

Hoffman Controls

Product Data

202-16-1 and 706-31/32 Series Interfaces 200-3 Series Flow Controller

Description

The 202-16-1 Interface is a “plug-in” interface card that provides proportional fan speed control of fan powered air terminal units. The interface provides proportional control of zone air volume by varying the fan powered terminal blower speed. When used in conjunction with the 200-3 Series Flow Controller both primary and zone variable airflow is achieved.

The interface generates a pulse width modulated signal proportional to the signal error. This interface output signal is used as the input to the 706-31 or 706-32 Series Motor Speed Control to automatically vary fan (blower) motor speed.

The 202-16-1 Interface is first connected to the 200-3 Flow Controller; if additional interfaces are utilized they must be connected to the 202-16-1.

The interface features an electronic “on-off” function of the 706 Motor Speed Controller, adjustable as an offset from setpoint. This feature energizes (starts) the fan motor at minimum speed. As the error from setpoint increases, motor speed will increase. An optional 24V AC non-isolated output is available to de-energize a fan control relay, (if required to isolate the motor from line), or otherwise be used to energize a heating stage. The electronic “on-off” function and the fan relay control circuit function simultaneously.

Flow Description

As zone temperatures fall, the terminal fan (blower) will start at minimum speed. Start up may occur from +2.0°F above, to -3°F below setpoint. After fan start at minimum speed, if zone temperature continues to fall, the fan will increase in speed in direct proportion to temperature over a fixed 2°F span. An optional adjustable 2°F to 5°F span is available. The interface control decreases fan speed as temperature rises.

The optional relay output can energize the fan or one step of heating. Additional functions are available by utilizing other 202 Series Interfaces for staging, modulating valves, or proportioning electric SCR control.

Operation

The 202-16-1 Interface is furnished factory standard with a Min. and Max. fan speed limit adjustment. Adjustable start (zero) of fan is also standard. The throttling range (span) is fixed (non-adjustable). An adjustable span is available as an option.

Terminals for 706-31/32 output signal and fan/heat control relay or heat stage are provided. Constant volume control of fan powered terminals (re-circulated zone air) may be obtained by using Fan Start (zero) of the zone fan blower at the beginning of the primary air throttling range.

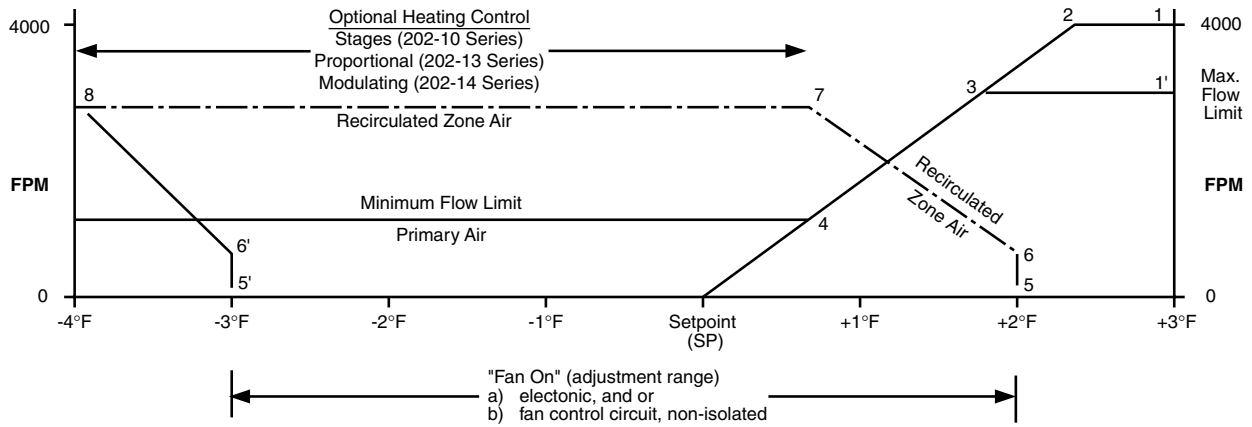
Specifications

202-16-1 Interface

| | |
|-------------------------------|-----------------|
| Volts, Input (-15%, +20%) | 24V AC |
| Frequency | 60 Hz |
| Power | 2VA |
| Zero Fan Start | -3°F to +2.0°F |
| Hysteresis, Fan | 0.5°F |
| Span | |
| Standard, Fixed | 2°F |
| Option, Adjustable | 2°F to 5°F |
| Min. Motor VAC | 45% to 60% Line |
| Max. Motor VAC | 58% to 89% Line |
| Control Circuit, Non-isolated | 24V AC |
| Current | 0.5 Amp |

706-31 & 706-32 Motor Speed Controller

| | |
|---|---------------|
| Signal input with modulated pulse width | 10/20V DC |
| Line Voltage Range | 120 – 277V AC |
| Current | |
| 706-31 | 5 Amps |
| 706-32 | 10 Amps |



FLOW FUNCTION — Primary Airflow (—————)

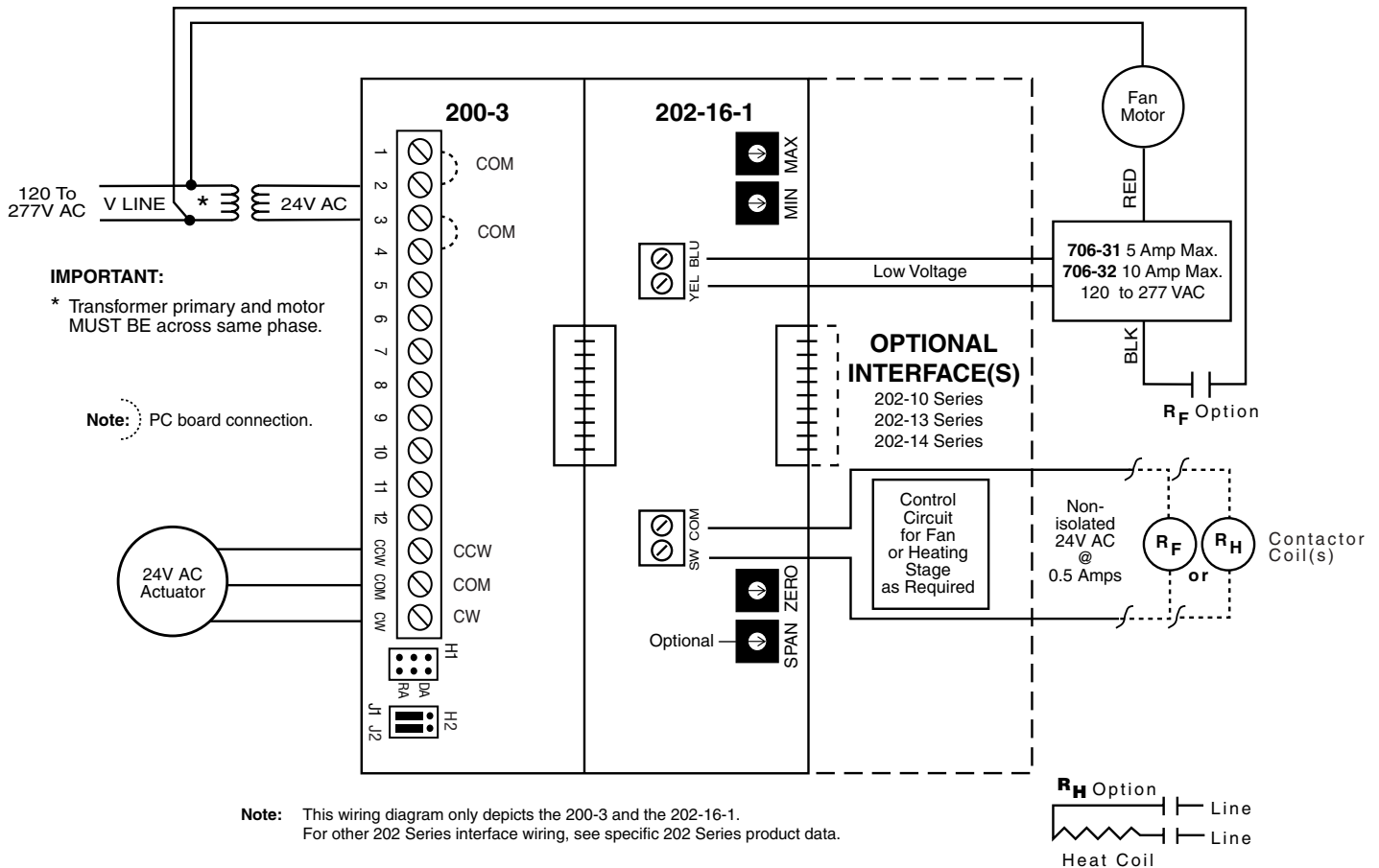
- a. 1 - 2 indicates Maximum Flow at 4000 FPM or Max. Flow Limit 1' - 3 as required adjustable on 200-3 Flow Controller or 207-FL Series Thermostat.
- b. At 2 or 3 throttling of primary air continues until Min. Flow Limit is reached at 4 or "shut-off" is reached at setpoint.
- c. Primary Air Max. Flow Limit (1' - 3) may be independent of Zone Flow Limit (7 - 8).

FLOW FUNCTION — Recirculated Zone Air Flow (- - - - -)

- a. Fan (terminal blower) starts, adjustable between 5 and 5' and obtains Minimum Flow at 6 or 6'.
- b. Fan (terminal blower) varies Recirculated Zone Air proportional to temperature with adjustable start between 6 and 6' (Min. Flow) up tp 7 and 8 (Max. Flow).
- c. Min. and Max. Flow Limits for terminal blower are adjustable on 202-16-1 Interface.
- d. Control Circuit (24V AC non-isolated output) field adjustable may be used to:
 - Energize or de-energize fan relay to blower motor (5 to 5') or,
 - Energize or de-energize one stage of heat (5 to 5').

Note: Other 202 Series Interfaces may be added to provide additional functions (not depicted in this flow diagram).

202-16-1 Flow Function



Note: This wiring diagram only depicts the 200-3 and the 202-16-1. For other 202 Series interface wiring, see specific 202 Series product data.

200-3 Flow Controller and 202-16-1 Interface Wiring Diagram

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