

## PRESSURE GAUGES WITH ELECTRIC CONTACTS DN 100

They are used to control the electrical operation of compressors, pumps, presses, hydraulic and pneumatics equipment, chemical and petrochemical plant. The contacts open or close the circuit depending on the position of the indicating pointer and they are adjustable over the whole range. For application on severe working conditions, such as rapid and frequent pressure change, vibration and pulsation, they are manufactured with the case liquid filled. The filling drastically reduces the effect of such factors as well as those caused by a corrosive atmosphere, giving longer life and better performances of the pressure gauge and their electric contacts. They are also available with inductive contacts intrinsically safe.



### Constructive and functional characteristics:

#### Standard type

**Accuracy:** Type 1,6 according to UNI 8293 - DIN 16085 (1).  
**Ambient temperature:** -25...+65 ° C.  
**Process fluid temperature:** Max. +65° C.  
**Working pressure:** Max 75% of E.S.  
**Overpressure:** Not suitable.  
**Protection degree:** IP 55 as per IEC 529 UNI 8896.  
**Process connection racord:** In brass OT 58.  
**Elastic element:** phosphor bronze for pressure ranges [ 40 bar; AISI 316 L for >= 60 bar.  
**Welding:** tin / cooper alloy.  
**Case:** in AISI 304.  
**Bezel:** bayonet lock AISI 304.  
**Windows:** plexiglas.  
**Movement:** Stainless steel.  
**Dial:** Aluminium, white with black markings.  
**Pointer:** Painted black aluminium.  
**Window gasket:** EPDM.  
**Blow out gasket and filling plug:** EPDM.

#### Standard type with filling liquid

**Filling liquids:** silicon dielectric oil.  
**Protection:** IP 65 according to IEC 529 – UNI 8896.  
**Window gasket:** silicon gum.  
**Blow out gasket and filling plug:** Viton.

#### Stainless steel type

**Accuracy:** Type 1 according to UNI 8293 - DIN 16085 (1).  
**Ambient temperature:** -25...+65 ° C.  
**Process fluid temperature:** Max. +100<sup>a</sup> C.  
**Working pressure:** Max 75% of E.S.  
**Overpressure:** Not suitable.  
**Protection degree:** IP 55 as per IEC 529 UNI 8896.  
**Process connection racord:** AISI 316 L.  
**Elastic element:** en AISI 316 L.  
**Welding:** AISI 316 T.I.G.  
**Case:** in AISI 304.  
**Bezel:** bayonet lock AISI 304.  
**Windows:** plexiglas.  
**Movement:** Stainless steel.  
**Dial:** Aluminium, white with black markings.  
**Pointer:** Painted black aluminium.  
**Window gasket:** EPDM.  
**Blow out gasket and filling plug:** EPDM.

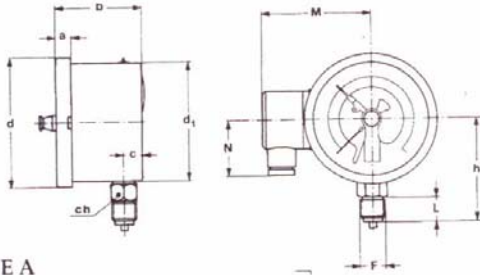
#### Stainless steel type with filling liquid

**Accuracy:** Type 1,6 according to UNI 8293 - DIN 16085 (1).  
**Filling liquids:** silicon dielectric oil.  
**Protection degree:** IP 65 as per IEC 529 UNI 8896.  
**Window gasket:** silicon gum.  
**Blow out gasket and filling plug:** Viton.

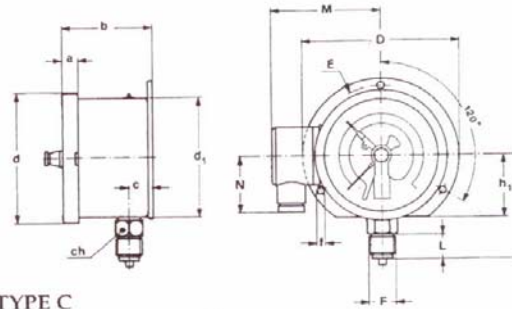
(1) The addition of mechanical electric contacts affects the accuracy of instruments such that 1% becomes 1.5%, 1.6% becomes 2.4% etc. (add the 50% of accuracy; if the contract is of the magnetically assisted type, this value can't be added within the 65% of setting point).

This publication does not try to establish the bases of a contract and the company keeps the right to modify without previous notice the design and the specifications of the instruments, in accordance with his politics of continued development.

TYPES, DIMENSIONS AND WEIGHTS



**TYPE A**  
stem mounting;  
lower connection.

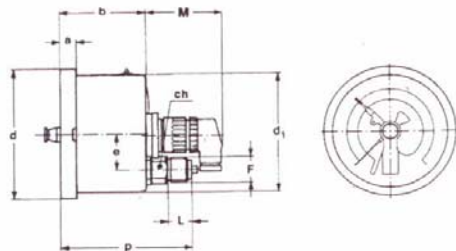


**TYPE C**  
surface mounting, back flange;  
lower connection.

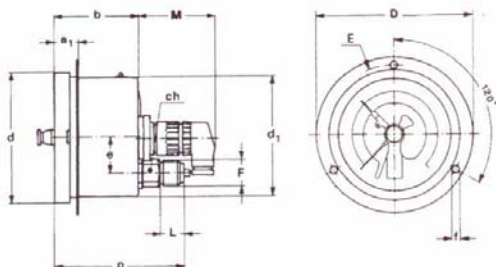
Type	F	a	b (1)	c	d	d <sub>1</sub>	e	f	h	h <sub>1</sub>	p	D	E	M	N	L	ch	Weight		
																		01.M1.1-01.M2.1	01.M1.3-01.M2.3	
A	1/2" BSP or NPT	13	71,5/82,5	16	110	101	-	-	87	52	-	130	116	90	46	20	22	-	0,7 Kg.	1,05 Kg.
C	1/2" BSP or NPT	13	75,5/86,5	20	110	101	-	6	87	52	-	130	116	90	46	20	22	-	0,75 Kg.	1,2 Kg.
D	1/2" BSP or NPT	13	71,5/82,5	-	110	101	31	-	-	-	109	132	118	60	-	20	24	-	0,7 Kg.	1,05 Kg.
E	1/2" BSP or NPT	13	71,5/82,5	-	110	101	31	6	-	-	109	132	118	60	-	20	24	-	0,8 Kg.	1,3 Kg.

(1) dimensions for single/double contact

(dimensions : mm.)



**TYPE D**  
stem mounting;  
back connection.



**TYPE E**  
flush mounting, front flange;  
back connection.

RANGES

TAB. 1

Ranges	bar	Kg/cm <sup>2</sup>	kPa	MPa
0+1	+	+		+
0+1,6	+	+		+
0+2,5	+	+		+
0+4	+	+		+
0+6	+	+		+
0+10	+	+		+
0+16	+	+		+
0+25	+	+		+
0+40	+	+		+
0+60	+	+		+
0+100	+	+	+	+
0+160	+	+	+	+
0+250	+	+	+	
0+400	+	+	+	
0+600	+	+	+	
0+1000	+	+	+	
0+1600	+	+	+	

Ⓜ for 01.M2 only

TAB. 2

Ranges	psi
0+15	+
0+30	+
0+60	+
0+100	+
0+160	+
0+200	+
0+300	+
0+400	+
0+600	+
0+1000	+
0+1500	+
0+2000	+
0+3000	+
0+4000	+
0+5000	+
0+6000	+
0+10000	+
0+15000	+
0+20000	+

This publication does not try to establish the bases of a contract and the company keeps the right to modify without previous notice the design and the specifications of the instruments, in accordance with his politics of continued development.



# HT CEE 100 PRESSURE GAUGES WITH ELECTRIC CONTACTS DN 100

## Sliding contacts

Electrical sliding contacts guarantee an accurate operation within a controlled hysteresis. However they are rather sensitive to vibration and very slow pressure changes may cause an electric arc which can reduce working life.

### Functional and constructive characteristics:

- Set-point accuracy:** 150% of instrument accuracy.
- Set-point hysteresis:** 0.3% of full scale value.
- Break rating:** 10W/18Va
- Maximum rating:** 250Vac/0.7A (ohmic load)
- Contact material:** Silver-Nickel 80/20%.
- Contact setting:** Over an arc of 270°, by a fixed key fitted to the front lens or by a removable key.
- Electrical wiring:** Junction box PG16 as per VDE.

### LOAD RATINGS (1)

Volt	DC	AC	Inductive load
220	40 mA	45 mA	25 mA
110	80 mA	90 mA	45 mA
48	120 mA	170 mA	70 mA
24	200 mA	350 mA	100 mA

Vdc Minimum values: 24 Vcc / 20 mA

(1) As per DIN 16085.

## Magnetic Snap-Action Contacts

This type of contact is universally used to guarantee the reliable operation of gauges under severe vibration. The magnetic action is guaranteed by a “click operation”, which improves contact capacity, life and is less sensitive to vibration. The required power to overcome the magnetic resistance causes a hysteresis at set-point between 2% to 5% of full scale value.

### Functional and constructive characteristics:

- Set-point accuracy:** 150% of instrument accuracy.
- Set-point hysteresis:** 2...5% of full scale value.
- Break rating:** 30W/50VA (20W/20VA for filled version)
- Maximum rating:** 250Vac/0.7A (ohmic load)
- Contact material:** Silver-Nickel 80/20%.
- Contact setting:** Over an arc of 270°, by a fixed key fitted to the front lens or by a removable key.
- Electrical wiring:** Junction box PG16 as per VDE.

### LOAD RATINGS (1)

Volt	DC	AC	Inductive load
220	100 mA	120 mA	65 mA
110	200 mA	240 mA	130 mA
48	300 mA	450 mA	200 mA
24	400 mA	600 mA	250 mA

Vdc Minimum values: 24 Vcc / 20 mA

## LIQUID FILLED PRESSURE GAUGES

Volt	DC	AC	Inductive load
220	65 mA	90 mA	40 mA
110	130 mA	180 mA	85 mA
48	190 mA	330 mA	130 mA
24	250 mA	450 mA	150 mA

Vdc Minimum values: 24 Vcc / 20 mA

## SIGN AMPLIFIERS

The use of sign amplifiers is particularly indicated in manometers with liquid shock absorber submitted to frequent interruptions, where the liquid shock absorber guarantees a major duration of the manometer. It avoids the possible formation of electrical arches and the consistent deposit of carbonic residues of the combustion of the liquid in the active part of the contact that difficult his functioning.

The sign amplifiers reduce the value of the current that crosses the electrical contact avoiding the formation of arches, transmitting the state (open or close) of the contact across a relay of exit or of one transistor.

This publication does not try to establish the bases of a contract and the company keeps the right to modify without previous notice the design and the specifications of the instruments, in accordance with his politics of continued development.

WIRING SCHEME (1)	ELECTRIC SCHEME (before set)	CLOCKWISE MOVEMENT OF THE POINTER CAUSES:	JUNCTION BOX		CONTACT CODE	
			01.M1.1 01.M2.1	01.M1.3 01.M2.3	sliding	magnetic snap-action
<b>SINGLE CONTACT</b>						
MINI 	3 — o — 1	<u>Opening</u>	3 poles Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>01S</b>	<b>01S.BM1</b>
MAXI 	3 — o — 2	<u>Closing</u>	3 poles Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>02S</b>	<b>02S.BM1</b>
<b>DOUBLE CONTACT (2)</b>						
1° MINI 2° MAXI 	3 — o — 1 3 — o — 2	<u>Opening 1</u> <u>Closing 2</u>	3 poles Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>01D</b>	<b>01D.BM2</b>
1° MAXI 2° MAXI 	3 — o — 1 3 — o — 2	<u>Closing 1</u> <u>Closing 2</u>	3 poles Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>02D</b>	<b>02D.BM2</b>
1° MAXI 2° MINI 	3 — o — 2 3 — o — 1	<u>Closing 2</u> <u>Opening 1</u>	3 poles Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>03D</b>	<b>03D.BM2</b>
1° MINI 2° MINI 	3 — o — 1 3 — o — 2	<u>Opening 1</u> <u>Opening 2</u>	3 poles Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>04D</b>	<b>04D.BM2</b>
<b>INDEPENDENT DOUBLE CONTACT (2)</b>						
1° MINI 2° MAXI 	3 — o — 1 4 — o — 2	<u>Opening 1</u> <u>Closing 2</u>	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>08D</b>	<b>08D.BM2</b>
1° MAXI 2° MAXI 	3 — o — 1 4 — o — 2	<u>Closing 1</u> <u>Closing 2</u>	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>09D</b>	<b>09D.BM2</b>

(1) The above numbers are the same of those stamped on the junction box.

(2) Each contact must not exceed the next one

This publication does not try to establish the bases of a contract and the company keeps the right to modify without previous notice the design and the specifications of the instruments, in accordance with his politics of continued development.

**MEI Manometría e Instrumentación, s.l.**

**Pol. Ind. "El Pla" C/ Comerç, 2-22 nave 13 E-08980 Sant Feliu de Llobregat Barcelona Spain**  
**Tf. +34 934 403 939 Fax. +34 934 483 986 www.mei.es e-mail: info@mei.es**

**INDUCTIVE SYSTEM**

Inductive contacts are intrinsically safe and certified to EN 50014/50020 norm with protection degree EEX ia IIC T6. To guarantee such protection degree the contacts must be supplied via a control relay which has the same type of certificate (see our catalogue sheet 08.W01-W02). When mounted on instruments with liquid filled case, they are particularly suitable for application on chemical and petrochemical plants with vibrations and frequent operation.

The inductive system consist of an inductive sensors that operates without mechanical contact and an external control unit.

The control head of inductive sensor contains a transistorized oscillator ant two axial coils. The magnetic coupling between the two axial coil is changed by a control flag which is moved by the pointer. This action changes the internal control unit current which is used actual to trigger a switch amplifier which makes the real switching.

**Functional and constructive characteristics**

**Set-point accuracy:** 150% of instrument accuracy.

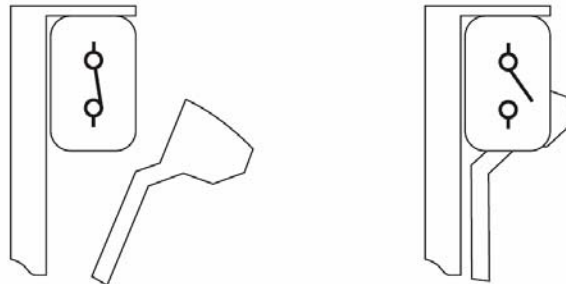
**Set-point hysteresys:** 0.341% of full scale value.

**Contact setting:** Over an arc of 270°, trough the knob placed on front lens of through removable key

**Electrical wiring:** Junction box PG16 as per VDE, see underdraw table.












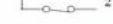

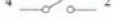
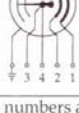
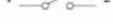
**LOAD RATINGS**  
**(of the control unit output relay)**

Volt	CC	CA
220	0.1 A	4 A
110	0.2 A	4 A
48	0.6 A	4 A
24	4 A	4 A



This publication does not try to establish the bases of a contract and the company keeps the right to modify without previous notice the design and the specifications of the instruments, in accordance with his politics of continued development.

### SLIDING CONTACTS

WIRING SCHEME (1)	ELECTRIC SCHEME (before set)	CLOCKWISE MOVEMENT OF THE POINTER CAUSES:	JUNCTION BOX		CONTACT CODE	
			01.M1.1 01.M2.1	01.M1.3 01.M2.3	sliding	magnetic snap-action
<b>SINGLE CONTACT</b>						
MINI 		<u>Opening</u>	3 poles Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>01S</b>	<b>01S.BM1</b>
MAXI 		<u>Closing</u>	3 poles Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>02S</b>	<b>02S.BM1</b>
<b>DOUBLE CONTACT (2)</b>						
1° MINI 2° MAXI 		<u>Opening 1</u> <u>Closing 2</u>	3 poles Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>01D</b>	<b>01D.BM2</b>
1° MAXI 2° MAXI 		<u>Closing 1</u> <u>Closing 2</u>	3 poles Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>02D</b>	<b>02D.BM2</b>
1° MAXI 2° MINI 		<u>Closing 2</u> <u>Opening 1</u>	3 poles Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>03D</b>	<b>03D.BM2</b>
1° MINI 2° MINI 		<u>Opening 1</u> <u>Opening 2</u>	3 poles Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>04D</b>	<b>04D.BM2</b>
<b>INDEPENDENT DOUBLE CONTACT (2)</b>						
1° MINI 2° MAXI 		<u>Opening 1</u> <u>Closing 2</u>	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>08D</b>	<b>08D.BM2</b>
1° MAXI 2° MAXI 		<u>Closing 1</u> <u>Closing 2</u>	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	Types A,C: 6 poles - Pg. 13,5 Types D,E: 6 poles - Pg. 9	<b>09D</b>	<b>09D.BM2</b>

(1) The above numbers are the same of those stamped on the junction box.

(2) Each contact must not exceed the next one.

#### MINIMUM SCALES ACCORDING TO THE CONTACT TYPES

Contact type:		Standard contacts		Magnetic Snap-Action contact		Inductive contacts	
		1	2	1	2	1	2
Contact Nr :		1	2	1	2	1	2
Type	DN	Minimum scale		Minimum scale		Minimum scale	
Standard	100	1 bar	1,6 bar	1 bar	1,6 bar	1 bar	1,6 bar
Silicone filled	100	--	--	1,6 bar	2,5 bar	1,6 bar	2,5 bar

This publication does not try to establish the bases of a contract and the company keeps the right to modify without previous notice the design and the specifications of the instruments, in accordance with his politics of continued development.

**MEI Manometría e Instrumentación, s.l.**

**Pol. Ind. "El Pla" C/ Comerç, 2-22 nave 13 E-08980 Sant Feliu de Llobregat Barcelona Spain**

**Tf. +34 934 403 939 Fax. +34 934 483 986 www.mei.es e-mail: info@mei.es**