**eCall Fault Simulation Board API**

**Board Components**: With their API command abbreviations

|  |  |
| --- | --- |
| **Components** | **Command Abbreviation** |
| Switch | Switch |
| Left Speaker | LSpeaker |
| Right Speaker | RSpeaker |
| Status Indicator | StatusIndc |
| Microphone | Mic |
| ENS | ENS (Event notification signal/status) |
| Power | Pwr |

**Component States**: Available states for each component

|  |  |
| --- | --- |
| **Switch**   * Normal (Open switch, Not Pressed) * Pressed (Closed, trigger) * VBATT * Ground * Open Circuit | **Speakers**   * Normal (No Fault) * Open * Ground * Lead-to-Lead * VBATT |
| **Status Indicator**   * Normal (No Fault) * Open * VBATT * Ground | **Microphone**   * Normal (No Fault) * Open * Ground * VBATT |
| **ENS**   * Pass Through (No ENS simulation, PIN LOW) * Normal (10 Hz) * Ground (PIN HIGH) * Fuel Cutoff (500 Hz and 250 Hz alternating 5 cycles of each) * Airbag Deployment (250 Hz) | **Power**   * ON * OFF |

**Command Structure:**

* No spaces are found in the command. Each argument is separated by a hyphen.
* "<Component>-<State>-<Sequence>-<time1>-<time2>-<time3>-<time4>"

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Component | - | State | - | Sequence | - | Time1 | - | Time2 | - | Time3 | - | Time4 |

**Arguments for each part of the Command**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Component** | **State** | **Description** | **Sequence** | **Descirption** |
| Switch | Normal | ON for power | 0 | No sequence |
| LSpeaker | Press | Switch Only | 1 | Sequence, time 1-4 required |
| RSpeaker | VBATT |  | Sequence not used with ENS or Reset | |
| StatusIndc | Ground |  |  |  |
| Mic | Open | OFF for power | **Time** | **Description** |
| Power | LeadToLead | Speaker Only | Time1 | Selected state time in ms |
| ENS | Pass | ENS Only | Time2 | Normal state time in ms |
| Reset | Cutoff | ENS Only | Time3 | Selected state time in ms |
|  | Deploy | ENS Only | Time4 | Normal state time in ms |

Time in milliseconds (only required for sequenced commands)

* All non-sequenced commands will stay in their given/current state until they are changed.

**All Commands**

* There are no spaces in the commands
* Multiple options stacked means those are the possible arguments for that command piece
* Only **Switch** and **Power** support sequencing, and if sequence option “1” is given, then times 1-4 are required to be given, otherwise they will be 0 ms by default or whatever the last sequenced times were that were sent to the board. There is no guarantee what they will be if they are not given.
* **Status Indicator**, **Microphone**, and **Speakers** do not support sequencing, and a “0” must be given in the sequence argument.
* **ENS** does not support any sequencing, but the sequence argument need not be given. Anything after the given state for ENS will be ignored.
* **Reset** is supported by the board. The only thing that needs to be sent to the board is “Reset” and it will restore everything to the default setting (Normal for all components, except ENS, which will be set to Pass Through).
* Below are all the commands that can be sent with all available arguments for each component.

**Switch**: Can be sequenced

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Switch | - | Normal  Open  Ground  VBATT  Press | - | 0 |  |  |  |  |  |  |  |  |
| Switch | - | Normal  Open  Ground  VBATT  Press | - | 1 | - | Time1 | - | Time2 | - | Time3 | - | Time4 |

**Status Indicator, Microphone**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| StatusInd  Mic | - | Normal  Open  Ground  VBATT | - | 0 |

**Speakers**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LSpeaker  RSpeaker | - | Normal  Open  Ground  VBATT  LeadToLead | - | 0 |

**ENS**

|  |  |  |
| --- | --- | --- |
| ENS | - | Pass  Normal  Ground  Cutoff  Deploy |

**Power**: Can be sequenced

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Power | - | Normal  Open | - | 0 |  |  |  |  |  |  |  |  |
| Power | - | Normal  Open | - | 1 | - | Time1 | - | Time2 | - | Time3 | - | Time4 |

**Reset**

|  |
| --- |
| Reset |

**Command Examples**

The quotation marks are not part of the command

* To simulate a button press of 150 ms
  + "Switch-Press-1-150-0-0-0"
* To simulate a button press of 40 ms pressed, 50 ms not pressed
  + “Switch-Press-1-40-50-0-0”
* To simulate status indicator fault - short to ground
  + "StatusIndc-Ground-0"
* To simulate a Lead to Lead Short for Left Speaker for 2 seconds
  + "LSpeaker-LeadToLead-1-2000-0-0-0"
* To simulate an ENS "normal" state, the sequence and time arguements can be ignored
  + "ENS-Normal"
* To send a reset command, only "Reset" needs to be send
  + "Reset"