



P70, P72, and P170 Series Controls for High Pressure Applications

Description

The P70, P72, and P170 Controls for high pressure applications are designed primarily for high pressure cut-out control, head-pressure control, and condenser fan cycling control on commercial refrigeration and air conditioning applications.

Controls are available in several pressure ranges and are compatible with most common refrigerants. They may also be used on other non-corrosive fluid applications. Ammonia compatible models are also available.

Several different electrical ratings and switch configurations are available. The P72 models provide direct control of 208-240 volt single-phase motors up to 3 horsepower, and 208-220 volt 3-phase motors up to 5 horsepower.

Refer to the *P70, P72, and P170 Series Controls for High Pressure Applications Product/Technical Bulletin (LIT-125454)* for important product application information.

Features

- all-steel case and cover provides long lasting, rugged protection for internal components
- sight-set calibrated pressure adjustment displays a visible pressure scale, fully adjustable through the range without removing the cover (on NEMA 1 enclosure models)

- manual reset lockout option provides trip-free lockout that cannot be overridden or reset until pressure returns to specified level
- variety of available pressure connection styles allows greater flexibility when mounting control and adapting pressure connections to field application requirements

Applications

- P70C, P70D P170C and P170D models** with single-pole, single-throw (SPST) Open High switch action are the most popular models, and are typically used for high-pressure cutout. The **C models** are automatic reset. The **D models** have a manual reset lockout mechanism. Some **P70C, P70D P170C and P170D models** are UL Listed as refrigeration pressure limiting controls.
- P70A and P170A models** are available with SPST Open Low switch action, and typically are used for condenser fan cycling control.
- P70 and P170 models** with single-pole, double-throw (SPDT), or four-wire, two-circuit switch action allow users to install alarm devices or other control circuits.



P70CA-3 High Pressure Cutout Control

- P72 models** have a double-pole, single-throw (DPST) switch with load-carrying contacts that can provide direct control of 208-240 V single-phase motors up to 3 horsepower, and 208-220 V 3-phase motors up to 5 horsepower. See the DPST Electrical Ratings (P72A, B, C, and D Models) that follow.

NEMA 1 enclosures are standard on most models.

Repair Information

If the P70, P72, and P170 Series Controls for High Pressure Applications fail to operate within their specifications, replace the units. For a replacement control, contact the nearest Johnson Controls® representative.

Selection Chart (Part 1 of 2)

Product Code Number	Switch Action	Range psi (kPa)	Differential psi (kPa)	Pressure Connection	Max. Working Pressure	
Condenser Fan Cycling Controls (for Non-Corrosive Refrigerants)						
P70AA-118C	SPST Open Low	100 to 400 (690 to 2,758)	Minimum 35 (241) Maximum 200 (1,379)	36 in. Capillary with 1/4 in. Flare Nut	475 psig (3,275 kPa)	
P72AA-27C	DPST Open Low					
P170AA-118C	SPST Open Low			1/4 in. External Flare Connector		
All Range Controls (for Non-Corrosive Refrigerants)						
P70CA-2C ¹	SPST Open High	50 to 500 (345 to 3,448)	Minimum 60 (414); Maximum 150 (1,034)	1/4 in. External Flare Connector	525 psig (3,620 kPa)	
P70CA-3C ¹			Manual Reset Lockout	36 in. Capillary with 1/4 in. Flare Nut		
P70DA-1C ¹						
P70KA-1C	Four-wire, Two-circuit Line-M1 Close High Line-M2 Open High		Minimum 60 (414); Maximum 150 (1,034)	1/4 in. External Flare Connector		
P72CA-2C ¹	DPST Open-high					
P72DA-1C ¹	Manual Reset Lockout					
P170CA-3C ¹	SPST Open High		Minimum 60 (414); Maximum 150 (1,034)	1/4 in. External Flare Connector		
P170DA-1C			Manual Reset Lockout			
P170KA-1C			Four-wire, Two-circuit Line-M1 Close High Line-M2 Open High			

ALCO® Cross Reference

Temperature Controls



Product #	Range	Differential	Switch	Capillary	Bulb	Cover	Notes
ALCO TF115-S2 AE00	-20/60F	3/30F ADJ	SPDT	NONE	COILED	NEMA 1	
ALCO TSI-X2E 30/40	-20/60F	3/30F ADJ	SPDT	NONE	COILED	NEMA 1	
PENN A19BBC-2C	-30/100F	3/12F ADJ	SPDT	None	Coiled	NEMA 1	(1)
PENN A19BBC-6C	-30/100F	3/12F ADJ	SPDT	None	Coiled	NEMA 1	(1)(2)
ALCO TF115-S3 AE00	15/95F	3/30F ADJ	SPDT	NONE	COILED	NEMA 1	
ALCO TSI-X3E 64/48	15/95F	3/30F ADJ	SPDT	NONE	COILED	NEMA 1	
PENN A19BBC-2C	-30/100F	3/12F ADJ	SPDT	None	Coiled	NEMA 1	(1)
PENN A19BBC-6C	-30/100F	3/12F ADJ	SPDT	None	Coiled	NEMA 1	(1)(2)
ALCO TF115-S4 AF10	-20/95F	5/35F ADJ	SPDT	120"	3/8x2-3/4	NEMA 1	
ALCO TSI-X4F 32/41	-20/95F	5/35F ADJ	SPDT	120"	3/8x2-3/4	NEMA 1	
PENN A19ABC-24C	-30/100F	3/12F ADJ	SPDT	96"	3/8x4	NEMA 1	(1)
PENN A19ABC-36C	-30/100F	3/12F ADJ	SPDT	240"	3/8x4	NEMA 1	(1)

Notes:

- (1) Can use A419ABC-1, -30/212F range, 1/30F differential, SPDT, 78" lead, 0.25 x 2 PTC sensor, NEMA 1.
 (2) Knob assembly/concealed adjustment packed separately.

Pressure Controls



Product #	Range	Differential	Switch	Capillary	Connection	Cover	Notes
ALCO FF115-S1 BAK	24"/42	3/30 ADJ	SPDT	36"	w/ Flare	NEMA 1	
ALCO PS1-X1K 7/15	24"/42	3/30 ADJ	SPDT	36"	w/ Flare	NEMA 1	
PENN P70AB-12C	12"/80	5/35 ADJ	Open LO	36"	w/ Flare	NEMA 1	
ALCO FF115-S3 BAK	15"/100	7/70 ADJ	SPDT	36"	w/ Flare	NEMA 1	
ALCO PS1-X3K 50/65	15"/100	7/70 ADJ	SPDT	36"	w/ Flare	NEMA 1	
PENN P70AB-2C	20"/100	7/50 ADJ	Open LO	36"	w/ Flare	NEMA 1	
ALCO FF115-S3 BAA	15"/100	7/70 ADJ	SPDT	None	External Flare	NEMA 1	
ALCO PS1-X3A 50/65	15"/100	7/70 ADJ	SPDT	None	External Flare	NEMA 1	
PENN P170AB-2C	20"/100	7/50 ADJ	Open LO	None	External Flare	NEMA 1	
ALCO FF115-S4 BAK	15/290	15/145 ADJ	SPDT	36"	w/ Flare	NEMA 1	
ALCO PS1-X4K 115/145	15/290	15/145 ADJ	SPDT	36"	w/ Flare	NEMA 1	
PENN P70AA-2C	0/150	12/40 ADJ	Open LO	36"	w/ Flare	NEMA 1	
PENN P70AA-3C	100/300	25/75 ADJ	Open LO	36"	w/ Flare	NEMA 1	
ALCO FF115-S5 BAK	90/450	30/220	SPDT	36"	w/ Flare	NEMA 1	
ALCO PS1-X5K 230/290	90/450	30/220	SPDT	36"	w/ Flare	NEMA 1	
PENN P70AA-118C	100/400	35/200	Open LO	36"	w/ Flare	NEMA 1	
PENN P70CA-3C	50/450	60/150	Open HI	36"	w/ Flare	NEMA 1	
ALCO FF115-S5 BAA	90/450	30/220	SPDT	None	External Flare	NEMA 1	
ALCO PS1-X5A 140/280	90/450	30/220	SPDT	None	External Flare	NEMA 1	
PENN P170AA-118C	100/400	35/200	Open LO	None	External Flare	NEMA 1	
PENN P170CA-3C	50/450	60/150	Open HI	None	External Flare	NEMA 1	
ALCO FF115-S5 BRK	90/450	Manual	SPDT	36"	w/ Flare	NEMA 1	
ALCO PS1-Y5K 230/290	90/450	Manual	SPDT	36"	w/ Flare	NEMA 1	
PENN P70DA-1C	50/450	Manual	Open HI	36"	w/ Flare	NEMA 1	
PENN P70KA-1C	50/450	Manual	M-Block	36"	w/ Flare	NEMA 1	(3)
ALCO FF115-S5 BRA	90/450	Manual	SPDT	None	External Flare	NEMA 1	
ALCO PS1-Y5A 330/390	90/450	Manual	SPDT	None	External Flare	NEMA 1	
PENN P170DA-1C	50/450	Manual	Open HI	None	External Flare	NEMA 1	

Notes:

- (3) Main opens HI, auxilliary opens LO (primarily used for alarm circuit).