P545 Series Electronic Lube Oil Control Catalog Page

LIT-1900355

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Description

The P545 Series Electronic Lube Oil Control is designed for use on refrigeration compressors equipped with an oil pump that accepts a single-point differential pressure switch. The P400 switch continuously monitors net lube oil pressure and the P545 control locks out the compressor if lube oil pressure falls below the manufacturer's recommended net pressure for longer than the recommended lube oil time delay. Front-mount LEDs indicate the status of the lubrication system, and a user-selectable, minimum-off time delay can be set to minimize compressor short cycling.

A Johnson Controls/PENN® R310AD Current Sensing Switch, sold separately, may be used to disable the P545 control lockout circuit during abnormal compressor shutdowns.

Refer to the *P545 Series Electronic Lube Oil Control Product Bulletin (LIT-12011012)* for important product application information.

Features

- single-pole, double-throw (SPDT) relay contacts for liquid line solenoid and alarm applications allow liquid line solenoid to be closed if the P545 control shuts off the compressor due to low oil pressure and provides alarm indication, including circuits that use neon lights
- relay contact output for compressor provides reliable, long-lasting operation
- built-in test circuit verifies proper control operation quickly, without additional tools or equipment

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- improved noise immunity exceeds immunity requirements of UL 991 for transient overvoltage: International Electrotechnical Commission (IEC) 61000-4-3 for radiated Radio Frequency (RF) and IEC 61000-4-6 for RF-induced conducted disturbances
- jumper-selectable anti-short cycle time delays provide for a wide range of anti-short cycle strategies that meet most equipment requirements— the anti-short cycle delay feature may allow for the elimination of an external short-cycle timer
- user-friendly display panel displays the status of the compressor lubrication system continuously
- backwards compatibility allows easy replacement of existing electronic lube oil controls

Repair Information

If the P545 Series Electronic Lube Oil Control fails to operate within its specifications, replace the unit. For a replacement control, contact the nearest Johnson Controls® representative.

Selection Charts

Table 1: P545 Series Electronic Lube Oil Control

Product Code Number	Lube Oil Delay (Seconds)	P400 Switch	Wiring Harness	Fits Compressors Manufactured by
P545NCB-22C[1]	120	P400AD-2	WHA-P400-100	Copeland®
P545NCB-25C[1]	90	P400BD-1	WHA-P400-125	Bitzer®
P545NCB-82C[1]	120	P400AD-1	WHA-P400-100	Carlyle®

1 Switch and wiring harness included

Table 2: Control and Sensor/Switch Compatibility

Test	P345 or P445 Control with P400 Switch	P545 Control and P400 Switch
Wiring Harness[1]	WHA-P400-xxx	WHA-P400-xxx
Test Switch	Does not function[2]	Immediate

1 WHA-P400-xxx is the two-wire harness supplied with the P545 control and the P400 switch.
2 When the P445 Control is wired to a P400 Switch, the Test button may operate when first powered up; however, after a couple minutes of operation, the Test Switch function no longer works. All other control functions operate normally.

Accessories

Table 3: P400 Single-Point Differential Lube Oil Pressure Switch

Product Code Number[1]	Open Point (Differential Pressure)	Close Point (Differential Above Open Point)	Threads	Wiring Harness
P400AD-1C	7.0 ±1.0 psi	less than or equal to 2.0 psi	3/4-16 UNF	WHA-P400-100
P400AD-2C	12.75 ±0.75 psi	less than or equal to 1.5 psi		
P400BD-1C	10.0 ±1.5 psi	less than or equal to 3.0 psi	M20 x 1.5	WHA-P400-125

1 Wiring harness included

Table 4: Wiring Harnesses and Other Accessories

Product Code Number	Description
KITP545-82C[1]	• CST29A-600C Sensor Block; • P545NCB-82 Control; • P400AD-1C Switch; • WHA-P400-100C Wiring Harness
WHA-P400-100C	3-1/3 ft (1 m) length wiring harness
WHA-P400-125C	4 ft (1-1/4 m) length wiring harness

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Table 4: Wiring Harnesses and Other Accessories

Product Code Number	Description
WHA-P400-250C	8 ft (2-1/2 m) length wiring harness
WHA-P400-430C	14 ft (4-1/3 m) length wiring harness
R310AD-1C	Low-voltage Current Sensing Switch
271-51	Universal Mounting Bracket

1 Contact Carlyle Compressor Co. at 1-800-462-2759 to order Sensor Block Gasket 06DA680063.

P545 Series Electronic Lube Oil Control Technical Specifications

Table 5: P545 Series Electronic Lube Oil Control technical specifications

P545NCB Electronic Lube Oil Control	
Power Requirements	120 or 240 VAC, 50/60 Hz +10%, -15%; power consumption: 3 VA
Open Point (Differential Pressure)	• P545NCB-22/P400AD-2: 12.75 ± 0.75 psi (87.9 ± 5.17 kPa) • P545NCB-25/P400BD-1: 10 ± 1.5 psi (68.9 ± 10.3 kPa) • P545NCB-82 P400AD-1: 7 ± 1.0 psi (48.2 ± 6.9 kPa)
Lube Oil Time Delay (Factory Settings)	• P545NCB-22: 120 ± 15 seconds • P545NCB-25: 90 ± 12 seconds • P545NCB-82: 120 ± 15 seconds
Anti-Short Cycle Timer	Four selectable positions: 0, 35, 65, and 100 seconds (nominal times)
Type of Refrigerant	Non-corrosive refrigerants only
Electrical Connections	• Control: Screw type terminals on a barrier terminal strip • Sensor: Snap-connect at sensor end, three-pin plug at control end
Maximum Electrical Rating	Isolated relay output to compressor contactor (M-1 and M-2) Pilot duty 375 VA at 120 VAC, 750 VA at 240 VAC
Alarm Circuit (Relay)	NOA contact: Pilot duty 125 VA at 120/240 VAC; 60 W tungsten at 120/240 VAC NCA contact: Pilot duty 125 VA at 120 VAC, 250 VA at 240 VAC
Backplate Material Case and Cover Material	0.062 in. (1 mm) cold rolled steel High impact thermoplastic
Ambient Operating Conditions	-40 to 131°F (-40 to 5°C)
Ambient Storage Conditions	-40 to 185°F (-40 to 85°C)
Approximate Shipping Weight	1.80 lb (0.82 kg)
Agency Listings	UL Listed, File SA516, CCN SDFY UL Listed for Canada, File SA516, CCN SDFY7

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Single point of contact

APAC	Europe	NA/SA
JOHNSON CONTROLS C/O CONTROLS PRODUCT MANAGEMENT NO. 32 CHANGJIJANG RD NEW DISTRICT WUXI JIANGSU PROVINCE 214028 CHINA	JOHNSON CONTROLS WESTENDHOF 3 45143 ESSEN GERMANY	JOHNSON CONTROLS 507 E MICHIGAN ST MILWAUKEE WI 53202 USA

Contact information

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