



MASTER ARM

OPERATOR MANUAL | V3.0

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1 OVERVIEW

The Reach Master Arm is a one-to-one scale controller for the Reach Alpha and Reach Bravo manipulator range. Compared to alternative control solutions, it offers the most intuitive remote operation where precise control is required. Connected to a Reach Robotics manipulator, the velocity of the Master Arm directly sets the velocity of the manipulator, allowing the user to control multiple axes simultaneously. The setup is straightforward, and the following steps will get you up and running quickly.

2 INTERFACING

2.1 MECHANICAL

The Master Arm features a standard 1/4-20 UNC camera tripod thread to allow the use of the wide range of standard camera accessories available.

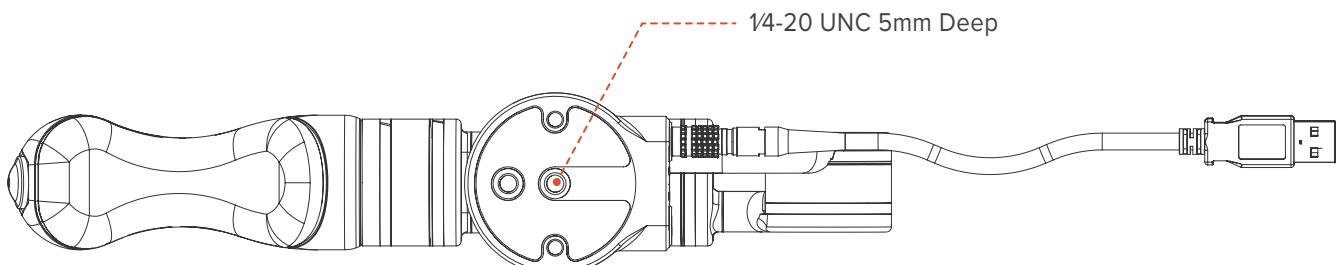


Figure 1: Mounting Dimensions

2.2 ELECTRICAL

The Master Arm connects to the host computer via a standard USB 2.0 connection. The supplied cable is a USB-A to 4-pin Lemo OT Connector.

Electrical Specifications

Voltage	5 V
Current	400 mAh

2.3 SOFTWARE

Both the Reach Alpha and Reach Bravo product lines 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

3 OPERATION

3.1 5-F MASTER ARM (RM-5201) MAPPING

The 5-Function Master Arm is designed to control a 5-F/4DOF slave manipulator such as the Alpha 5 (RA-5001) or Bravo 5 (RB-5001). The default mapping is as shown in Figure 2.

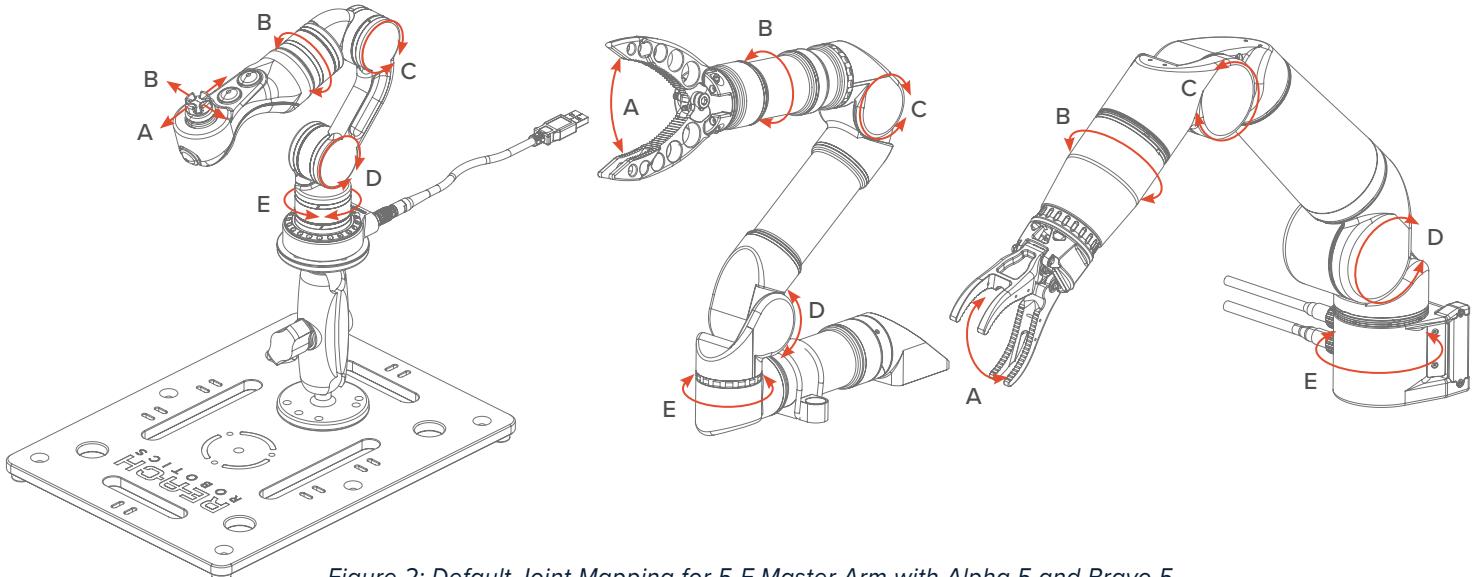


Figure 2: Default Joint Mapping for 5-F Master Arm with Alpha 5 and Bravo 5

Note: The B joint can be controlled by either the joystick or the rotate function of the handle. See Reach Control manual for more information.

3.2 7-F MASTER ARM (RM-7201) MAPPING

The 7-F Master Arm is designed to control a 7-F/6DOF version of the Bravo (RB-7001). In this arrangement the joystick is not used by default.

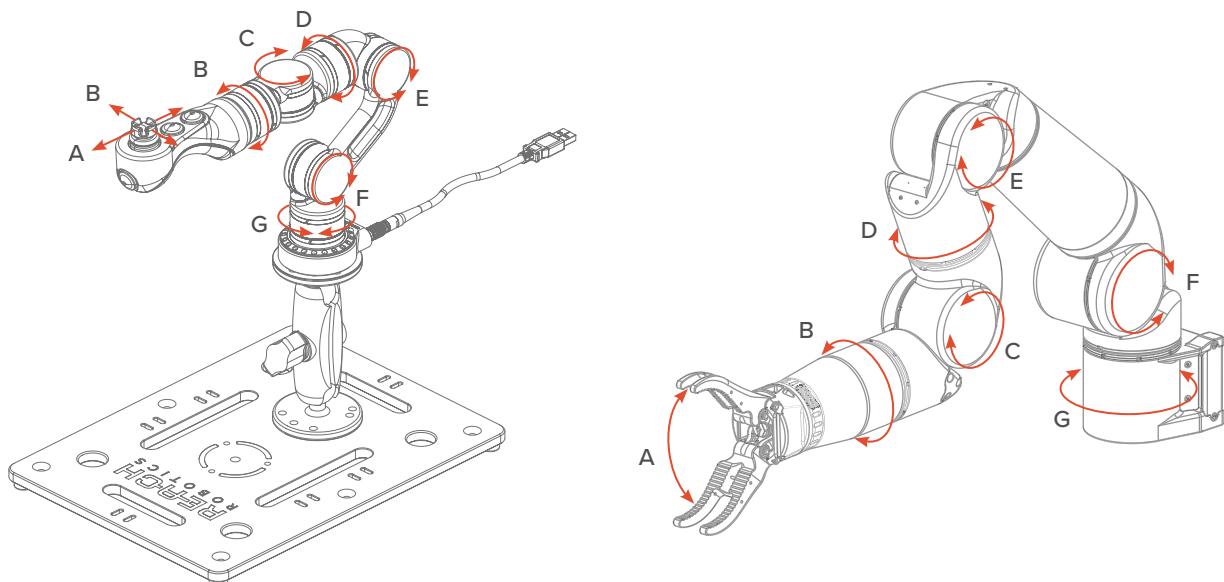


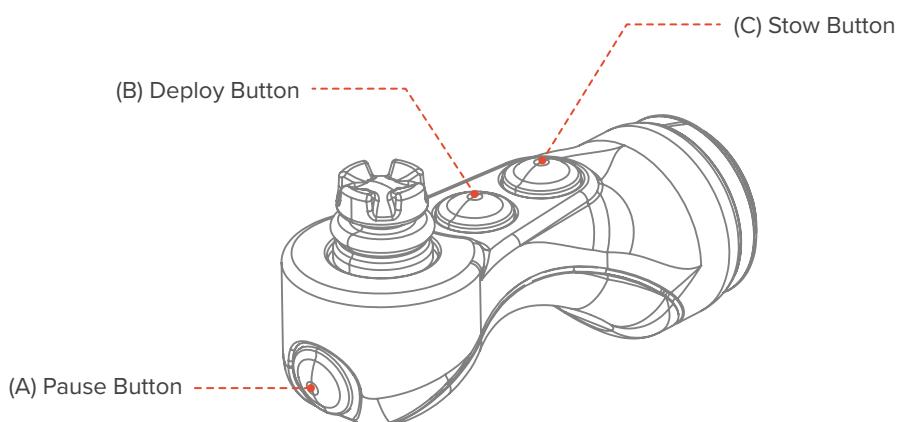
Figure 3: Default Joint Mapping for 7-F Master Arm with Bravo 7

Note: The B joint can be controlled by either the joystick or the rotate function of the handle. See Reach Control manual for more information.

3.3 BUTTON OPERATION

The buttons on the hand of the Master Arm are used for pausing, stowing, and deploying the slave manipulator according to the diagram below:

Button Functions	(A) Pause	(B) Deploy	(C) Stow
Release	Starts Output	Stops Deploying	Stops Stowing
Hold	Pauses Output	Starts Deploying	Starts Stowing
Double Press	Stops Output	Moves to Deploy Pos	Moves to Stow Pos
Hold + Pause (A)	-	Sets Deploy Pos	Sets Stow Pos



4 NOTES

When unplugging the LEMO connector from the Master Arm, simply pull the connector outwards (ensuring that the red lines are aligned). Do not twist the connector during this motion.

