



RE2 DS1-MA Manipulator shown on MACRO USA Armadillo



Technical Specifications

Maximum Gripping Force: 25 lbs. (11.36 kg)

Maximum Intermittent Lifting Capacity: 7 lbs. (3.18 kg)

Continuous Lifting Capacity: 5 lbs. (2.27 kg)

System Weight: 3.62 lbs. (1.64 kg) [add 0.7 lbs. (.32 kg) for optional guard]

Stowed Dimensions: 6.75"W x 13"L x 3"H (17.15 cm x 33.02 cm x 7.62 cm) [includes optional guard]

Gripper Reach (center rotation to gripper tip): 7.25" retracted, 9.25" extended (18.42 cm, 23.5 cm)

Maximum Gripper Opening: 3.75" (9.53 cm)

Camera Mast Height Range (from bottom of arm housing): 1.5" - 11" (3.81 cm - 27.94 cm)

Actuated DOF: Shoulder Pitch, Gripper, Camera Mast

Manual DOF: Shoulder Roll, Shoulder Extend, Camera Pan/Tilt

Protocol: Serial RS232

Illumination (Camera Mast): White LED (other options available)

Video (Camera Mast): Color - NTSC

Attachment: Tool-less Thumb Screws (other mounting options available)

IP Rating: Designed to IP-65

Overview

RE2's DS1-MA was designed, tested, and proven to be a powerful, lightweight, and serviceable modular manipulation system. DS1-MA is constructed of carbon fiber, plastics, aluminum, and other high-quality industrial components, enabling a robust, lightweight, portable solution for the Military and First Responders. Having completed field trials by the US Military in Afghanistan, extensive testing at NIST facilities and with other Government-affiliated assessment groups, as well as comprehensive internal testing, DS1-MA offers reliability, high performance, low maintenance, and serviceability in a lightweight, modular package. DS1-MA is currently compatible with select models of the MacroUSA Armadillo and can be installed or removed within seconds using the captive, tool-less thumb screws.

The integrated camera mast and reconfigurable degrees of freedom allow the DS1-MA to be used for multiple missions/tasks. Based on the task at hand, the gripper can be manually set to either a vertical or horizontal orientation. Similarly, the reach length of the gripper can be manually extended/retracted to the desired length prior to a mission. The camera mast is automatically deployed and stowed in sync with the arm's movement. The pan and tilt degrees of freedom for the mast's camera can be adjusted using a single thumb screw. The ability to place the camera at various heights enables various missions using the same manipulation system. For example, when stowed, the mast's camera can be used for under vehicle inspection; when partially deployed, the camera allows for a higher vantage point and thus improved situational awareness while driving; and when fully deployed, where the mast is vertical, the camera provides a bird's eye view while grasping objects with the gripper. The integrated LED array on the camera mast allows the system to be used in all lighting conditions. The break-away, self-righting feature of the camera mast allows the DS1-MA to be used in the harshest of environments.