# Protocol

## General

### Report ID

|  |  |  |
| --- | --- | --- |
| 0x00 | DevID | Checksum |

All devices sends this packet at startup, so that the controller knows which modules are present.

### Set Emergency STOP

|  |  |
| --- | --- |
| 0x01 | Checksum |

### Release Emergency STOP

|  |  |
| --- | --- |
| 0x02 | Checksum |

### Set Power ON

|  |  |
| --- | --- |
| 0x03 | Checksum |

### Set Power OFF

|  |  |
| --- | --- |
| 0x04 | Checksum |

### Set Acknowledge

|  |  |  |
| --- | --- | --- |
| 0x7F | DevID High | Checksum |

## Output

### Toggle Single Address

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0x10 | DevID | Output Low | Output High | Checksum |

Output Low: ID & 0x7F  
Output High: (ID >> 7) & 0x7F

Toggles the output of the specified ID.

### Pulse Single Address

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0x11 | DevID | Output Low | Output High | Checksum |

Output Low: ID & 0x7F  
Output High: (ID >> 7) & 0x7F

Send a pulse on the output of the specified ID.

### Toggle Blink Single Address

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0x12 | DevID | Output Low | Output High | Checksum |

Output Low: ID & 0x7F  
Output High: (ID >> 7) & 0x7F

Toggles the output of the specified ID.

### Toggle Multiple Addresses

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 0x13 | Length | DevID | Output1 Low | Output1 High | … | Checksum |

Output Low: ID & 0x7F  
Output High: (ID >> 7) & 0x7F

Toggles multiple addresses

### Set All output Addresses

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 0x14 | Length | DevID | Output1 | Output2 | … | Checksum |

Output1: Output & 0x7F  
Output2: (Output >> 7) & 0x7F  
Output3: (Output >> 14) & 0x7F

Set all output to the specified bytes. Output 1 contains the ID of 0-6, output 2 contains 7-13, and so on. NOT IMPLEMENTED

### Set Blink mask of all addresses

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 0x15 | Length | DevID | Output1 | Output2 | … | Checksum |

Output1: Output & 0x7F  
Output2: (Output >> 7) & 0x7F  
Output3: (Output >> 14) & 0x7F

Set the blink mask to the specified bytes. Output 1 contains the ID of 0-6, output 2 contains 7-13, and so on. NOT IMPLEMENTED

### Post all Output

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 0x16 | Length | DevID | Output1 | Output2 | … | Checksum |

Output1: Output & 0x7F  
Output2: (Output >> 7) & 0x7F  
Output3: (Output >> 14) & 0x7F

### Request Read all Output

|  |  |  |
| --- | --- | --- |
| 0x47 | DevID | Checksum |

***Response:*** Post all Output (0x07)

## Input

### Post Single Input Address

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0x04 | DevID | Output Low | Output High | Checksum |

DevID: ID & 0x7F

Output Low: ID & 0x7F  
Output High: (ID >> 7) & 0x7F

### Post Multiple Addresses

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 0x05 | Length | DevID | Output1 Low | Output1 High | … | Checksum |

DevID: ID & 0x7F

Output Low: ID & 0x7F  
Output High: (ID >> 7) & 0x7F

### Post All input Addresses

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 0x06 | Length | DevID | Output1 | Output2 | … | Checksum |

DevID: ID & 0x7F

Output1: Output & 0x7F  
Output2: (Output >> 7) & 0x7F  
Output3: (Output >> 14) & 0x7F

### Post all Input

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 0x07 | Length | DevID | Output1 | Output2 | … | Checksum |

DevID: ID & 0x7F

Output1: Output & 0x7F  
Output2: (Output >> 7) & 0x7F  
Output3: (Output >> 14) & 0x7F

### Request Read all Inputs

|  |  |  |
| --- | --- | --- |
| 0x4C | DevID | Checksum |

DevID: ID & 0x7F

***Response:*** Post all Input (0x07)

## Set Device Parameters

***The device acknowledges all the changes to its parameters with the acknowledge packet***

### Change Device ID

|  |  |  |  |
| --- | --- | --- | --- |
| 0x50 | Old DevID | New DevID | Checksum |

### Set number of input modules and output modules

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0x51 | DevID | Input Modules | Output Modules | Checksum |

### Set blink Interval

|  |  |  |  |
| --- | --- | --- | --- |
| 0x52 | DevID | Interval scalar | Checksum |

Blink interval (ms) =

### Set Pulse length

|  |  |  |  |
| --- | --- | --- | --- |
| 0x53 | DevID | Pulse scalar | Checksum |

Pulse duration (ms) =

### Set Check input Interval

|  |  |  |  |
| --- | --- | --- | --- |
| 0x54 | DevID | Interval scalar | Checksum |

Check interval (ms) =

### Post All EEPROM variables

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 0x55 | Length | DevID | Byte 0 | Byte 1 | … | Checksum |

### Request All EEPROM Values

|  |  |  |
| --- | --- | --- |
| 0x59 | DevID | Checksum |

# EEPROM on Arduino

|  |  |  |
| --- | --- | --- |
|  | 0x00 | 0x10 |
| 0x0 |  |  |
| 0x1 | Device ID |  |
| 0x2 | Input Devices |  |
| 0x3 | Output Devices |  |
| 0x4 | Blink scalar |  |
| 0x5 | Pulse scalar |  |
| 0x6 | Check scalar |  |
| 0x7 |  |  |
| 0x8 |  |  |
| 0x9 |  |  |
| 0xA |  |  |
| 0xB |  |  |
| 0xC |  |  |
| 0xD |  |  |
| 0xE |  |  |
| 0xF |  |  |