Hampden H-MRS-2
Mobile Robotics Systems Trainer

Purpose

The **Model H-MRS-2** Mobile Robotics Systems Trainer provides instruction and hands-on experience in the control of power and motion by means of DC servo motors, and electronic circuits, all of which are used in industrial robots and other automation equipment. Students, therefore, receive training that prepares them for a wide variety of industrial occupations.

Services Required

Hampden **Model H-MRS-2** Mobile Robotics Systems Trainer operates from a standard single-phase AC receptacle.

Description

The Hampden **Model H-MRS-2** Mobile Robotics Trainer consists of a 5-axis robot arm having a set of grippers as the ends-of-arm device. If desired, specialized tools may be substituted for the gripper. Each of the five types of movements has its own unique drive and sensor movements including:

- Waist Swivel
- Shoulder Rotation
- Elbow Rotation
- Wrist Roll
- Gripper Action

Mechanical Arm

Mechanical Structure – Vertically articulated; open frame

Degrees of Freedom – 5 rotational axes and gripper

Payload Capacity – 4.6 lb

Axis Range
    Axis 1: Base rotation 310
    Axis 2: Shoulder rotation +130 / -35
    Axis 3: Elbow rotation +130
    Axis 4: Wrist pitch +130
    Axis 5: Wrist roll ±570

Reach – 610 mm (24") with gripper

Speed – 700 mm/sec (27.6"/sec)

Repeatability – ± 0.18 mm (0.007")

Position Feedback – Incremental optical encoders

Homing – Microswitch on each axis

Actuators – 12 V DC servo motor on each axis

Gripper – DC servo motor, 2-finger parallel

Gripper Jaw Opening – 0-65/75 mm (2.6"/3") with/without pads

Transmission – Gears, timing belts, lead screw

Controller

Communication – USB type A cable connection to PC; Plug and play without rebooting

Inputs/Outputs – 8 digital inputs; 4 analog inputs; 8 digital outputs (4 relay, 4 open collector); 2 analog outputs

Microcontroller – Full featured, NEC V853 RISC 32-bit microcontroller

Axis Servo Control – Real-time; PID; PWM

Servo Axes – 8 (robot arm, gripper and 2 peripheral devices)

User Memory – Unlimited programs, program lines and variables, positions.

Position Definition – Absolute, Relative, Cartesian, Joints, Encoders

Trajectory Control – Joint, Linear, Circular

Speed Definition (software) – 10 speed settings; travel time definition

Control Parameters – 160 user-accessible parameters

MODEL H-MRS-2
Dimensions:
Base: 18"W x 24"D
Arm: (fully extended): 24"
Shipping Weight: 160 lbs.

Safety Features – Emergency switch; short-circuit protection; automatic shut-down upon detection of impact, overheating, PC failure or communication error.

Options Available

Model H-MRS-MB Mobile Bench

The optional mobile bench provides a mounting surface, at a convenient height, for the **Model H-MRS-2** robot. In addition, it provides space for storage.

All Hampden units are available for operation at any voltage or frequency

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