



Safety for Industrial Process

Industry Family

P Series

Pressure and temperature switches



Characteristics*

- Gauge, absolute and differential pressure control
- Temperature control : direct bulb or through capillary
- Electrical contact or pneumatic signal output
- Available for installation in hazardous areas (ATEX)
 - Explosion-proof housing /contact
 - Intrinsic safety
 - Increased safety
 - Protection by constructional safety

APPLICATIONS

- Industrial series
- Homogeneous and extensible range
- Many qualifications (marine, energy)
- High adaptability
- Made in France

* according to models



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QUALITY NOTIFICATION LCIE 02 ATEX Q8023
FRENCH ELECTRICITY BOARD APPROVED
NATO CODE F 3363
GOST-R CERTIFICATE (RUSSIAN FEDERATION)

A CERTIFIED RANGE OF PRODUCTS



ATEX 2014/34/EU



PRESSURE and TEMPERATURE SWITCHES of the "P" Series from GEORGIN offer a wide range of products to suit most severe industrial applications where a high degree of accurate reliability is required.

APPLICATIONS :

- Power generation.
- Oil fields, off-shores, pipe-lines and refineries.
- Petrochemical and chemical industries.
- Natural gas or LPG storage and transportation.
- Compressed gas or high pressure fluids.
- Hydraulic, steam and gas turbines.
- Diesel engines, pumps and compressors.
- Trade or navy ship building.
- Steam, burners and furnaces.
- Glass and metal industries.

Many other applications such as breweries, milk, surgical gas, fire protection, tyres air and water treatment, sugar and paper mills... can be obtained on request together with our national or international reference list.

OTHER PRODUCTS and SERVICES

GEORGIN offers as well a large range of intrinsically safe electronic devices (relays, converters, power supplies, indicators).

GEORGIN is certified (Nr 11 920 903 792) to give lectures concerning all fields of its activity.



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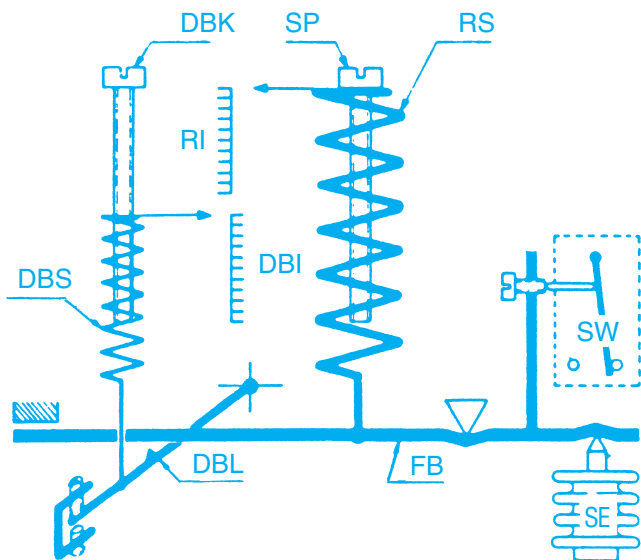
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PRESSURE SWITCHES
TEMPERATURE SWITCHES

P Series
B and C Series

MODELS:	PRESSURE (absolute)	0 Bar abs. to	3 Bar abs.
	PRESSURE (gauge)	- 1 Bar to	800 Bar
	DIFFERENTIAL PRESSURE	0.002 Bar to	90 Bar
	TEMPERATURE	- 50°C to	600°C



- SP Set point (range adjustment screw)
- RS Range spring
- RI Range index
- DBI Dead band index
- DBS Dead band adjustment spring
- DBK Dead band adjustment knob
- SE Sensing element
- FB Force balance
- SW Switch
- DBL Dead band level

Working principle: Force balance principle opposing a spring to the force developed by the strain of a sensing element such as a bellows, a diaphragm, a tube or a vapor actuated temperature element. Lack of balance causes the actuation of a microswitch.

An additional spring allows the increase of the dead band (or hysteresis).

If two microswitches are fitted, the additional spring allows the adjustment of one switch to the other.

Note: Continuous development of our products may necessitate changes without notice. Please check with our Sales office prior to ordering.

Construction

Epoxy coated die-cast aluminium housing and cover, blue / grey color.
Option: die-cast aluminium explosion-proof housing (ATEX approved).
Cadmium plated steel screws and bolts or stainless steel on extra.
External set point settings. Factory sealed on request.
Range and dead band scales on front face.
Sensing elements:

- Bronze or stainless steel bellows (316 L)
- Stainless steel bourdon tube (316 Ti)
- NBR (standard), FKM or EPDM diaphragms
- Copper or 316 Ti st. steel thermostatic element

According to type and range, diaphragm seals with or without capillary extension may be quoted against specification.
Breather against condensation available as option.
Process connections: Brass or 316L BSP connection according to NF E03-005-1 / EN ISO 228-1
1/2" BSPM as a standard - 1/4" BSPM for diaphragm operated except (D)ML
NPT connection according to NF E 03-601
Other process connections on request
Mounting: Wall mounting (other on request).

Electrical switching and features

1 or 2 change over switches (SPDT).
Dry, nitrogen sealed, explosion-proof or gold plated microswitches according to application.
Electrical entry

- 3 wires screw terminal (2.5 mm² max. each) - ISO M20
- Approved screw terminal and packing gland for use in the **EEEx e** version
- External earthing screw connection (optional). Other connection arrangements on request.

Pneumatic switching

1 NO (YT1) or NC (YT3) - 2.5 to 8 Bar air supply - 1/8 BSP F - Filtered air at 50 microns.
Normally Open (NO) or Normally Close (NC) contact
Fluid supply : 1.5 to 8 bar (spool design) or 0 to 10 bar (poppet design – no leakage)
Fluid usage (spool design) : 10 to 52 liters/hour according to piloting pressure
Piloting fluid : dry fluid (max filtration 5 µm.) - air, nitrogen or any compatible fluid meeting standard ISO-VG 10
Cell connection : 1/8" BSPF (others on request)
Operating temperature : -10 to +60°C

Potentiometer output

Resistance variation at set point – Fixed dead band - range 135Ω to 220Ω

Certifications

All equipment designed in accordance with ATEX directives

– Intrinsic Safety Ex ia / Ex iaD

– Explosionproof solution Ex d / Ex tD

– Increased safety Ex de / Ex tD



LCIE 01 ATEX 6008X

LCIE 01 ATEX 6071X

LCIE 02 ATEX 6161X

Applications

Every process fluids suitable with selected measuring element and process environment.

Temperature limits (material)

Typical characteristics of sensing element:

Bronze bellows	:	– 20 to + 60°C
St.St. bellows	:	– 20 to +150°C
St.St. Bourdon tube	:	– 20 to +150°C
NBR diaphragm (Bunan® type)	:	– 20 to +100°C
FKM diaphragm (Viton® type)	:	0 to +150°C
EPDM diaphragm	:	– 40 to +120°C

Temperature bulbs according to specified range.

Working temperature (housing)

– 20 to +60°C (except BA: 55°C maxi).
Other on request

Storage temperature

– 40 to +70°C (except temp. sw. ranges C, M and G: 55°C maxi).

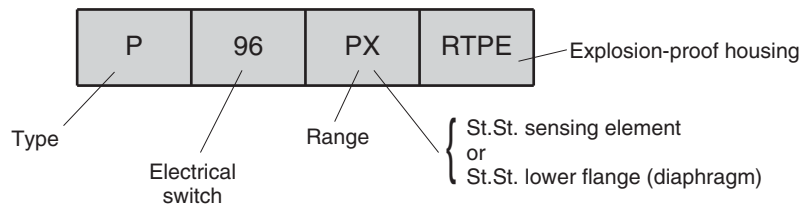
Repeatability

±1% of full scale in constant cycle and temperature

Recommendations

- Live, corrosive or crystallisable fluids will necessitate the use of well defined diaphragm seal. Process conditions to be clearly specified when ordering.
- Use upstream dampener against foreseeable process quick changes (on/off values, piston pumps for example).
- Location must be chosen so that temperature of internal will never exceed maximum specified limits for complete assembly (–20 to +60°C). Biggest care must be taken against radiations from heater sources.
- It is strongly recommended to protect outdoor mounted instrument against excessive sunshine and nocturnal condensations. Special attention to be paid when installing in coastal areas or damp atmospheres. Air exhausts, filters and drains are available as accessories.
- High degree of protection against vibrations does not exclude choosing the most stable location. In some cases excessive level of vibrations may necessitate the use of a ball bearing force balance or a flexible piping connection together with silent-blocks mounting devices.
- Upstream condensing pot or similar piping devices will be provided for steam pressure measurement.
- Some models using specific sensing element have restricted mounting possibilities.

CODE



That is to say for this example: a 0.5 to 10 bar pressure switch in explosion-proof housing, with stainless steel bellows and nitrogen sealed contacts.

Available models:

Pressure switches

absolute (bellows)
diaphragm
bellows
bourdon tube
differential (diaphragm)
differential (bellows)

PV

ML - MPB - MABV - MJBV - PA - PAS

P - PHB

PL

DML - DMPB - DMABV - DMJBV - DMKBV

DPB - DPHB

Temperature switches

straight bulb
bulb and capillary

B - BA for ambient

C

Electrical switches

		Fixed dead band	Adjustable dead band
1 Change over (SPDT)	Standard	4, 4 D	6, 6 D, 6 T, 6 V
	Tight dead band	8, 8 D, 8 T, 10, 10 D, 10 T, 16, 16 D	—
	Nitrogen sealed	—	96
	Tight dead band nitrogen sealed	98	—
	Safety Ex de	—	62
	Tight dead band safety Ex de	60	—
	Explosion-proof Ex d	—	62 C
	Tight dead band explosion-proof Ex d	60 C	—
	Manual reset	18 (at Maxi.) 20 (at Mini.)	—
2 SPDT (acting together)	Standard	44, 44 D	34, 34 D, 34 T, 34 V
	Tight dead band	30, 30 D, 30 T, 36, 36 D, 38, 38 D, 38 T	—
	Nitrogen sealed	—	106
	Tight dead band nitrogen sealed	108	—
	Safety Ex de	—	162
	Tight dead band safety Ex de	160	—
	Explosion-proof EEx d	—	162 C
	Tight dead band explosion-proof Ex d	160 C	—
Adjustable lagging			
2 SPDT (two steps)	Standard	46, 46 D, 54, 54 D, 54 T, 54 V	
	Tight dead band	50, 50 D, 50 T, 56, 56 D	
	Nitrogen sealed	116	
	Tight dead band nitrogen sealed	118	
	Safety Ex de	172	
	Tight dead band safety Ex de	170	
	Explosion-proof Ex d	172 C	
	Tight dead band explosion-proof Ex d	170 C	

[C] Means Ex d explosion-proof switch with 1 m cable length for use with certified junction terminal (3 or 5 meters length on extra).

[D] Means Gold plated contacts for intrinsically safe applications. Also suitable for low voltage signals.

Associated Georgin i.s. approved relay interfaces also available for 19" rack, DIN rail mounting, plug-in module onto backplane.

[T] Means Tropicalized switches.

[V] Means 2000 V isolated switches.

Contact rating (resistive loads)

Contact		AC		DC	
Standard	(4, 44, 46) 6, 34, 54	(10 A) 5 A	240 V	0.5 A	110 V
Tight dead band	8, 10, 30, 38, 50	5 A	240 V	0.5 A	130 V
Very tight dead band	16, 36, 56	2 A	240 V	1 A	130 V
⊗ Nitrogen sealed	96, 98, 106, 116, 108, 118	2,5 A	240 V	1 A	130 V
⊗ Gold plated	4 D, 44 D, 46 D	—	—	1 mA / 100 mA	4 V / 30 V
⊗ Gold plated	6 D, 34 D, 54 D, 8 D, 10 D, 30 D, 38 D, 50 D	—	—	10 mA / 100 mA	6 V / 24 V
⊗ Tight gold plated	16 D, 36 D, 56 D	—	—	10 mA / 100 mA	6 V / 24 V
⊗ Explosion-proof	62, 62 C, 162 C, 172 C	5 A	240 V	0.4 A	250 V
⊗ Tight explosion-proof	60, 60 C, 160 C, 170 C	7 A	240 V	0.25 A	250 V

PRESSURE SWITCHES (diaphragm operated)

Type	Range	1 SPDT						2 SPDT		1 SPDT						2 SPDT		Max. dead band ≥	max. P		
		Fixed dead band ≤								Adjustable dead band ≤											
		16		60		98		108		6		62		96		106					
	mBar	mBar																mBar	Bar		
ML • E (X)	- 50 to 0	L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H	25	0.3		
ML • F (X)	- 2 to + 10	0.35	0.45	1.5	1.8	4	5	5.5	6.5	2.5	3	3.6	4.5	5	6	7	8			5	0.3
ML • G (X)	- 5 to + 50	0.15	0.25	0.9	1.1	2	2.5	3.5	4.5	1.4	1.8	2	2.6	3.5	4	4.5	6.5			15	0.3
ML • H (X)	- 5 to + 100	0.25	0.35	1.4	2	3	4	4	5	2.2	3.2	3.2	4	4.6	4	5	7.5			25	0.3
MPB • E	- 50 to + 10	0.3	0.4	2	3	4	5.5	5	6.5	3	4.5	.5	6.5	5	6.5	6	8	35	3		
MPB • F	- 2 to + 10	0.8	0.8	3.6	3.6	8	8	11	14	6	6	9	9	10	13	14	16			30	3
MPB • G♦	- 2 to + 50	0.5	0.5	2.5	2.5	7	9	8	11	4	4	6	6	7	9	10	13			35	3
MPB • H	- 2 to + 170	0.8	0.8	3.6	3.6	8	8	12	14	6	6	9	9	10	12	15	18			80	3
MPB • M	0 to 1500	0.8	0.8	4	4	7	7	10	13	6	6	9.5	9.5	10	13	12	14			350	4
MABV • G (X)	- 5 to + 20	2.5	2.5	22	22	38	38	50	65	40	40	50	55	40	70	60	80	15	50		
MABV • L (X)	0 to 150	1	1	2	2.5	4.5	4.5	8	11	3.5	4	5	6	7	7	9.5	14			100	50
MABV • M (X)	0 to 500	1	1.5	4.5	6	7	11	9	13	7	10	10	15	8	15	10	18			100	50
MJBV • M (X)	0 to 700	1.5	2	11	15	19	24	22	29	17	22	25	32	20	26	24	31	400	70		
MJBV • N (X)	0 to 2000	4	5	20	30	35	50	40	60	30	50	45	75	40	60	50	70			400	70
MJBV • K (X)	0 to 3000	5	6	25	60	45	90	50	120	40	100	60	145	50	120	75	140			400	70
	Bar	7	8	40	100	60	155	80	190	60	160	85	240	80	200	100	220	Bar			
PA • K (X)	- 0.8 to 3.5	PULSED PRESSURE or OVERANGE PROTECTION																Bar			
PA • P (X)	0.5 to 10	0.05	0.05	0.14	0.35	0.23	0.55	0.3	0.66	0.22	0.55	0.32	0.8	0.28	0.66	0.45	0.77	3	80*		
PA • Q (X)	3.5 to 25	0.035	0.10	0.16	0.45	0.27	0.55	0.39	0.72	0.26	0.72	0.37	1	0.36	0.77	0.50	0.88	2	80*		
PA • R (X)	5 to 50	0.06	0.28	0.4	0.95	0.66	1.2	0.83	1.65	0.66	1.55	0.96	2.2	0.83	2	1.3	2.2	5	80*		
		0.1	0.4	0.75	2	1.5	3	1.8	3.5	1.4	3	1.8	4.4	2	5	2.4	5.5	10	80*		

* Available with maximum pressure 200 Bar - Type: PAS.K/P/Q/R (X).

♦ for switches fitted with micro switches 62/162/172, 96/106/116, low of ranges is 0 mbar

PRESSURE SWITCHES (bellows operated) - Absolute version on request - Type: PV.A/L/N/K (X)

Type	Range	1 SPDT						2 SPDT		1 SPDT						2 SPDT		Max. dead band ≥	max. P
		Fixed dead band ≤								Adjustable dead band ≤									
		16		60		98		108		6		62		96		106			
	Bar		Bar																
		L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H		
P • A (X)	- 1 to 0	0.005	0.007	0.03	0.035	0.05	0.08	0.075	0.120	0.045	0.05	0.07	0.075	0.06	0.1	0.09	0.15	0.250	1.5 (2)
P • L (X)	0 to 0.2	0.003	0.004	0.022	0.03	0.03	0.035	0.06	0.07	0.02	0.025	0.03	0.04	0.045	0.055	0.08	0.09	0.100	1.5 (2)
P • M (X)	0 to 1.05	0.004	0.005	0.025	0.035	0.04	0.05	0.06	0.075	0.03	0.04	0.045	0.06	0.055	0.065	0.08	0.09	0.500	1.5 (2)
P • LN (X)	- 1 to 1	0.010	0.015	0.060	0.070	0.100	0.120	0.130	0.190	0.090	0.100	0.140	0.150	0.120	0.200	0.180	0.300	0.500	7 (8)
P • N (X)	0 to 2	0.008	0.010	0.050	0.060	0.080	0.100	0.120	0.170	0.060	0.080	0.110	0.130	0.100	0.130	0.160	0.200	0.500	7 (8)
P • K (X)	- 1 to 3.5	0.016	0.02	0.12	0.16	0.23	0.25	0.360	0.380	0.2	0.22	0.3	0.34	0.33	0.36	0.58	0.625	3	13 or (15)
P • P (X)	0.5 to 10	0.02	0.025	0.13	0.18	0.26	0.34	0.4	0.5	0.22	0.3	0.33	0.45	0.33	0.43	0.55	0.65	2	13 or (15)
P • KQ (X)	- 0.5 to 6	0.08	0.1	0.45	0.56	0.7	0.8	1	1.2	0.8	1	1	1.1	1	1.2	1.2	1.6	5	30
P • PQ (X)	0 to 12	0.08	0.1	0.46	0.58	0.75	0.90	1.1	1.35	0.8	1	1.1	1.3	1.1	1.35	1.35	1.8	5	30
P • Q (X)	3.5 to 25	0.08	0.1	0.48	0.6	0.8	1	1.2	1.5	0.8	1	1.2	1.5	1.2	1.5	1.5	2	5	30
PHB • RX	5 to 50	0.1	0.14	1.2	1.5	2.1	2.5	2.8	3.5	2	2.5	3	3.8	2.6	3.6	3.8	4.25	20	100
PHB • SX	10 to 90	0.28	0.45	3.4	4	6.6	7.7	7.2	8.3	5.5	6.6	8.5	10	8.2	9.3	8.8	10	20	250
PHB • TX	10 to 200	0.33	0.6	4	6	8	10	9	11	6.5	10	10	15	10	13	10.5	14	40	250
PHB • GX	0 to 0.4	0.008	0.010	SPECIFIC DESIGN FOR HIGH PRESSURE STEAM BOILERS															8

PRESSURE SWITCHES (bourdon tube operated) FOR HIGH PRESSURE

Type	Range	1 SPDT						2 SPDT		1 SPDT						2 SPDT		Max. dead band ≥	max. P
		Fixed dead band ≤								Adjustable dead band ≤									
		16	60	98	108	6	62	96	106										
	Bar	Bar																Bar	
PL • TX	10 to 200	L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H		
PL • VX	25 to 400	2,5	2,5	12	12	23	23	45	45	20	20	30	30	35	35	55	55	65	300
PL • WX	50 to 600	3	3	25	25	45	45	75	75	40	40	60	60	60	60	90	90	110	600
PL • YX	100 to 800	4,5	4,5	35	35	60	60	80	80	55	55	75	75	70	70	100	100	130	800
		6	6	45	45	90	90	135	135	80	80	110	110	120	120	170	170	190	1000

DIFFERENTIAL PRESSURE SWITCHES (diaphragm operated) Mini static $P > LP + \Delta P + D.B.$

Type (Note 1)	Range ΔP	1 SPDT						2 SPDT		1 SPDT						2 SPDT		Max. dead band $\geq$	Static P*		
		Fixed dead band $\leq$								Adjustable dead band $\leq$											
		16		60		98		108		6		62		96		106					
	mBar		mBar																mBar		Bar
		L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H				
DML • L11 (X)	0 to 8	0.3		1.5		2.5		4		2.5		3.8		3		5		5	0.3		
DML • L22 (X)	0 to 50	0.5		2		3.5		5		3		4.5		4		6		15	0.3		
DML • L43 (X)	0 to 120	0.6		2.5		4.5		6		4		6		5		8		25	0.3		
DMPB • M11	2 to 40	1.5		7		15		22		11		16.5		18		30		30	3		
DMPB • M33	2 to 400	1.5		10		18		28		15		23		22		35		130	3		
DMPB • M54	2 to 900	1.5		15		23		35		20		30		28		45		200	3		
DMPB • K54	10 to 2000	8		25		45		70		38		60		55		85		400	4		
DMPBP • K54	10 to 2000	8		25		45		70		38		60		55		85		400	10		
DMKBV • P11	1 to 20	0.5		2.5		5		7.5		3.6		5.5		6		10		15	10		
DMKBV • P24	1 to 150	0.6		4		6.5		10		6		9		8		13		100	10		
DMKBV • P54	1 to 500	0.7		5.5		10		15		9		14		12		20		100	10		
DMABV • R10 (X)	1 to 20	0.3		4		8		12		6		9		10		15			50		
DMABV • R24 (X)	1 to 150	0.5		6		9.5		15		10		15		12		20		100	50		
DMABV • R54 (X)	1.5 to 500	1		8		12		20		13		20		15		25		100	50		
DMJBV • R33 (X)	30 to 1000	5		45		65		100		70		105		80		130		400	70		
DMJBV • R43 (X)	30 to 2000	6		55		80		120		90		140		100		160		400	70		
DMJBV • R53 (X)	30 to 3000	6		75		115		180		120		180		140		220		400	70		

* Some type could be available with static pressure < 0.
DMKBV only available with "Bunan" diaphragm.

NOTE 1 : Last figure becomes 0 for a fixed dead band.

DIFFERENTIAL PRESSURE SWITCHES (bellows operated) Mini static $P > LP + \Delta P + D.B.$

Type (Note 1)	Range ΔP	1 SPDT						2 SPDT		1 SPDT						2 SPDT		Max. dead band $\geq$	Static P*
		Fixed dead band $\leq$								Adjustable dead band $\leq$									
		16		60		98		108		6		62		96		106			
	Bar		Bar																
		L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H		mini / maxi
DPB • M12 (X)	0.020 to 0.200	0.005		0.025		0.040		0.065		0.04		0.06		0.05		0.075		0,250	- 1 / 1.5 (2)
DPB • M23 (X)	0.030 to 1.050	0.006		0.3		0.060		0.090		0.055		0.085		0.075		0.115		0,450	- 1 / 1.5 (2)
DPB • P11 (X)	0.150 to 0.9	0.025		0.135		0.240		0.360		0.22		0.33		0.3		0.450		0,500	- 1 / 13 (15)
DPB • P22 (X)	0.150 to 4	0.03		0.150		0.320		0.480		0.26		0.4		0.4		0.600		1	- 1 / 1 (15)
DPB • P44 (X)	0.150 to 9	0.035		0.180		0.360		0.540		0.30		0.48		0.45		0.700		3	- 1 / 13 (15)
DPB • Q11 (X)	0.5 to 1.5	0.045		0.55		1		1.5		0.9		1.4		1.2		1.8		2	2.5 / 30
DPB • Q22 (X)	0.5 to 7	0.05		0.60		1		1.6		1		1.5		1.3		1.9		3	2.5 / 30
DPB • Q33 (X)	0.5 to 9	0.05		0.65		1.1		1.6		1.1		1.7		1.3		2		4	2.5 / 30
DPHB • RX11	1 to 6	0.16		1		1.8		2.7		1.6		2.8		2.2		3.3		3,5	5 / 100
DPHB • RX21	1 to 35	0.22		1.1		1.8		3.0		1.7		3.2		2.2		3.6		4,5	5 / 100
DPHB • TX12	2.5 to 15	0.55		4		7		7.5		6.5		10		8.5		13		24	10 / 250
DPHB • TX23	2.5 to 90	0.6		4.5		7.5		8.0		7		11		9		14		45	10 / 250

Notice: Instruments Type MPB and DMPB are not advised for use on water.

Instruments Type ML, DML range F, DMPB range M must be mounted with horizontal diaphragm.

Instruments Type DML, DMPB may have a minor leakage on upper part of the diaphragm flange.

Differential switches: static pressure must always be higher than low pressure + differential pressure + dead band (static > $LP + \Delta P + D.B.$).

Maximum static pressure can be applied on any input without damage.

NOTE 1: Last figure becomes 0 for a fixed dead band.

"L" and "H" columns show minimum dead band when set point is selected in low or high part of the range and with a pressure variation of 5% of the full scale every minute while LP is connected to atmosphere. **Dead band must be multiplied by 1.5 when housing is explosion-proof.**

STRAIGHT BULB TEMPERATURE SWITCHES (vapour pressure)

Bulb Ø 14 x 120 mm (except BA)

Type	Range	1 SPDT						2 SPDT		1 SPDT						2 SPDT		Max. dead band ≥	max. T	
		Fixed dead band ≤								Adjustable dead band ≤										
		16	60	98	108	6	62	96	106											
	°C																°C			
B • C	− 50 to + 10	L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H	55
B • G	− 20 to + 20	0.3	0.2	2.1	0.9	2.8	1.3	4.5	2.5	2	1	4.5	1.8	3.5	2.5	7	3.5	15	7	
B • M	0 to 45	0.3	0.15	1.4	0.6	2.8	1.4	4.5	2.5	2.5	1.2	3.5	1.5	3.5	2.5	6	3.5	15	7	
B • P	25 to 95	0.6	0.15	2.5	0.8	5.2	1.8	8	3	4	1.5	6.5	1.9	6.5	3	10	4	25	9	
B • R	45 to 125	0.6	0.15	3	0.8	5.5	1.8	9	2.5	4.5	1.5	7.5	1.9	7	3	11	4	25	9	
SPECIAL TYPE FOR AMBIENT																				
BA • M (X)	0 to 45	0.3	0.150	1.4	0.6	2.8	1.4	4.5	2.5	2.5	1.2	4	1.5	4	2.5	6	3.5	15	7	55
BA • G (X)	− 20 to + 20	0.3	.2	2.1	0.9	2.8	1.9	4.5	2.5	2	1	5	1.8	5	2.5	7	3.5	15	7	55

BULB AND CAPILLARY TEMPERATURE SWITCHES (vapour pressure)

Type	Range	1 SPDT						2 SPDT		1 SPDT						2 SPDT		Max. dead band ≥		max. T
		Fixed dead band ≤								Adjustable dead band ≤										
		16	60	98	108	6	62	96	106											
	°C		°C																°C	
C • C (X)	– 50 to + 10	L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H	55
C • G (X)	– 20 to + 20	0.3	0.2	2.1	0.9	2.8	1.3	4.5	2.5	2	1	4.5	1.8	3.5	2.5	7	3.5	15	7	
C • M (X)	0 to 45	0.3	0.15	1.4	0.6	2.8	1.4	4.5	2.5	2.5	1.2	3.5	1.5	3.5	2.5	6	3.5	15	7	
C • P (X)	25 to 95	0.6	0.15	2.5	0.8	5.2	1.8	8	3	4	1.5	6.5	1.9	6.5	3	10	4	25	9	
C • R (X)	45 to 125	0.6	0.15	3	0.8	5.5	1.8	9	2.5	4.5	1.5	7.5	1.9	7	3	11	4	25	9	
C • T (X)	115 to 210	0.6	0.25	2.6	0.9	5.2	2.3	8	3.5	6	2	6.5	2.4	7	3.5	10	5	25	10	225
C • V (X)	160 to 250	0.6	0.25	2.4	0.9	5.2	2.3	8	3.5	5.5	2	6	2.2	7	4	10	5	30	10	260
C • WX*	290 to 380	1	0.5	3.5	1.8	9.5	6	14	8	6	3	8	4.5	12	8	18	11	30	20	400
C • YX	380 to 500	1	0.4	5	1.8	9	3	12	4	8	2.5	13	4.5	12	4.5	17	5.5	45	15	540
C • ZX	400 to 600	3.5	0.8	6	1.5	21	7	30	9	20	6	18	5	30	8.5	35	11.5	75	18	630

Note1: All these values were found during tests under optimum conditions and with a bulb, without pocket, fully immersed in an agitated bath.

Note2: Install the probe vertically (capillary output up) or up to 45 ° angle. Between 45° and 75 ° angle, please consider the operating and the ambient temperature. Up to 75° angle, on request.

With ambient temperature < +6 °C, this instrument does not work anymore however it will start working again as soon as ambient temperature will increase over +6 °C (range "WX" only).

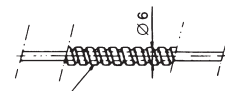
"L" and "H" columns show minimum dead band when set point is selected in low or high part of the range and with a variation of temperature of 0.5 °C by minute.
Dead band must be multiplied by 1.5 when housing is explosion-proof.

BULB AND CAPILLARY DIMENSIONS

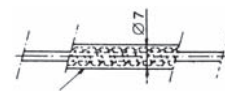
(to be specified when ordering))

Type	Ranges code	Bulb when capillary 2 to 4 m		Bulb when capillary 5 to 8 m		Bulb when capillary 9 to 20 m	
		Ø mm	L mm	Ø mm	L mm	Ø mm	L mm
C	C - R - T - V	10	150	10	150	10	150
	CX - RX - TX - VX - WX	14	150	14	150	14	150
	G - M - P - GX - MX - PX	14	150	14	236	14	336
	YX - ZX	14 x 150 mm maximum 10 m St.St. capillary					

Capillary armour (option)



St.Steel armour



St.St. armour PVC coated

Armour is shorter than capillary (≈ 10 cm to 15 cm)

Standard capillary length = 2 meters.

TEMPERATURE SWITCHES AND CAPILLARY

Soldered pocket with pressure gland and capillary

For bulb mm	A mm	B mm	C mm	D 6 sided	E taper	F mm	Reference	
							Brass	St.St.
10 x 150	145	22	22	29	G 3/4	13 *	GC- 1	GCX- 1
10 x 150	145	22	22	29	G 1/2	13 *	GC-11	GCX-11
14 x 120**	105	22	22	29	G 3/4	17	GB-21	GBX-21
14 x 150	145	22	22	29	G 3/4	17	GC-21	GCX-21
14 x 120**	105	22	22	29	G 1/2	17	-	GBX-61
14 x 150	145	22	22	29	G 1/2	17	-	GCX-61
14 x 236	232	22	22	29	G 3/4	17	GC-25	GCX-25
14 x 336	332	22	22	29	G 3/4	17	GC-22	GCX-22

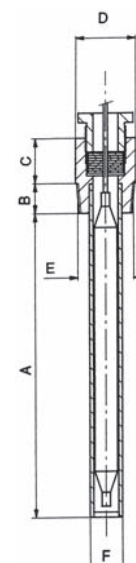
Other dimensions on request - * Ø 14 for St.St. pockets - all dimensions in mm.
 ** for type B : direct bulb without gland.

Standard fittings (E):

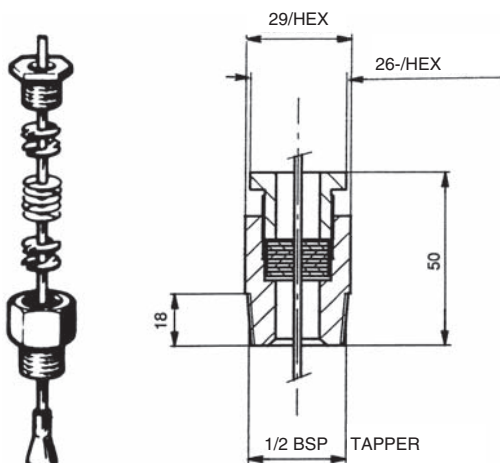
GC (X)- 1 = G 3/4	}
GC (X)-11 = G 1/2	
GC (X)-21 = G 3/4	
GC (X)-25 = G 3/4	

Add "B" to code GC (X) = GC (X)-1B for NTP coupling.

Barstock drilled thermowells also available according to customer specifications.



Pressure gland and capillary assembly (Ref. PCX)



IMPORTANT

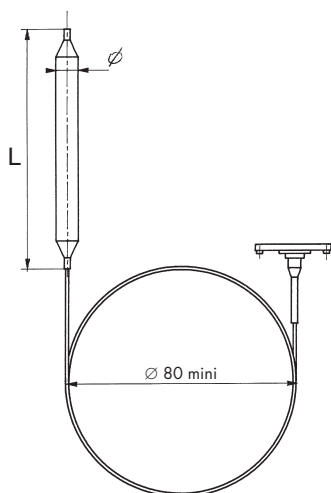
Time reaction of a bulb mounted in a pocket can strongly influence the measurement.

Such influence is mostly depending on thickness, type of material of the pocket and diameter of the bulb into the pocket.

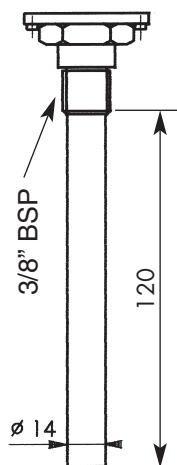
It is advised to fill free space in the pocket with conductive liquid or paste whenever a high sensibility is requested.

Overfilling is dangerous for the bulb when screwing the pressure gland.

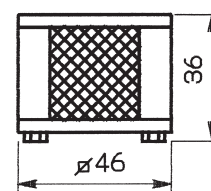
SENSING ELEMENTS TEMPERATURE



TYPE C



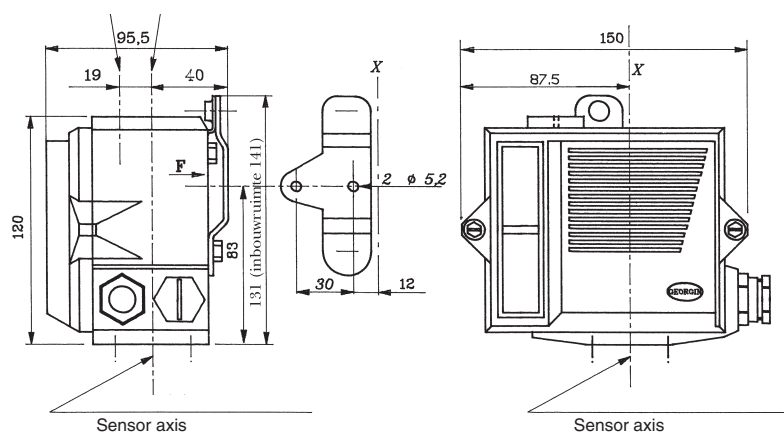
TYPE B



TYPE BA

APPROXIMATE DIMENSIONS AND NETT WEIGHTS (PACKING)

TYPE	RANGES	STANDARD CASE		EXPLOSION PROOF CASE	
		WEIGHT (kg)	H x l x p (mm)	WEIGHT (kg)	H x l x p (mm)
ML / DML	All	4	238 x 220 x 220	11	347 x 290 x 220
MPB / DMPB	—	4	214 x 166 x 122	11	323 x 290 x 149
MABV / DMA (K) BV	—	10.5	238 x 168 x 168	17.4	347 x 290 x 149
MJBV / DMJBV	—	5.1	246 x 165 x 128	12	355 x 290 x 149
PA	—	2.5	165 x 165 x 96	9.4	274 x 290 x 149
P	A - L - M - N - LN	2.5	203 x 165 x 96	9.4	312 x 290 x 149
P	K - P - Q - R	1.7	171 x 165 x 96	8.6	275 x 290 x 149
PHB	All	2.2	171 x 165 x 96	9.1	280 x 290 x 149
PL	—	2.5	214 x 165 x 96	9.4	323 x 290 x 149
DPB (PV #)	M	3.5	258 x 186 x 96	10.4	367 x 290 x 149
DPB	P – Q	3.3	226 x 186 x 96	10.2	335 x 290 x 149
DPHB	All	3.3	226 x 186 x 96	10.2	335 x 290 x 149
BA	—	1.8	167 x 165 x 96	8.7	276 x 290 x 149
B	—	1.8	281 x 165 x 96	8.7	413 x 290 x 149
C (cap. 2 m)	—	2	according to capillary	9	according to capillary



Standard Case

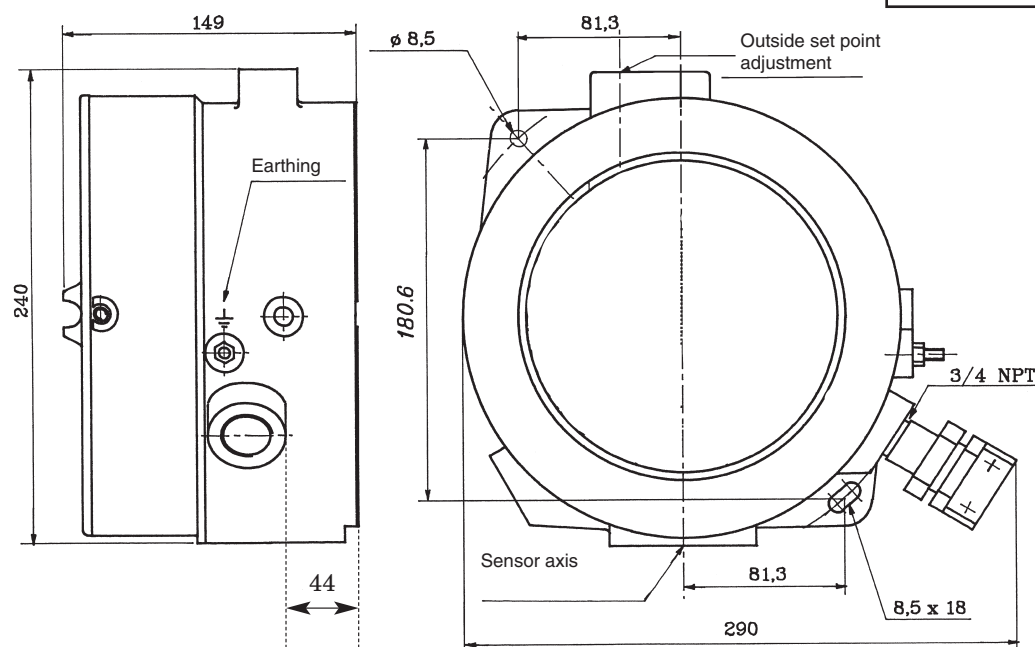
IP 56 or IP 66

P, M, C (B) Series

REMINDER :

Instrument's mounting must follow recommended manner.

For this reason, pay attention to mounting instructions given in instruction manual or contact our technical staff.



Explosion-proof housing

Ex d / Ex tD
(refer page 10)

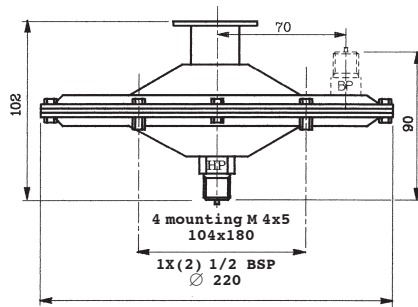
Code:
RTPEA

IP 66

Dimensions in mm

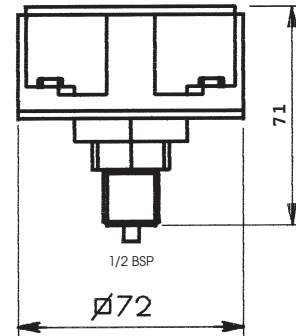
SENSING ELEMENTS PRESSURE

DIAPHRAGM

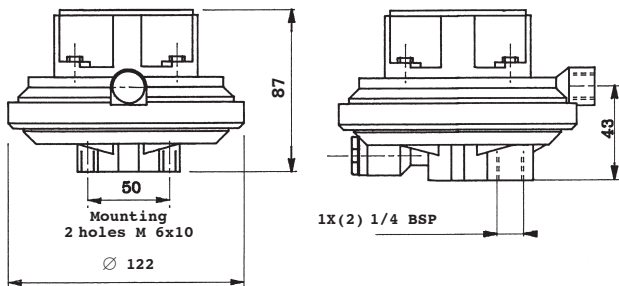


ML/DML

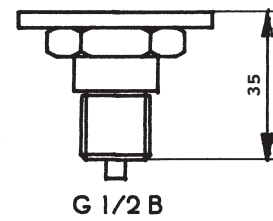
BELLOWS



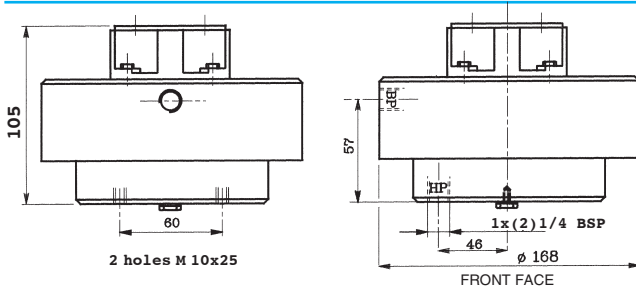
P (A - L - M - LN - N) - PHB GX



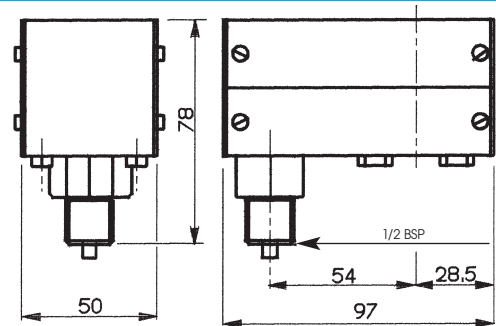
MPB/DMPB



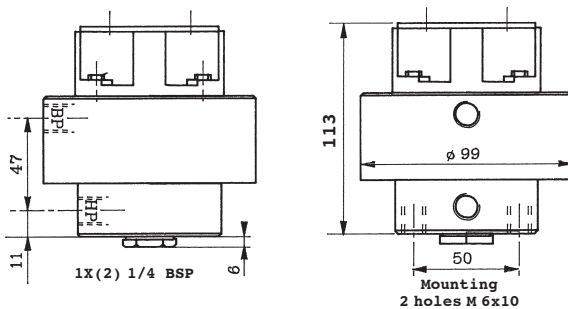
P/PHB (K - P - Q - RX - SX - TX)



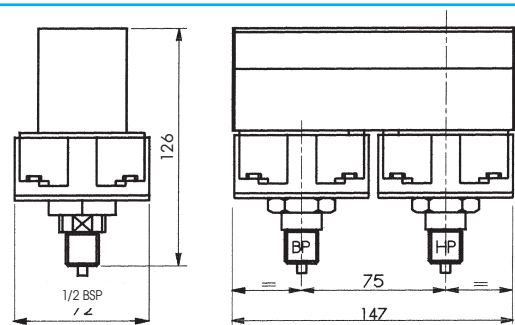
MABV/DMABV/DMKBV



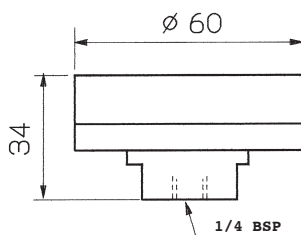
PL



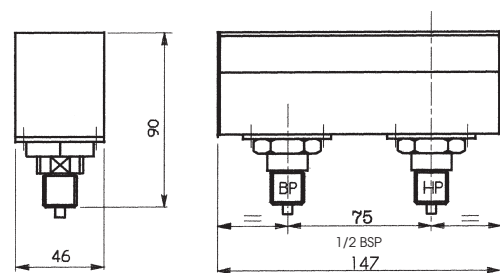
MJBV/DMJBV



DPB gamme M (PV #)



PA



DPB/DPHB (P - Q - R - T)

CONNECTION: 1/4 or 1/2 BSP according to models.
NPT F or M as option. Others on request.

Dimensions in mm

ATEX CERTIFIED INSTRUMENT - INTRINSIC SAFETY (Ex ia)

Principle : gold plated switch for low current – must be connected to intrinsically safe certified equipment.

Housing : standard

According to IP housing, markings, using zones and equipment categories are the following :

EC examination type Examination type	LCIE 01 ATEX 6008X	LCIE 01 ATEX 6008X LCIE 08 ATEX 6057X (voluntary attestation)
Housing protection	IP66	IP56
Marking	CE 0081 Ex II 1GD Exia IIC T6 - Ex iaD 20	CE 0081 Ex II 1G/3D Exia IIC T6 - Ex iaD 22
for ATEX zones	0 / 1 / 2 for gas of groups IIA, IIB, IIC 20 / 21 / 22 for dusts	0 / 1 / 2 for gas of groups IIA, IIB, IIC 22 for non-conductive dusts
Equipment category	1GD	1G/3D (non-conductive dusts)
Max. surface temperature	80°C	

ATEX CERTIFIED INSTRUMENT - INCREASED SAFETY (Ex de)

Principle : explosion proof switch "d" – increased safety "e" terminals blocks & cable gland

Housing : standard

According to IP housing, markings, using zones and equipment categories are the following :

EC examination type Examination type	LCIE 02 ATEX 6161X	LCIE 02 ATEX 6161X LCIE 08 ATEX 6057X (voluntary attestation)
Housing protection	IP66	IP56
Marking	CE 0081 Ex II 2GD Exde IIC T6 - Ex tD A21	CE 0081 Ex II 2G/3D Exde IIC T6 - Ex tD A22
for ATEX zones	1 / 2 for gas of groups IIA, IIB, IIC 21 / 22 for dusts	1 / 2 for gas of groups IIA, IIB, IIC 22 for non-conductive dusts
Equipment category	2GD	2G/3D (non-conductive dusts)
Max. surface temperature	80°C	

ATEX CERTIFIED INSTRUMENT - EXPLOSION PROOF (Ex d)

Principle : explosion proof housing "d"

Housing : RTPE type

According to IP 66, markings, using zones and equipment categories are the following :

EC examination type	LCIE 01 ATEX 6071X
Housing protection	IP66
Marking	CE 0081 Ex II 2GD Ex d IIC T6 - Ex tD A21 (with or without line resistances)
for ATEX zones	1 / 2 for gas of groups IIA, IIB, IIC 21 / 22 for dusts
Equipment category	2GD
Max. surface temperature	80°C

Be careful : use of the cable gland must be conform to the EN 60.079-14 § 10.4 norm (internal volume RTPE > 2 dm³)

Principle : explosion proof switch "d" with output cable

Housing : standard

According to IP housing, markings, using zones and equipment categories are the following :

EC examination type Examination type	LCIE 01 ATEX 6071X	LCIE 01 ATEX 6071X LCIE 08 ATEX 6057X (voluntary attestation)
Housing protection	IP66	IP56
Marking	CE 0081 Ex II 2GD Exd IIC T6 - Ex tD A21	CE 0081 Ex II 2G/3D Exd IIC T6 - Ex tD A22
for ATEX zones	1 / 2 for gas of groups IIA, IIB, IIC 21 / 22 for dusts	1 / 2 for gas of groups IIA, IIB, IIC 22 for non-conductive dusts
Equipment category	2GD	2G/3D (non-conductive dusts)
Max. surface temperature	80°C	

SPECIAL OPTIONS

- Manual reset
- Oxygen cleaning
- Special cases
- Line resistances (serie / parallel)
- Navy and nuclear versions
- Electrical output at 40°

ACCESSORIES

Several accessories could be fitted : diaphragm seals to be screwed or to be welded, with normalized flanges, pressure gauges, temperature gauges, pulsation dampner, cone gauge cocks, 2, 3 or 5 valves manifolds, and so on.

