

FAN MOTOR SPACE HEATER

Remote or Integral Interface

Engineering Data
and Specifications



Fan Motor Space Heater Interface

Overview

The fan motor space heater interface has two versions: Remote or Integral. This unit connects fan motor space heaters with fan motor control systems including Variable Frequency Drives (VFDs). It energizes the heaters only when the motors are OFF and ensures they remain OFF while the motors or VFD are running. The design is compatible with any system that can provide a normally closed relay contact when the fan motor is not operating.

The remote version is supplied in a dedicated enclosure, while the Integral version is incorporated within the tower control panel assembly.

Sequence of Operation

The 120 VAC power supply is routed through a 2 A fuse to the system relay's normally closed contact and then returned to the fan motor space heater interface. The neutral conductor is connected directly to the fan motor space heaters. The system supports a maximum heater load of 240 W.

Note: The 120 V power supply should always remain live; it is never switched OFF.

- **Control Signal Input:** The interface system operates based on a normally closed external contact provided by the VFD, motor starter, or PLC (relay output rated for 120 VAC)
- **Fan Motors OFF:** The external normally closed contact remains closed, completing the circuit and energizing the fan motor space heaters.
- **Fan Motors Running:** The normally closed external contact opens, breaking the circuit and de-energizing the fan motor space heaters.

An indicator lamp for the interface provides a clear visual indication of when the heaters are energized.

Controls Package

- Remote version comes with factory-assembled enclosure.
- Integral version is installed within tower control panel.
- The interface includes terminal blocks for connection to motor space heaters and the fan motor VFD, along with an status indication lamp.

Application

- There are typically two space heater elements per motor.
- This system can accommodate up to three fan motors that are driven on a common VFD or motor control system.
- System activates when motors are stopped and deactivates when motors operate.

Specifications

- Remote version features a NEMA 4X fiberglass enclosure (6"H x 6"W x 4"D) with a swing and latch door.
- 2 Amp fuse
- 240 Watts maximum load
- Requires 120 VAC input power only for fan motor space heaters to the interface.

The assembly is built to the following industrial control panel standards: UL 508A CUL 508A NFPA 70 (NEC).

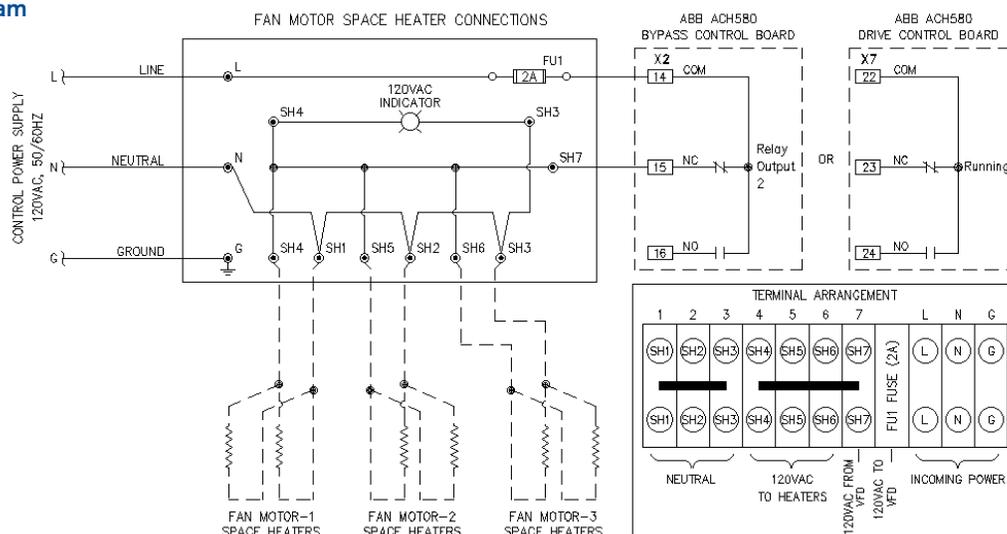
Note: Not rated for hazardous location applications.

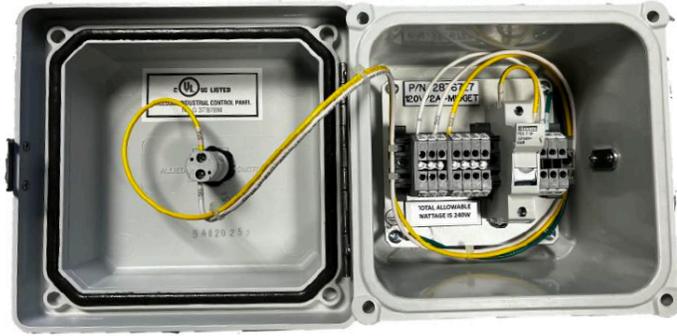
Note for Remote version:

- All cables should enter and exit from the bottom of the interface box enclosure.

To prevent condensation inside the enclosure, seal the conduit openings. A proper seal creates a vapor barrier and prevents moisture ingress. This vapor barrier can be formed in the field using expanding foam or silicone injected into the conduit after wiring connections are completed.

System Diagram





Fan Motor Space Heater Box (For Remote Version)

Frequently Asked Questions

Fan Motor Space Heater Interface

Q What is the purpose of the Fan Motor Space Heater Interface?

A It prevents condensation in fan motors by energizing fan motor space heaters when motors are OFF and turning them OFF when motors run.

Q Is this interface only for VFD systems?

A No. It works with any control system that provides a normally-closed contact when the motor is OFF.

Q When do the space heaters energize?

A The heaters energize only when the fan motors are OFF

Q When do the space heaters turn OFF?

A The heaters remain OFF while the fan motors or VFD are running.

Q What type of signal does the interface require?

A It uses relay contacts that are integral to the VFD or another motor control circuit system. The heater circuit activates when the motor is not requested for operation and opens the space heater circuit when the motor operation is enabled.

Q What power supply is required?

A A 120 VAC single-phase supply is required. The power always remains engaged.

Q What is the maximum power consumption?

A The maximum power consumption is 240 watts.

Q What terminals do I connect between the terminal block and VFD?

A A wire will go from FU1 in the interface box to COM on the VFD relay and the return wire is between VFD NC and terminal SH7 in the interface box.

Q Where do I connect space heater terminals to the interface box?

A Use terminals SH1 & SH4 for Space Heater 1, SH2 & SH5 for Space Heater 2, and SH3 & SH6 for Space Heater 3.

Q What is the difference between Remote and Integral?

A Both have the same functionality. The Remote version is in a dedicated enclosure, while the Integral version is built into the tower control panel.

Q Do both versions of the interface include a status Indication lamp?

A Yes, an indicator lamp is provided on both the versions.

Q Can the Fan Motor Space Heater Interface handle 120V AC through its contact?

A Yes, the interface is designed to accommodate 120V AC through the contact, ensuring proper operation of the space heater circuit when integrated with the fan motor control system.

Q Does the interface include an indicator for heater status?

A Yes. A status indicator lamp illuminates when the heaters are ON.

Q Where should the Remote interface box be mounted?

A Near the fan motor or control panel, ensuring cable entry from the bottom of the enclosure.

Q How do I prevent condensation inside the enclosure?

A Seal the conduit opening to create a vapor barrier using expanding foam or silicone after wiring.

Q Is the box rated for hazardous locations?

A No. It is not rated for hazardous environments.

Q What standards does the assembly comply with?

A UL 508A, CUL 508A, and NFPA 70 (NEC).

Q What is the maximum current rating for the fan motor space heater circuit?

A The circuit is protected by a 2 A fuse.

Q Can multiple fan motor space heaters be connected to one interface box?

A Yes, provided the total load does not exceed the fuse rating and wiring specifications.

Q Is the status indicator lamp replaceable?

A Yes, the lamp can be replaced if it fails.

Q What is the enclosure protection rating?

A NEMA 4X, suitable for outdoor environments.

Q Can the interface box be installed in vertical or horizontal orientation?

A It should be mounted vertically with cable entry from the bottom to maintain the NEMA rating.

Q Does the interface provide any heater temperature control?

A No, it only controls ON/OFF status based on motor operation.

FAN MOTOR SPACE HEATER

REMOTE OR INTEGRAL INTERFACE ENGINEERING DATA

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1000036417 | ISSUED 03/2026

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