER: >0 --> 0 |
| manual_close | The user presses the automatic close button | MANUAL_CLOSE: FALSE --> TRUE |
| sash_opened | The sash goes from closed to open | LOWER_LIMIT: TRUE --> FALSE |
| sash_closed | The sash goes from open to closed | LOWER_LIMIT: FALSE --> TRUE |
| pusher_reaches_top | The pusher resets at the top of the fume hood | UPPER_LIMIT: FALSE --> TRUE |

**Closed and Raising**

| | |
|---|---|
| LOWER_LIMIT | TRUE |
| UPPER_LIMIT | FALSE |
| MOTOR | UP |
| LED | GREEN |

**Closed and Raised**

| | |
|---|---|
| LOWER_LIMIT | TRUE |
| UPPER_LIMIT | TRUE |
| MOTOR | OFF |
| LED | GREEN |

**Open and Raising**

| | |
|---|---|
| LOWER_LIMIT | FALSE |
| UPPER_LIMIT | FALSE |
| MOTOR | UP |
| LED | OFF |

**Closing**

| | |
|---|---|
| LOWER_LIMIT | FALSE |
| UPPER_LIMIT | FALSE |
| MOTOR | DOWN |
| LED | OFF |

**Reset Activity Timer**

| | |
|---|---|
| ACTIVITY_TIMER | Max. Time |

**Open and Raised**

| | |
|---|---|
| LOWER_LIMIT | FALSE |
| UPPER_LIMIT | TRUE |
| ACTIVITY_TIMER | > 0 |
| MOTOR | OFF |
| LED | OFF |

**Reset Override Timer**

| | |
|---|---|
| OVERRIDE_TIMER | Max. Time |

**Reset Override Timer**

| | |
|---|---|
| OVERRIDE_TIMER | Max. Time |

**Overridden and Raising**

| | |
|---|---|
| LOWER_LIMIT | FALSE |
| UPPER_LIMIT | FALSE |
| OVERRIDE_TIMER | > 0 |
| MOTOR | UP |
| LED | YELLOW |

**Overridden and Raised**

| | |
|---|---|
| LOWER_LIMIT | FALSE |
| UPPER_LIMIT | TRUE |
| OVERRIDE_TIMER | > 0 |
| MOTOR | OFF |
| LED | YELLOW |

Transitions:
- pusher_reaches_top
- sash_opened
- sash_opened
- sash_closed
- obstruction
- manual_close
- pusher_reaches_top
- sash_closed
- manual_close
- activity
- activity_timeout
- override_timeout
- manual_override
- manual_override
- manual_close
- manual_override
- sash_closed
- pusher_reaches_top