



Quick Start Guide

High Efficiency Gas-Fired Propeller Unit Heaters



11J30-10228-003

SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.



Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

NOTICE Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs and HCFCs such as saturated or unsaturated HFCs and HCFCs.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in **NEC** and your local/state/national electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate SDS and OSHA/ GHS (Global Harmonized System of Classification and Labeling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING**Follow EHS Policies!**

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

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Revision History

- Updated the High fire gas valve adjustment table and Low fire gas valve adjustment table in Installation chapter.
- Running edits.



Table of Contents

Installation	5
Tools Required	5
Modulating with Outdoor Air Reset (MAS)	8
Modulating with Outdoor Air Reset (Network)	8
Indoor Air Reset	9
Room Sensing	9
2-10 Vdc/4-20 mA Input	9
Two Stage	9
Single Stage	9

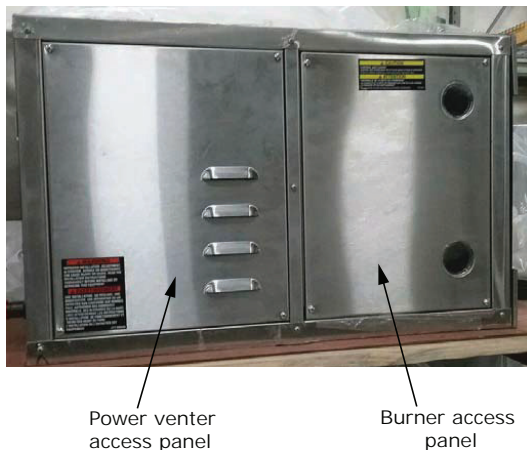
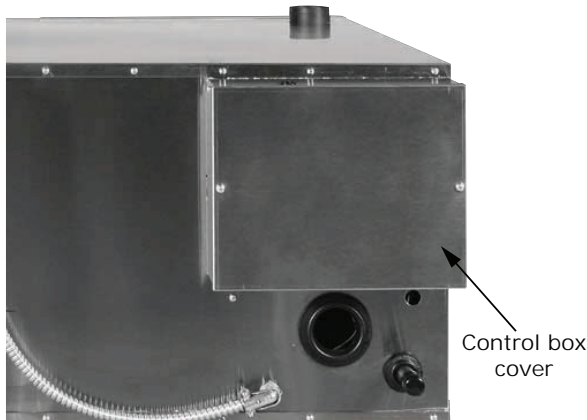


Installation

⚠ WARNING
Live Electrical Components!
 Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury. When it is necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks.

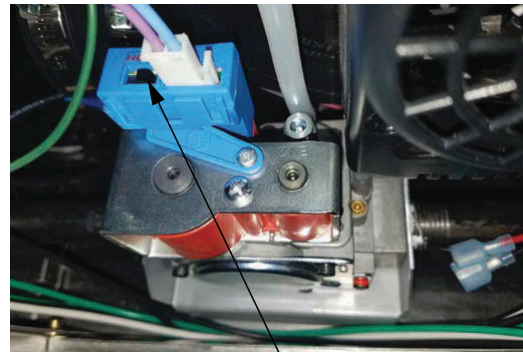
Tools Required

- Combustion Analyzer
 - Size 50-200: 2.5mm Allen Wrench
 - Size 300-400: Flat Head Screw Driver
 - Phillips Screw Driver
 - Wire Jumper
1. Remove control box cover and power venter access panel.

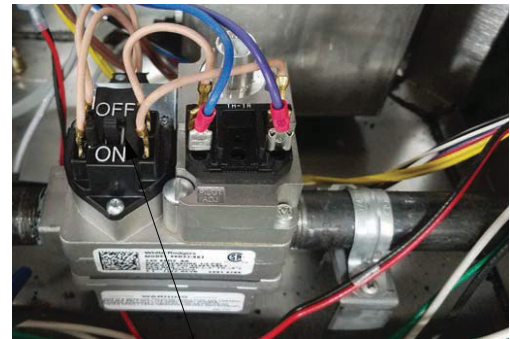


2. Turn on power and gas.

Note: Remember to turn gas valve ON/OFF switch to the "ON" position.



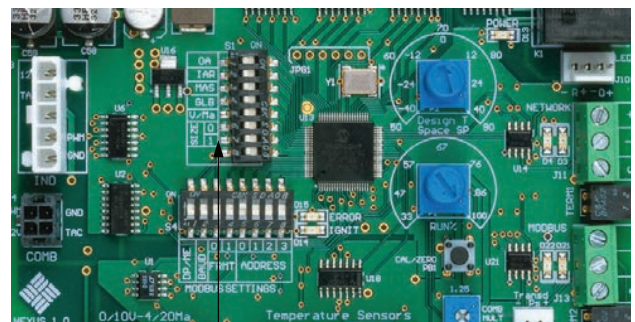
Gas valve ON/OFF switch
(Size 50 to 200)



Gas valve ON/OFF switch
(Size 300 to 400)

3. Set gas control mode dip switches 1-5 to zero.

Note: Dip switches 6-8 should not be changed since they are set by the factory for the unit size. See "Dip switch 6-8" table in OPERATION section of the unit installation manual for additional information. If applicable remove the 2-10 Vdc wires from control board.

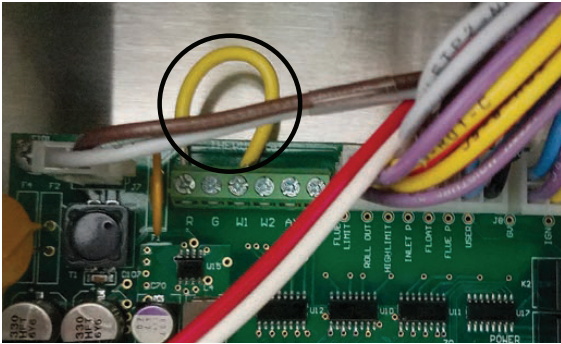


Switches 1-5 for gas control mode

Table 1. Dip switch 6-8, unit size

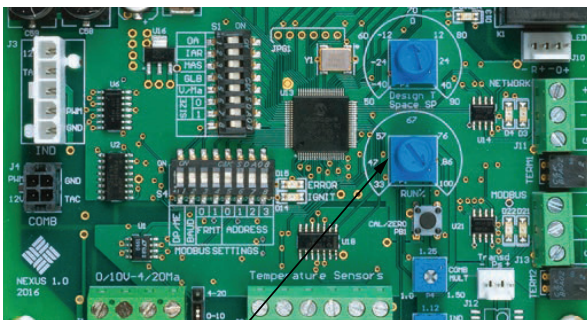
Unit Size	Dip Switch 6	Dip Switch 7	Dip Switch 8
50	ON	OFF	ON
100	OFF	OFF	OFF
150	OFF	ON	ON
200	ON	OFF	OFF
300	OFF	ON	OFF
400	ON	ON	OFF

4. Jumper R to W1 to call for heat.



5. Set Run % Potentiometer to 100%.

Note: Allow the unit to run for 2 minutes to ensure the unit reaches 100% fire.

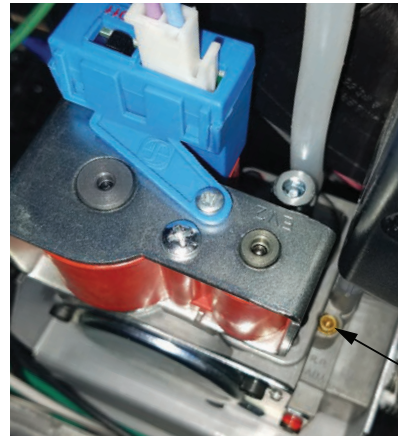


Run % potentiometer

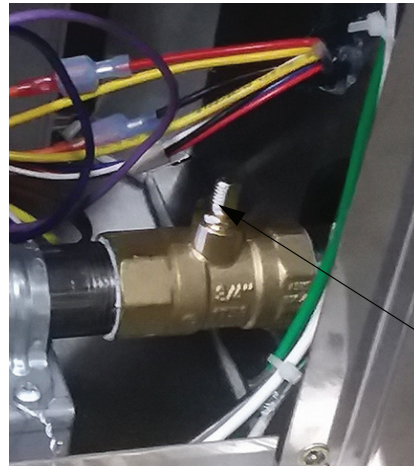
6. Place combustion analyzer in flue pipe.



7. Adjust high fire on gas valve or trim valve based on Table 2.



High fire adjustment (Size 50-200)



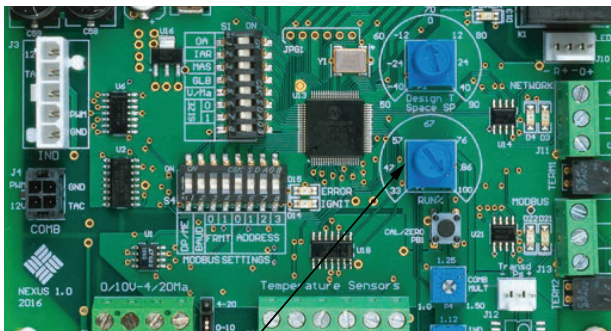
High fire adjustment (Size 300-400)

Table 2. High fire gas valve adjustment

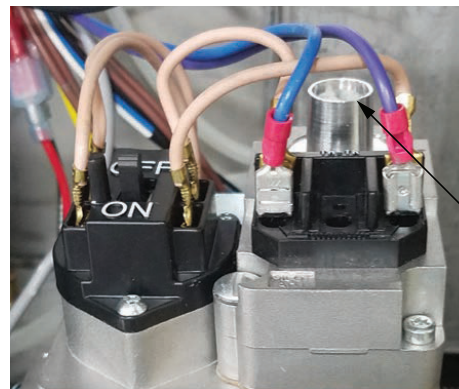
Unit Size (MBh)	CO ₂ Meter Reading		O ₂ Meter Reading		Action Required
	Natural Gas	Propane Gas	Natural Gas	Propane Gas	
50 and 150	<7.4%	<8.7%	>7.9%	>7.6%	Counter Clockwise
50 and 150	>7.9%	>9.3%	<7.0%	<6.7%	Clockwise
100 and 200	<7.5%	<8.9%	>7.7%	>7.6%	Counter Clockwise
100 and 200	>8.0%	>9.3%	<6.9%	<6.5%	Clockwise
300	<7.5%	<8.6%	>7.7%	>7.3%	Counter Clockwise
300	>8.0%	>9.0%	<6.9%	<6.5%	Clockwise
400	<7.5%	<8.6%	>7.7%	>7.6%	Counter Clockwise
400	>8.0%	>9.3%	<6.9%	<6.5%	Clockwise

8. Set Run % Potentiometer to 33%.

Note: Allow the unit to run for 2 minutes to ensure the unit to reaches 33% fire.



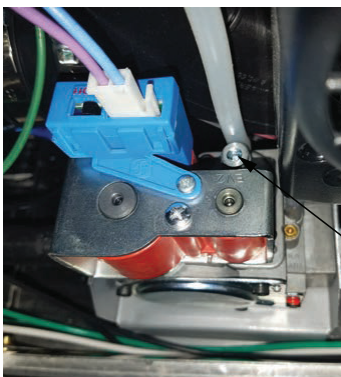
Run % potentiometer



Gas valve adjustment (Size 300-400)

10. Remove R to W1 jumper. Turn thermostat to lowest setting and confirm unit turns off.

9. Adjust low fire on gas valve based on Table 3.



Low fire adjustment (Size 50-200)

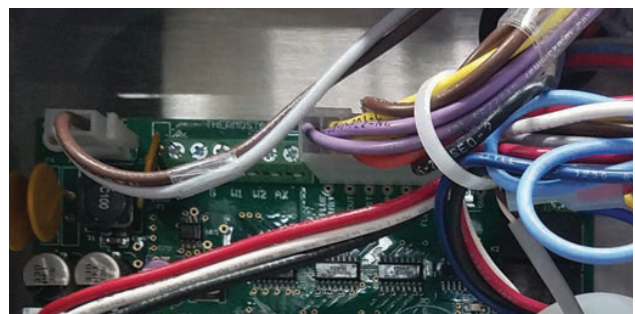
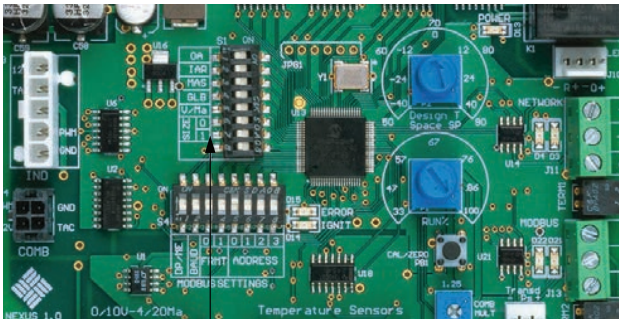


Table 3. Low fire gas valve adjustment

Unit Size (MBh)	CO ₂ Meter Reading		O ₂ Meter Reading		Action Required
	Natural Gas	Propane Gas	Natural Gas	Propane Gas	
50-200	<4.2%	<5.3%	>13.3%	>12.7%	Clockwise
50-200	>5.0%	>5.8%	<12.0%	<12.0%	Counter Clockwise
300	<4.0%	<5.0%	>13.6%	>13.1%	Counter Clockwise
300	>4.5%	>5.4%	<12.3%	<12.5%	Clockwise
400	<4.2%	<5.3%	>13.3%	>12.7%	Counter Clockwise
400	>5.0%	>5.8%	<12.0%	<12.0%	Clockwise

11. Select desired gas control and set thermostat to desired temperature.



Switches 1-5 for gas control mode

Modulating with Outdoor Air Reset (MAS)

Dip Switch Settings: 1 and 3 to ON; 2, 4 and 5 to OFF.

This gas control should be used in regions with large temperature swings.

The unit will automatically vary the discharge air temperature based on the outside air temperature. Set the “Design T/ Space SP” potentiometer to outdoor air temperature where the unit should be at 100% fire (usually design outdoor air temperature used in sizing the unit).

Note: If ordered with Outdoor Air Reset, unit will come with an Outdoor Air Sensor for field installation. The unit can be field converted to Outdoor Air Reset by ordering the Outdoor Air Sensor.

Modulating with Outdoor Air Reset (Network)

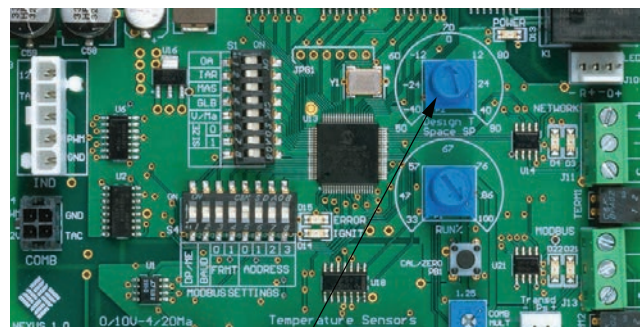
Dip Switch Settings: 1 and 4 to ON; 2, 3 and 5 to OFF.

This gas control modulates the unit the same as Outdoor Air Reset (MAS).

However, it does not require a separate outdoor air sensor. It allows the manager unit to share the outdoor air temperature with all networked units.

Set the “Design T/Space SP” potentiometer to outdoor air temperature where the unit should be at 100% fire (usually design outdoor air temperature used in sizing the unit).

Note: One manager unit is required per networked group; when networked together, the Manager and Member units need to be set to the same Modbus address.



Design T/Space SP potentiometer

Indoor Air Reset

Dip Switch Settings: 2 to ON; 1, 3-5 to OFF.

This gas control attempts to learn your building's heating needs and run at the bare minimum to keep the space temperature within the allowed range. The unit will vary the discharge air temperature so the unit is running at lowest output possible without short cycling.

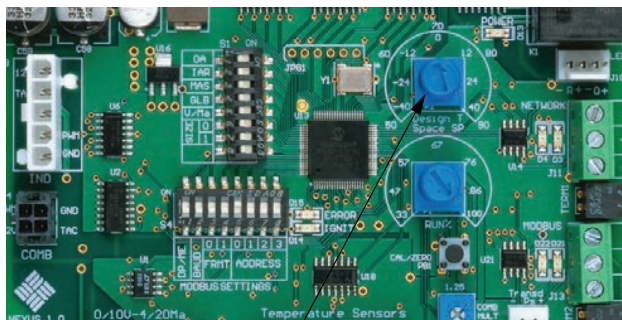
Note: A W2 call will act as a room override and force the unit to high fire.

Room Sensing

Dip Switch Settings: 1 and 2 to ON; 3, 4 and 5 to OFF.

This gas control allows the unit to vary the discharge air temperature to more closely match the needs of the space for precise temperature control. Set "Design T/Space SP" potentiometer to desired room temperature.

Note: If ordered with room sensing, unit will come with a Room Sensor for field installation. The unit can be field converted to room sensing by ordering the Room Sensor.



Design T/Space SP potentiometer

2-10 Vdc/4-20 mA Input

Dip Switch Settings: 2-10 Vdc Input: 1-5 to OFF; 4-20 mA Input: 5 to ON; 1-4 to OFF.

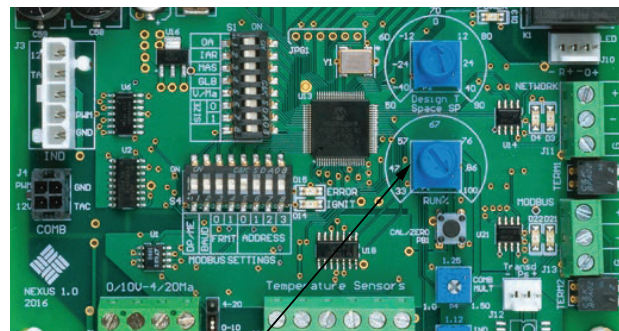
This gas control allows the unit to vary the discharge air temperature based on a signal from the building automation system.

Note: Units can also be controlled via a Modbus signal. See Operation Section of unit installation manual for additional details.

Two Stage

Dip Switch Settings: 1-5 to OFF.

While designed for modulating gas control, the unit can be used with two stage gas control. A W1 signal will cause the unit to run at the firing rate set by the Run percentage potentiometer. A W2 signal will cause the unit to run at 100% fire.

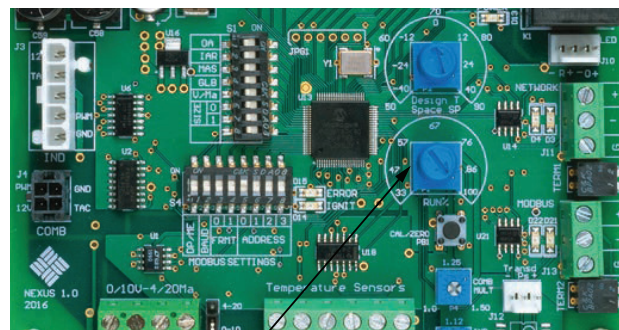


Run % potentiometer

Single Stage

Dip Switch Settings: 1-5 to OFF.

While designed for modulating gas control, the unit can be used with single stage gas control. By connecting the single stage thermostat to the W1 terminal, the unit will run at the firing rate set by the Run percentage potentiometer. If the single stage thermostat is connected to the W2 terminal the unit will run at 100% fire.



Run % potentiometer



Notes

Trane - by Trane Technologies (NYSE: TT), a global climate innovator - creates comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or tranetechnologies.com.

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