Packet Definition

- Must contain terminating characters: "\r\n"
- Maximum length is 34 bytes
    - 32 bytes for payload
    - 2 bytes for terminating characters
- No need for padding if less than maximum length
- Begin with 1 decimal digit in ASCII encoding, representing sequence number
- Followed by 3 ASCII characters for the packet type
- Followed by up to 0 to 28 Bytes for the packet's parameters, all digits in ASCII encoding
- Terminated by 2 byte terminating characters
- The following summarises a packet's contents

1 Byte	3 Bytes	0 to 28 Bytes	2 Bytes
Sequence Number	Packet Type	Packet Parameters	"\r\n"

Packet Types

Transport System:

Type	Parameters	Description
ACK	<ACK Number>	Acknowledges the packet with sequence number of <ACK Number>
MOV	<Distance>	From Controller to Transport: Moves the system the 4 digit <Distance> in mm. Positive is forwards; negative is backwards. From Transport to Controller: Confirms system has moved <Distance>mm.
SPD	<Speed>	From Controller to Transport: Sets the system moving at the 3 digits <Speed> in mm/s. Positive is forwards; negative is backwards. From to Transport to Controller: Confirms system is moving at <Speed>mm/s.

Handler System:

Type	Parameters	Description
ACK	<ACK Number>	Acknowledges the packet with sequence number of <ACK Number>
DEG	<Joint>,<Angle>	From Controller to Handler: Sets the 1 digit <Joint> number to the 3 digit <Angle> in degrees. Only applicable to rotational joints. From Handler to Controller: Confirms <Joint> number is set to <Angle>°.
POS	<Joint>,<Position>	From Controller to Handler: Sets the 1 digit <Joint> number to the 3 digit <Position> in mm. Only applicable to translational joints. From Handler to Controller: Confirms <Joint> number is set to <Position>mm.
ARM	<R>,<θ>,<H>	From Controller to Handler: Sets the arm to the cylindrical coordinates (<R>,<θ>,<H>) where <R> is 3 digits in mm, <θ> is 3 digits in degrees, <H> is 3 digits in mm. From Handler to Controller: Confirms arm is set to (<R>,<θ>,<H>) coordinates.