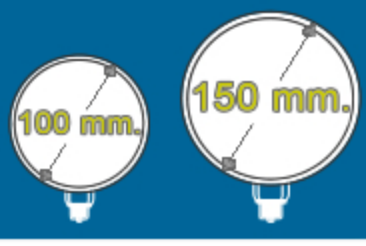

Electric Contact Pressure Gauge

MK-MN

Product overview

Electric contacts pressure gauge is widely used to petrochemical, chemical, metallurgical electric power fields and so forth or applied to measurement pressure of fluid medium in the machine.

Usually ,electric contact pressure gauge matches with relevant electrical apparatus,for instance,relay and contactor.

The instrument is consisted of measurement system,indicating system,electric contact parts system, case, adjustment system, junction box (socket) and otherwise.

The principle is that under the conditions of medium pressue, bourdon tube will show the measured value in the dial by gear wheel equipment . In the meanwhile, the pointer of instrument will make dynamic contact touch or cut with static one (upper limits or lower limits),leading to the cut and turn–on of control system for the purpose of automatic control and alarm.

Standard snap–action electric contact pressure gauge

Electrical specifications

Contact Arrangement	
Function	**Type Number**
N.A.	01
N.K.	02
N.A.+ N.A.	11
N.A.+N.K.	12
N.K.+N.A.	21
N.K.+N.K.	22

How to Order

Please specify the following properties when the manometer ordering.

- Contact principle,
- Model number,
- Dial size,
- Range and pressure unit,
- Panel mounting; Front Flange (FF), Rear Flange (RF)
- Connection type,
- Connection thread,
- Accuracy,
- If necessary; Special scale,Diaphragm seals,..
- Contact type

For example: *MK-MN-S-150-(0/60 Bar)-RF-Bottom-R1/2-1.6-12*

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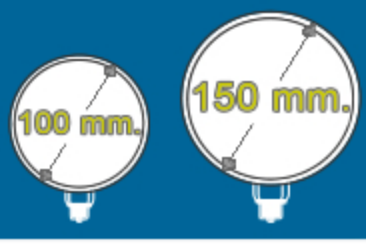
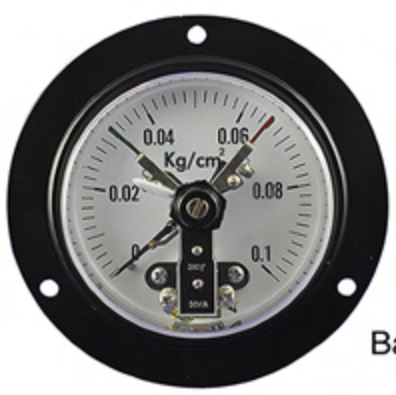


Electric Contact Pressure Gauge

MK-MN

Mounting	For snap–action electric contact pressure gauge
 Lower mounting direct	Φ100mm diameter Φ150mm diameter
 Back mounting direct	Φ100mm diameter Φ150mm diameter
 Back embedded mounting	Φ100mm diameter Φ150mm diameter

Maximum voltage	AC 380V or DC 220V	
Maximum current	0.7A	1A
Contact power	10VA	30VA

Control mode: Upper lower limits contacts (unless two upper or lower limits specificd)

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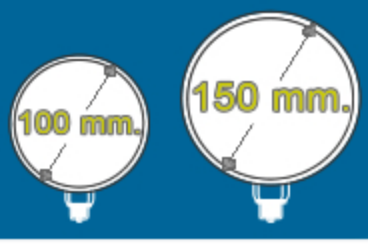


Electric Contact Pressure Gauge

MK-MN

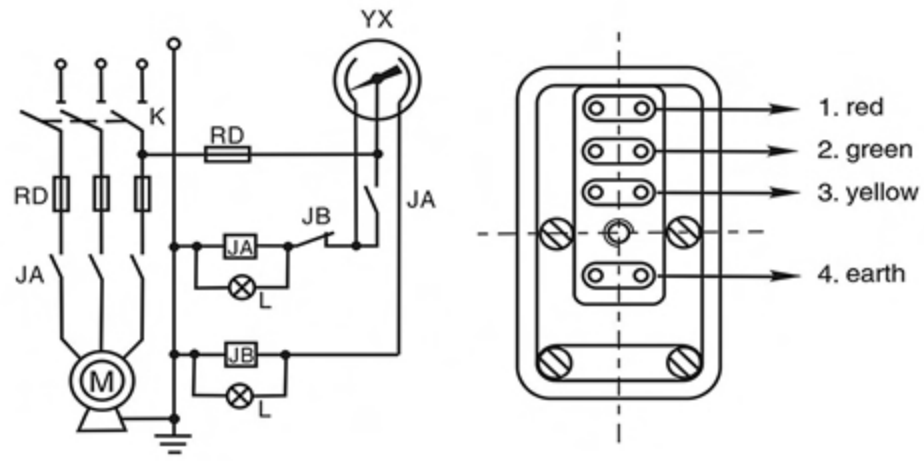
◆ Snap–action Electric Contact with Diaphragm Seal

Normal electric contact gauges combine with a separator (diaphragm seal),being electric contact diaphragm pressure gauge, accommodates strongly corrosive media, viscous & crystallographic media.

Model remark:Model of electric contact + Model of chemical seals.

Wiring scheme

YX	Electric Contact Pressure Gauge
M	Power Generator
JA	Contactor & Its Contacts
JB	Medium relay & Its Contacts
K	Combination switch
L	Indicating Lamp
RD	Fuse



Specifications

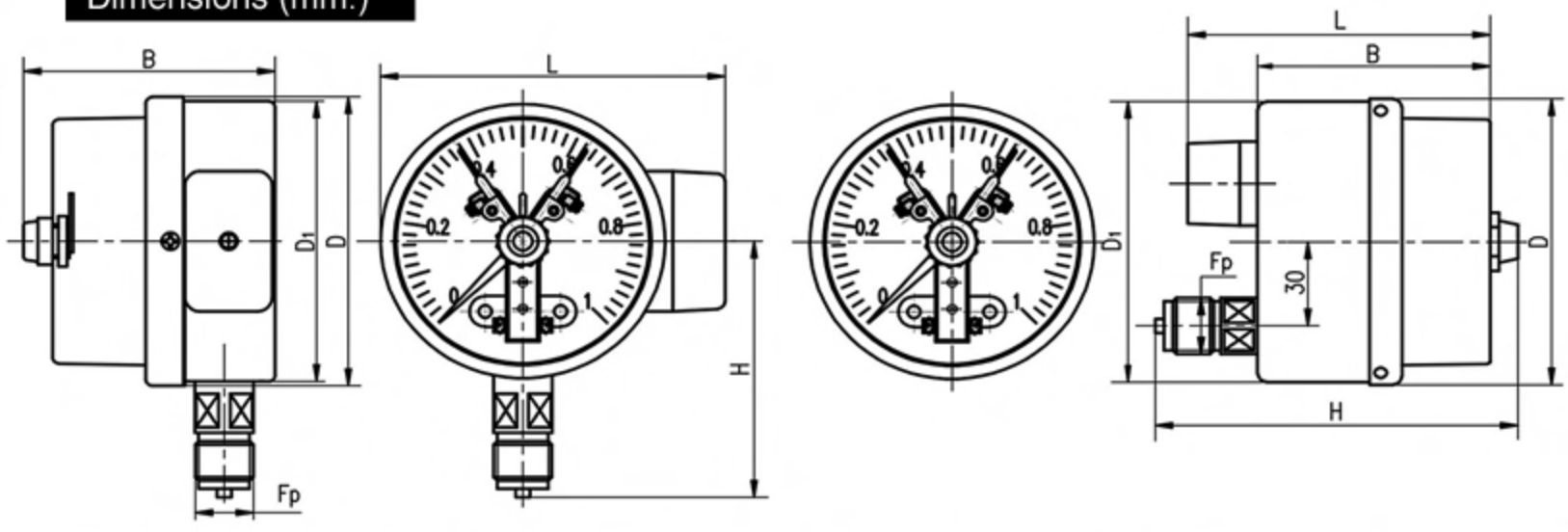
Diameter	Range	Accuracy		Connection size
		Indication	set	
100 mm.	-1~0 Bar and 0~24 Bar Horizantal Diaphragm	2.5	2.5	M20x1.5/NPT1/2
150 mm.	-1~0 and 0~600 Bar Diaphragm Seal	1.6	4	M20x1.5/NPT1/2

◆ Working pressure: Static load to the upper limits 3/4,Alternating load to the upper limits 2/3,Short time pressure to the upper limits.

◆ Temperature impact: Temperature deviation from 20 ± 5℃ the error of set point is less than 0.6%/10℃

◆ Ambient temperature: –40 ~ 70℃ (The reletive Humidity is less than 85%)

Dimensions (mm.)



Diameter	D	D1	B	H	L	Fp
100 mm.	102	100	85	91/88	120	M20x1.5/NPT1/2
100 mm.back	102	100	89.5	124.5/121.5	104	M20x1.5/NPT1/2
150 mm.	150	148	86.5	128/125	170	M20x1.5/NPT1/2

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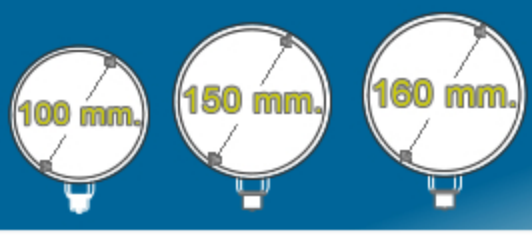


Solid Contact Pressure Gauge

SK-MN

◆ (Solid model) Stainless steel electric contact pressure gauge

Corrosion–proof

SK-MN-P-100

◆ (Solid model) Stainless steel vibration–proof electric contact pressure gauge (oil filling)

Corrosion–proof & vibration–proof

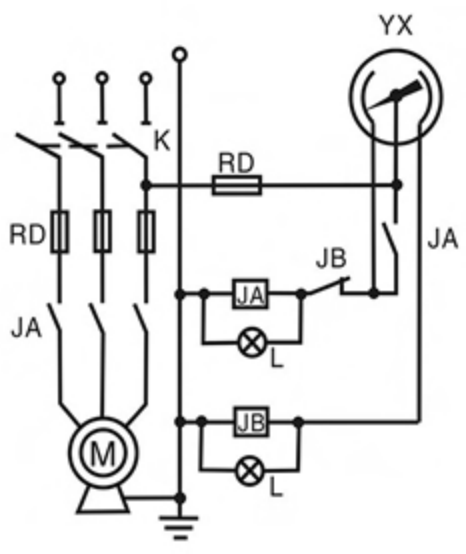
SK-MN-P-100-GL

Application

◆ SK-MN-P-100 The materials of element for measuring pressure and case are both stainless steel, Suitable for measuring the strong corrosion gaseous and liquid medium pressure.

◆ SK-MN-P-100 Liquid filled gauges are filled with oil for vibration –proof indication,suitable for the adverse service conditions where sharp pulsation and vibration exist.

Wiring Scheme



YX Electric contact pressure gauge

M Power generator

JA Contactor and its contacts

JB Medium relay and its contacts

K Combination switch

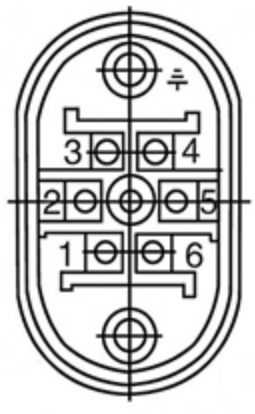
L Indication camp

RD Fuse

1–3 upper limits

2–3 lower limits

earth



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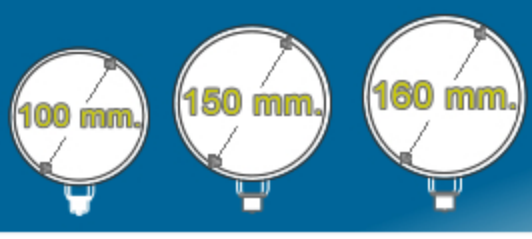

Solid Contact Pressure Gauge

SK-MN

Mounting	Stainless steel corrossion–proof electric contact pressure gauge	Stainless steel vibration–proof with oil filling electric contact pressure gauge
Bottom mounting direct Φ 100mm Φ 150mm Φ 160mm 	SK-MN-P-100-Bottom SK-MN-P-150-Bottom SK-MN-P-160-Bottom	SK-MN-P-100-..-Bottom SK-MN-P-150-..-Bottom SK-MN-P-160-..-Bottom
Back mounting direct Φ 100mm Φ150mm 	SK-MN-P-100-Back SK-MN-P-150-Back	SK-MN-P-100-..-Back SK-MN-P-150-..-Back
Bottom embedded mounting Φ100mm Φ150mm 	SK-MN-P-100-RF-Bottom SK-MN-P-150-RF-Bottom	SK-MN-P-100-..-FF-Bottom SK-MN-P-150-..-FF-Bottom
Back mounting with front flange 100mm 150mm 	SK-MN-P-100-FF-Back SK-MN-P-150-FF-Back	SK-MN-P-100-..-FF-Back SK-MN-P-150-..-FF-Back

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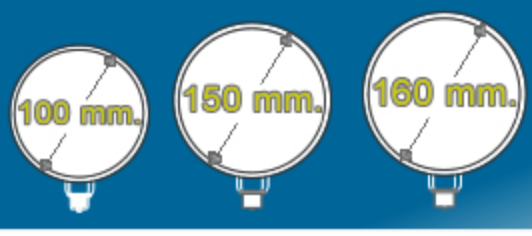

Solid Contact Pressure Gauge

SK-MN

Specifications

Ranges	Minimum: 0 ~ 1 Bar Maximum: 0 ~ 1000 Bar Minimum negative pressure:-1 Bar
Accuracy Class(Indication)	Φ100mm⩽1 Bar 2.5% Φ100/150/160mm,1.6% (1.0%)
Accuracy Class(Setting)	4%
Quantity of Contacts	1 or 2
Max Working Voltage	AC380V (or) DC220V
Max Current	1A
Contact Power	30VA
Temperature Effects	0.6%/10℃ When temperature deviates from 20±5℃, the error of set point is not more than 0.6%/10℃
Ingress Protection	Standart IP54, Liquid filling IP65
Window	Common glass or Safety glass
Connection Size	R 1/2", 1/2" NPT, M20x1.5
Liquid Filling	Special liquid filled

RANGES		
-1~0 Bar	0.6 Bar	25 Bar
-1~0.6 Bar	1 Bar	40 Bar
-1~1.5 Bar	1.6 Bar	60 Bar
-1~3 Bar	2.5 Bar	100 Bar
-1~5 Bar	4 Bar	160 Bar
-1~9 Bar	6 Bar	250 Bar
-1~15 Bar	10 Bar	400 Bar
-1~24 Bar	16 Bar	600 Bar
40 mBar	150 mBar	400 mBar
60 mBar	160 mBar	600 mBar
100 mBar	250 mBar	1 Bar

Fitting Diaphragm Seals

Composing with our diaphragm seals in different materials,the above pressure gauges can also made into the electric contact diaphragm pressure gauges that are applied in measuring viscous,strongly corrosive medium as well as the orystallographic medium.
Please see Diaphragm Seal Pressure Gauge for more flange diaphragm seals.

How to Order

Please specify the following properties when the manometer ordering.

- Contact principle,
- Model number,
- Dial size,
- Range and pressure unit
- Panel mounting; Front Flange (FF), Rear Flange (RF)
- Connection type,
- Connection thread,
- Accuracy,
- If necessary; Special scale,Diaphragm seals,..
- Contact type

For example: *SK-MN-P-160-(0/100 Bar)-RF-Bottom-R1/2-1.6.821.12*

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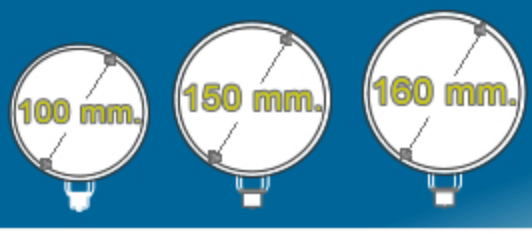
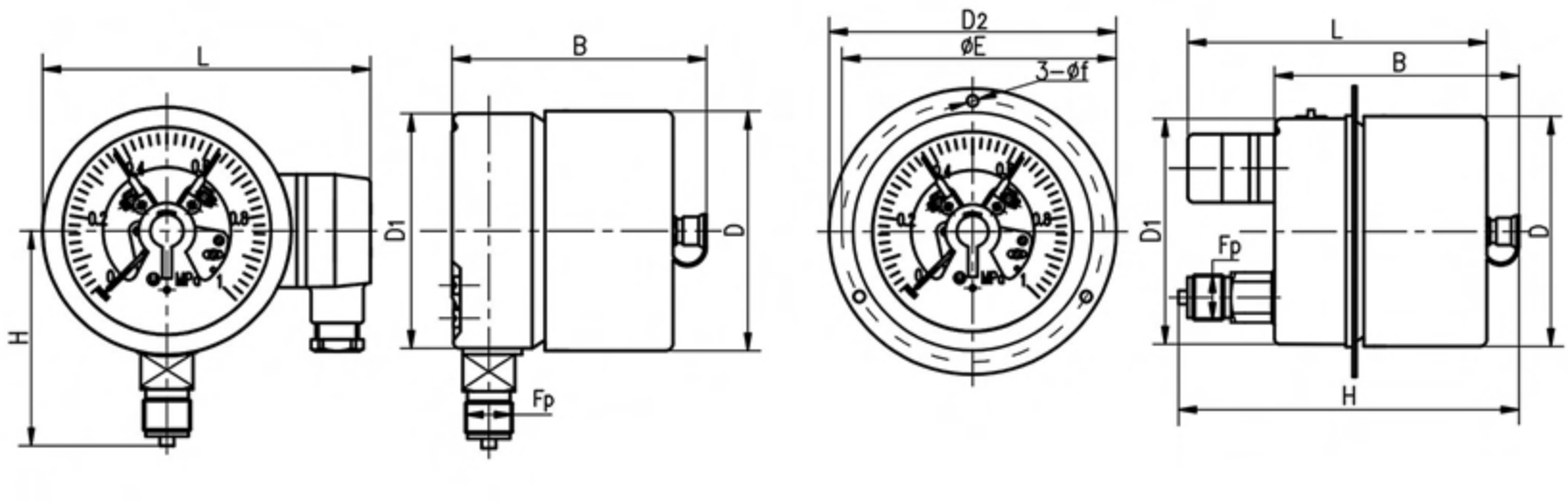


Solid Contact Pressure Gauge

SK-MN

Dimensions (mm.)



Diameter	D	D1	B	H	L	Fp
100 mm.	101	99	102	88/85	142	M20x1.5/NPT1/2
150 mm.	149	146	102	115/112	192	M20x1.5/NPT1/2
160 mm.	161	159	104	118/115	202	M20x1.5/NPT1/2

Diameter	D	D1	B	H	L	Fp
100 mm. Back	101	99	104	143/140	132	M20x1.5/NPT1/2
150 mm. Back	149	146	104	143/140	132	M20x1.5/NPT1/2

Diameter	D2	ϕ E	ϕ f
100 mm. Back+Panel	128	118.5	5
150 mm. Back+Panel	180	165	6

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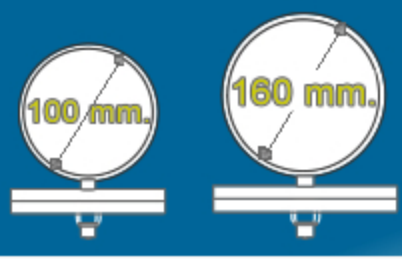


Solid Contact Pressure Gauge

SK-YMN

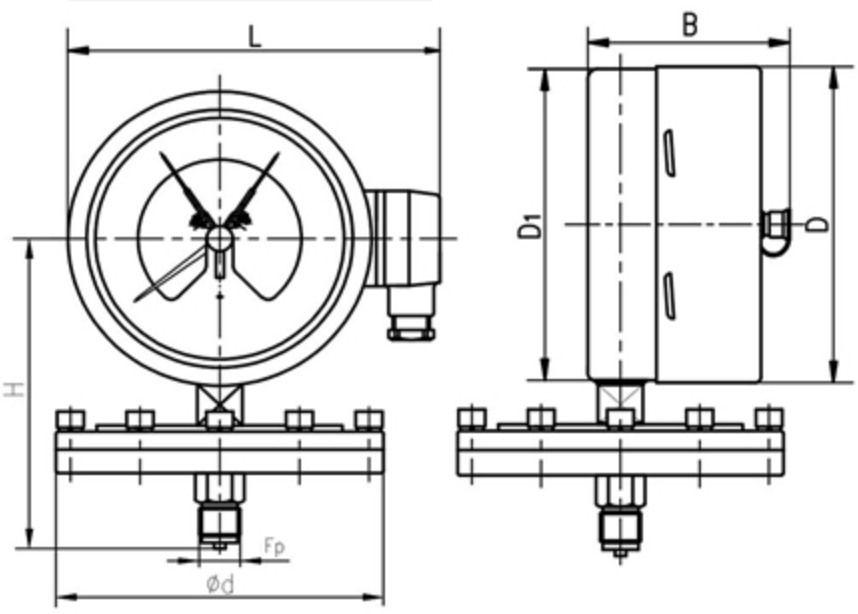
Product overview

TEPO SK-YMN Diaphragm electric contacts pressure gauge adopts diaphragm as sensitive element, and it could choose different materials baed on different measure mediums. The pressure gauge mainly applys to measure the micropressure of gas, liquid in industry course, especially fits to medium of corrosion and viscidity (non–solidification & non–crystal). The pointer of instrument will make contacts turn on or cut with the contacts of set fing er, causing the cut and turn–on of control system for the purpose of automatic control and alarm.

Specifications

- Type:Standard type
- Diameter: Φ100mm, Φ160mm
- Accuracy: Φ100mm, ±1.6%; ±2.5% Φ160mm, ±1.6%
- Set accuracy: ±4%
- Contact points: 1 or 2
- Contacts control: See attached table
- Range: Plus pressure 0–100 mBar to 0~2.5 Bar
  Minus pressure –100 ~ 0 mBar and other compound ranges
- Working pressure: Steady: 3/4 of full scale value; fluctuating: 2/3 of full scale value Short time: full scale value
- Diaphragm material: AISI316, AISI316L, PTFE coated
- Connection body: AISI304, AISI316 (AISI316L)
- Case material: AISI304
- Windows: Organic glass, Safety glass (double deck)
- Case protection: Class standard type: Ip54
- Maximum working voltage: 380V.AC or 220 V.AC
- Maximum current: 1A
- Contact power: 30VA
- Environment temperature: Standard type: –40 ~ +70℃
- Connection: R 1/2", 1/2" NPT, M20x1.5 or special requirement Flanged connection

Dimensions (mm.)



Ranges (Bar)	Gauge Dimensions mm						
	ϕd	ϕD	ϕD1	B	H	L	Fp
≤0.25	160	101	99	102	135/132	142	M20x1.5/NPT1/2
		161	159	104	165/162	202	M20x1.5/NPT1/2
>0.4	100	101	99	102	135/132	142	M20x1.5/NPT1/2
		161	159	104	165/162	202	M20x1.5/NPT1/2

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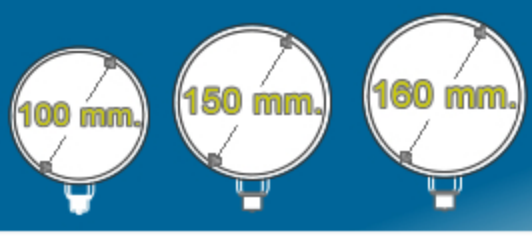
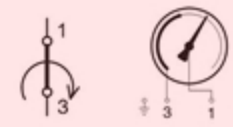
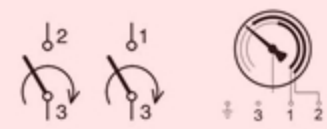
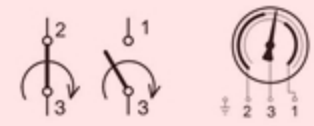
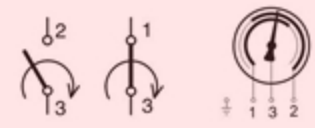


Solid Contact Pressure Gauge

SK-YMN

Switch control method of electric contacs

Code of contacts	Code title	Quantity	Switch fuction of deasil rotating pointer	Sketchmap
One upper limits	821.1	1	Over the setpoint,circuit is turned on (N.O.)	
One lower limits	821.2		Over the set point,circuit is cut off (N.C.)	
Two upper limits	821.11	2	Over the setpoint,circuit is turned by contact 1and 2	
Two lower limits	821.22		Over the setpoint,circuit is cut by contact 1and 2	
N.O.upper and lower limits	821.21		Over the setpoint,circuit is cut by contact 2,turned on by contact 1	
N.C.upper and lower limits	821.12		Over the setpoint,circuit is cut by contact 1,turned on by contact 2	

Notes

1. When ordering, please specify the name or No. of contacts referring to the table.
2. Leads of single or double contacts: lower limits is contact 2, upper limits setpoint is contact 1, contact 3 is public port.
3. Turn on and cut function details: The table shows the turn on and cut situations as pointer moves deasil, and the function is opposite while the pointer moves widdershins

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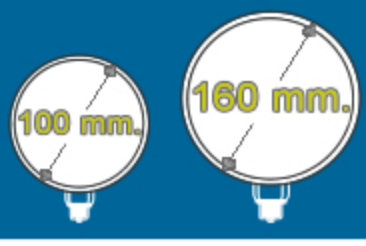


Ex-Proof Inductive Contact Pressure Gauges

EK-MN

Diameter ϕ100 ϕ160

Bourdon tube, Standard type

Bourdon tube, Obturation type

Bourdon tube, Vibration–proof type

Diameter ϕ100 ϕ160

Diaphragm standard type

Diaphragm Obturation type

Brief introduction

The switch of EK-MN series explosion–proof inductive pressure gauge is inductive approach form, because of non–contact–type, it have not any spoilage to the power supply system. Without electric spark, long using life, little impact on the measurement accuracy, it is not only applicable to certain dangerous places, but also suitable for frequent turn on/off occasions. It has the testing function, automatic control, automatic warning to the liquid medium .

EK-MN series explosion–proof inductive pressure gauge is based on IEC60079-0 < the request of the electric equipment used in explosive gas environment > " IEC60079-11 < safe explosive gas environment electrical equipment intrinsically safety–type" I " >, and qualified the relevant departments for the national explosion test.

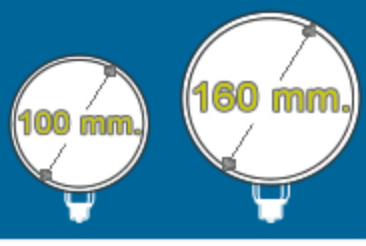
EK-MN series explosion–proof inductive pressure gauge should match with safety bar P+F to be a system of intrinsically safe explosion–proof. This system is applied to 1 area and 2 area with explosive gas.

Operation principles

The measure system of EK-MN series explosion–proof inductive contacts pressure gauge.Is composed by the bourdon tube, mechanical transmission system, value–show components,inductive contact device.

The deformation of bourdon tube under the measuring pressure causes pipes –displacement, and the which is transferd displacement is enlarged by mechanical transmission organizations (connecting rod and movement),to value–show components. Then the value of the pressure is indicated and the position of control patched. When the up and down limits set become to be coinciding, the control patch affects the electromagnetic field changes to transform the state of electrical switches.

With the output of turn on/off signal, to send the alarm or start/stop machine after connecting outer equipment, control system pressure within required range.



Ex-Proof Inductive Contact Pressure Gauges

EK-MN

Specifications

Types	Bourdon tube standard type Bourdon tube obturation type Bourdon tube vibration–proof type Diaphragm standard type Diaphragm obturation type
Diameter	ϕ100mm、ϕ160mm
Structure	①≥1 Bar Bourdon tube type ②<1 Bar Diaphragm type
Accuracy	ϕ 100mm Bourdon tube type: (≥ 4 Bar): 1.0%, 1.6% (< 4 Bar & vacuum): 1.6% ϕ 160mm Bourdon tube type: (≥ 1 Bar): 1.0%, 1.6% (vacuum):1.6% ϕ 100mm Diaphragm type: 2.5%;≥ 100 mBar 1.6% ϕ 160mm Diaphragm type: 1.6%; < 100 mBar 2.5%
Range	① 0–1 to 0–600 Bar , –1–0 and compound ranges Bourdon series ②40 mBar–1Bar, –1Bar –0 and compound ranges Diaphragm series
Electrical Parameter	① Pressure gauge fixed: 8VDC, Safe voltage <16VDC ② Working current: Opening ≥ 3mA,Closed ≤ 1mA,Safe current < 52mA ③ On/off frequency <5000Hz
Ambient temperature	–20℃ ~ +60℃
Ex-proof class	Exib Ⅱ CT6
Protection class	① Standard type:IP54 ② Obturation & vibration–proof type:IP65
Liquid filling	Special Instrument liquid.

Ranges	
40 mBar	160 Bar
60 mBar	200 Bar
100 mBar	250 Bar
160 mBar	300 Bar
200 mBar	350 Bar
250 mBar	400 Bar
400 mBar	600 Bar
600 mBar	-40 mBar
1 Bar	-60 mBar
1.6 Bar	-100 mBar
2.5 Bar	-160 mBar
4 Bar	-200 mBar
6 Bar	-250 mBar
10 Bar	-400 mBar
16 Bar	-600 mBar
20 Bar	-1 Bar
25 Bar	
40 Bar	
50 Bar	
60 Bar	
100 Bar	

How to Order

Please specify the following properties when the manometer ordering.

- Contact principle,
- Model number,
- Dial size,
- Range and pressure unit,
- Panel mounting; Front Flange (FF), Rear Flange (RF)
- Connection type,
- Connection thread,
- Accuracy,
- If necessary; Special scale,Diaphragm seals,..
- Contact type

For example: *EK-MN-P-100-(0/40 Bar)-RF-Bottom-R1/2-1.6-831.12*

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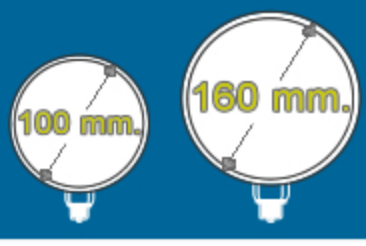
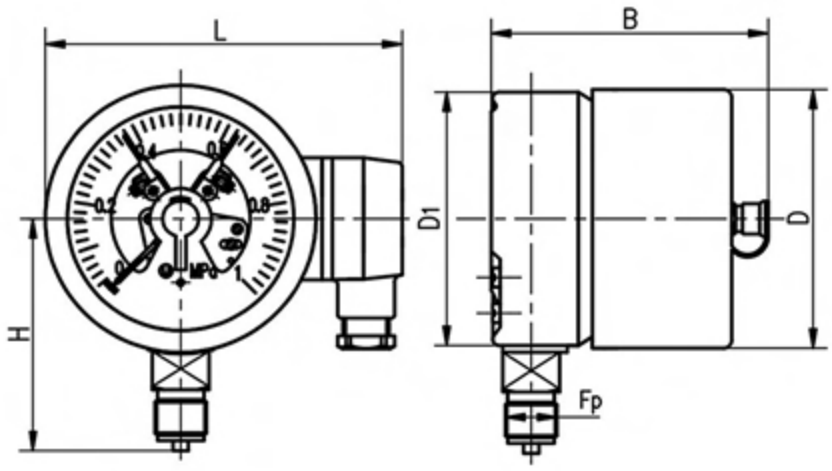


Ex-Proof Inductive Contact Pressure Gauges

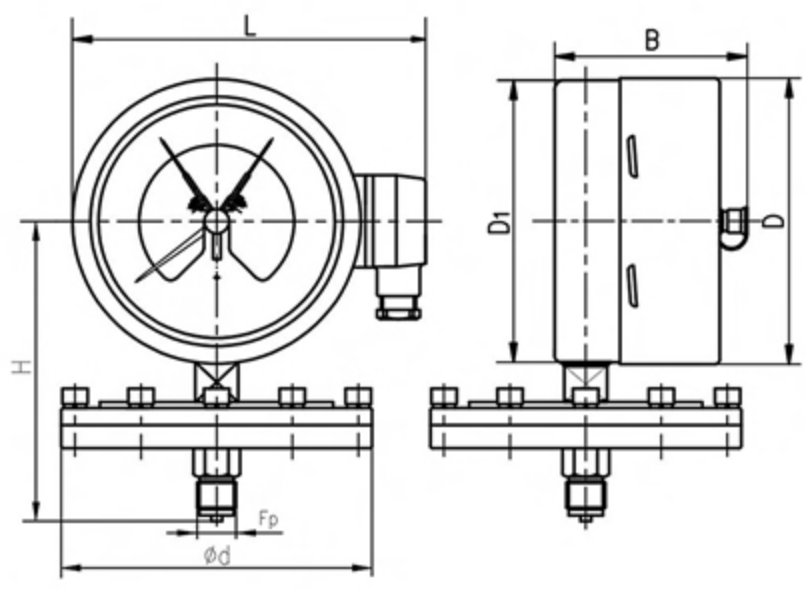
EK-MN

Dimensions (mm.)

Bourdon tube type



Diaphragm type



Bourdon tube type

Diameter	D	D1	B	H	L	Fp
100 mm.	101	99	102	88/85	142	M20x1.5/NPT1/2
160 mm.	161	159	104	118/115	202	M20x1.5/NPT1/2

Diaphragm type

Ranges (mBar)	Gauge Dimensions mm						
	ϕ d	ϕ D	ϕ D1	B	H	L	Fp
⩽ 250	160	101	99	102	135/132	142	M20x1.5/NPT1/2
		161	159	104	165/162	202	M20x1.5/NPT1/2
>400	100	101	99	102	135/132	142	M20x1.5/NPT1/2
		161	159	104	165/162	202	M20x1.5/NPT1/2

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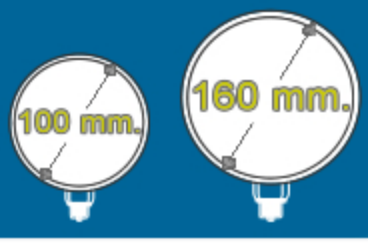

Ex-Proof Inductive Contact Pressure Gauges

EK-MN

Switch control method and wiring diagram of electric inductive approach switch

Code of contacts	Model code	Contact ea.	Contact function (principle)	Wiring scheme
1 2 - + 1 x min	831.2	1	Contact breaks by rising pressure (NC normally closed)	1 2
1 2 - + 1 x max	831.1		Contact makes by rising pressure(NO normally open)	1 2
1 3 4 2 - - + + 2 x min	831.22	2	Contact breaks by rising pressure (NC normally closed)	1 2 3 4
1 3 4 2 - - + + 2 x max	831.11		Contact makes by rising pressure (NO normally open)	1 2 3 4
1 3 4 2 - - + + min - max	831.12		Contact breaks by falling and rising (1NO-1 NC)	1 2 3 4
1 3 4 2 - - + + max - min	831.21		Contact makes by falling and rising (1NC-1 NO)	1 2 3 4

Notice:

1. When ordering, please specify the name or No. of contacts referring to the table.
2. Turn on and cut function details: The table shows the turn on and cut situations as pointer moves deasil, and the function is opposite while the pointer moves widdershins.

Safe bar option

Function	Code	Quantity	Safe bar code (power supply voltage 24V)	Safe bar code (power supply voltage 220V)
One up limit	2	1	KFD2-SR2-Ex1.W	KFA6-SR2-Ex 1.W
One down limit	1			
Two up limit	22	2	KFD2-SR2-Ex2.W	KFA6-SR2-Ex 2.W
Two down limit	11			
N.O. up & down limit	12			
N.C. up & down limit	21			

Safe bar option Specifications

Type	KFD2-SR2-Ex1.W, KFD2-SR2-Ex2.W	KFA6-SR2-Ex1.W, KFA6-SR2-Ex2.W
Specification	1. Power supply: 24VDC 2. No-coad voltage: 8VDC 3. Max current : 8mA 4. Intrinsic safety circuit:Ex(ia) II C U_o ≤10.5VDC I_o ≤13mA P_o≤ 34mW C_o=2.41 μ F L_o=210mH	1. Power supply: 220VAC 2. No-coad voltage: 8VDC 3. Max current : 8mA 4. Intrinsic safety circuit:Ex(ia) II C U_o ≤10.5VDC I_o ≤19mA P_o≤ 51mW C_o=2.9 μ F L_o=100mH

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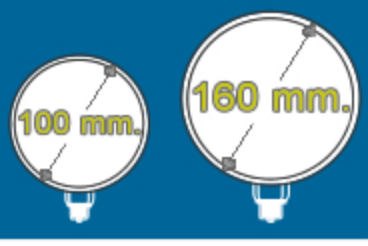
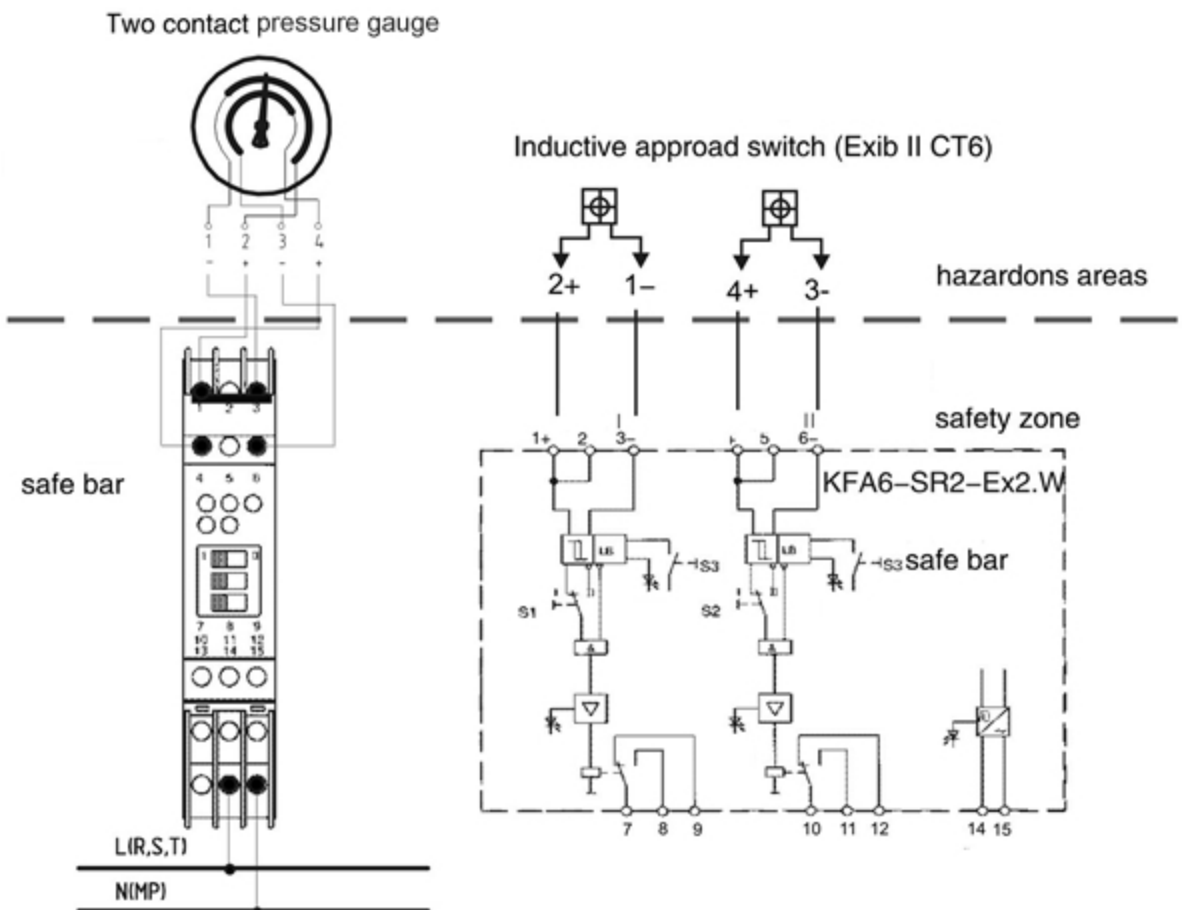


Ex-Proof Inductive Contact Pressure Gauges

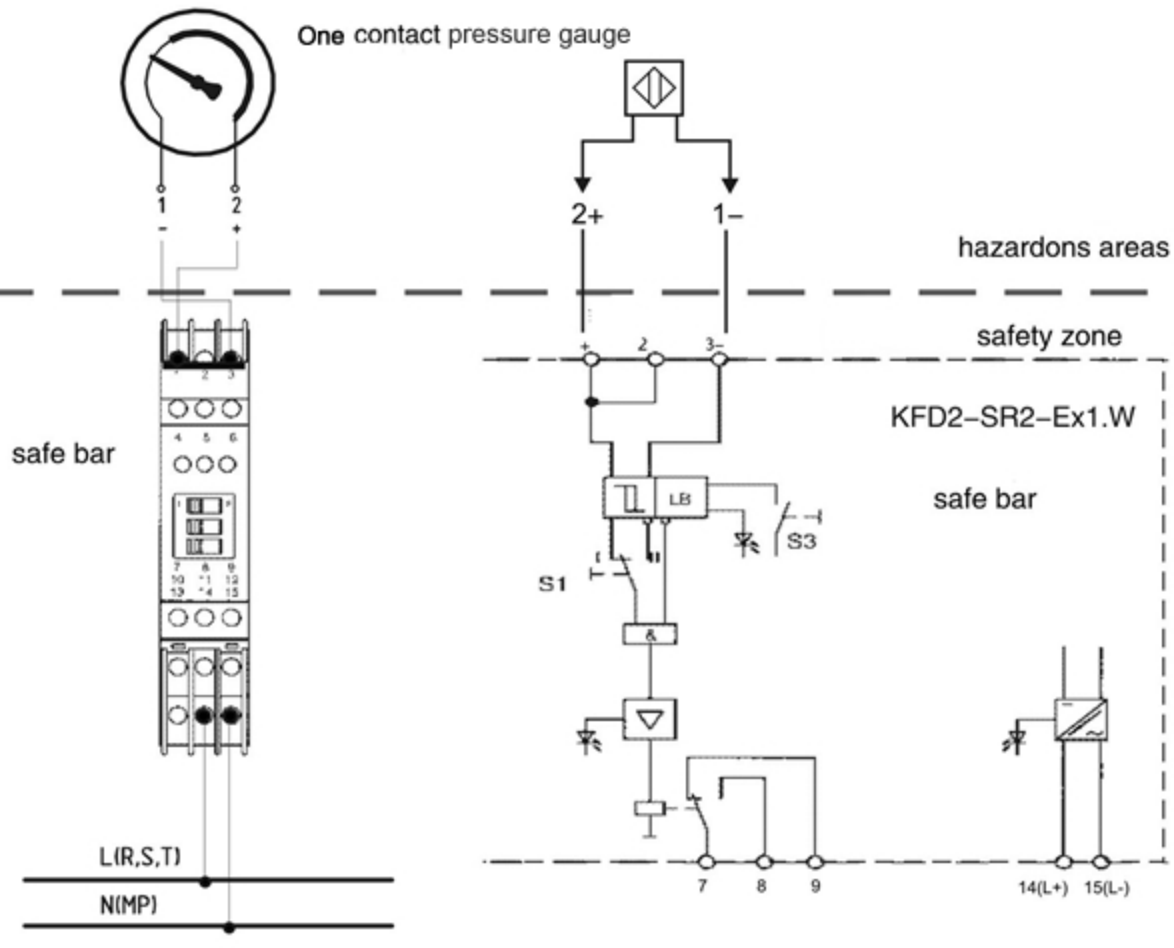
EK-MN

Power supply 220 VAC



- Drive with two contacts thermometer
- Output of relay with two single–pole double–throw contacts.
- Input signal I: 1 connect +, 3 connect –
- Input signal II: 4 connect +, 6 connect –
- Power supply (220V):14,15
- Output signal I : 7, 8, 9 relay
- Output signal II : 10, 11, 12 relay
- LED:
  Circuit state (green)
  Broken circuit state (red)
  Relay outputstate (yellow)

Power supply 24 V



- Input signal: 1 connect +,
  3 connect –
  (220V): 14, 15
- Power supply: 14, 15
- Output signal: 7. 8, 9 relay
- Drive one contact thermometer
- Output of relay with one single–pole double–throw contact.
- LED:
  Circuit state (green)
  Broken circuit state (red)
  Relay outputstate (yellow)

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