

Commercial Pressure Switches

Electromechanical Square D Brand 9013

For power circuits, FRG, FHG, and G

Environmental characteristics

Pressure switch type		FRG	FHG	G
Conformity to standards		UL 508, NEC Article 430-84, ANSI /NSF Standard 61, FDA 21CFR.2600		
Product Certifications		UL File E12158 CCN NKPZ , CSA File LR 25490 Class 321106		
Protective treatment		N/A		
Ambient air temperature	°C	For operation, 0 °C (32 °F) min to 125 °C (257 °F) max For storage, -30 °C (-22 °F) min to 70 °C (158 °F) max		
Fluids controlled		Fresh water, or sea water (with Form Q)		
Materials		Cover: polypropylene, Noryl® thermoplastic resin or equivalent for Type 3R, Component material in contact with fluid: flange, zinc plated or equivalent (fluid entry), nitrile or equivalent rubber (diaphragm)		
Operating position		NEMA Type 1, and Type IP20 in any position, NEMA Type 3R in the vertical position only		
Vibration resistance		—		
Shock resistance		—		
Electric shock protection		—		
Degree of protection		NEMA Type 1, IP20 and NEMA Type 3R (some references) must be mounted in vertical position to maintain enclosure rating		
Operating rate	cycles/m	10		
Repeat accuracy		+/- 3 % of the range		
Fluid connection		1/8" NPSF internal, 1/4" NPSF internal, 1/2"NPT External, 1/4" Bayonet (barbed), 90 deg. Elbow 1/4" Bayonet, Four Way Flange, 3/8" NPSF (Internal), 1/4" Flare, other specials		
Electrical connection		2 open side entries, 3/4" diameter, with two flats		3 Conduit 1/2" Knockouts

Contact block characteristics

Type of contacts		One 2 pole, 2 N/C (4 terminal) contacts, snap action
Resistance across terminals	m Ω	< 25
Terminal referencing		N/A
Short-circuit protection	A	5,000
Connection		Screw clamp terminals. Clamping capacity up to #10 AWG (5.261 mm ²)
Electrical durability	cycles	100,000
Mechanical durability	cycles	300,000

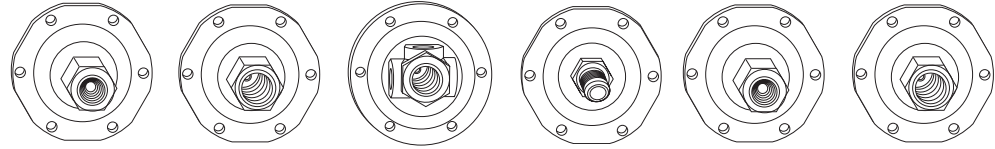
Electrical Ratings

1 Pole		FRG			FHG ▲ ■			G		
Power ratings of controlled motors	Voltage	~ 1-phase	~ 3-phase	≡	~ 1-phase	~ 3-phase	≡	~ 1-phase	~ 3-phase	≡
	32 V	—	—	—	—	—	—	—	—	—
Note: Type FRG and G are all Form H	115 V	0.75 kW (1 HP)	—	0.18 kW (.25 HP)	1.1 kW (1.5 HP)	1.5 kW (2 HP)	0.18 kW (.25 HP)	0.75 kW (1 HP)	—	0.37 kW (.50 HP)
▲ Includes FHG 2, 3, 4, 9, 12, 13, 14, 19, 42, 44, 49	230 V	0.75 kW (1 HP)	—	0.18 kW (.25 HP)	1.5 kW (2 HP)	2.2 kW (3 HP)	0.18 kW (.25 HP)	1.5 kW (2 HP)	—	0.37 kW (.50 HP)
	460 / 575 V	—	—	—	—	0.75 kW (1 HP)	—	1.5 kW (2 HP)	—	—
2 Pole		~ 1-phase	~ 3-phase	≡	~ 1-phase	~ 3-phase	≡	~ 1-phase	~ 3-phase	≡
Note: ■ Includes FHG 22, 24, 29, 32, 33, 34, 39, 52, 54, 59	32 V	—	—	0.18 kW (.25 HP)	—	—	—	—	—	—
	115 V	0.75 kW (1 HP)	0.75 kW (1 HP)	0.18 kW (.25 HP)	1.5 kW (2 HP)	2.2 kW (3 HP)	0.37 kW (.50 HP)	1.5 kW (2 HP)	2.2 kW (3 HP)	0.75 kW (1 HP)
	230 V	0.75 kW (1 HP)	0.75 kW (1 HP)	0.18 kW (.25 HP)	2.2 kW (3 HP)	3.7 kW (5 HP)	0.37 kW (.50 HP)	2.2 kW (3 HP)	3.7 kW (5 HP)	0.75 kW (1 HP)
	460 / 575 V	—	—	—	—	0.75 kW (1 HP)	—	3.7 kW (5 HP)	3.7 kW (5 HP)	—

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For power circuits FHG, Compressor
2-pole 2 N/C contacts
Degree of protection IP20, NEMA Type 1

Flange Style



Adjustable range of switching point
Contacts open on rising pressure

Differential	Non-adjustable					
Pressure connections	1/4" NPSF internal	3/8" NPSF internal	1/4" 4 way flange	1/4" NPT external	1/4" NPSF internal	3/8" NPSF internal
References						
NEMA Type 1, IP20 - 2 pole - Lower hp	9013FHG2	9013FHG3	9013FHG44	9013FHG9	9013FHG12	9013FHG13
NEMA Type 1, IP20 - 2 pole -Higher hp	9013FHG22	—	9013FHG24	9013FHG29	9013FHG32	9013FHG33
Controls	Air	Air	Air	Air	Air	Air
Pressure range						
Adjustable Cut-Out PSIG (bar)	40-100 (2.8-6.9)	40-100 (2.8-6.9)	40-100 (2.8-6.9)	40-100 (2.8-6.9)	70-150 (4.8-10.3)	70-100 (4.8-10.3)
Weight lbs (kg)	0.75 lbs (0.340)	0.75 lbs (0.340)	0.75 lbs (0.340)	0.75 lbs (0.340)	0.75 lbs (0.340)	0.75 lbs (0.340)

Complementary characteristics not shown under general characteristics

Differential PSIG (bar) Non-adjustable	20 (1.4)	20 (1.4)	20 (1.4)	20 (1.4)	30 (2.1)	30 (2.1)
Maximum permissible pressure PSIG (bar)	100 (6.9)	100 (6.9)	100 (6.9)	100 (6.9)	150 (10.3)	150 (10.3)
Mechanical life	300, 000 operating cycles					
Cable entry	2 cable entries 0.88" (22.4mm) with 0.84" (21.3mm) across flat.					
Pressure switch type	Diaphragm					

Ordering Information

Pressure Codes

Below is the pressure code table.
Existence of a code does not imply that the code is available for any or all devices.

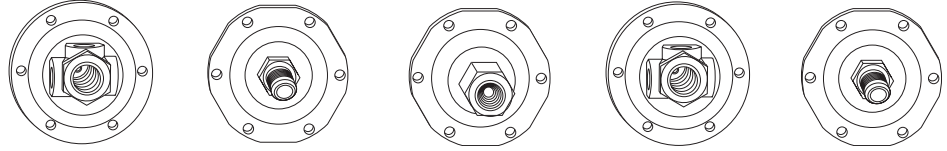
- Specify Class 9013 Type FHG.
- Select pressure code and add code designation to end of type number. Be sure that pressure code falls within the limits of the device as shown in the device listings.
- If special features are desired, add the appropriate Form letter to the Class and Type. Arrange Form letters in alphabetical sequence when ordering more than one special feature. If no packaging code is indicated, devices will be shipped individually packaged.
- Place packaging code at end of sequence with other forms when ordering.
For standard pack of 20 devices per box C20
Example: 9013FHG19J52MIXC20

Settings	Code
Off at 100 PSI	J27
Off at 110 PSI	J37
Off at 115 PSI	J38
Off at 120 PSI	J69
Off at 125 PSI	J52
Off at 135 PSI	J39
Off at 140 PSI	J68
Off at 150 PSI	J55
Off at 155 PSI	J40
Off at 175 PSI	J59
Specify pressure setting	J99

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For power circuits FHG, Compressor
2-pole 2 N/C contacts
Degree of protection IP20, NEMA Type 1

Flange Style



Adjustable range of switching point
Contacts open on rising pressure

Differential	Non-adjustable				
Pressure connections	Four way flange	1/4" NPT external	1/4" NPSF internal	Four way flange	1/4" NPT external
References					
NEMA Type 1, IP20 - 2 pole - Lower hp	9013FHG14	9013FHG19	9013FHG42	9013FHG44	9013FHG49
NEMA Type 1, IP20 - 2 pole - Higher hp	9013FHG34	9013FHG39	9013FHG52	9013FHG54	9013FHG59
Controls	Air	Air	Air	Air	Air
Pressure range					
Adjustable Cut-Out PSIG (bar)	70-150 (4.8-10.3)	70-150 (4.8-10.3)	100-200 (6.9-13.8)	100-200 (6.9-13.8)	100-200 (6.9-13.8)
Weight lbs (kg)	0.75 lbs (0.340)	0.75 lbs (0.340)	0.75 lbs (0.340)	0.75 lbs (0.340)	0.75 lbs (0.340)
Complementary characteristics not shown under general characteristics					
Differential PSIG (bar) Non-adjustable	30 (2.1)	30 (2.1)	40 (2.8)	40 (2.8)	40 (2.8)
Maximum permissible pressure PSIG (bar)	150 (10.3)	150 (10.3)	200 (13.8)	200 (13.8)	200 (13.8)
Mechanical life (operating cycles)	300,000				
Cable entry	2 cable entries 0.88" (22.4mm) with 0.84" (21.3mm) across flat.				
Pressure switch type	Diaphragm				

Modifications

Descripton	Form Letter
Standard pack of 20 devices per box	C20
Addition of a second ground screw	G4
Maintained manual cut-out lever (AUTO-OFF)	M1
Pulsation plug (copper)	P (not field installable)
1/2" conduit bushing - 1/2" long thread - on left	T
1/2" conduit bushing - 1/2" long thread - on right	T1
Slip-on connections (load side terminals only)	U
Slip-on connectors (line and load terminals)	U2
Factory sealed range stud	W
Two-way pressure release valve	X
Quick connect two-way pressure release valve (for use with Polyflow Tubing)	X1
Black cover	Z22