UNIJIN® ELECTRICAL CONTACT PRESSURE GAUGE

Model : P510 Series

P510 models is designed for non-hazardous environment and it contact switches are combine with local pressure indicating for switching or control capabilities into an economical, reliable and compact system. It has easy set point adjustment on window with key given. Unijin electric contact pressure gauges are ideally suitable for alarm or control function on hydraulic, pneumatic, and general industry machinery and equipment as well as on process industrial, petro-chemical, marine, oil refineries, paper mills, water and waste water treatment plants.

Standard Specification

Dial Size
100 mm

Scale Range (mbar, mmH₂O)
-76cmHg ~4 to 0 ~ 1000 kgf/cm²

Working Pressure
Steady : 75% Full Scale

Over Range Protection
130% of Full Scale

Blow Protection
Back, Rubber Disc

Accuracy
± 1.0% of Full Scale for Pressure Indication

Working Temperature
Ambient : -20 ~ 65°C
Process : -20 ~ 80°C

Material
Case & Cover : SS304
Window : Polycarbonate Clear
Movement : 304SS
Element : 316SS
Connection : 316SS

Pressure Gauge Ordering Information

Model
P511 (High Contact)
P512 (High / Low Contact)
P513 (Low Contact)
P514 (High/ Hi High Contact)
P515 (Low / Lo Low Contact)

Mounting Type
A: Direct bottom connection
B: Bottom connection with surface mounting plate
G: Lower back connection
N: Lower back connection with panel mounting plate

Dial Size
100mm

Scale Range

Connection Type
3/8" BSPT
1/2" BSPT

Example of Order

Model
P511

Mounting Type
(A)

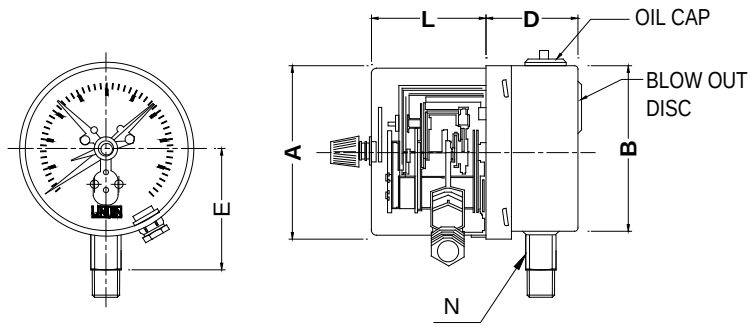
Dial Size
100mm

Scale Range
0 ~ 100 kgf/cm²

Connection
3/8" BSPT

Basic Dimensions

CODE A

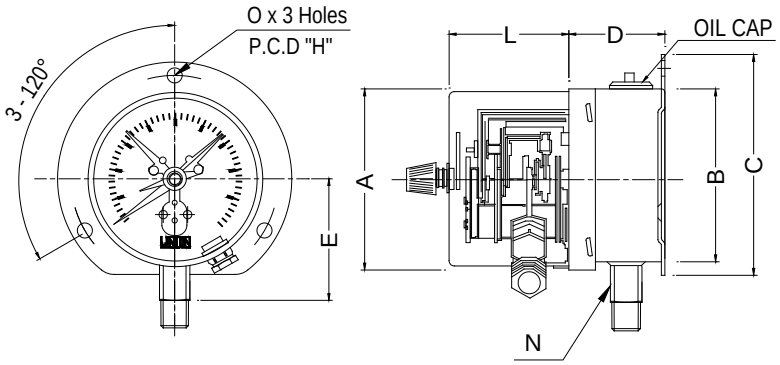


A: Direct bottom connection

Unit : mm

	ø 100
A	101.3
B	99.0
D	49.5
E	65.0
N	22.0

CODE B

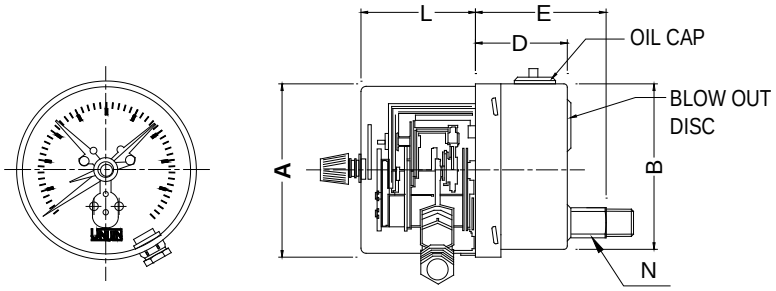


B: Bottom connection with Surface mounting plate

Unit : mm

	ø 100
A	101.3
B	99.0
C	122.0
D	53.3
E	65.0
H	117.5
L	46.3
N	22.0

CODE G

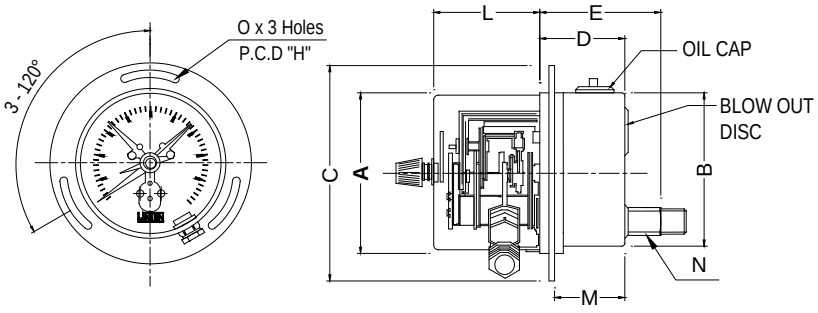


G: Lower back connection

Unit : mm

	ø 100
A	101.3
B	99.0
D	49.5
E	65.0
L	46.3
N	22.0

CODE N



N: Lower back connection with Panel mounting plate

Unit : mm

	ø 100
A	101.3
B	99.0
C	130.5
D	49.5
E	65.0
H	116.0
L	46.3
M	45.0
N	22.0
O	6.0

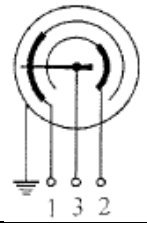
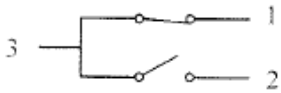
Magnetically Snap Action Contact

Electromechanical limit switches in pointer type measuring instruments are auxiliary current switches which open or close electrical circuits at set limit values by means of a contact arm which is moved by the actual value pointer.
The snap action contact is a mechanical contact for switching capacities up to 300W 50VA max. Contact making will be delayed and or advanced in relation to the movement of the actual value pointer. To close the circuit, the contact pin of the movable contact arm is attracted in a jump by the permanent magnet fastened to the supporting arm shortly before the set value has been reached.
Due to the retention force of the magnet, snap action contacts are more resistant against shock and vibration. The switching safety is increased by the increased contact pressure. When the circuit is opened, the magnet keeps the contact arm in its place until the restoring force of the measuring element exceeds the magnetic force, and the contact opens in a jump.

Specification

Nominal Operation Voltage	250 Vac max
Making and Breaking Voltage	1.0A max
Permanent Current	0.6A max
Switching Capacity	30W 50VA max
Contact Material	Ag80 Ni20
Switching Accuracy	3% of Full Scale
No. of Contact	2 max

Schematic and Recommended Wiring Connection

Wiring Schematic	Electric Schematic	Clockwise Movement of the Pointer Causes
1° MINIMUM 2° MAXIMUM 		Opening 1 Closing 2

3 = Wire Black = Common
1 = Wire Blue = Normally Close
2 = Wire Brown = Normally Open
Wire White = Earth

The contacts open or close the circuit depending on the position of the indicating pointer. The contact positions are adjustable over the whole range depend on the requirement of the application.

1. Minimum adjustment
Insert the adjustment key into the center knob, turn the key until it press against the handle of the minimum contact. Turn clockwise to increase or anticlockwise to reduce the triggering pressure.

2. Maximum adjustment
Insert the adjustment key into the center knob, turn the key until it press against the handle of the maximum contact. Turn clockwise to increase or anticlockwise to reduce the triggering pressure.

Euro gauge
Electrical contact type pressure gauge
Model: P520 series

Spec. sheet no. PD05-04

Service intended

P520 series are designed for a local reading of measured pressure and equipped with the inductive contact block which allows all the combinations of contacts to be used. The contact block is mounted on the dial. The window is fitted with a knob for external adjustment of the setpoints.

Nominal diameter
100 mm

Accuracy
±1.0% of full scale

Scale range (MPa, kPa, bar)
-0.1 ~ 0 to 0 ~ 200 MPa

Working pressure
Steady : 100 % of full scale
Over range protection : 130 % of full scale

Working temperature
Ambient : -40 ~ 65 °C
Fluid : Max. 200 °C

Degree of protection
EN60529/IEC529/IP67

Temperature effect
Accuracy at temperature above and below the reference temperature (20 ℃) will be effected by approximately ±0.4 % per 10 ℃ of full scale

Standard features

Pressure connection
Stainless steel (316SS)

Element
Stainless steel (316SS)
<10 MPa : C type bourdon tube
≥10 MPa : Helical type bourdon tube

Case
Stainless steel (304SS)

Cover
Stainless steel (304SS)
Bayonet type

Window
Safety glass

Movement
Stainless steel

Dial
White aluminium with black graduations

Pointer
Black painted aluminium alloy

Conduit connection
M20 x 1.5

Process connection
⅜", ½" PT, NPT and PF

Certificates
Pressure equipment directive (2014/68/EU) Annex III Module H

Option
Damping movement

Main order — Ordering information

1. Base model

P520 Electrical contact type pressure gauge

2. Nominal diameter (mm)

4 100

3. Type of mounting

A Bottom connection, direct
B Bottom connection, surface, case mounting plate
G Lower back connection, direct
N Lower back connection, flush, cover mounting plate

4. Contact function

1 High alarm, normal open contact
2 Low and High alarm
3 Low alarm, normal close contact
4 Two high alarm
5 Two low alarm
6 Failsafe high and low alarm

5. Process connection

D ⅜"
E ½"

6. Connection type

B PF
C PT
D NPT
F BSPT
G BSP
Z Other

7. Unit

H bar
I MPa
J kPa

8. Range

XXX Refer to pressure unit and range table

9. Pressure connection material and dial color

3 316SS and 2 colors
7 316SS and 3 colors

10. Option

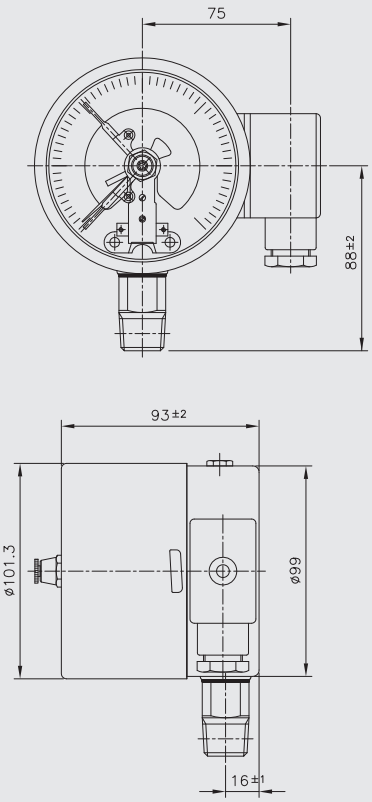
0 None
1 Accessories

Sample ordering code

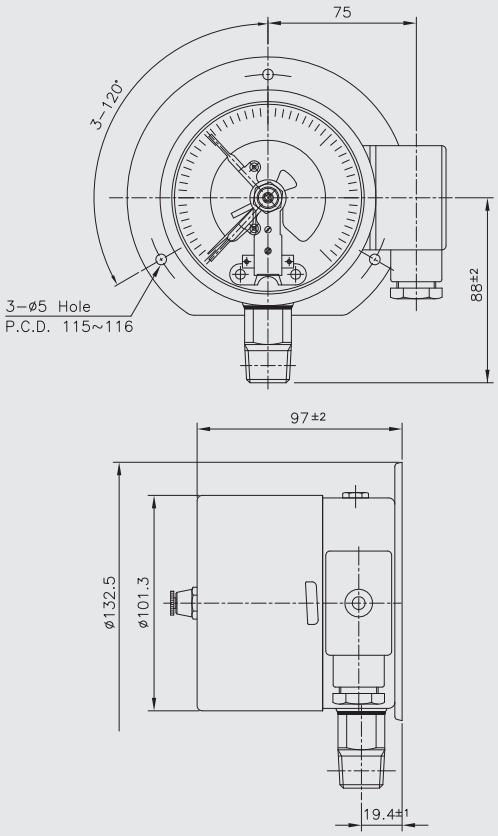
1	2	3	4	5	6	7	8	9	10
P520	**4**	**A**	**3**	**D**	**D**	**H**	**XXX**	**3**	**0**

P520 : Type of mounting

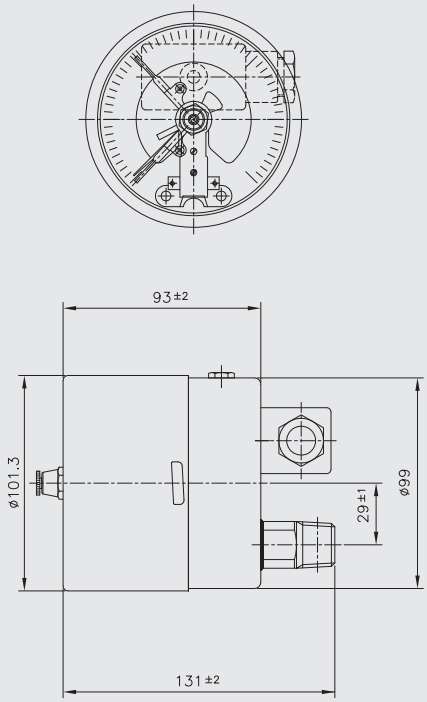
Code A



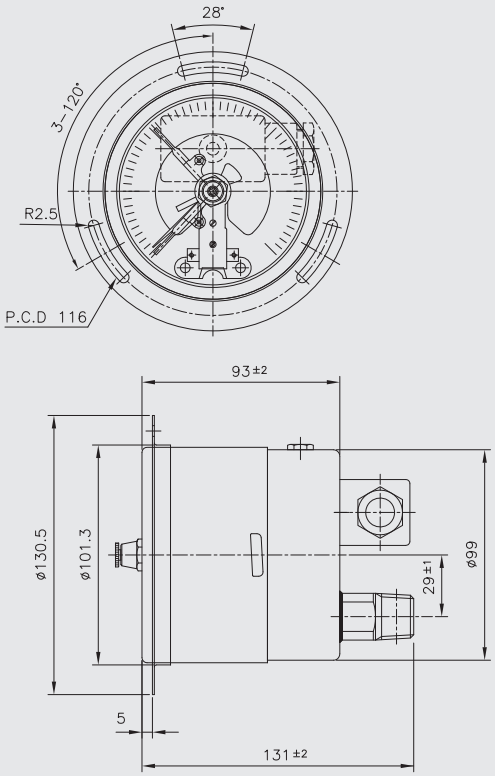
Code B



Code G



Code N



Snap - action contacts

General

Electromechanical limit switches in pointer type measuring instruments are auxiliary current switches which open or close electrical circuits at set limit values by means of a contact arm which is moved by the actual value pointer.
The snap action contact is a mechanical contact for switching capacities up to 30 W 50 VA max.
Contact making will be delayed and or advanced in relation to the movement of the actual value pointer.
To closed the circuit, the contact pin of the movable contact arm is attracted in a jump by the permanent magnet fastened to the supporting arm shortly before the set value has been reached.
Due to the retention force of the magnet, snap action contacts are more resistant against shock and vibration.
The switching safety is increased by the increased contact pressure.
When the citcuit is opened, the magnet keeps the contact arm in its place until the restoring force of the measuring element exceeds the magnetic force, and the contact opens in a jump.

Specifications

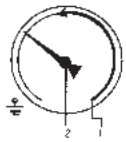
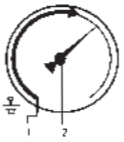
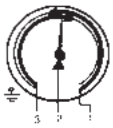
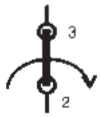
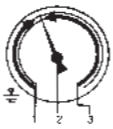
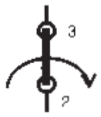
Maximum contact rating with non-inductive (ohmic) load		**Electrical contacts type pressure gauge model P520 series**
		Dry gauges
Maximum voltage		250 V
Current ratings	**Make ratings**	1.0 A
	Break ratings	1.0 A
	Continuos load	0.6 A
Maximum load		30 W 50 VA
Material of contact points		Silver-Nickel alloy (80 % Ag / 20 %Ni / 10 ㎛) gold-plated
Ambient operating temperature		-20...+70 °C
Max. no. of contacts		2
Voltage test		Circuit / protective earth conductor - 2,000 vac 1 minute
		Circuit /circuit - 2,000 vac 1 minute

Recommended contact ratings with ohmic and inductive load

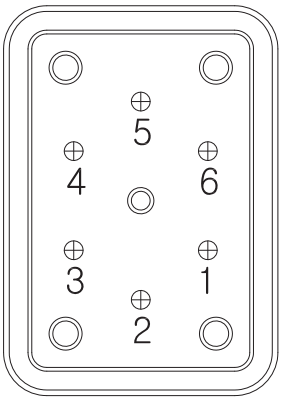
Voltage (DIN IEC 38) DC / AC	**Electrical contacts type pressure gauge model P520 series**		
	Dry gauges		
	Ohmic load		Inductive load
	DC	AC	
			cosØ > 0.7
V	mA	mA	mA
220 / 230	100	120	65
110 / 110	200	240	130
48 / 48	300	450	200
24 / 24	400	600	250

In order to ensure a high switching reliability of the contacts the switching voltage should not be below 24 V, also taking environmental influences in the long term into account.

Contact function table

CODE	Wiring Scheme		Contact Function		Wiebrock Code No.	Remark
			1st Contact	2nd Contact		
Single Contact						
1	Contact make when pointer reachse setpoint (Normal open - NO)				S/M-1	Normal use high alarm system
3	Contact break when pointer reachse setpoint (Normal close - NC)				S/M-2	Normal use low alarm system
Double Contact - Common Circuit						
4	1st and 2nd contact make when pointer reaches setpoint				S/M-11	Normal use two high alarm system
6	1st contact make 2nd contact break when pointer reaches setpoint				S/M-12	Normal use failsafe high and low alarm system
2	1st contact break 2nd contact make when pointer reaches setpoint				S/M-21	Normal use Low and High alarm system
5	1st and 2nd contact break when pointer reaches setpoint				S/M-22	Normal use two low alarm system

Terminal block arrangement



1. High alarm (S/M-1)

① Normal open
② Common
④ Ground

2. Low and high alarm (S/M-21)

Low alarm

① Normal close
② Common
④ Ground

High alarm

② Common
③ Normal open

3. Low alarm (S/M-2)

① Normal close
② Common
④ Ground

4. Two high alarm (S/M-11)

No.1 High alarm

① Normal open
② Common
④ Ground

No.2 High alarm

② Common
③ Normal open

5. Two low alarm (S/M-22)

No.2 Low alarm

① Normal close
② Common
④ Ground

No.1 Low alarm

② Common
③ Normal close

6. Failsafe high and low alarm (S/M-12)

High alarm

② Common
③ Normal close
④ Ground

Low alarm

① Normal open
② Common

Pressure unit and range table

Range and code	Unit and code			Nominal diameter
	H : bar	I : MPa	J : kPa	100 mm
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O
133	0 ~ 1.6	0 ~ 0.16	0 ~ 160	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O
050	0 ~ 15	0 ~ 1.5	X	O
143	0 ~ 16	0 ~ 1.6	X	O
051	0 ~ 20	0 ~ 2	X	O
052	0 ~ 25	0 ~ 2.5	X	O
054	0 ~ 35	0 ~ 3.5	X	O
151	0 ~ 40	0 ~ 4	X	O
055	0 ~ 50	0 ~ 5	X	O
056	0 ~ 60	0 ~ 6	X	O
057	0 ~ 70	0 ~ 7	X	O
058	0 ~ 100	0 ~ 10	X	O
059	0 ~ 150	0 ~ 15	X	O
060	0 ~ 160	0 ~ 16	X	O
062	0 ~ 250	0 ~ 25	X	O
064	0 ~ 350	0 ~ 35	X	O
065	0 ~ 400	0 ~ 40	X	O
066	0 ~ 500	0 ~ 50	X	O
067	0 ~ 600	0 ~ 60	X	O
068	0 ~ 700	0 ~ 70	X	O
070	0 ~ 1,000	0 ~ 100	X	O
074	0 ~ 1,600	0 ~ 160	X	O
075	0 ~ 2,000	0 ~ 200	X	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O
127	-1 ~ 1.5	-0.1 ~ 0.15	-100 ~ 150	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O
034	-1 ~ 20	-0.1 ~2	-100 ~ 2 MPa	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O

O : Available X : Not available