# Focuser: Incoming Message from HUB

typedef struct {

unsigned char header; // [0] STX

unsigned char command\_number; // [1] Command Number

unsigned int focuser\_target; // [2 - 3]

unsigned int focuser\_direction; // [4 - 5

unsigned int focuser\_resolution; // [6 - 7]

unsigned char footer; // [8] ETX

} HUB\_incoming\_message\_structure;

#define HUB\_incoming\_message\_length 9

union HUB\_Incoming\_Message {

HUB\_incoming\_message\_structure hub\_incoming\_message;

unsigned char sg\_chars[HUB\_incoming\_message\_length];

};

HUB\_Incoming\_Message incoming\_hub\_message;

# Focuser: Outgoing Message to HUB

typedef struct {

unsigned char header; // [0] STX

unsigned char command\_number; // [1] Command Number

unsigned char focuser\_status; // [2]

unsigned int focuser\_position; // [3 - 4]

float temperature; // [5 - 8]

float humidity; // [9 - 12]

unsigned char year; // [13] year

unsigned char month; // [14] month

unsigned char day; // [15] day

unsigned char hour; // [16] hour

unsigned char minute; // [17] minute

unsigned char second; // [18] second

float latitude; // [19,22] latitude

float longitude; // [23,26] longitude

float altitude; // [27,30] altitude (above mean sea level

unsigned char footer; // [31] ETX

} HUB\_outgoing\_message\_structure;

#define HUB\_outgoing\_message\_length 32

union HUB\_Outgoing\_Message {

HUB\_outgoing\_message\_structure hub\_outgoing\_message;

unsigned char sg\_chars[HUB\_outgoing\_message\_length];

};

HUB\_Outgoing\_Message outgoing\_hub\_message;

# HUB: Incoming Message from Motor Controller

typedef struct {

unsigned char header; // [0] STX

unsigned char command\_number; // [1] Command Number

unsigned char motor\_status; // [2]

double azimuth\_bearing; // [3 - 6]

double altitude\_bearing; // [7 - 10]

double field3; // [11 - 14]

double field4; // [15 - 18]

unsigned char footer; // [19] ETX

} Incoming\_Message\_Structure;

#define Incoming\_Message\_Structure\_Length 20

union incoming\_message\_from\_altitude {

Incoming\_Message\_Structure message;

unsigned char sg\_chars[Incoming\_Message\_Structure\_Length];

};

union incoming\_message\_from\_altitude Incoming\_Message\_from\_Altitude;

union incoming\_message\_from\_azimuth {

Incoming\_Message\_Structure message;

unsigned char sg\_chars[Incoming\_Message\_Structure\_Length];

};

union incoming\_message\_from\_azimuth Incoming\_Message\_from\_Azimuth;

# HUB: Outgoing Message to Motor Controller

typedef struct {

unsigned char header; // [0] STX

unsigned char command\_number; // [1] Command Number

unsigned char motor\_status; // [2]

double parameter\_one; // [3 - 6]

double parameter\_two; // [7 - 10]

unsigned char footer; // [11] ETX

} Outgoing\_Message\_Structure;

#define Outgoing\_Message\_Structure\_Length 12

union outgoing\_message {

Outgoing\_Message\_Structure message;

unsigned char sg\_chars[Outgoing\_Message\_Structure\_Length];

};

union outgoing\_message Outgoing\_Message;

# HUB: Incoming Message from Focuser

typedef struct {

unsigned char header; // [0] STX

unsigned char command\_number; // [1] Command Number

unsigned char focuser\_status; // [2]

unsigned int focuser\_position; // [3 - 4]

float temperature; // [5 - 8]

float humidity; // [9 - 12]

unsigned char year; // [13] year

unsigned char month; // [14] month

unsigned char day; // [15] day

unsigned char hour; // [16] hour

unsigned char minute; // [17] minute

unsigned char second; // [18] second

float latitude; // [19,22] latitude

float longitude; // [23,26] longitude

float altitude; // [27,30] altitude (above mean sea level

unsigned char footer; // [31] ETX

} focuser\_incoming\_message\_structure;

#define focuser\_incoming\_message\_length 32

union focuser\_incoming\_message {

focuser\_incoming\_message\_structure focuser\_incoming\_message;

unsigned char sg\_chars[focuser\_incoming\_message\_length];

};

focuser\_incoming\_message incoming\_focuser\_message;

# HUB: Outgoing Message to Focuser

typedef struct {

unsigned char header; // [0] STX

unsigned char focuser\_command\_number; // [1] Command Number

unsigned int focuser\_target; // [2 - 3] absolute position, or increment ( outwards ) decrement (inwards) (in microsteps)

unsigned int focuser\_direction; // [4 - 5] outwards = 0, inwards = 1

unsigned int focuser\_resolution; // [6 - 7] 1, 2, 4, 8, 16, 32, 64 or 128

unsigned char footer; // [8] ETX

}Focuser\_Outgoing\_Message\_Structure;

#define Focuser\_Outgoing\_Message\_Structure\_Length 9

union Focuser\_outgoing\_message {

Focuser\_Outgoing\_Message\_Structure focuser\_message;

unsigned char sg\_chars[Focuser\_Outgoing\_Message\_Structure\_Length];

};

union Focuser\_outgoing\_message Focuser\_Outgoing\_Message;