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MERCURY SECURITY MR16IN-S3

MERCURY SECURITY MR16IN-S3 Multi-Device 16-Input Controller Board Motherboard User Manual

Model: MR16IN-S3

1. Introduction

The MERCURY SECURITY MR16IN-S3 is a multi-device 16-input controller board motherboard designed for integration into various security and control systems. It provides robust input monitoring capabilities and programmable relay outputs, making it suitable for a wide range of applications requiring precise control and feedback.

This manual provides essential information for the proper installation, configuration, operation, and maintenance of your MR16IN-S3 controller board. Please read it thoroughly before proceeding with any procedures.

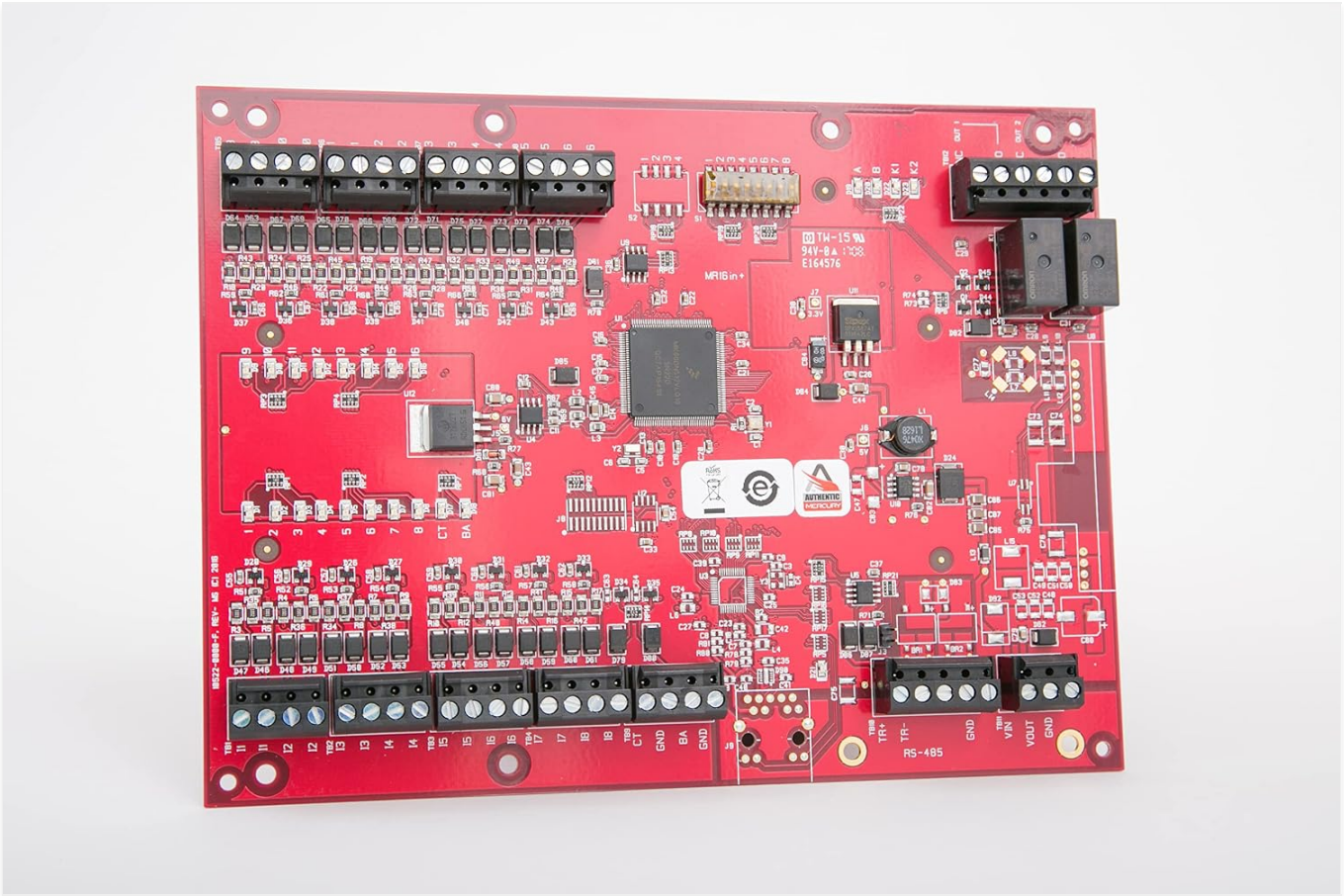


Figure 1: Overview of the MR16IN-S3 Multi-Device 16-Input Controller Board Motherboard. This image displays the full board with its

various input terminals, relay outputs, and main components.

2. Setup

2.1 Package Contents

Verify that all components are present in the package:

- MR16IN-S3 Multi-Device 16-Input Controller Board Motherboard
- Installation Guide (this document)
- Mounting hardware (screws, standoffs)

2.2 Installation Guidelines

Follow these guidelines for safe and proper installation:

- **Power Disconnection:** Ensure all power sources are disconnected before installation or servicing.
- **Static Discharge:** Use appropriate electrostatic discharge (ESD) precautions when handling the board to prevent damage to sensitive components.
- **Mounting:** Mount the board securely within an appropriate enclosure, ensuring adequate ventilation and clearance from other components.
- **Environment:** Install in a dry, clean environment, away from extreme temperatures, humidity, and corrosive substances.

2.3 Wiring and Connections

The MR16IN-S3 board features 16 general-purpose input circuits and 2 dedicated programmable relay outputs. Refer to the board layout for specific terminal locations.

- **Input Terminals (1-16):** Connect your sensors or input devices to these terminals. Each input can be configured individually.
- **Relay Outputs (OUT 1, OUT 2):** These terminals provide normally-open (NO) and normally-closed (NC) contacts for controlling external devices.
- **Power Input (VIN, GND):** Connect the primary power supply to these terminals. Ensure correct polarity and voltage as specified in the specifications section.
- **RS-485 Communication (TR+, TR-, GND):** Use these terminals for RS-485 serial communication with a host controller or other compatible devices.

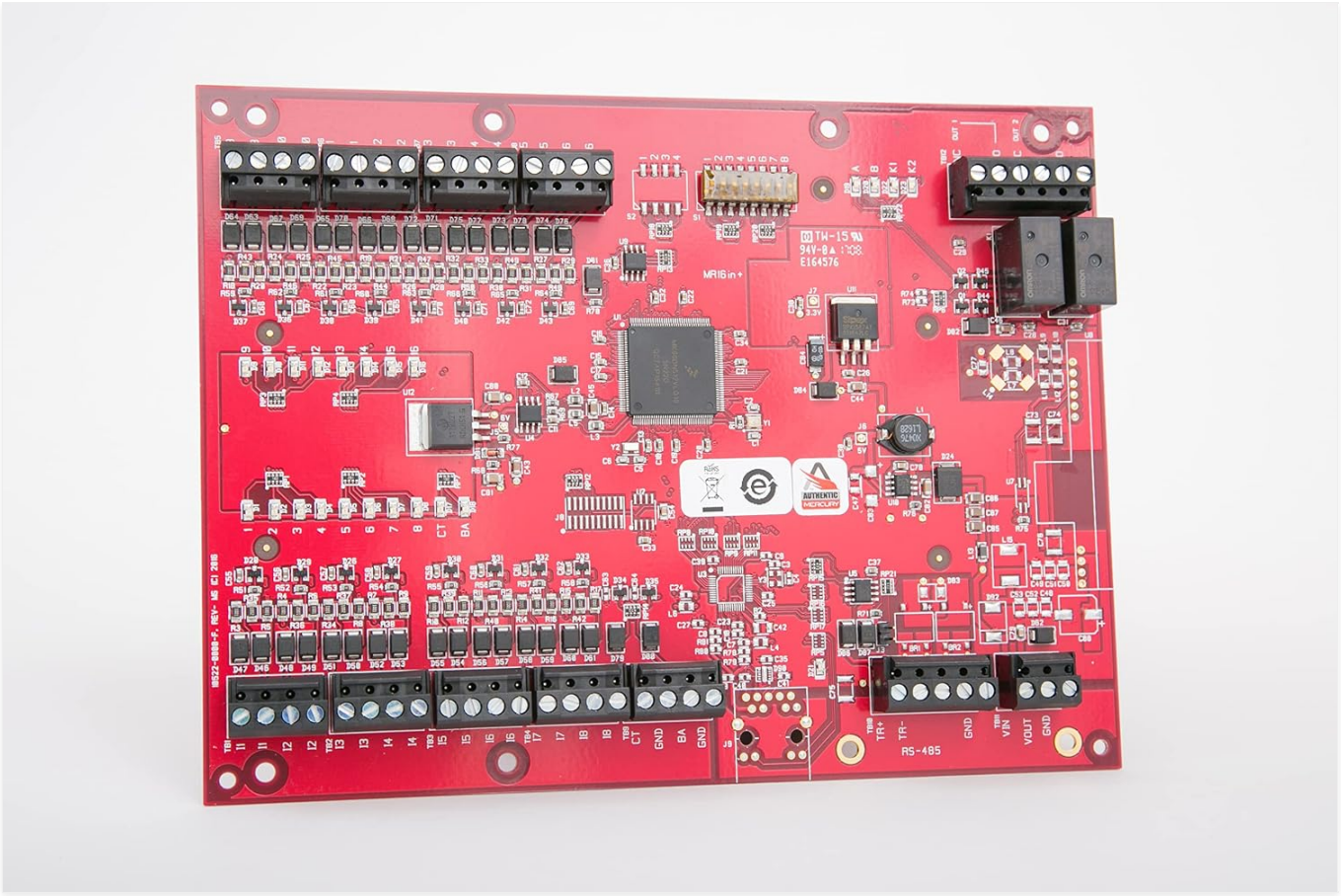


Figure 2: Detailed view of the MR16IN-S3 board highlighting input terminals (1-16), relay outputs (OUT 1, OUT 2), power input (VIN, GND), and RS-485 communication ports (TR+, TR-, GND).

3. Operating Instructions

3.1 Input Configuration

Each of the 16 input circuits can be individually configured through the connected host system. Configuration options include:

- **Normally-Open (NO) or Normally-Closed (NC):** Define the default state of the input circuit.
- **Supervised or Non-Supervised:** Supervised inputs monitor for tampering (e.g., short circuits, open circuits) in addition to state changes.
- **Custom Parameters:** Additional parameters may be available depending on the host system software for sensitivity, debounce, and other input characteristics.

3.2 Relay Output Configuration

The two dedicated relay outputs can be configured for specific operational behaviors:

- **Fail-Safe Operation:** The relay assumes a specific state (e.g., open) in the event of a power failure or system malfunction.
- **Fail-Secure Operation:** The relay maintains its current state (e.g., closed) in the event of a power failure or system malfunction.

3.3 Event-Driven Commands

The MR16IN-S3 allows for the initiation of commands based on various triggers:

- **Operator Commands:** Manual commands issued by a system operator through the host interface.
- **Time Schedules:** Commands executed automatically at predefined times or intervals.
- **Events:** Commands triggered by specific events detected by the input circuits (e.g., a sensor activation).

4. Maintenance

The MR16IN-S3 is designed for reliable operation with minimal maintenance. However, periodic checks are recommended:

- **Visual Inspection:** Periodically inspect the board for any signs of physical damage, loose connections, or dust accumulation.
- **Cleaning:** If necessary, gently clean the board with a soft, dry, anti-static brush or compressed air. Do not use liquid cleaners.
- **Firmware Updates:** Check with your system integrator or MERCURY SECURITY for any available firmware updates that may enhance performance or address issues.
- **Environmental Control:** Ensure the operating environment remains within specified temperature and humidity ranges.

5. Troubleshooting

This section provides solutions to common issues you might encounter with the MR16IN-S3 controller board.

Problem	Possible Cause	Solution
Board does not power on	Incorrect power connection; Power supply failure; Blown fuse (if applicable)	Verify power supply voltage and polarity. Check power supply functionality. Inspect for fuses.
Input not responding	Incorrect wiring; Sensor malfunction; Incorrect input configuration	Check input wiring for continuity and correct connection. Test the sensor independently. Verify input configuration (NO/NC, supervised status) in the host system.
Relay output not activating	Incorrect wiring; Relay configuration error; Host system command issue	Verify relay output wiring to the controlled device. Check relay configuration (fail-safe/fail-secure) and ensure the host system is sending the correct activation command.
Communication errors (RS-485)	Incorrect wiring; Termination issues; Address conflicts; Baud rate mismatch	Check RS-485 wiring (TR+, TR-, GND). Ensure proper termination resistors are used. Verify unique device addresses and matching baud rates with the host system.

6. Specifications

Key technical specifications for the MERCURY SECURITY MR16IN-S3 controller board:

Feature	Description
Model Name	MR16IN-S3
Inputs	16 programmable input circuits (NO/NC, supervised/non-supervised)
Outputs	2 programmable relay outputs (fail-safe/fail-secure)
Data Encryption	AES 128/256 bit
Certifications	UL 294 recognized, CE compliant, FCC, RoHS
Compatible Devices	Alarm Systems, Sensors, Security Devices

Feature	Description
Manufacturer	MERCURY SECURITY

7. Warranty Information

The MERCURY SECURITY MR16IN-S3 Multi-Device 16-Input Controller Board Motherboard is covered by a manufacturer's warranty. For specific terms, conditions, and duration of the warranty, please refer to the documentation provided with your purchase or contact MERCURY SECURITY directly. Keep your proof of purchase for warranty claims.

8. Technical Support

If you encounter issues that cannot be resolved using the troubleshooting guide, or require further assistance with installation or configuration, please contact your system integrator or MERCURY SECURITY technical support. Have your product model number (MR16IN-S3) and a detailed description of the issue ready when contacting support.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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