

SMARTDOOR Interface Requirements Specification

SmartDoor Solutions

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Introduction

SMARTDOOR is a family of remote controlled doors controlled through a mobile app. The various SMARTDOOR products are produced by different manufacturers. By implementing the same SmartDoor protocol, users can control all these products through the same app.

This document describes the requirements that all SMARTDOOR implementations must adhere to. This ensures interoperability and safety standards are maintained. In this document “the door” refers to the SMARTDOOR implementation and “controller” refers to the (mobile) application controlling it.

Requirements

Dialog requirements

The following section describes the requirements specifying the communication between the controller and the door.

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| DIALOG-01 | The communication between the controller and the door follows a command-response pattern. Each dialog between the controller and the door consists of a single command followed by a single response. |
| DIALOG-02 | The controller may initiate a dialog. It may only send command messages. |
| DIALOG-03 | The door may not initiate a dialog. It may only send response messages. |
| DIALOG-04 | The door must always respond to a command from the controller with a response message. |
| DIALOG-05 | After receiving a command, the door must respond within 0.5 seconds. |
| DIALOG-06 | <p>The following messages of the SMARTDOOR protocol are command messages.</p> <p>open request the door to open</p> <p>close request the door to close</p> <p>lock request the door to lock</p> <p>unlock request the door to unlock</p> |
| DIALOG-07 | <p>The following messages of the SMARTDOOR protocol are response messages.</p> <p>opened confirm that the door has been opened</p> <p>closed confirm that the door has been closed</p> <p>locked confirm that the door has been locked</p> <p>unlocked confirm that the door has been unlocked</p> <p>invalid_command signal that an invalid command has been received</p> <p>invalid_passcode signal that the provided passcode was invalid</p> <p>incorrect_passcode signal that the provided passcode was incorrect</p> |
| DIALOG-08 | When a command is accepted, the door must respond with the corresponding confirmation message. |

- DIALOG-09 When a command is refused, the door must respond with the **invalid_command** message.
- DIALOG-10 When an unknown command is received, the door must respond with the **invalid_command** message.

Behavior requirements

These following section describes the requirements specifying how the door should act on commands. The door must accept or refuse commands based on its current state.

- BEHAVR-01 When the door is closed and unlocked, it may be opened.
- BEHAVR-02 When the door is opened, it may be closed.
- BEHAVR-03 When the door is closed and unlocked, it may be locked.
- BEHAVR-04 When the door is closed and locked, it may be unlocked.
- BEHAVR-05 All other commands must be refused.

SECURELOCK requirements

The following section describes the requirements specifying the SECURELOCK security feature present in all recent SMARTDOOR products. This feature prevents unauthorized access by setting a four digit passcode when the door is locked. The door can only be unlocked with that same passcode.

- SECLOC-01 The lock and unlock commands are accompanied by a four digit passcode.
- SECLOC-02 The four digit passcode must be in the range 0000 to 9999. Other passcodes are considered invalid.
- SECLOC-03 When the lock command is used with a valid passcode, the door can only be unlocked with an unlock command containing that exact passcode. Other passcodes are considered incorrect.
- SECLOC-04 When the lock command is used with an invalid passcode, the command must be refused and then door must return the **invalid_passcode** response.
- SECLOC-05 When the unlock command is used with an incorrect passcode, the command must be refused and then door must return the **incorrect_passcode** response.
- SECLOC-06 When the unlock command is used with an invalid passcode, the command must be refused and the door must return the **invalid_passcode** response.
- SECLOC-07 When the unlock command is used three times with an incorrect passcode, the door must shut off and not respond to any commands until it is restarted physically. Note that SECLOC-06 still applies.