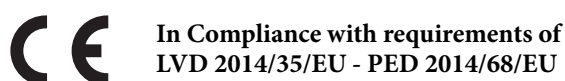


## Pressure gauges for SF<sub>6</sub> gas monitoring DS 4" (100 mm)



These instruments are designed to monitor the electrical operations of hermetically sealed systems containing Sulphur Hexafluoride gas (SF<sub>6</sub>). The indication and the electrical functions are calibrated based on the gas density (isochore) according to the relation pressure-temperature. We recommend using model M5 for indoor installation, while the M6 model is ideal for outdoor installation. The liquid-filled versions are particularly suitable for installation in systems affected by vibrations.

**Accuracy of indication (referred to the instruments range):**  
±1% at +20 °C of ambient temperature; ±2,5%  
within temperature range -20...+60°C related to the calibration pressure of the reference isochore.

**Accuracy of intervention:**

- see accuracy of indication for set-point equal to pressure of calibration;
- when the set-point is different from pressure of calibration, calculate it according to the instrument range.

**Alarm contacts**, non adjustable contacts, with anti-tampering sealing:

- on air with magnetic block (80%Ag-20%Ni);
- inductive with galvanic exit.

**Ambient temperature:** -20...+60 °C.

**Storage temperature:** -40...+60°C

**Calibration pressure (PC):** refer to specifications described in the order.

**Ranges:** also vacuum & compound gauges from 1,6 to 25 bar.

**Electrical connection:** junction box with cable gland M20 x 1,5.

**Nominal diameter:** DN100.

**Gas seal:** leakage rate ≤ 1x10<sup>-6</sup> mbar x l/s<sup>-1</sup> (helium test with mass spectrometer).

**Case:** AISI 304.

**Ring:** bayonet lock, AISI 304 with anti-tampering sealing.

**Window:** glass.

**Movement:** stainless steel with bimetallic temperature compensator.

**Dial:** white aluminium with black markings and coloured sectors as per customer's specification.

**Pointer:** black anodised aluminium.

### 1.M5 - MCE10/SF6 : copper alloy wetted parts , suitable for indoor ambients

#### 1 - Standard dry version

**Process connection:** OT58.

**Sensing element:** phosphor bronze.

**Protection degree:** IP 54 as per IEC 529, UNI 8896.

#### 3 - Silicon oil-filled version

**Process connection:** OT58.

**Sensing element:** phosphor bronze.

**Protection degree:** IP65 as per IEC 529, UNI 8896.

**Window:** safety glass.

### 1.M6 - MCE18/SF6 : AISI 316L wetted parts, suitable for outdoor ambients

#### 1 - Standard dry version

**Process connection and sensing element:** AISI 316L.

**Protection degree:** IP 54 as per IEC 529, UNI 8896.

#### 3 - Silicon oil-filled version

**Process connection and sensing element:** AISI 316L.

**Protection degree:** IP 65 as per IEC 529, UNI 8896.

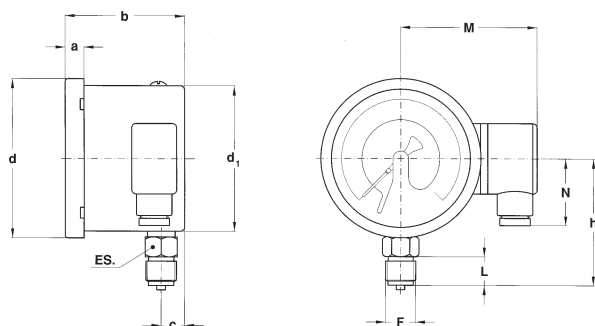
**Window:** safety glass.

#### 9 - Nitrogen-filled version

**Process connection and sensing element:** AISI 316L.

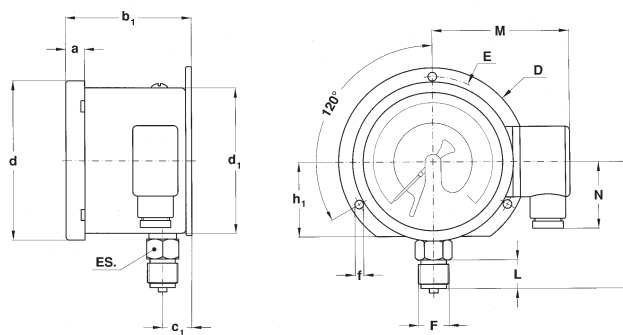
**Protection degree:** IP 65 as per IEC 529, UNI 8896.

**Window:** safety glass.



**A**

stem mounting;  
lower connection.



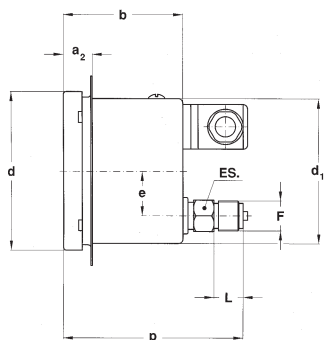
**A + C**

surface mounting, back flange;  
lower connection.

Type	F	a	b (1)	c	d	d <sub>1</sub>	f	h	h <sub>1</sub>	D	E	M	N	L	ES	Weight (1)(2)
<b>A</b>	<b>41M</b> G 1/2 A	0.51" (13)	2.87/3.27" (73/83)	0.63" (16)	4.33" (110)	3.98" (101)		3.50" (89)				3.70" (94)	1.81" (46)	0.79" (20)	0.87" (22)	1.45/1.65 lbs (0,66/0,75 kg)
<b>A+C</b>	<b>43M</b> 1/2-14 NPT	0.51" (13)	3.03/3.43" (77/87)	0.79" (20)	4.33" (110)	3.98" (101)	0.24" (6)	3.50" (89)	2.05" (52)	5.12" (130)	4.65" (118)	3.70" (94)	1.81" (46)	0.79" (20)	0.87" (22)	1.63/1.83 lbs (0,74/0,83 kg)

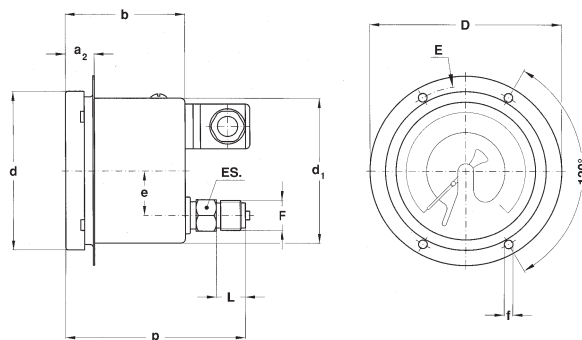
dimensions : inches (mm)

(1) dimensions for single or double contacts; (2) add 0.88 lbs (0,4 kg), when glycerine filled



**D + E**

flush mounting, front flange 3 holes;  
back connection.



**D + Q**

flush mounting, front flange 4 holes;  
back connection.

Type	F	a <sub>2</sub>	b (1)	d	d <sub>1</sub>	e	f	p (1)	D	E	L	ES	Weight (1)(2)
<b>D+E</b>	<b>41M</b> G 1/2 A	0.79" (20)	2.87/3.27" (73/83)	4.33" (110)	3.98" (101)	1.22" (31)	0.24" (6)	4.49/4.88" (114/124)	5.20" (132)	4.65" (118)	0.79" (20)	0.87" (22)	1.41/1.61 lbs (0,64/0,73 kg)
<b>D+Q</b>	<b>43M</b> 1/2-14 NPT	0.79" (20)	2.87/3.27" (73/83)	4.33" (110)	3.98" (101)	1.22" (31)	0.24" (6)	4.49/4.88" (114/124)	5.20" (132)	4.65" (118)	0.79" (20)	0.87" (22)	1.41/1.61 lbs (0,64/0,73 kg)

dimensions : inches (mm)

(1) dimensions for single or double contacts; (2) add 0.88 lbs (0,4 kg), when glycerine filled

# Pressure gauges for SF<sub>6</sub> gas monitoring

## DS 4" (100 mm)

# MCE10-18/SF6

### Magnetic snap action contacts

Set-point hysteresis: 2...5% f.s.v.

Break rating: 30W/50VA (20W/20VA if filled).

Maximum rating: 250Vca/1A (ohmic load).

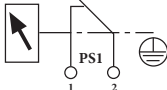
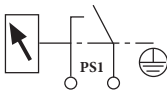
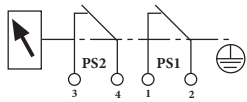

Minimum rating: 24 Vcc/20 mA (ohmic rating).

Contact material: Silver-Nickel 80/20%.

Electrical wiring: with junction box as per VDE, see table page 4.

LOAD RATINGS, as per DIN 16085.

Volt	Dry versions or filled with azote			Silicon dielectric oil-filled versions		
	CC	CA	Inductive load	CC	CA	Inductive load
220	100 mA	120 mA	65 mA	65 mA	90 mA	40 mA
110	200 mA	240 mA	130 mA	130 mA	180 mA	85 mA
48	300 mA	450 mA	200 mA	190 mA	330 mA	130 mA
24	400 mA	600 mA	250 mA	250 mA	450 mA	150 mA

WIRING SCHEME (The numbers shown are the same as those are indicated on the junction box )	THE PRESSURE RAISING MEANS...	CONTACT CODE
...FOR SINGLE CONTACTS		
	<u>Opening PS1</u>	01S
	<u>Closing PS1</u>	02S
... FOR DOUBLE CONTACTS		
	<u>Opening PS1</u> <u>Opening PS2</u> (each contact must not exceed the next one)	06D
	<u>Closing PS1</u> <u>Closing PS2</u> (each contact must not exceed the next one)	09D

**RANGES**

<b>Bar</b>	-1...+0,6	-1...+1,5	-1...+3	-1...+5	-1...+9	-1...+15	-1...+24
<b>MPa</b>	-0,1...+0,06	-0,1...+0,15	-0,1...+0,3	-0,1...+0,5	-0,1...+0,9	-0,1...+1,5	-0,1...+2,4

**RECOMMENDATION**

The internal system of the instrument detects the temperature value needed for thermal compensation. Therefore, the device operating temperature value and the monitored temperature of SF<sub>6</sub> gas should match. You should install the pressure gauge accordingly. The PC calibration should be as nearest as possible to the PS contacts' setting pressure to prevent the errors of compensation the different isochores might cause.

**HOW TO ORDER**

<b>1° - DESCRIPTION &amp; CODE</b>
<b>Model</b> <b>1.M5</b> - MCE 10 SF6, for indoor ambients <b>1.M6</b> - MCE 18 SF6, for outdoor ambients
<b>Version</b> <b>1</b> - Standard, dry <b>3</b> - Filled with silicon dielectric oil version <b>9</b> - Filled with azote oil version
<b>Mounting type</b> <b>A</b> - lower connection - stem mounting <b>D</b> - back connection - front flange 3 holes
<b>Technical specification code</b> To be asked to the Technical & Commercial Service
<b>Ranges</b> : from 1,6 to 25 bar, also vacuum and compound
<b>Process connection</b> <b>41M</b> - 1/2" BSP - G 1/2 A - PF 1/2 <b>43M</b> - 1/2" NPT
<b>Electric schemes</b> : <b>01S...09D</b> - see labels on page 3
<b>Mounting accessories</b> <b>C</b> - Back flange, for lower connection pressure gauge <b>E</b> - 3 holes front flange, for back connection pressure gauge <b>Q</b> - 4 holes front flange, for back connection pressure gauge

<b>2° - CALIBRATION FEATURES</b>
PF - nominal pressure of the circuit filling
PC - calibration pressure, which identifies the reference isochores
PS1 - setting pressure of the contact PS1, on the temperature of SF <sub>6</sub> gas of 20°C ...and if the contacts are two
PS2 - setting pressure of the contact PS2, on the temperature of SF <sub>6</sub> gas of 20°C
<b>3° - DIAL LAYOUT</b>
1° : red sector range
2° : orange sector range
3° : green sector range

