LASER SECURITY SYSTEM GUIDE

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Thank you for purchasing our automated laser security system. This guide provides clear pin-by-pin instructions for connecting all modules once unboxed.

1. Complete Pin-to-Pin Connection Table

Module / Component	Module Pins	Arduino Nano Pin	Notes / Power Spec
Power Supply	Positive / Negative	**5V** & **GND**	Regulated 5V DC Adapter to Nano 5V & GND
DS3231 Real-Time Clock	VCC, GND, SDA, SCL	**3V3**, **GND**, **A4**, **A5**	VCC on 3.3V to protect coin battery
0.96" OLED Display	VCC, GND, SDA, SCL	**5V**, **GND**, **A4**, **A5**	Shares I2C bus (A4/A5) with RTC
Laser 1 Receiver	VCC (+), GND (-), OUT (Sig)	**5V**, **GND**, **D2**	Outputs LOW when laser beam is cut
Laser 2 Receiver	VCC (+), GND (-), OUT (Sig)	**5V**, **GND**, **D3**	Outputs LOW when laser beam is cut
Laser Transmitters (1 & 2)	VCC (+), GND (-)	**5V**, **GND**	Continuous power for laser diodes
Siren Relay Module	VCC (+), GND (-), IN (Sig)	**5V**, **GND**, **D8**	Active-HIGH trigger for siren
System ON LED	Anode (+), Cathode (-)	**D9** via 470Ω, **GND**	Indicates system is powered and running
UP Button	Pin 1, Pin 2	**D4**, **GND**	Used to increase hours/minutes in menu
DOWN Button	Pin 1, Pin 2	**D5**, **GND**	Used to decrease hours/minutes in menu
MIDDLE Button	Pin 1, Pin 2	**D6**, **GND**	Short click: Enter/Next | Long hold: Save
RESET Button	Pin 1, Pin 2	**D7**, **GND**	Silences active siren & starts 30s snooze

2. Operating Instructions & Daily Use

Home Screen: The OLED display shows the live current time and armed status (`9PM-6AM:ON`). During normal operation, it runs quietly in the background.

Setting the Time: Short-press the **MIDDLE** button to open the time setting menu. Use **UP** and **DOWN** to adjust hours/minutes, click Middle to switch fields, and **long-hold (1.2 seconds)** the Middle button to save and return to the clock.

Alarm Logic: The system automatically arms every night from 9:00 PM to 6:00 AM. The siren triggers only if **both** Laser 1 and Laser 2 beams are cut simultaneously.

> **Important Note on Power & Time Retention:** The real-time clock module features a backup coin battery socket. Ensure a CR2032 battery is installed so the system retains the correct time during power outages.

Looking for the source code or a digital copy of this diagram?
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