

NOYITO DFR0914

NOYITO 4-Channel Optocoupler Photoelectric Isolator Module User Manual

Model: DFR0914 (24V to 3.3V)

1. INTRODUCTION

This manual provides comprehensive instructions for the NOYITO 4-Channel Optocoupler Photoelectric Isolator Module, specifically the 24V to 3.3V version (Model DFR0914). This module is designed for signal isolation and level conversion between different voltage signals, such as those found in single-chip microcomputers and PLCs. It supports conversion from PNP/NPN signals to NPN signals and various voltage level conversions.

2. PRODUCT OVERVIEW

The NOYITO 4-Channel Optocoupler Photoelectric Isolator Module is a robust solution for electrical isolation and voltage level shifting in industrial and electronic applications. It features high-quality optocouplers for reliable signal separation and includes LED patch indicators for visual status feedback. The power supply circuit incorporates anti-connection protection to prevent damage from incorrect polarity.

Key Features:

- High-quality optocoupler for reliable signal isolation.
- Integrated LED patch indicators for each channel.
- Power supply with anti-connection protection.
- Maximum conversion frequency of 20KHz.
- Compact module size: 45mm (L) x 72mm (W) x 18mm (H).
- Mounting hole dimensions: 40mm (L) x 37mm (W).

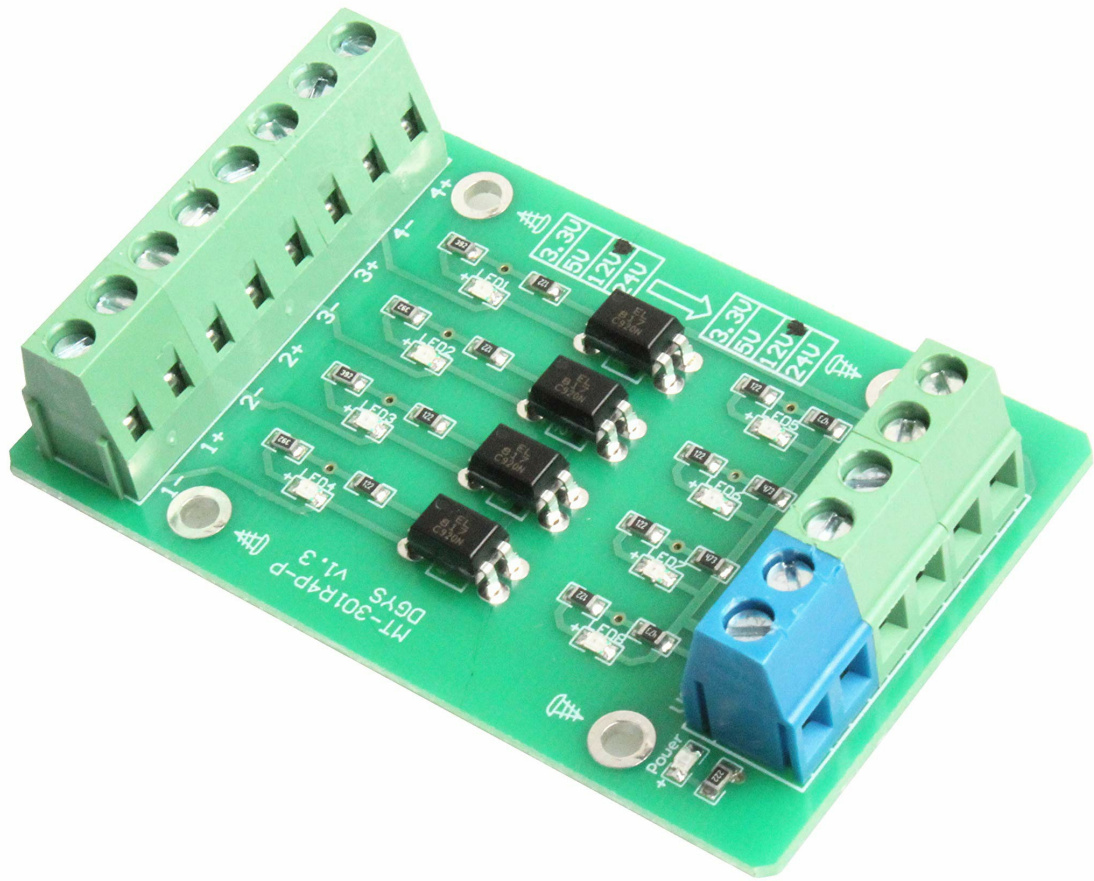


Figure 2.1: Top view of the NOYITO 4-Channel Optocoupler Photoelectric Isolator Module, showing input/output terminals and optocouplers.

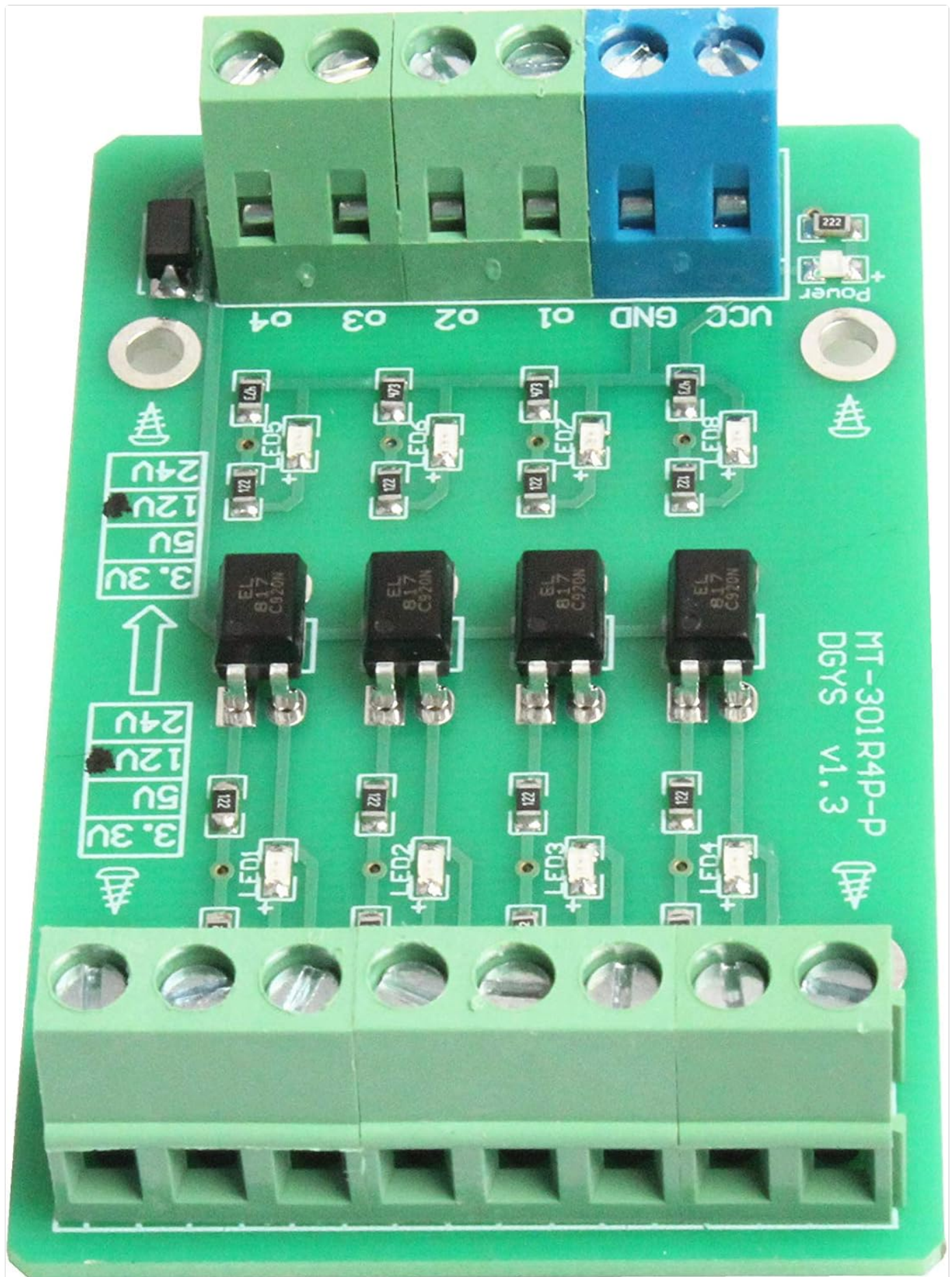


Figure 2.2: Angled view highlighting the input and output voltage labels on the module.

3. SPECIFICATIONS

Specification	Value
Brand	NOYITO
Model	DFR0914
Maximum Supply Voltage	24 volts
Minimum Supply Voltage	5 volts DC
Mounting Type	DIN Rail
Number of Pins	8
Interface	Parallel
Number of Channels	4
Item Dimensions (L x W)	3.39" x 1.89" (86.1mm x 48mm)
Material Type	Copper
Compatible Devices	PLC, single chip microcomputer
UPC	680613662774

4. SETUP

Careful attention to wiring and voltage selection is crucial for the correct operation of the optocoupler module. This module is designed for 24V input to 3.3V output conversion.

4.1. Power Supply Connection

1. Connect the positive terminal of your 24V DC power supply to the 'VCC' terminal on the module.
2. Connect the negative terminal (ground) of your 24V DC power supply to the 'GND' terminal on the module.
3. Ensure the power supply voltage matches the module's specified input range (5V to 24V). The module has anti-connection protection, but correct polarity is always recommended.

4.2. Input Signal Connection (24V Side)

The module supports both NPN and PNP input signals. Connect your 24V input signals to the terminals labeled '1+', '1-', '2+', '2-', '3+', '3-', '4+', '4-'.

- For NPN input: Connect the signal source's output to the '-' terminal (e.g., '1-') and the common positive to the '+' terminal (e.g., '1+').
- For PNP input: Connect the signal source's output to the '+' terminal (e.g., '1+') and the common negative to the '-' terminal (e.g., '1-').

4.3. Output Signal Connection (3.3V Side)

The module provides NPN output signals. Connect your 3.3V receiving device's input to the terminals labeled 'O1', 'O2', 'O3', 'O4'. These outputs will switch to ground (0V) when active, suitable for NPN-compatible inputs.

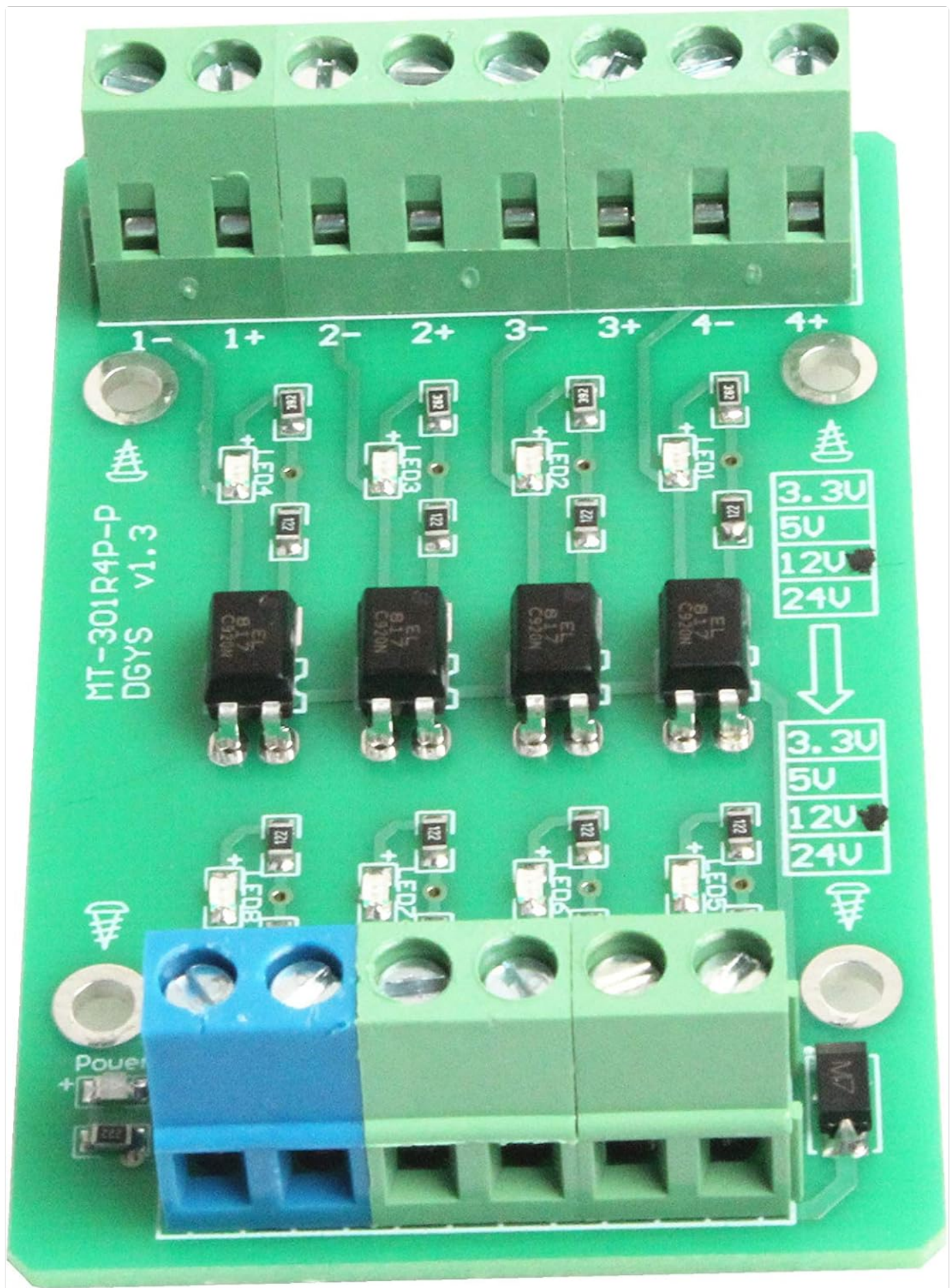


Figure 4.1: Angled view of the module, illustrating the screw terminals for secure wiring connections.

5. OPERATING INSTRUCTIONS

Once properly wired, the module operates by converting input signals from a higher voltage (24V) to a lower voltage (3.3V) while maintaining electrical isolation. The optocouplers prevent ground loops and protect sensitive low-voltage circuitry from high-voltage transients.

1. **Power On:** Apply the specified 24V DC power to the VCC and GND terminals. The power LED (if present) should illuminate.
2. **Signal Input:** Provide a 24V signal to the input channels (1+ to 4+ and 1- to 4-).
3. **Signal Conversion:** The module will convert the 24V input signal to a 3.3V NPN output signal.
4. **Output Monitoring:** Observe the LED indicators (LED1 to LED4) corresponding to each channel. An illuminated LED indicates an active signal on that channel.
5. **Frequency Limit:** The module can handle signal conversions up to 20KHz. Ensure your input signal frequency does not exceed this limit for reliable operation.

6. MAINTENANCE

The NOYITO Optocoupler Module is designed for long-term, reliable operation with minimal maintenance. Follow these guidelines to ensure optimal performance:

- **Keep Clean:** Periodically inspect the module for dust or debris accumulation. Clean with a soft, dry brush or compressed air. Avoid using liquid cleaners.
- **Environmental Conditions:** Operate the module within its specified temperature and humidity ranges. Avoid exposure to extreme temperatures, moisture, or corrosive environments.
- **Secure Connections:** Ensure all screw terminal connections remain tight. Loose connections can lead to intermittent operation or signal loss.
- **Avoid Static Discharge:** When handling the module, take precautions against electrostatic discharge (ESD) to prevent damage to sensitive components.

7. TROUBLESHOOTING

If you encounter issues with your NOYITO Optocoupler Module, refer to the following troubleshooting steps:

7.1. No Output Signal / Incorrect Voltage Output

- **Check Power Supply:** Verify that the 24V DC power supply is correctly connected to VCC and GND and is providing the correct voltage.
- **Input Signal Verification:** Ensure the input signal is present at the correct terminals (e.g., 1+, 1-) and matches the expected voltage level (24V).
- **Polarity Check:** Double-check the polarity of both input and output connections. Although the module has anti-connection protection, incorrect wiring can still prevent proper signal flow.
- **Load Compatibility:** Ensure the device connected to the output (3.3V side) is compatible with NPN output signals and can operate with a 3.3V logic level.
- **Common Circuit Voltage Drop:** Some users have reported a significant voltage drop in the common circuit, leading to lower than expected output voltage, particularly when driving certain loads like LEDs. If experiencing this, verify the current requirements of your load and consider adding an external pull-up resistor if the output is too weak for your application.
- **Frequency Check:** Confirm that the input signal frequency does not exceed the module's 20KHz limit.

7.2. Module Not Powering On

- **Power Connection:** Re-verify VCC and GND connections.

- **Power Source:** Test your 24V DC power source independently to ensure it is functioning correctly.
- **Polarity:** Despite protection, ensure VCC is positive and GND is negative.

8. WARRANTY AND SUPPORT

8.1. Warranty Information

This NOYITO module comes with a Manufacturer's One-year After-sale Warranty. Please retain your proof of purchase for warranty claims.

8.2. Additional Resources

For further technical details or an alternative manual download, please refer to the official NOYITO resources. An additional user manual can be found at: [NOYITO 4-Channel Optocoupler Photoelectric Isolator Module User Manual](#)

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