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> Walfront AVR ISP Bootloader Programmer Expansion Board User Manual

Walfront Walfrontyz6uo8t01h

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Model: Walfrontyz6uo8t01h

1. INTRODUCTION

The Walfront Programmer Expansion Board is designed to facilitate the programming and bootloader burning of various microcontrollers, including Atmega 328P, Atmega 168P, and Atmega 8. This board serves as an essential tool for developers and hobbyists working with Arduino-compatible platforms such as Arduino, Nano, and Pro Mini (5V 16M). It integrates key features like LED indicators, a buzzer, and multiple programming interfaces to streamline the development process.

2. FEATURES

- **LED Indicators:** Onboard LEDs provide visual feedback. A "breathing light" indicates normal power, a flashing PROG light signifies active programming, and a red ERROR light indicates programming failure.
- **28-Pin ZIF Socket:** Features a 28P lock seat for convenient burning of bootstrap programs onto Atmega 328P, Atmega 168P, and Atmega 8 microcontrollers.
- **ISP Interfaces:** Includes ISP_6PIN and ISP_10PIN interfaces for external board bootloader burning.
- **USB to TTL Programmer Interface:** Equipped with FT232RL and CH340G interfaces for uploading code to chips placed in the 28P lock seat.
- **Onboard Buzzer:** Provides audible feedback for programming status. A successful bootloader burn is indicated by two beeps.
- **Compatibility:** Supports programming for Arduino, Nano, and Pro Mini (5V 16M) boards.

3. SPECIFICATIONS

Parameter	Value
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Operating Voltage	5V
Working Current (Maximum)	500mA
Supported Microcontrollers	Atmega 328P, Atmega 168P, Atmega 8
Supported Boards	Arduino, Nano, Pro Mini (5V 16M)
Interfaces	28P ZIF Socket, ISP_6PIN, ISP_10PIN, FT232RL, CH340G USB to TTL
Model Number	Walfrontyz6uo8t01h
Item Weight	0.03 Kilograms

4. SETUP

Before using the Walfront Programmer Expansion Board, ensure you have the necessary drivers installed for the FT232RL or CH340G USB to TTL converter, if you plan to use that functionality.

1. **Connect to Host:** Connect the programmer expansion board to your computer using a standard USB cable. The board will draw power from the USB connection.
2. **Observe Power Indicator:** Upon connection, the onboard LED indicator should light up, often with a "breathing light" effect, indicating normal power supply.
3. **Driver Installation (if needed):** If your operating system does not automatically recognize the USB to TTL converter, you may need to manually install drivers for FT232RL or CH340G. These drivers are typically available from the chip manufacturer's website or common microcontroller development resources.
4. **Prepare Microcontroller (for ZIF socket):** If burning a bootloader to a bare microcontroller (e.g., Atmega 328P), carefully insert the chip into the 28-pin ZIF (Zero Insertion Force) socket. Ensure correct orientation, aligning pin 1 of the chip with the corresponding mark on the socket. Close the ZIF socket lever to secure the chip.
5. **Prepare External Board (for ISP):** If burning a bootloader to an external board (e.g., Arduino Nano), connect the ISP_6PIN or ISP_10PIN interface on the expansion board to the corresponding ISP header on your target board using an appropriate cable.

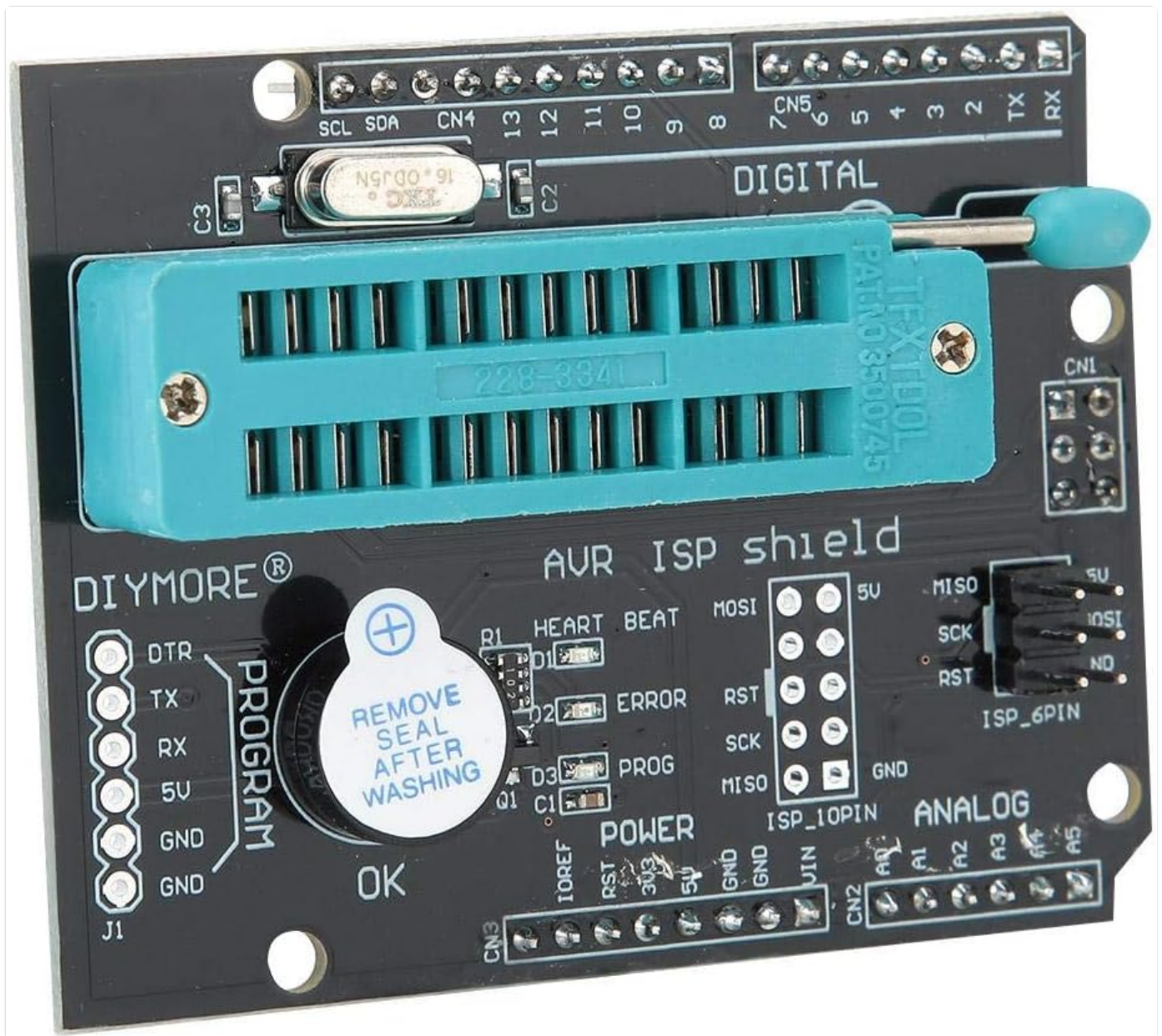


Figure 1: Top view of the Walfront Programmer Expansion Board, showing the 28-pin ZIF socket, ISP headers, and LED indicators.

5. OPERATING INSTRUCTIONS

5.1. Burning Bootloader to Microcontroller in ZIF Socket

1. **Insert Chip:** Carefully insert the target microcontroller (e.g., Atmega 328P) into the 28-pin ZIF socket, ensuring correct orientation.
2. **Connect to Computer:** Connect the expansion board to your computer via USB.
3. **Software Configuration:** Open your preferred IDE (e.g., Arduino IDE). Select the appropriate board type (e.g., "Arduino Uno" for Atmega328P) and the correct COM port for the expansion board's USB to TTL interface.
4. **Select Programmer:** Go to "Tools" > "Programmer" and select "Arduino as ISP" or a compatible programmer option.
5. **Burn Bootloader:** Go to "Tools" > "Burn Bootloader".
6. **Monitor Indicators:**
 - The PROG LED will flash during the burning process.
 - Upon successful completion, the onboard buzzer will emit two beeps.
 - If the ERROR LED (red) illuminates, the burning process has failed.

7. **Remove Chip:** After successful burning, open the ZIF socket lever and carefully remove the microcontroller.

5.2. Burning Bootloader to External Board via ISP

1. **Connect ISP:** Connect the ISP_6PIN or ISP_10PIN header on the expansion board to the ISP header on your target board (e.g., Arduino Nano).
2. **Connect to Computer:** Connect the expansion board to your computer via USB. Ensure the target board is also powered, if required.
3. **Software Configuration:** In your IDE, select the target board type and the correct COM port for the expansion board.
4. **Select Programmer:** Go to "Tools" > "Programmer" and select "Arduino as ISP" or a compatible programmer option.
5. **Burn Bootloader:** Go to "Tools" > "Burn Bootloader".
6. **Monitor Indicators:** Observe the PROG and ERROR LEDs, and listen for the buzzer as described in section 5.1.

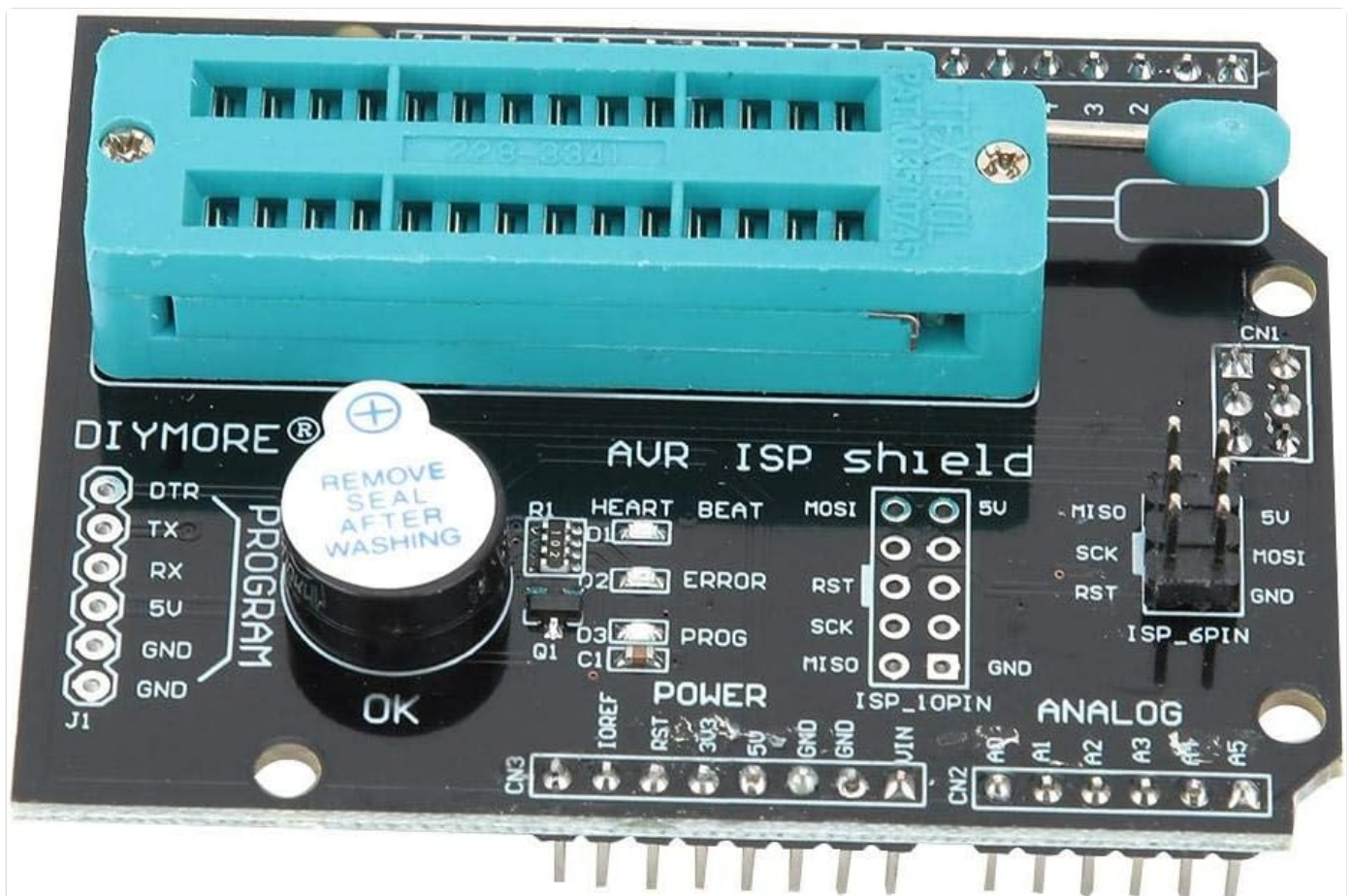


Figure 2: Detail view of the 28-pin ZIF socket, LED indicators (Heart Beat, Error, Prog), and the onboard buzzer.

6. MAINTENANCE

The Walfront Programmer Expansion Board is designed for durability and requires minimal maintenance.

- **Cleaning:** Keep the board clean and free from dust and debris. Use a soft, dry cloth for cleaning. Avoid using liquids or abrasive cleaners.
- **Storage:** Store the board in a dry, static-free environment when not in use.
- **Handling:** Handle the board by its edges to avoid touching sensitive components, especially the ZIF socket pins.
- **ZIF Socket Care:** When inserting or removing chips, always ensure the ZIF socket lever is fully open to prevent damage to the chip pins or the socket itself.

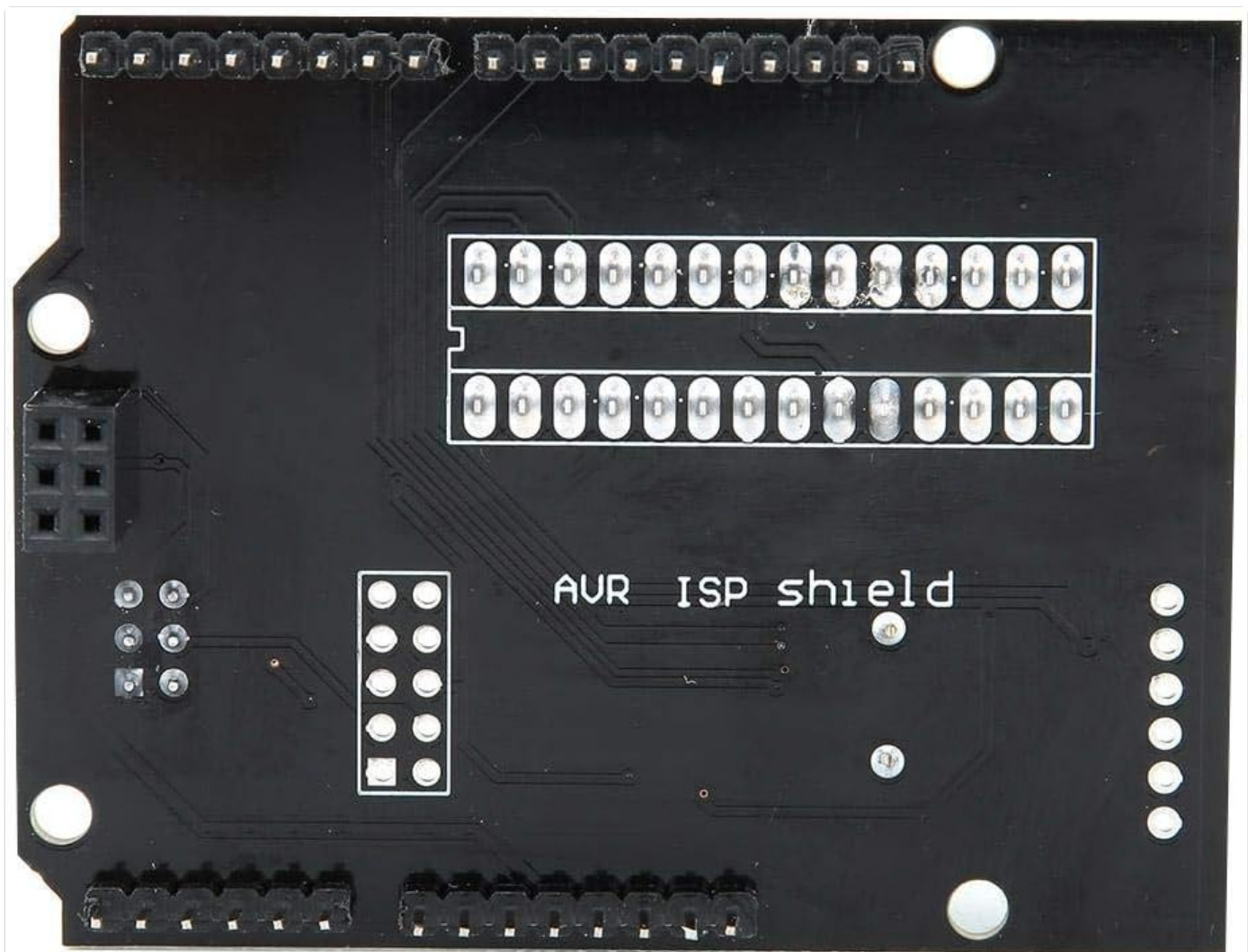


Figure 3: Bottom view of the Walfront Programmer Expansion Board, illustrating the solder points and circuit traces.

7. TROUBLESHOOTING

- **Board Not Recognized by Computer:**

- Ensure the USB cable is securely connected.
- Verify that the necessary FT232RL or CH340G drivers are correctly installed. Check Device Manager on Windows or `lsusb` on Linux for device recognition.
- Try a different USB port or cable.

- **ERROR LED Illuminates During Programming:**

- **Incorrect Chip Insertion:** For ZIF socket programming, ensure the microcontroller is inserted correctly and the ZIF lever is fully closed. Verify pin 1 alignment.
- **Incorrect Wiring (ISP):** For ISP programming, double-check all connections between the expansion board and the target board. Ensure MISO, MOSI, SCK, RST, VCC, and GND lines are correctly connected.
- **Incorrect Board/Programmer Selection:** In your IDE, confirm that the correct board type and programmer (e.g., "Arduino as ISP") are selected.
- **Faulty Chip:** The target microcontroller might be faulty. Try with a different chip if available.
- **Power Issues:** Ensure adequate power supply to both the expansion board and the target board (if external).

- **No Buzzer Sound After Programming:**

- If the ERROR LED is off but no two beeps are heard, the programming might still have failed silently, or the

buzzer itself could be faulty. Refer to the ERROR LED for primary failure indication.

- Re-attempt the programming process.

8. WARRANTY AND SUPPORT

Specific warranty information for the Walfront Programmer Expansion Board (Model: Walfrontyz6uo8t01h) is not provided in the product details. For warranty claims or technical support, please refer to the retailer or manufacturer's official support channels.

You may visit the [Walfront Store on Amazon](#) for additional product information or to contact the seller.

