

EXPLOSION PROOF DIFFERENTIAL PRESSURE SWITCH MODEL : P970 SERIES

WISE[®]

SERVICE INTENDED

P970 Diaphragm type Differential switch is applied with a variety of process lines. Internal micro switch is operated by pressure of various fluids, such as atmospheric, pressure, and water, pressure.
The pressure sensing is a force-balance, piston actuated assembly.

WORKING TEMPERATURE

Ambient : -20 ~ 60°C
Fluid : -20 ~ 80°C



Standard Features

APPROVED BY STANDARDS

Explosion Proof (Exd IIC T6)

ADJUSTABLE RANGE

1kPa ~3.5MPa

DIMENSION

Refer to Drawing Type

ELEMENT

Diaphragm

REPEATABILITY

±1.0% of Adjustable Range

MATERIAL

Case & Cover : ALDC
Pressure Connection : 316SS
Diaphragm
7.5kPa ~ 3.5MPa : VITON
0.1 ~ 3.5 MPa :
VITON & 316LSS
Bracket : 304SS

CONTACT

Micro Contact Type
One SPDT(970-1B3)
Two SPDT(970-2B3)

CONDUIT CONNECTION

3/4" NPT (F)

PROCESS CONNECTION

1/4" NPT(F)

APPROVAL

☑ KGS 04-1-217-Q1
☑ Ex 11 2G (LCIE 06 ATEX 6073X)
IECEx KGS-04-0001
EEx d IIC T6 (Tamb= -20°C To + 60°C)

ORDERING INFORMATION

BASE MODEL

P970 : EXPLOSION PROOF DIFFERENTIAL PRESSURE SWITCH

(Only available with Single Set Point)

SWITCH FORM

- 1 : One SPDT
- 2 : Two SPDT

UNUSED CHARACTER

B3

PROCESS CONNECTION

C : 1/4"

CONNECTION TYPE

D : NPT(F)

MEASURING UNIT

- H : bar
- I : MPa
- J : KPa

RANGE

Refer to PressureUnit & Range Table

**PRESSURE CONNECTION
ELEMENT MAT'L**

- 3 : 316SS & 316LSS
- V : 316SS & Viton

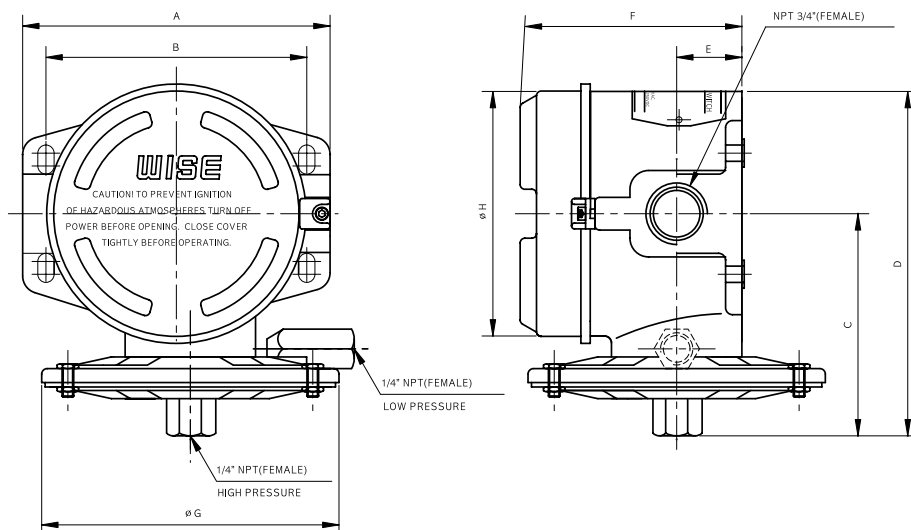
OPTIONS

- 0 : None
- 1 : Accessories

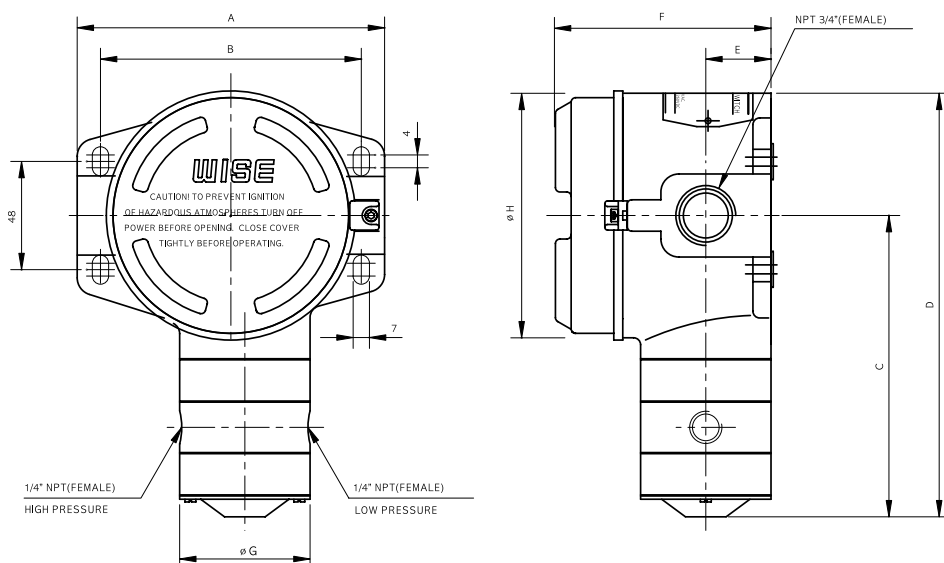
P970	1	B3	2	D	H	046	V	0	SAMPLE MODEL NUMBER
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P970 : TYPE OF MOUNTING

① 7.5kPa ~ 50kPa



② 0.1MPa ~ 3.5MPa



Dimensions (mm)

Adjust Range	A	B	C	D	E	F	G	H
① 7.5kPa ~ 50kPa	132	112	(99.5)	(152)	28	95	ø 128	105
② 0.1MPa ~ 3.5MPa	132	112	(133.5)	(186)	28	95	ø 56	105

PRESSURE SWITCH

A bi-stable electro mechanical device than actuates/deactuates one or more electrical switching element at a predetermined discrete pressure upon rising or falling

ADJUSTABLE RANGE

The span of pressure between upper and lower limits within which the pressure switch can be adjusted to actuate/deactuate. It is expressed for increasing pressure.

SETPOINT

That discrete pressure at which the pressure switch is adjusted to actuate/deactuate on rising or falling pressure. It must fall with the Adjustable Range and be called out as increasing.

DEADBAND

The difference in pressure between the increasing Set Point and the decreasing Set Point.

PROOF PRESSURE

The maximum input pressure that can be continuously applied to the pressure switch without causing permanent change of set point, leakage or material failure.

BURST PRESSURE

The maximum input pressure that can be continuously applied to the pressure switch without causing leakage or catastrophic material failure. Permanent change of Set Point may occur, or the device may be rendered inoperative.

REPEATABILITY

The ability of a pressure switch to successively operate at a Setpoint that is approached from a starting point in the same direction and returns to the starting point over three consecutive cycles to establish a pressure profile.

The closeness of the measures Set Point values is normally expressed as a percentage of full scale (maximum adjustable range pressure).

PRESSURE RANGE TABLE

CODE	ADJUSTABLE SETTING RANGE		OVER RANGE	
			STATIC WORKING PRESSURE	PROOF PRESSURE
	kPa	MPa	MPa	MPa
116	7.5 ~ 15 (kPa)		0.1	0.15
118	15 ~ 25 (kPa)		0.1	0.15
120	25 ~ 35 (kPa)		0.1	0.15
123	35 ~ 50 (kPa)		0.1	0.15
042		0.05 ~ 0.2 (kPa)	2	15
044		0.2 ~ 0.4 (kPa)	2	15
046		0.4 ~ 0.7 (kPa)	2	15
050		0.7 ~ 1.5 (kPa)	4	20
052		1.5 ~ 2.5 (kPa)	4	20
054		2.5 ~ 3.5 (kPa)	5	25(28)

RATED VOLTAGE	RESISTANCE LOAD		INDUCTIVE LOAD	
	NC	NO	NC	NO
125V AC	15(10)		15(10)	
250V AC	15(10)		15(10)	
480V AC	10		10	
8V DC	15		15	
14V DC	15		10	
30V DC	2		1	
125V DC	0.4		0.03	
250V DC	0.2		0.02	

SPDT SWITCHING ELEMENT

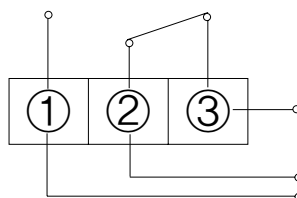
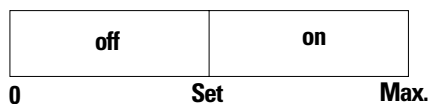
Single-Pole, Double Throw (SPDT) has three connection : C-Common, NO-Normally open and NC-Normally closed, which allows the switching element to be electrically to the circuit NO or NC state.

DPDT SWITCHING ELEMENT

Double-Pole, Double Throw (DPDT) is two SPDT switching elements operated by a common lever assembly so simultaneous actuation / deactuation occurs at both the increasing and the decreasing set point. Two independent electrical circuits can be switched, i.e. one AC and one DC.

P970 1B3 TYPE

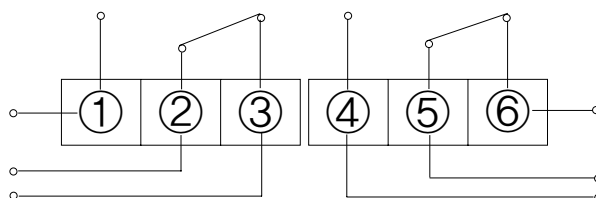
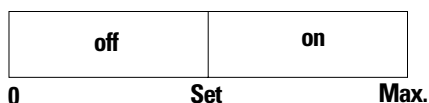
When the input pressure reach the upper or lower limit set point, The circuit is closed and opened.



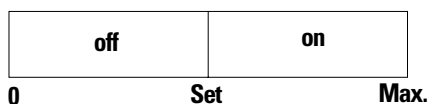
① : NO ② : COM ③ : NC

P970 2B3 TYPE

When the input pressure reach the upper or lower limit set point, Two circuit are simultaneously closed and opened.



①, ④ : NO ②, ⑤ : COM ③, ⑥ : NC



CONVERSION TABLE

PRESSURE CONVERSION CHART								
PSI	ATM	kg/cm²	in.H ₂ O	mmHg	in.Hg	kPa	Bar	mmH ₂ O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.895	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

VOLUME CONVERSION CHART							
GALLON (U.S)	CUBIC FEET	CUBIC INCHES	BARRELS (OIL)	CUBIC CM	CUBIC METER	LITER	IMP. GALLON
1	0.1337	231	0.02381	3785	0.003785	3.785	0.8327
7.481	1	1728	0.1781	28320	0.02832	28.32	6.229
0.004329	0.000578	1	0.000103	16.39	0.000016	0.01639	0.003605
42	5.615	9702	1	159000	0.159	158.94	34.97
0.000264	0.000035	0.06102	0.000006	1	0.000001	0.001	0.00022
264.17	35.3144	61023	6.2906	1000000	1	1000	220.1
0.264	0.0353	61.03	0.0629	1000	0.001	1	0.22
1.201	0.1606	277.4	0.0286	4546	0.004546	4.546	1

MASS CONVERSION CHART							
lb.	oz.	kg	gm	gal H ₂ O (32F)	long ton	metric tonne	ton
1	16	0.4536	453.6	0.1198	0.000446	0.000453	0.0005
0.0625	1	0.02835	28.35	0.00749	0.000027	0.000028	0.000031
2.205	35.27	1	1000	0.2642	0.009839	0.001	0.001102
0.002205	0.03527	0.001	1	0.000264	0.000000	0.000001	0.000001
8.345	133.5	3.785	3785	1	0.003726	0.003786	0.004171
2240	35840	1016.4	1016363	268.352	1	1.016	1.12
2204.6	35273	1000	1000000	264.11	0.9842	1	1.1023
2000	32000	907.03	909090.9	239.7	0.892857	0.907194	1

DENSITY CONVERSION CHART			
lb/ft³	gm/cm³	kg/m³	lb/in³
1	0.016018	16.0184	0.000578
62.43	1	1000	0.03613
0.06243	0.001	1	0.000036
1728	27.68	27679.8	1