**1155 “MCLV” Network Protocol Definition**

**Packet Type Chart: (zero reserved for null)**

|  |  |
| --- | --- |
| **Packet Type** | **Byte Val (Unsigned)** |
| Send Data | 1 |
| Request Data | 2 |
| Send Config | 3 |
| Request Config | 4 |
| Game Data | 5 |
| Heartbeat/Status/Sync (Time Only) | 6 |

For types 1-4:

[HEAD - 5][type - 1][hardware address - 2][params - 1][param types - #params][data][END - 4]

The parameter entry is always retained to ensure that packets will be read properly in the case of inconsistent packet definitions for hardware types

**Note:** this is the standard format for 1-4, actual format varies with hardware type (see chart below)

For 5:

[HEAD][type][params][param types][data][END]

**Note:** data definition/format should be static over course of development, safe to skip appropriate number of parameter type bytes and read data directly.

For 6:

[HEAD][type][params (val = 1)][double type][time data][END]

**Parameter Type Chart: (zero reserved for null)**

|  |  |
| --- | --- |
| **Parameter Type** | **Byte Val (Unsigned)** |
| int | 1 |
| double | 2 |
| long | 3 |
| byte | 4 |
| char | Unsupported as of 2/2/12 |

**Hardware Type Chart: (zero reserved for null)**

|  |  |
| --- | --- |
| **Hardware Type** | **Byte Val (Unsigned)** |
| Motor | 1 |
| Solenoid | 2 |
| Inertial | 3 |
| Sensor | 4 |
| Joystick | 5 |

Standard Format: [HEAD][type][hardware address][params][param types][data][END]

**Specific Packet Format by Hardware Type:**

|  |  |
| --- | --- |
| **Hardware Type** | **Format** |
| Motor | Standard |
| Solenoid | Standard |
| Inertial | Standard |
| Sensor | [HEAD][type][hardware address][sensor address - 2][params][param types][data][END] |
| Joystick | Standard |

**Motor Data (Send Data):** (In order of appearance)

|  |  |
| --- | --- |
| **Data Type** | **Description** |
| byte | CAN flag |
| double | Last output value sent to hardware |
| double | Angular rate, rad/sec\* |
| double | Temperature, degrees Celsius\* |
| double | Current (Amperes)\* |
| double | Output Potential Difference (Volts)\* |
| double | Input Potential Difference (Volts)\* |

**\* flag dependent**

**Motor Config (Send Config):**

**TODO**