

BLUEPRINTLAB

MASTER ARM

INTEGRATION MANUAL

VERSION 1.2.0

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1 Overview

The Reach 5 Mini Master Arm is a one to one scale controller for the RS1 product range. Compared to alternative control solutions it offers the most intuitive way of remote operation where precise control is required. Connected to a Reach 5 Mini the velocity of the master arm directly sets that of the manipulator allowing for increased spatial awareness and the ability to control multiple axes simultaneously.

2 Specifications

| Specification | Value |
|----------------|--------------|
| Weight | 680g |
| Dimensions | 110x230x40mm |
| Environmental | IP67 |
| Supply Voltage | 5V |
| Current Draw | 500mAh |

3 Interfacing

3.1 Mechanical

The Master Arm features a standard 1/4-20 UNC camera tripod thread to allow for the adoption of the wide range of standard camera accessories available. The hole pattern is mirrored on the top and bottom to allow for both mounting configurations.

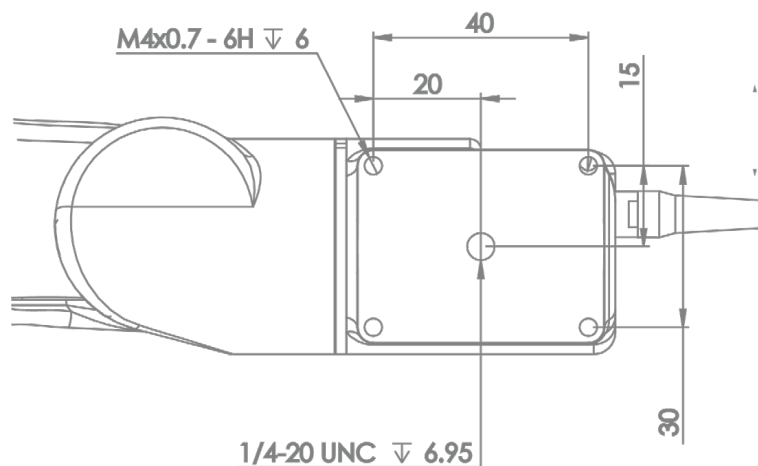
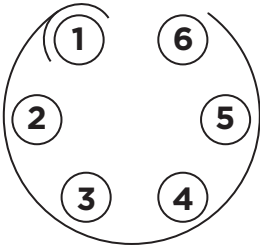


Figure 1 Mounting Dimensions

3.2 Electrical

Multiple interfacing options provides easy integration with either Reach Control or proprietary software. The connector is 6 Pin LEMO 0T series.

| Connector | Part No |
|-----------|--------------------|
| Female | EGG.0T.306.CLL |
| Male | FGG.0T.306.CLAC50Z |

| Pin | Connection | Colour | Pin Numbers |
|-----|------------|--------|---|
| 1 | PWR (5V) | RED |  |
| 2 | GND | BLACK | |
| 3 | RX RS232 | ORANGE | |
| 4 | TX RS232 | YELLOW | |
| 5 | A RS485 | GREEN | |
| 6 | B RS485 | BLUE | |

The supplied cable is a USB to RS232 converter which supplies the 5V power and communication to the host computer. NOTE: Supplying the Master Arm with anything other than 5V will cause permanent damage.

3.3 Software

The entire RS1 range transmit and receive data over a Serial connection with the following specifications:

| Serial Specifications | |
|-----------------------|---------------------------|
| Baud | 115200 bits/s |
| Word Length | 8 bits (including parity) |
| Parity | None |
| Stop Bits | 1 |

4 Operation

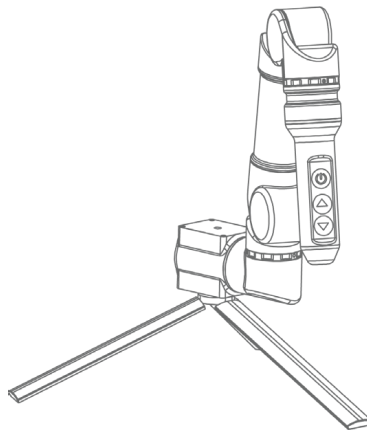
4.1 You Will Need

- Master Arm Controller
- USB to RS232 LEMO cable
- 1/4-20 UNC camera mount
- Windows Computer with USB Port
- Reach Control Installed

4.2 Quick Start Guide

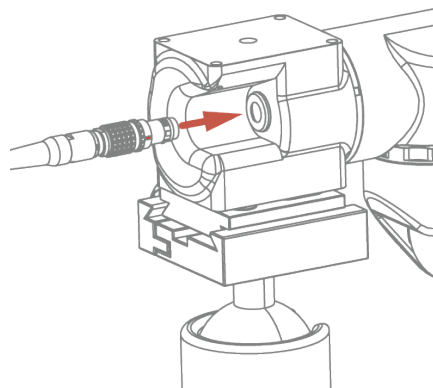
STEP 1

Mount the Master Arm to the camera mount using the 1/4-20 UNC thread and ensure it is secure



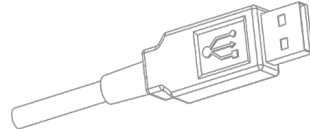
STEP 2

Plug the LEMO Connector into the Master Arm with the red dot facing outwards.



STEP 3

Plug the other side of the cable in a spare computer USB Port.



STEP 4

Open Reach Control and open the Master Arm panel by clicking on the Master Arm icon.



STEP 5

Select the appropriate COM port.



STEP 6

With the Reach 5 Mini connected hold the Master Arm in a comfortable position. Tap the Enable button to make the light solid. The Reach 5 Mini will move proportionally to the master. To pause control Hold the Enable button or Double Tap it.

