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 - > sixcow ICM2805A Furnace Control Board Instruction Manual

sixcow ICM2805A

sixcow ICM2805A Furnace Control Board Instruction Manual

Model: ICM2805A

1. PRODUCT OVERVIEW

This manual provides instructions for the installation, operation, and maintenance of the sixcow ICM2805A Furnace Control Board. This board is designed as a replacement for various Nordyne, Miller, Gibson, Intertherm, Frigidaire, Philco, and Thermal Zone furnace models, enhancing furnace running efficiency.

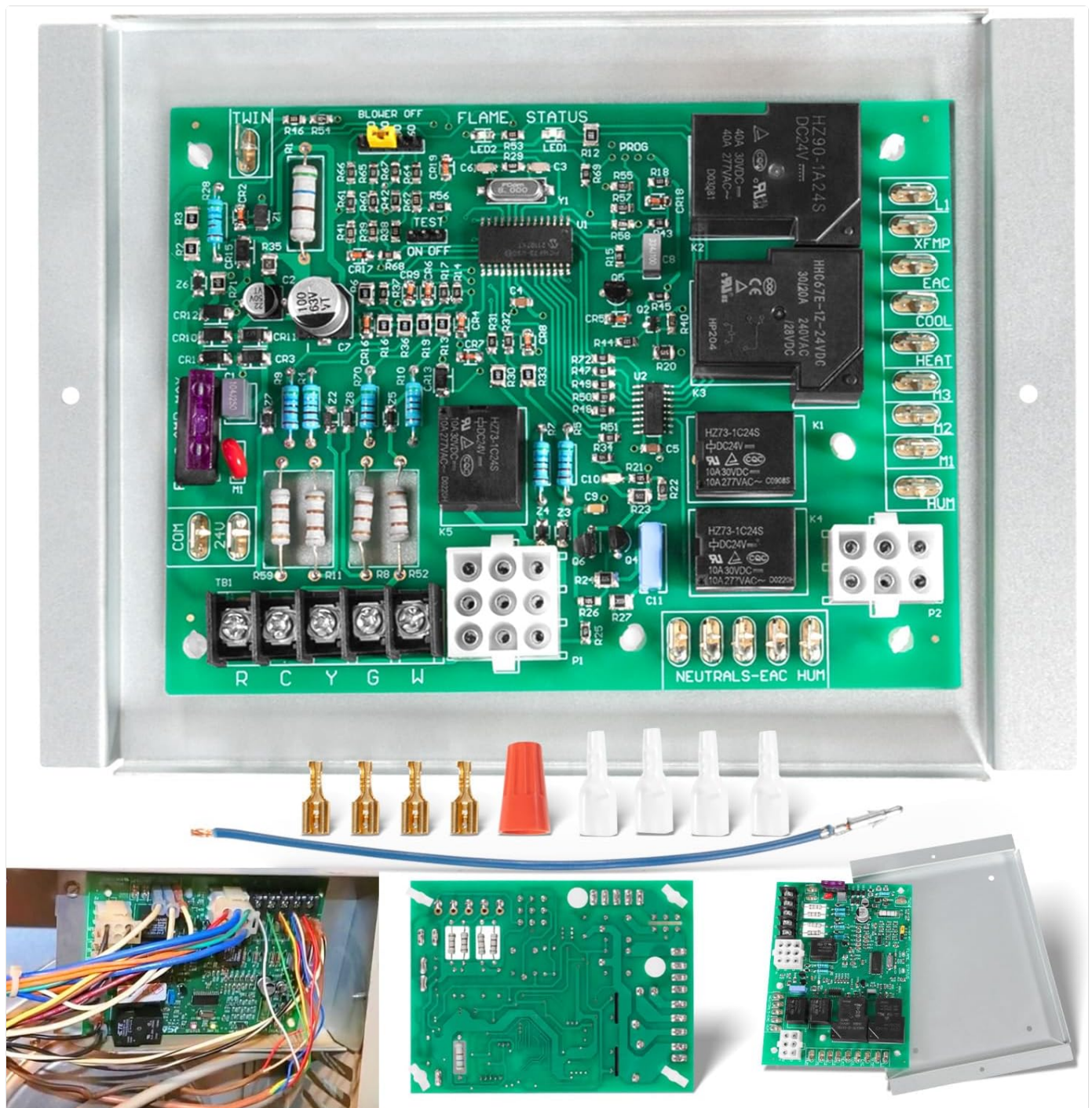


Image 1: The ICM2805A Furnace Control Board, showcasing its components and included accessories.

2. COMPATIBILITY

The ICM2805A Furnace Control Board is compatible with a wide range of furnace systems and serves as a direct replacement for the following models and part numbers:

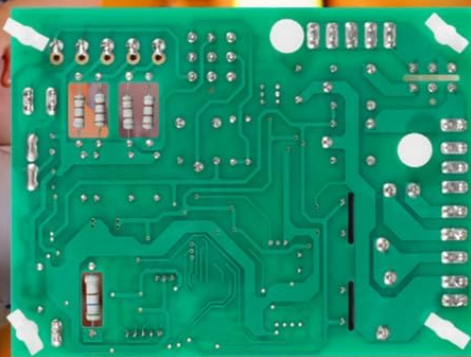
- **Furnace Brands:** Nordyne, Miller, Gibson, Intertherm, Frigidaire, Philco, Thermal Zone.
- **Furnace Modules:** G3, G4, G5, G6, M2, and M3.
- **Gibson Series:** KG6RC series.
- **Carrier Series:** HK42FZ0-xx series control boards.
- **Replacement Part Numbers:** ICM2805A, 903106, 624591-A, 624591-B, 624591-C, 624591-D, 624631-A, 624631-B, JHL, 6245640, 624631-A, 1012-955A, and 6245910.



ICM2805A Control Board

Replacement for Nordyne, Miller, Gibson, Intertherm, Frigidaire, Philco and Thermal Zone Furnace.

Used with Models G3, G4, G5, G6, M2 and M3 furnace models, Gibson KG6RC series and Carrier HK42FZ0-xx series control board



Replace Part Number

ICM2805A	624631-A
903106	624631-B
624591-A	JHL
624591-B	6245640
624591-C	1012-955A
624591-D	6245910



Image 2: Visual representation of the ICM2805A Control Board highlighting its broad compatibility.

3. TECHNICAL SPECIFICATIONS

The ICM2805A control board operates within the following technical parameters:

Parameter	Specification
Voltage Range	Line (98 to 132 VAC) @ 60Hz

Parameter	Specification
Ignitor	5A @ 120 VAC
Cool Blower	30A, 2HP, 240 VAC
Heat	5A, 1/2 HP, 240 VAC
Inducer Motor	4A, FLA-8.0 LRA @ 120 VAC
Gas Valve	1.5A @ 30 VAC

Product Information

- Voltage Range: Line (98 to 132 VAC) @ 60Hz.
- Ignitor: 5A @ 120 VAC.
- Cool Blower: 30A, 2HP, 240 VAC.
- Heat: 5A, 1/2 HP, 240 VAC.
- Inducer Motor: 4A, FLA-8.0 LRA @ 120 VAC.
- Gas Valve: 1.5A @ 30 VAC.
- Replacement Part Number: : ICM2805A, 903106, 624591-A, 624591-B, 624591-C, 624591-D, 624631-A, 624631-B, JHL, 6245640, 624631-A, 1012-955A and 6245910.

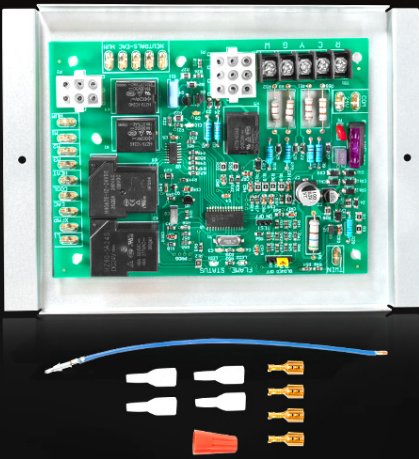
The image shows the ICM2805A control board, a green printed circuit board (PCB) populated with various electronic components including integrated circuits, capacitors, and resistors. It is housed in a white plastic enclosure. Below the board, several electrical components are laid out: a blue Ethernet-style cable, two white RJ45 connectors, a red terminal block, and four yellow terminal blocks with orange and red wires attached.

Image 3: Detailed technical specifications for the ICM2805A control board.

4. KEY FEATURES

The ICM2805A Furnace Control Board incorporates advanced features for reliable and safe operation:

- **Microprocessor-Based Control:** Ensures precise management of furnace functions.
- **Comprehensive Control:** Manages gas valve, inducer draft motor, circulating blower, and hot surface ignitor.
- **Safety Monitoring:** Monitors timing, trial for ignition, flame sensing, lockout, pressure, rollout, and limit switches.
- **100% Gas Shutoff:** Designed to ensure complete gas shutoff in case of ignition failure for enhanced safety.
- **Reverse Polarity Protection:** Protects the board from damage due to incorrect wiring.
- **Secondary Brownout Voltage Protection:** Maintains stable operation during voltage fluctuations.
- **Diagnostic LED:** Provides visual error codes to aid in troubleshooting.
- **Twinning Compatible:** Can be twinned with other ICM282A boards.
- **Thermostat Compatibility:** Compatible with 24 VAC standard thermostats.



Control Board Upgrade

Effectively improve furnace running efficiency.

Perfect replacement for Nordyne, Miller, Gibson, Intertherm, Frigidaire, Philco and Thermal Zone OEM furnace circuit board.



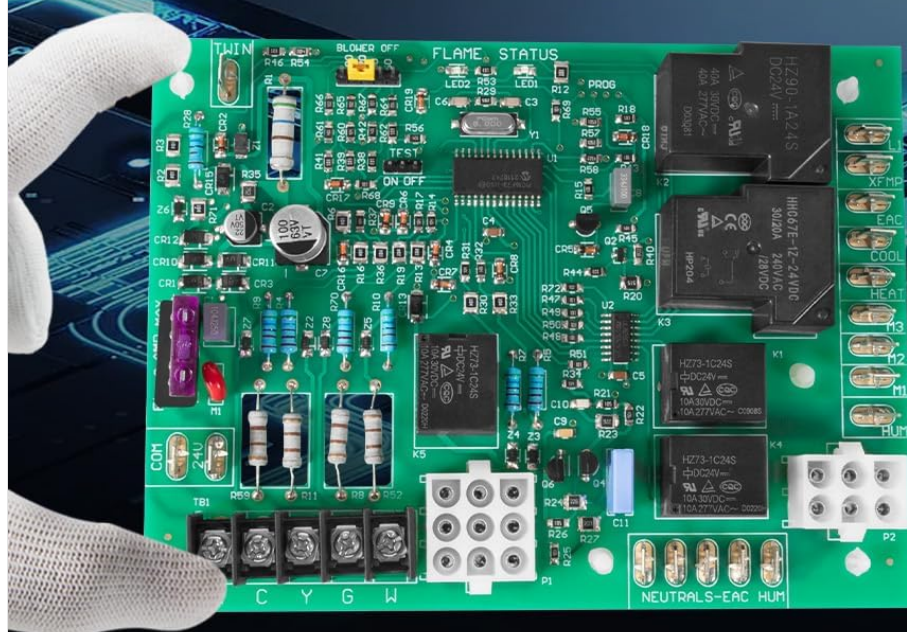
Control Board

Moisture Resistance
Safe and secure



Back

Dustproof & Robust
Great Protection



Wide Applications

Used with Models G3, G4, G5, G6, M2 and M3 furnace modules.

Also suitable for Gibson KG6RC series and Carrier HK42FZ0-xx series control boards.

Image 4: The control board emphasizing its upgraded features and robust design.

5. INSTALLATION INSTRUCTIONS

Safety Warning: Always disconnect power to the furnace at the main electrical panel before beginning any installation or maintenance. Failure to do so can result in electric shock, fire, or personal injury. Ensure the gas supply is also turned off.

ICM2805A Furnace Control Board

Used with G3, G4, G5, G6, M2 and M3 Furnace Modules.
Perfect Replacement for Nordyne 903106 and 624631
Control Boards.

Image 5: A technician performing work on a furnace, illustrating the importance of professional handling and safety.

Step 1: Remove Existing Control

1. Turn thermostat to OFF position or set it to the lowest possible setting.
2. Turn OFF electrical supply to furnace.
3. Turn OFF gas supply to furnace.
4. For 90% furnaces, remove control access and blower door; for 90% furnaces, remove outer door assembly.
5. Disconnect humidifier and transformer wires (if equipped with a humidifier).
6. Disconnect voltage, blower, electronic air cleaner wires (if equipped), and transformer wires.
7. For 90% furnaces, remove retaining screws and remove furnace control board from bracket; for 90% furnaces, remove two screws from blower deck that hold the control box assembly. Lower the control box assembly. Remove retaining screw(s) from board and remove board from control box assembly.
8. Remove wiring harness connectors from circuit board.
9. Examine control for burned areas to check for water stains.
10. Check wires if any signs of corrosion or damage are found. Be sure to check humidifiers, evaporator coils, and vent systems in the area of the control.

Step 2: Install the New Control

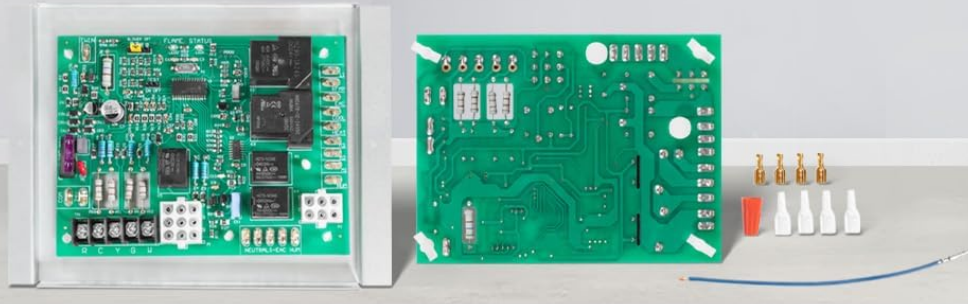
1. Ground yourself. When handling circuit board, hold by the edges.
2. Insert tab(s) of board into the slots of the control box (if required).
3. Fasten circuit board with retaining screw(s). Install the included wiring harness adapter to the 9-pin connector on the new furnace control board.
 - The furnace harness 9-pin connector plugs into the mating 9-pin adapter harness connector.
 - The furnace harness 2-pin connector plugs into the mating 2-pin adapter harness connector.
 - The furnace harness 3-pin connector plugs into the mating 3-pin adapter harness connector.
4. Connect the other end of the included adapter harnesses to the new furnace control board.
 - The 11-pin connector connects to PL1 on the furnace control board.
 - The 2-pin connector connects to the mating 2-pin connector on the furnace control board.
 - The (2) white wires connect to the 115-volt Neutral spade connections located in front of PL1 on new furnace control board.

5. Connect the transformer to the new furnace control board.
 - Red wire to SEC-1 terminal, located adjacent to the 3 amp fuse.
 - Red wire to SEC-1 terminal, located adjacent to the 3 amp fuse.
 - Black wire to the 115-volt Neutral spade connection located in front of PL1.
6. Connect the black wire from the furnace auxiliary junction box to L1 on the new furnace control board (located on the blower enable relay).
7. Connect the white wire from the furnace auxiliary junction box to one of the 115-volt Neutral spade connections located in front of PL1.
8. Connect the blower motor leads to the new furnace control board.
 - Connect the white blower motor lead to the BLW connection within the group of 115-volt Neutral spade connections.
 - Connect the blower motor heat tap to the blower relay connection marked HEAT.
 - Connect the blower motor cool tap to the blower relay connection marked COOL.
 - Connect the remaining blower motor leads to SPARE-1 and/or SPARE-2.
9. Connect all accessory wires.
10. For 90% furnaces, reinstall the control box assembly to the blower deck using the screws previously removed from the blower deck.
11. Set blower off delay jumper located on the top-center portion of the control board. The factory default is set at 120 seconds.
12. Affix the new wiring diagram label over the existing wiring diagram. Make sure to use the correct label for 80% (LAPP25) or 90% (LAPP92) furnaces.
13. Do NOT connect the thermostat wires to the control board until System Tests are complete.



Hassle-Free Installation

Work well with the original wiring as with the updated wiring. User manual included.



Step 1: Remove Existing Control

CAUTION

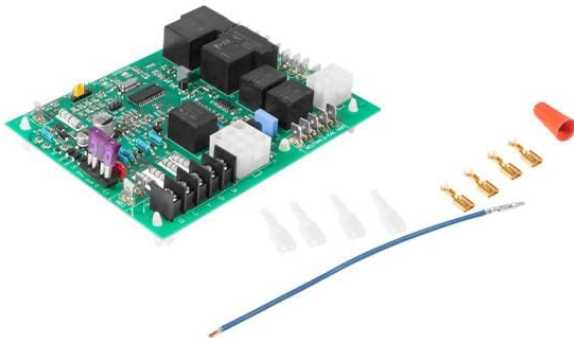
To service control, and prior to disconnection, label all wires. Failure to do so may result in wiring errors can cause dangerous operation.

1. Turn thermostat to OFF position or set it to the lowest possible setting.
2. Turn OFF electrical supply to furnace.
3. Turn OFF gas supply to furnace.

CAUTION

Failure to turn off gas and electric supplies can result in explosion, fire, death, or personal injury.

4. For 80% furnaces, remove control access and blower door; for 90% furnaces, remove outer door assembly and remove the two screws from blower access panel and set aside.
5. Disconnect thermostat wires and humidifier wires (if equipped with a humidifier).
6. Disconnect line voltage, blower, electronic air cleaner wires (if equipped), and transformer wires.
7. For 80% furnaces, remove retaining screws and remove furnace control board from bracket; for 90% furnaces, remove two screws from blower deck that hold the control box assembly. Lower the control box assembly. Remove retaining screw(s) from board and remove board from control box assembly.
8. Remove wiring harness connectors from circuit board.
9. Examine control and control box to check for water stains.
10. Make repairs if any sources of water leakage are found. Be sure to check humidifiers, evaporator coils, and vent systems in the area of the control.



Step 2: Install the New Control

1. Ground yourself. When handling circuit board, hold it by the edges.
2. Insert tab(s) of board into the slots of the control box (if required).
3. Fasten circuit board with retaining screw(s). Install the included wiring harness adapter to the terminals of the existing furnace wiring harness.
 - A. The furnace harness 9-pin connector plugs into the mating 9-pin adapter harness connector.
 - B. The furnace harness 2-pin connector plugs into the mating 2-pin adapter harness connector.
 - C. The furnace harness 3-pin connector plugs into the mating 3-pin adapter harness connector.
4. Connect the other end of the included adapter harness to the new furnace control board.
 - A. The 11-pin connector connects to PL1 on the furnace control board.
 - B. The 2-pin connector (with 2-black wires) connects to PL2 on the furnace control board.
 - C. The (2) white wires connect to the 115-volt Neutral spade connections located in front of PL1 on new furnace control board.
5. Connect the transformer to the new furnace control board.
 - A. Blue wire to SEC-2 terminal, located adjacent to the 3 amp fuse.
 - B. Red wire to SEC-1 terminal, located adjacent to the 3 amp fuse.
 - C. Black wire to PR-1 terminal, located adjacent to PL2.
 - D. White wire to one of the 115-volt Neutral spade connections located in front of PL1.
6. Connect the black wire from the furnace auxiliary junction box to L1 on the new furnace control board (located on the blower enable relay).
7. Connect the white wire from the furnace auxiliary junction box to one of the 115-volt Neutral spade connections located in front of PL1.
8. Connect the blower motor leads to the new furnace control board.
 - A. Connect the white blower motor lead to the BLW connection within the group of 115-volt Neutral spade connections.
 - B. Connect the blower motor heat tap to the blower relay connection marked HEAT.
 - C. Connect the blower motor cool tap to the blower relay connection marked COOL.
 - D. Connect the remaining blower motor leads to SPARE-1 and SPARE-2.
9. Connect all accessory wires.
10. For 90% furnaces, reinstall the control box assembly to the blower deck using the screws previously removed from the blower deck.
11. Set blower off delay jumper located on the top-center portion of the control board. The factory default is set at 120 seconds.
12. Affix the new wiring diagram label over the existing wiring diagram. Make sure to use the correct label for 80% (LAPP25) or 90% (LAPP26) furnaces.
13. Do not connect the thermostat wires to the control board until System Tests are complete.

Image 6: Detailed installation steps for replacing the furnace control board.

6. OPERATING PRINCIPLES

Once installed and powered, the ICM2805A control board automatically manages the furnace's operational sequence. It controls the gas valve, inducer draft motor, circulating blower, and hot surface ignitor. The board continuously monitors critical parameters such as timing, trial for ignition, flame sensing, and lockout conditions. It also integrates with pressure, rollout, and limit switches to ensure safe and efficient furnace operation. In the event of an ignition failure, the board is designed to initiate a 100% gas shutoff for safety.

7. MAINTENANCE GUIDELINES

The ICM2805A furnace control board is designed for long-term reliability and typically requires minimal maintenance. To ensure optimal performance and longevity:

- **Regular Inspection:** Periodically inspect all wiring connections to the board for tightness and signs of corrosion. Loose or corroded connections can lead to intermittent operation or failure.
- **Cleanliness:** Ensure the furnace compartment and the area around the control board are kept clean and free of dust, debris, and moisture. Accumulation of dust can impede heat dissipation and affect electronic components.
- **Environmental Conditions:** Avoid exposing the control board to extreme temperatures or humidity beyond its specified operating range.
- **Professional Servicing:** For any complex issues or if you are unsure about maintenance procedures, it is recommended to consult a qualified HVAC technician.

8. TROUBLESHOOTING

The ICM2805A control board is equipped with a diagnostic LED to assist in identifying operational issues. When a fault occurs, the LED will flash a specific code. Refer to the wiring diagram provided with your furnace or the control board for a detailed explanation of these flash codes. Common issues and their potential indicators include:

- **No Heat/No Cool:** Check power supply, thermostat settings, and diagnostic LED for error codes related to ignition failure or blower issues.
- **Intermittent Operation:** Inspect wiring connections for looseness or corrosion. Check for proper grounding.
- **Ignition Failure:** The board monitors flame sensing. If the flame is not detected after trial for ignition, the board will enter lockout. Check ignitor, flame sensor, and gas supply.
- **Blower Issues:** If the blower does not operate or runs continuously, check blower motor connections and relevant relays on the board.

Always consult a qualified technician if you are unable to resolve an issue or if you suspect a major component failure.

9. PRODUCT DIMENSIONS

The physical dimensions of the ICM2805A control board are provided below for reference during installation and fitment checks.



PRODUCT SIZE

Professional tested to meet or exceed OEM Standard.

Special Features

- Reverse polarity protection
- Secondary brownout voltage protection
- Compatible with 24 VAC standard thermostat
- Provides diagnostic LED to aid in troubleshooting
- Twinning compatible with other ICM282A boards

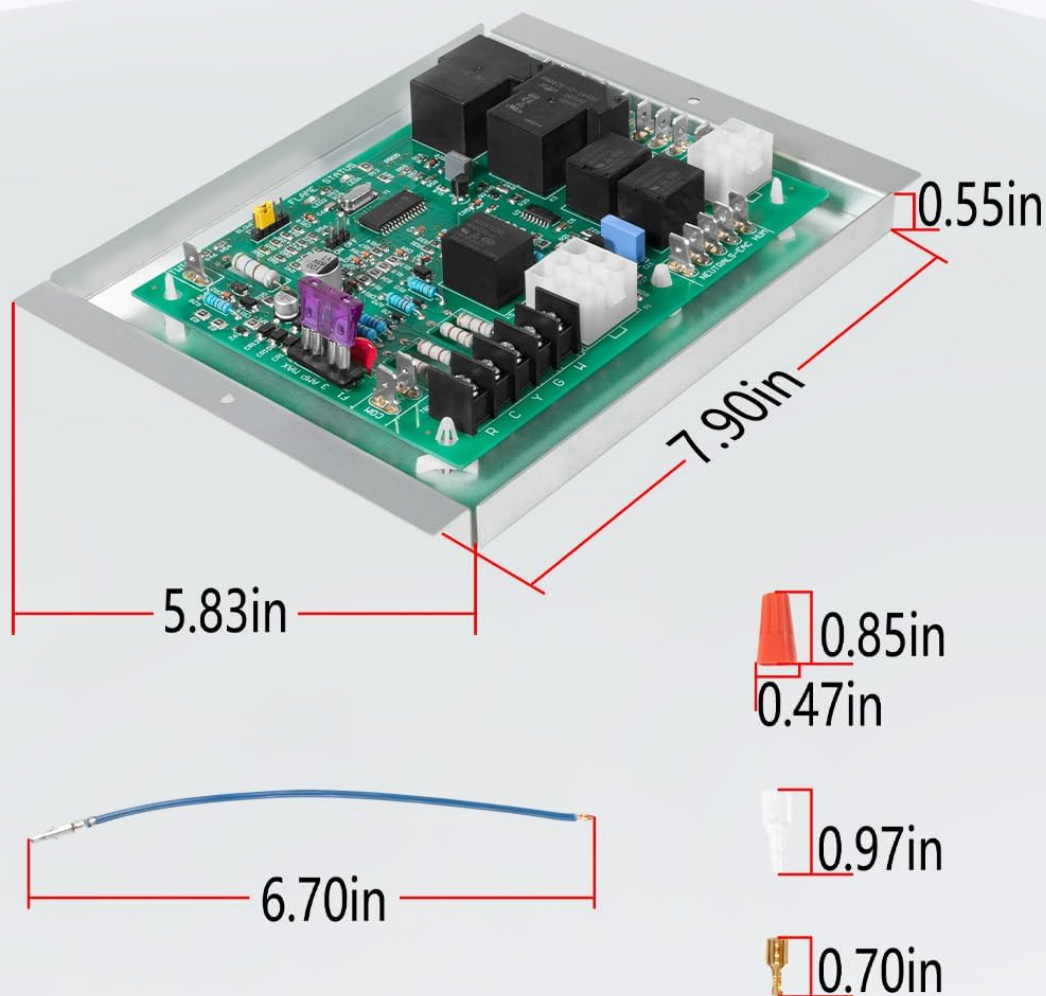


Image 7: Diagram showing the precise measurements of the ICM2805A control board.

10. WARRANTY AND SUPPORT

All sixcow products are backed by a **30-Day money-back guarantee** and a **12-Month warranty** for quality-related issues. This warranty covers defects in materials and workmanship under normal use.

For warranty claims, technical assistance, or any product-related inquiries, please contact sixcow customer service through the retailer where the product was purchased or visit the official sixcow website for support contact information. Please retain your proof of purchase for warranty validation.

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Example: How do I reset this device or fix this error?

Details

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