

P266 Series Single-Phase Condenser Fan Speed Control

Description

The P266 Single-Phase Condenser Fan Speed Control is a cost-effective, weather-resistant, durable motor speed control. The P266 control is designed for approved single-phase, Permanent Split-Capacitor (PSC) motors commonly used in a wide variety of refrigeration and air conditioning condenser fan applications.

The P266 Series controls are designed to replace the Johnson Controls® P66 Series and P215 Series fan speed controls, providing additional features and flexibility, greater energy efficiency, and longer motor life in a compact, rugged, weather-resistant package.

P266 models are available for 208 to 240 VAC and 440 to 575 VAC range applications. P266 controls have current ratings from 4 to 12 A depending on the voltage and model.

Some P266 models provide optional control of up to three auxiliary (fixed-speed) fans or fan stages. Also, some models provide two additional high-voltage triacs, which allow you to split the source power to the main and auxiliary windings, and connect a low-speed capacitor to increase efficiency at low speed operation.

Refer to the *P266 Series Single-Phase Condenser Fan Speed Control Product Bulletin (LIT-12011534)* for important product application information.

Features and Benefits

- One or two durable, accurate, stainless steel, remote-mount pressure transducers resist damage from physical shock, vibration, pressure pulsation, and extreme environmental conditions; eliminate capillary tube breaks and greatly reduce refrigerant loss potential; provide 1% total error band; and are applicable to single and multi-circuit condenser applications.

- Available in 208 to 240 VAC range (8 or 12 A) or 460-575 VAC range (4 A) at 50 or 60 Hz provides efficient PSC motor speed control for a wide range of condenser fan applications.
- Wide, adjustable pressure throttling range enables application flexibility and allows you to tune condenser operation to specific pressure ranges and ambient environments.
- Optional auxiliary fan control provides control of up to three fixed-speed fans or fan stages in conjunction with the speed controlled fan or fan stage.
- Optional low-speed capacitor mode enables cooler, quieter, and more efficient fan motor operation at low speeds.
- NEMA 3R, (IP54) enclosure with integral metal heat-sink and stand-off mounting feet provides a rugged weather-resistant fan control with good heat dissipation and a sturdy mounting base.

Application

The P266 Single-Phase Condenser Fan Speed Control, in conjunction with a P266 Electronic Pressure Transducer, is a pressure-actuated, digital electronic motor speed control designed for (approved) single-phase, PSC motors used in a wide variety of Heating, Ventilation, Air Conditioning, and Refrigeration (HVACR) applications.

The P266 fan speed control regulates supply voltage to the fan motor in response to the condenser refrigerant pressure and maintains the appropriate fan speed (air movement) through the condenser regardless of the ambient temperature or air delivery variations.

The P266 control is housed in a NEMA 3R (IP54) rainproof enclosure for outdoor applications.



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The P266 fan speed control is an energy efficient and effective alternative to On/Off fan-cycling controls, multiple-speed motors, temperature fan-speed controls, modulating air-damper systems, condenser flood-back systems, and other condenser pressure control methods.

Some typical fan speed control applications include:

- computer room air conditioning
- commercial refrigeration
- commercial air conditioning

Repair Information

If the P266 Series Single-Phase Condenser Fan Speed Control fails to operate within its specifications, replace the unit. For a replacement condenser fan speed control, contact the nearest Johnson Controls representative.

Selection Charts

P266 Fan Speed Control Model and Kit Product Code Numbers, Descriptions, and Details

Product Code Number	Description	Transducer Model Included in Kit	Voltage Range (VAC)	Maximum Output Amperes	High VAC Triacs	Available Auxiliary Fan Control Circuits
P266AAA-100C ¹	P266 Fan Speed Control (only)	N/A	208 to 240	8	3	0
P266ABA-100C ¹	P266 Fan Speed Control (only)	N/A	208 to 240	8	3	3
P266ACA-100C ¹	P266 Fan Speed Control (only)	N/A	208 to 240	8	1	0
P266ADA-100C ¹	P266 Fan Speed Control (only)	N/A	208 to 240	8	1	3
P266BGA-100C ¹	P266 Fan Speed Control (only)	N/A	440 to 575	4	2	0
P266BHA-100C ¹	P266 Fan Speed Control (only)	N/A	440 to 575	4	2	3
P266BCA-100C ¹	P266 Fan Speed Control (only)	N/A	440 to 575	4	1	0
P266BDA-100C ¹	P266 Fan Speed Control (only)	N/A	440 to 575	4	1	3

P266 Series Single-Phase Condenser Fan Speed Control (Continued)

P266 Fan Speed Control Model and Kit Product Code Numbers, Descriptions, and Details (Continued)

Product Code Number	Description	Transducer Model Included in Kit	Voltage Range (VAC)	Maximum Output Amperes	High VAC Triacs	Available Auxiliary Fan Control Circuits
P266ABA-1K ¹	P266 Fan Speed Control with one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-1C, 0-35 bar (0-508 psi)	208 to 240	8	3	3
P266ABA-3K ¹	P266 Fan Speed Control with one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-2C, 0-52 bar (0-754 psi)	208 to 240	8	3	3
P266ABA-2K ¹	P266 Fan Speed Control with two P266 Pressure Transducers and two 2 m (6.6 ft) cables	P266SNR-1C, 0-35 bar (0-508 psi)	208 to 240	8	3	3
P266ABA-4K ¹	P266 Fan Speed Control with two P266 Pressure Transducers and two 2 m (6.6 ft) cables	P266SNR-2C, 0-52 bar (0-754 psi)	208 to 240	8	3	3
P266BHA-1K ¹	P266 Fan Speed Control with one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-1C, 0-35 bar (0-508 psi)	440 to 575	4	2	3
P266BHA-3K ¹	P266 Fan Speed Control with one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-2C, 0-52 bar (0-754 psi)	440 to 575	4	2	3
P266BHA-2K ¹	P266 Fan Speed Control with two P266 Pressure Transducers and two 2 m (6.6 ft) cables	P266SNR-1C, 0-35 bar (0-508 psi)	440 to 575	4	2	3
P266BHA-4K ¹	P266 Fan Speed Control with two P266 Pressure Transducers and two 2 m (6.6 ft) cables	P266SNR-2C, 0-52 bar (0-754 psi)	440 to 575	4	2	3
P266EAA-1K ¹	P266 Fan Speed Control with Internal Transformer and one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-1C, 0-35 bar (0-508 psi)	208 to 240	8	3	0
P266EAA-3K ¹	P266 Fan Speed Control with Internal Transformer and one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-2C, 0-52 bar (0-754 psi)	208 to 240	8	3	0
P266EBA-1K ¹	P266 Fan Speed Control with Internal Transformer and one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-1C, 0-35 bar (0-508 psi)	208 to 240	8	3	3
P266EBA-3K ¹	P266 Fan Speed Control with Internal Transformer and one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-2C, 0-52 bar (0-754 psi)	208 to 240	8	3	3
P266ECA-1K ¹	P266 Fan Speed Control with Internal Transformer and one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-1C, 0-35 bar (0-508 psi)	208 to 240	8	1	0
P266ECA-3K	P266 Fan Speed Control with Internal Transformer and one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-2C, 0-52 bar (0-754 psi)	208 to 240	8	1	0
P266EDA-1K ¹	P266 Fan Speed Control with Internal Transformer and one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-1C, 0-35 bar (0-508 psi)	208 to 240	8	1	3
P266EDA-3K ¹	P266 Fan Speed Control with Internal Transformer and one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-2C, 0-52 bar (0-754 psi)	208 to 240	8	1	3
P266EEA-1K ¹	P266 Fan Speed Control with Internal Transformer and one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-1C, 0-35 bar (0-508 psi)	208 to 240	12	1	0
P266EFA-1K ¹	P266 Fan Speed Control with Internal Transformer and one P266 Pressure Transducer and one 2 m (6.6 ft) cable	P266SNR-1C, 0-35 bar (0-508 psi)	208 to 240	12	1	3

1. Factory default settings: Start Voltage is set to 40% of the supply line-voltage. End Voltage is set to 95% of the supply line-voltage. Start Pressure is set to 44% of the P266 transducer's total pressure range. End Pressure is set to 51% of the P266 transducer's total pressure range.

P266SNR Electronic Pressure Transducers

Product Code Number	Description
P266SNR-1C	Electronic Pressure Transducer: 0 to 35 bar (0 to 508 psi) total range with a 1/4 in. SAE Female Flare connection and a 2 meter (6.6 ft) cable.
P266SNR-2C	Electronic Pressure Transducer: 0 to 52 bar (0 to 754 psi) total range with a 1/4 in. SAE Female Flare connection and a 2 meter (6.6 ft) cable.

Technical Specifications

P266xxx-x

Product	P266 Single Phase Condenser Fan Speed Controls
Input Supply Power	208-240 VAC 50/60 Hz or 480-575 VAC 50/60 Hz depending on model (Refer to the label inside the P266 control housing cover for rated voltage range and model-specific wiring diagram.)
Low-Voltage Power Supply	P266A and P266B Types: External 24 VAC Class 2, 20 VA Supply Transformer P266E Types: Low-voltage power for P266 control is provided by an onboard transformer. Note: When auxiliary fan starters are connected to P266E type controls, you must provide an external Safety Extra-Low Voltage (SELV) AC supply to power the fan starters.
Ambient Operating Conditions	Temperature: -20 to 60°C (-4 to 140°F) Humidity: Up to 95% RH non-condensing; Maximum Dew Point 29°C (85°F)
Ambient Shipping and Storage Conditions	Temperature: -40 to 85°C (-40 to 185°F) Humidity: Up to 95% RH non-condensing; Maximum Dew Point 29°C (85°F)
Low-Voltage Connections	1/4 in. Quick-Connect terminals, 30 m (100 ft) maximum wiring runs

The performance specifications are nominal and conform to acceptable industry standards. For applications at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products. © 2009 Johnson Controls, Inc. www.johnsoncontrols.com

P266 Series Single-Phase Condenser Fan Speed Control (Continued)

P266xxx-x

Input Transducer	P266SNR-x Pressure Transducer: 5 VDC for 0.5 to 4.5 VDC ratio metric analog signal
Enclosure Type	NEMA 3R, IP54
Case Construction	Aluminum Die Casting
Cover Construction	UV Stabilized Polycarbonate/ABS
Dimensions (HxWxD)	159 x 177 x 70 mm (6-1/4 x 7 x 2-3/4 in.)
Weight	Heaviest Model Weight: 1.0 kg (2.2 lb) Approximate Shipping Weight: 1.2 kg (2.6 lb)
Compliance	<p>Europe: Mark: CE Compliant; CENELEC EN 60947-1 & 4-2; RoHS Directive (2002/95/EC); WEEE Directive (2002/96/EC) Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC</p> <p>North America: ETL, UL508C; cETL C22.2 No. 107.1; FCC Compliant to CFR47, Part 15, Subpart B, Class A Industry Canada (IC) Compliant to Canadian ICES-003, Class A limits</p> <p>Australia: C-Tick Compliant (N1813)</p>