

PRESSURE & TEMPERATURE SWITCHES

P Series



C O N T E N T S

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QUALITY NOTIFICATION LCIE 02 ATEX Q8023 FRENCH ELECTRICITY BOARD APPROVED NATO CODE F 3363 GOSGORTECHNADZOR (RUSSIAN FEDERATION)

A CERTIFIED RANGE OF PRODUCTS



ATEX 94/9 CE

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

Our PHYSELEC Division offers 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 activity.

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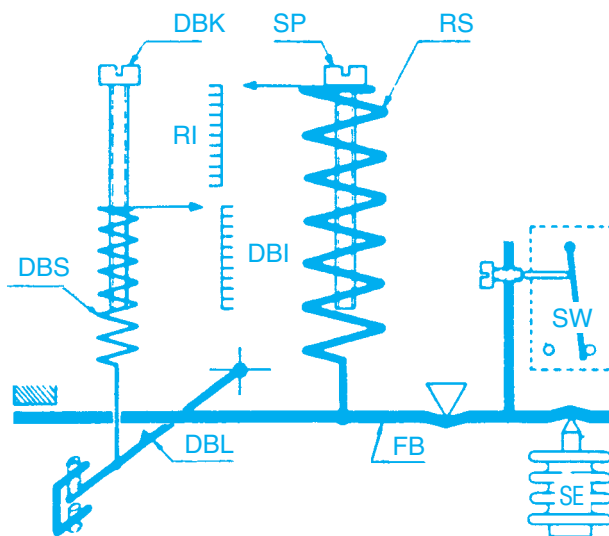
• **FRANCE (headquarter) :**
REGULATEURS GEORGIN
14-16, rue Pierre Sémard 92320 CHATILLON
Tel.: (+33) 1 46 12 60 00
Fax: (+33) 1 47 35 93 98
E-mail : regulateurs@georgin.com

• **BELGIUM :**
REGULATEURS GEORGIN
Koningin Astridlan 164 - 1780 WEMMEL
Tel.: (+32) 2 735 5475
Fax: (+32) 2 735 1679
E-mail : info@georgin.be

PRESSURE SWITCHES P Series

TEMPERATURE SWITCHES B and C Series

MODELS:	PRESSURE (absolute)	0 Bar	to	3 Bar
	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 bellow, 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 stainless steel **1/2 BSPM (G 1/2 NF E03-005)**, other on request (NPT)
1/4 BSPF (G 1/4 NF E03-005) for diaphragm operated (except ML/DML).

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.

Certifications

All equipment designed in accordance with ATEX directives

– EEx ia IIC T6		LCIE 01 ATEX 6008X
– EEx d IIC T6		LCIE 01 ATEX 6071X
– EEx ded IIC T6		LCIE 01 ATEX 6071X
– EEx ed IIC T6		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).

Storage temperature

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

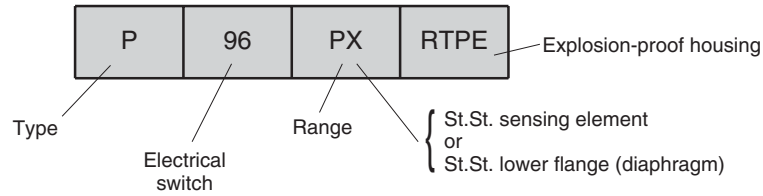
Repeatability

±1% full range.

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, 4D	6, 6D, 6T, 6V
	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 EEx ed and ded	-	62
	Tight dead band safety EEx ed and ded	60	-
	Explosion-proof EEx d	-	62C
	Tight dead band explosion-proof EEx d	60C	-
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 EEx ed and ded	-	162
	Tight dead band safety EEx ed and ded	160	-
	Explosion-proof EEx d	-	162C
	Tight dead band explosion-proof EEx d	160C	-
Adjustable laging			
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 EEx ed and ded	172	
	Tight dead band safety EEx ed and ded	170	
	Explosion-proof EEx d	172C	
	Tight dead band explosion-proof EEx d	170C	

[C] Means EEx d IIC T6 explosion-proof switch with 1 m cable length for use with certified junction terminal (3 or 5 meters length on extra).

[T] Means Tropicalized switches.

[D] Means Gold plated contacts for EEx ia IIC T6 IS applications. Also suitable for low voltage signals.

[V] Means 2000 V isolated switches.

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

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 4D, 44D, 46D	-	1 mA / 100 mA 4 V / 30 V
☒ Gold plated 6D, 34D, 54D, 8D, 10D, 30D, 38D, 50D	-	10 mA / 100 mA 6 V / 24 V
☒ Tight gold plated 16D, 36D, 56D	-	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

Pneumatic switch

With a pilot pressure of 4 Bar, the fixed dead band is equivalent to contact Nr 6. Replace Nr 6 by YT1 for "NO" and YT3 for "NC".

Potentiometer output:

Resistance variation at set point - Fixed dead band - code 501 (135 Ω) or 502 (220 Ω).

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	16	60	98	108	6	62	96	106		
mBar																mBar	Bar		
		L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H		
ML · E (X)	- 50 to 0	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	25	0.3
ML · F (X)	- 2 to + 10	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	5	0.3
ML · G (X)	- 5 to + 50	0.25	0.35	1.4	2	3	4	4	5	2.2	3.2	3.2	4	4.6	4	5	5	7.5	0.3
ML · H (X)	- 5 to + 100	0.3	0.4	2	3	4	5.5	5	6.5	3	4.5	5	6.5	5	6.5	6	8	25	0.3
MPB · E	- 50 to + 10	0.8	0.8	3.6	3.6	8	8	11	14	6	6	9	9	10	13	14	16	35	3
MPB · F	- 2 to + 10	0.5	0.5	2.5	2.5	7	9	8	11	4	4	6	6	7	9	10	13	30	3
MPB · G	- 2 to + 50	0.8	0.8	3.6	3.6	8	8	12	14	6	6	9	9	10	12	15	18	35	3
MPB · H	- 2 to + 170	0.8	0.8	4	4	7	7	10	13	6	6	9.5	9.5	10	13	12	14	80	3
MPB · M	0 to 1500	2.5	2.5	22	22	38	38	50	65	40	40	50	55	40	70	60	80	350	4
MABV · G (X)	- 5 to + 20	1	1	2	2.5	4.5	4.5	8	11	3.5	4	5	6	7	7	9.5	14	15	50
MABV · L (X)	0 to 150	1	1.5	4.5	6	7	11	9	13	7	10	10	15	8	15	10	18	100	50
MABV · M (X)	0 to 500	1.5	2	11	15	19	24	22	29	17	22	25	32	20	26	24	31	100	50
MJBV · M (X)	0 to 700	4	5	20	30	35	50	40	60	30	50	45	75	40	60	50	70	400	70
MJBV · N (X)	0 to 2000	5	6	25	60	45	90	50	120	40	100	60	145	50	120	75	140	400	70
MJBV · K (X)	0 to 3000	7	8	40	100	60	155	80	190	60	160	85	240	80	200	100	220	400	70
Bar		PULSED PRESSURE or OVERANGE PROTECTION																Bar	
PA · K (X)	- 0.8 to 3.5	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 · P (X)	0.5 to 10	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 · Q (X)	3.5 to 25	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°
PA · R (X)	5 to 50	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).

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	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	33
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	33
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	33
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	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		
PL · TX	10 to 200	2.5	2.5	12	12	23	23	45	45	20	20	30	30	35	35	55	55	65	300
PL · VX	25 to 400	3	3	25	25	45	45	75	75	40	40	60	60	60	60	90	90	110	600
PL · WX	50 to 600	4	4	30	30	55	55	80	80	50	50	75	75	65	65	100	100	130	800
PL · YX	100 to 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			
DMLFK16C (X)	0 to 2.5	0.1		-						-		-		-						0.3
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																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 / 33
DPB · Q22 (X)	0.5 to 7	0.05		0.60		1		1.6		1		1.5		1.3		1.9		3	2.5 / 33
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 / 33
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 + ΔP + 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 ≤											
	°C	16	60	98	108	6	62	96	106	°C	16	60	98	108	6	62	96	106	°C		
		L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H		
B • C	-50 to + 10	1.2	0.25	5.5	1.1	10.5	2.4	13	3.5	10	2.2	11.5	2.5	12	3.5	20	4.5	20	8	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	55	
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	55	
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	105	
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	135	
SPECIAL TYPE FOR AMBIANT																					
BA • M	0 to 45	0.3	0.150	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	55	
BA • G	-20 to + 20	0.3	.2	2.1	0.9	2.8	1.9	4.5	2.5	2	1	4.5	1.8	3.5	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 ≤										
	°C	16	60	98	108	6	62	96	106	°C	16	60	98	108	6	62	96	106	°C	
		L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H	
C • C (X)	- 50 to + 10	1.2	0.25	5.5	1.1	10.5	2.4	13	3.5	10	2.2	11.5	2.5	12	3.5	20	4.5	20	8	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	55
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	55
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	105
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	135
C • T (X)	115 to 210	0.6	0.25	2.6	0.9	5.2	2.3	8	3.5	4	1.8	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	4.5	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	8	5	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

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

* 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.

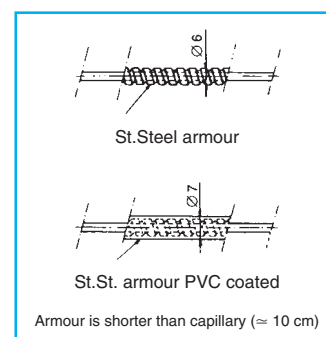
BULB AND CAPILLARY DIMENSIONS

(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 maximum 10 m St.St. capillary					

Standard capillary length = 2 meters.

Capillary armour (option)



TEMPERATURE SWITCHES ANCILLARY EQUIPMENT

Soldered pocket with pressure gland and capillary

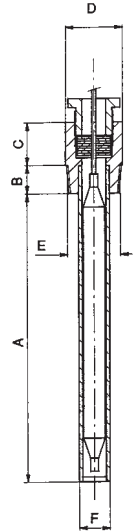
For bulb	A mm	B mm	C mm	D 6 sided	E tapper	F mm	Reference	
							Brass	St.St.
10 x 150	145	22	22	29	G 3/4	13 *	GC- 1	GCX- 1
10 x 150	145	22	22	29	G 1/2	13 *	GC-11	GCX-11
14 x 120**	105	22	22	29	G 3/4	17	GB-21	GBX-21
14 x 150	145	22	22	29	G 3/4	17	GC-21	GCX-21
14 x 120**	105	22	22	29	G 1/2	17	-	GBX-61
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 - * \varnothing 14 for St.St. pockets - all dimensions in mm.
 ** for type B : direct bulb without gland.

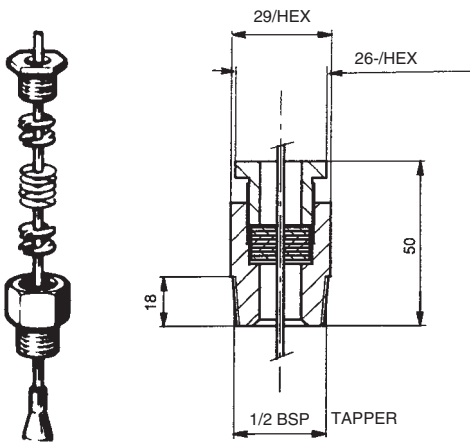
Standard fittings (E):

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

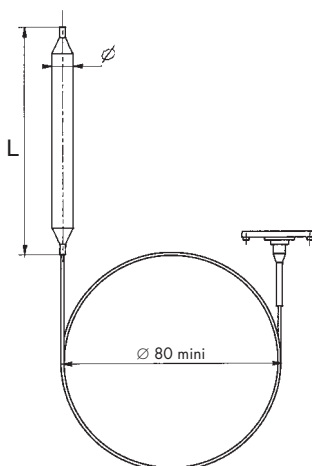
Time reaction of a bulb mounted in a pocket can strongly influence the measurement.

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

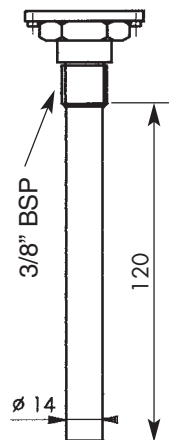
It is advised to fill free space in the pocket with conductive liquid or paste whenever a high sensibility is requested.

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

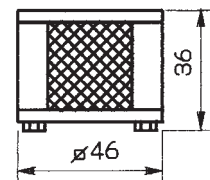
SENSING ELEMENTS TEMPERATURE



TYPE C



TYPE B

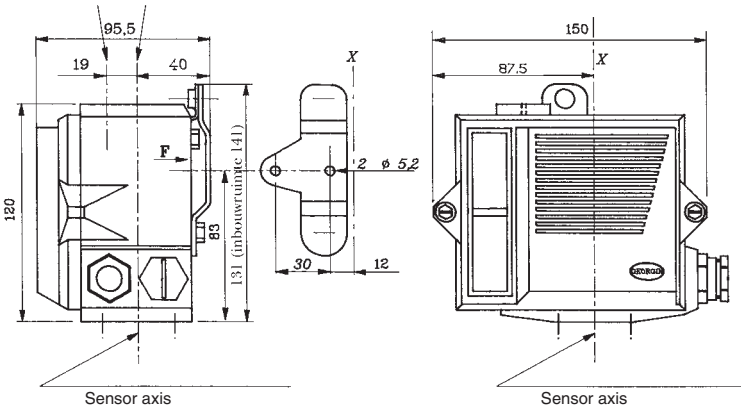


TYPE BA

Refer page 8 for dimensions and weights of complete instruments.

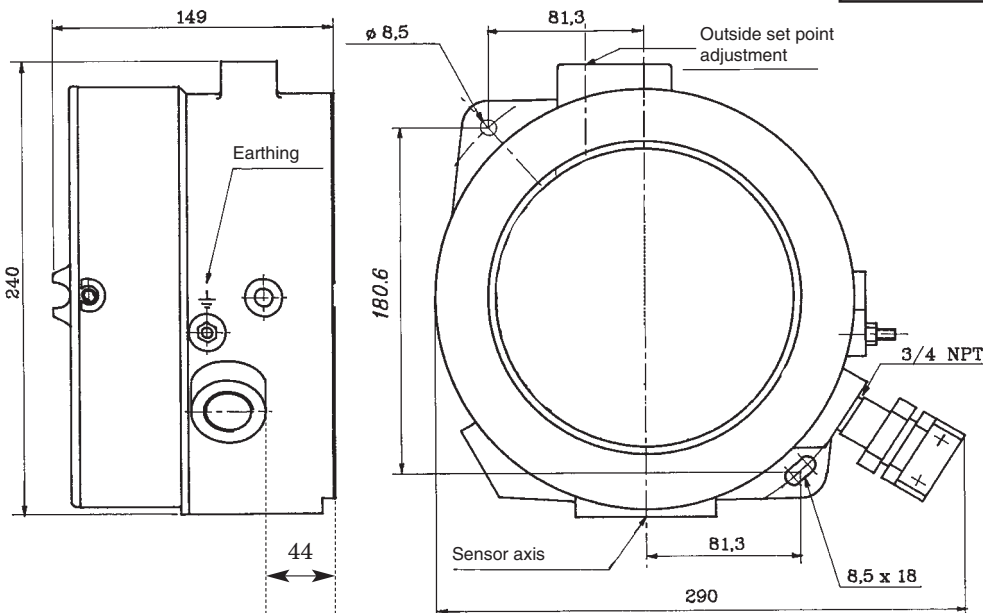
APPROXIMATE DIMENSIONS AND NETT WEIGHTS (PACKING)

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.

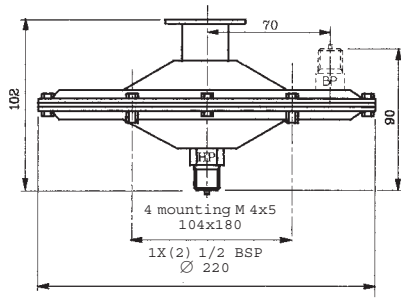


Explosion-proof housing
EEx d IIC T6
or ded
(refer page 10)

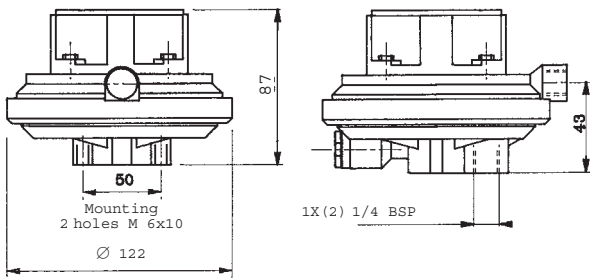
Code:
RTPEA
IP 66

SENSING ELEMENTS PRESSURE

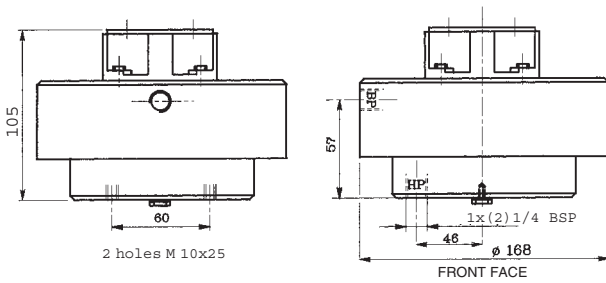
DIAPHRAGM



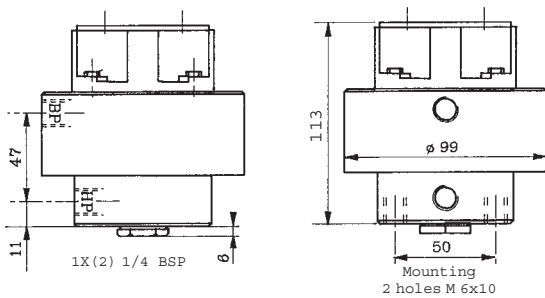
ML/DML



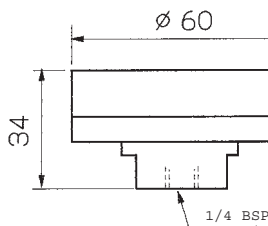
MPB/DMPB



MABV/DMABV/DMKBV

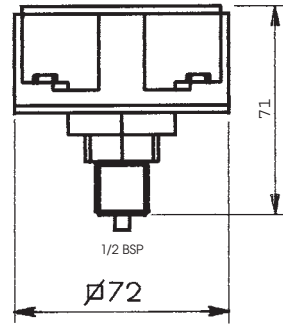


MJBV/DMJBV

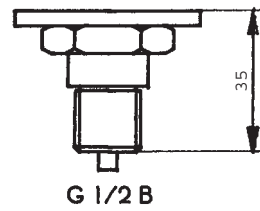


PA

BELLOWS

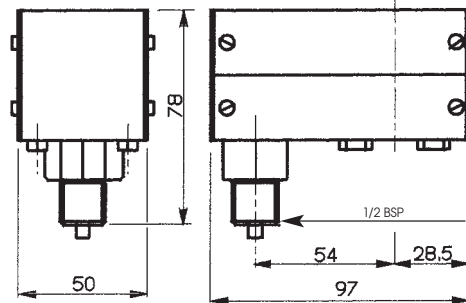


P (A - L - M - LN - N) - PHB GX

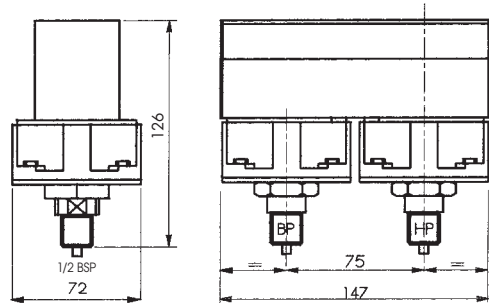


G 1/2 B

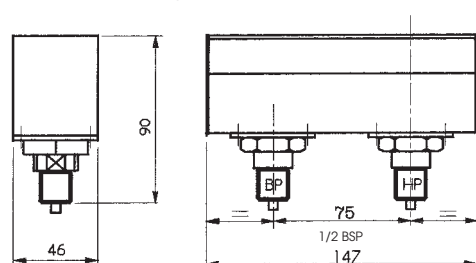
P/PHB (K - P - Q - RX - SX - TX)



PL



DPB gamme M (PV #)



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.

ATEX CERTIFIED INSTRUMENT EEx ia IIC T6 (LCIE 01 ATEX 6008X)

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

Housing : standard

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




Marking	IP66 CE 0081  II 1G/D EEx ia IIC T6	IP56 CE 0081  II 1G/3D EEx ia IIC T6
 For zones	0, 1, 2, 20, 21, 22	0, 1, 2, 22 non-conductive dusts
Equipment categories	1 G/D	1G/3D
Surface temperature : 85°C - Ambient temperature certification : -40°C<Ta<80°C ⁽¹⁾		

ATEX CERTIFIED INSTRUMENT EEx ed IIC T6 (LCIE 02 ATEX 6161X)

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 :



Marking	IP66 CE 0081  II 2G/D EEx ed IIC T6	IP56 CE 0081  II 2G/3D EEx ed IIC T6
 For zones	1, 2, 21, 22	1, 2, 22 non-conductive dusts
Equipment categories	2 G/D	2G/3D
Surface temperature : 80°C - Ambient temperature certification : -20°C<Ta<60°C		

ATEX CERTIFIED INSTRUMENT EEx d IIC T6 (LCIE 01 ATEX 6071X)

Principle : explosion proof housing “d”

Housing : RTPEA type




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

Marking	CE 0081  II 2G/D EEx d IIC T6
 For zones	1, 2, 21, 22
Equipment category	2 G/D
Surface temperature : 85°C - Ambient temperature certification : -40°C<Ta<80°C ⁽¹⁾	

Principle : explosion proof switch “d” with output cable

Housing : standard

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



Marking	IP66 CE 0081  II 2G/D EEx d IIC T6	IP56 CE 0081  II 2G/3D EEx d IIC T6
 For zones	1, 2, 21, 22	1, 2, 22 non-conductive dusts
Equipment categories	2 G/D	2G/3D
Surface temperature : 85°C - Ambient temperature certification : -40°C<Ta<80°C ⁽¹⁾		

ATEX CERTIFIED INSTRUMENT EEx ded IIC T6 (LCIE 01 ATEX 6071X)

Principle : Double protection : explosion proof “d” housing & switch - increased safety “e” terminals blocks

Housing : RTPEA type

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

Marking	CE 0081  II 1G/D EEx ded IIC T6
 For zones	0, 1, 2, 20, 21, 22
Equipment category	1 G/D
Surface temperature : 85°C - Ambient temperature certification : -40°C<Ta<80°C ⁽¹⁾	

(1) Case temperature limit : -20...+70°C - special execution : -40...+70°C on request.

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 ways manifolds, and so on...