

MX-701 Mobile Explorer

Mission Objectives:

- ✓ Outdoor Navigation
- ✓ Video Surveillance
- ✓ Telemetry Feedback
- ✓ Tele-operation
- ✓ Semi-autonomous Behaviors



Physical Features

- > Low center of gravity
- > 3.5" ground clearance
- > Heavy-duty gear reduction unit
- > Custom CNC aluminum lower deck
- > 4 wheel drive with independent suspension
- > Rubber-sealed ball bearings
- > Heavy-duty bell crank steering system
- > Waterproof steering servos
- > Sealed pivot ball suspension, differentials and outer and center drive shafts
- > Weight 24lbs (w/batteries)
- > Dimensions (H: 11.5", W: 16.0", L: 22.5")

Electrical/Electronic Features

- > 16V electric motor
- > 200-400 Watt/Hr battery capacity
- > Electronic speed control (forward and reverse)
- > 2 instrument grade sonar range finding modules detecting objects up to 35 feet (forward sonar pans 180°)
- > IP67 NTSC 720x480 pixel color camera with 180° pan and tilt (optional IR LED for night vision)
- Garmin™ GPS, 1Hz update rate
- > Optical odometer measures transmission rotation for distance measurements
- > RS-232 controller module
- > Manages host communication to:
 - Sonar modules
 - Steering controls
 - Velocity controls
 - Odometer measurements
 - Battery voltage monitors
- > 4 general purpose I/O ports

Compute Module

- > Compute Resources:
 - 1.6GHz ITX-mother board with 2GB of memory
 - 32GB Solid State Drive
 - 240W ATX power supply
 - IP65 chassis fan
 - WiFi, 802.11 (b/g)
 - Ubuntu Linux
 - Operating temperature range 0-60°
- > Upper Deck can support up to 100's of I/O ports via Scalable Sensor Bus (SSB)™ (RS-232 based protocol)
- > Network protocols: ssh, telnet, ftp, http, nfs, vncserver
- > Custom TCP/IP protocols/servers (Mission, GPS, camera, SSB)

Standard Equipment: Logitech® Gamepad

Field Equipment: Computer for field communication, WiFi 802.11 (b/g) access point, and battery charger

Optional Field Equipment: VGA Touch Screen

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