M. K. JUCHHEIM GmbH & Co

Delivery address: Mackenrodtstraße 14, 36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 (0) 661 60 03-7 25
Fax: +49 (0) 661 60 03-6 81
E-Mail: mail@jumo.net
Internet: www.jumo.de

JUMO Instrument Co. Ltd.

JUMO House
Temple Bank, Riverway
Harlow, Essex CM20 2TT, UK

Phone: +44 (0) 12 79 63 55 33
Fax: +44 (0) 12 79 63 52 62
E-Mail: info@jumoinstruments.fsnet.co.uk

JUMO PROCESS CONTROL INC.

735 Fox Chase
Coatesville PA 19320, USA
Phone: 610-380-8002
1-800-554-JUMO
Fax: 610-380-8009
E-Mail: info@JumoUSA.com
Internet: www.JumoUSA.com

JUMO manic

Contact pressure gauges

NG 100, 160
Class 1.0 (1.6); Protection IP51
Ranges -1 bar to +600 bar

General application

JUMO-manic pressure gauges are used for monitoring pressure in liquid and gaseous media which are not highly viscous, do not crystallize out and do not attack copper alloys. Applications include machinery and plant engineering, hydraulic or pneumatic plant, pumps, compressors, etc.

Description of function

The pressure of the medium to be measured acts directly on the Bourdon tube, the free end of which rotates the pointer via a mechanical linkage.
Contact opening or closing occurs with the movement of the actual-value pointer. In the case of a normally-open function, the rising actual-value pointer takes the contact arm with it, thus closing the circuit when the setpoint is exceeded.
In the case of a normally-closed function, the rising actual-value pointer takes the contact arm with it, thus interrupting the circuit when the setpoint is exceeded.

Technical data

Case
sheet steel, painted black with front flange

Window
plastic (polycarbonate) with integral setpoint adjustment

Dial
white, black lettering to DIN 16 109

Mechanism
copper alloy

Measuring element
up to 40 bar:
C-spring in CuSN8, soft-soldered
above 60 bar:
coil spring in stainless steel,
Mat. Ref. 1.4571, brazed

Pressure connection
½" pipe thread to DIN 16 288, copper alloy.

Setpoint adjustment
by means of removable key

Loading
to DIN 16 005
with steady pressure: $^3/_4$ of full scale

with fluctuating pressure: $^2/_3$ of full scale

Indication range and accuracy
Indication accuracy to DIN 16 005

	Class 1.0	Class 1.6
-1 to 0 bar		X
-1 to 0.6 bar		X
-1 to 1.5 bar	X	
-1 to 3 bar	X	
-1 to 5 bar	X	
-1 to 9 bar	X	
-1 to 15 bar	X	
0 to 1 bar		X
0 to 1.6 bar		X
0 to 2.5 bar	X	
0 to 4 bar	X	
0 to 6 bar	X	
0 to 10 bar	X	
0 to 16 bar	X	
0 to 25 bar	X	
0 to 40 bar	X	
0 to 60 bar	X	
0 to 100 bar	X	
0 to 160 bar	X	
0 to 250 bar	X	
0 to 400 bar	X	
0 to 600 bar	X	

Switching differential
1% of scale span with contact type 3 and 7
approx. 3-6% of scale span with contact type 6

Switching point accuracy
± 0.5% of scale span with contact type 6

Max. contact rating
contact type 3 (Y) slow-break contact
voltage: 250V max.
rating: 18W (DC),
30VA (AC)
50mA max., p.f.=1

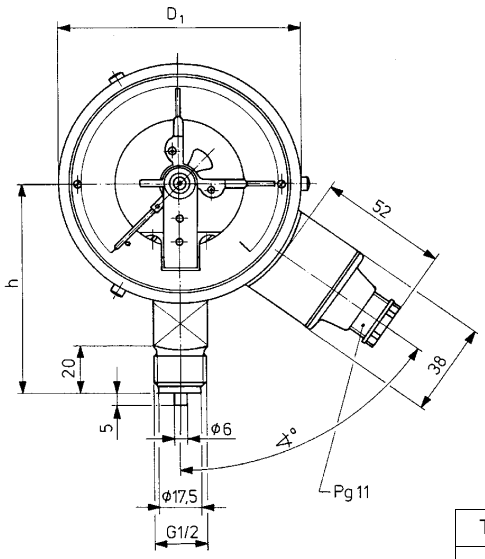
contact type 6 (Z) magnetic snap action
voltage: 250V max.
rating: 30W (DC),
50VA (AC)
250mA max., p.f. =1

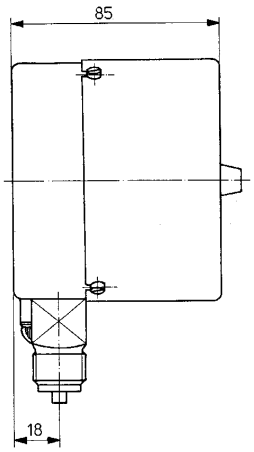
contact type 7 (I) Inductive contact
to NAMUR or DIN 19 234

Permissible medium and ambient temperatures
-20 to +50°C soft-soldered
-20 to +70°C extra code /76

Dimensions

Type 407, 408

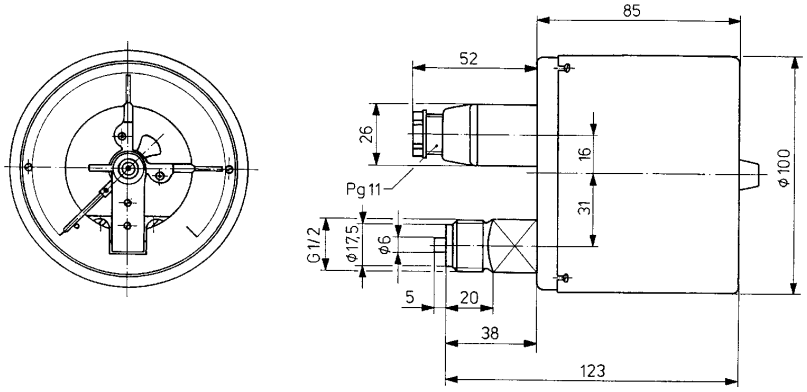




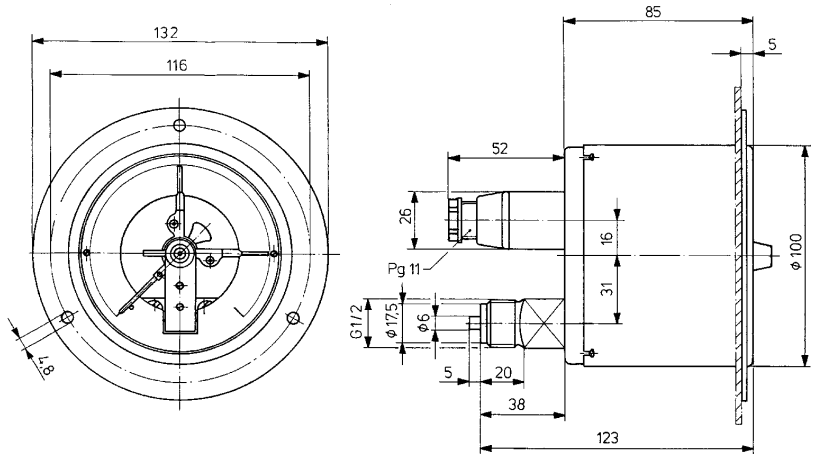
Type	D_1	h	Angle
407	100	87	55°
408	160	118	30°

G1/2 = 1/2" pipe thread
∅ = diameter

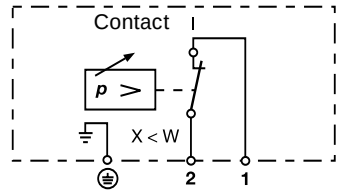
Type 409



Type 409/07

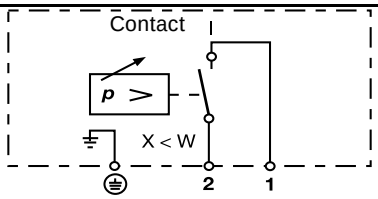


Contact action



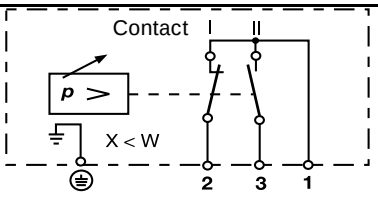
Switching sequence: contact I opening
when pressure rises

Contact action: 01



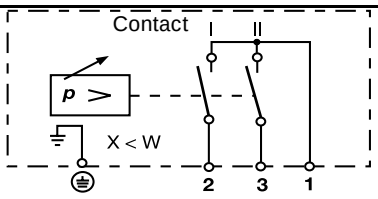
Switching sequence: contact I closing
when pressure rises

Contact action: 02



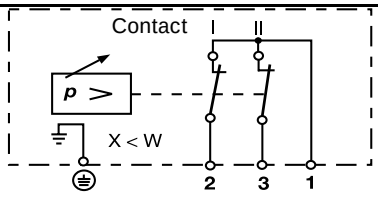
Switching sequence: contact I opening
contact II closing
when pressure rises

Contact action: 03



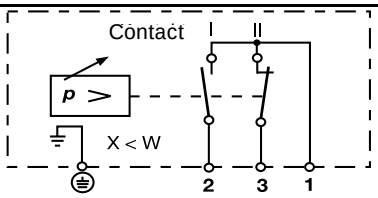
Switching sequence: contact I closing
contact II closing
when pressure rises

Contact action: 04



Switching sequence: contact I opening
contact II opening
when pressure rises

Contact action: 05



Switching sequence: contact I closing
contact II opening
when pressure rises

Contact action: 13

Order details

(1) Basic type

404020 Jumo-manic contact pressure gauge

(2) Case / pressure connection

407 ∅ 100mm, concentric, bottom entry, $^1/_2$" pipe thread
408 ∅ 160mm, concentric, bottom entry, $^1/_2$" pipe thread
409 ∅ 100mm, eccentric, rear entry, $^1/_2$" pipe thread

(3) Contact action

01 1 contact opening with rising pressure
02 1 contact closing with rising pressure
03 1 contact opening with rising pressure
1 contact closing with rising pressure
04 2 contacts closing with rising pressure
05 2 contacts opening with rising pressure
13 1 contact closing with rising pressure
1 contact opening with rising pressure

(4) Contact type

3 electromechanical slow-break contact with single-pole closing contact
6 electromechanical slow-break contact with single-pole closing contact, magnetic snap-action
7 contactless inductive pointer sensing

(5) Extra codes[1]

00 no extra code (standard)
01 restrictor in pressure connection
07 flange for front fixing
60 red mark on dial (specify position when ordering)
61 rear fixing flange painted black
76 parts in contact with medium in stainless steel Mat. Ref. 1.4571; only for Type 407

(6) Range[2]

-1 to 0 bar
-1 to 0.6 bar
-1 to 1.5 bar
-1 to 3 bar
-1 to 5 bar
-1 to 9 bar
-1 to 15 bar
0 to 1 bar
0 to 1.6 bar
0 to 2.5 bar
0 to 4 bar
0 to 6 bar
0 to 10 bar
0 to 16 bar
0 to 25 bar
0 to 40 bar
0 to 60 bar
0 to 100 bar
0 to 160 bar
0 to 250 bar
0 to 400 bar
0 to 600 bar
-1 to 0 bar

	(1)		(2)		(3)		(4)		(5)[1]	(6)[2]
Order code	404020	-	...	-	..	-	.	/	..	..
Order example	404020	-	407	-	02	-	3	/	60	0 to 1.6 bar

[1] If more than one code is required, please write them one after another, separated by a stroke (/).
[2] Please specify range in plain text.

Note:

In order to ensure maximum switching reliability, we recommend a minimum voltage of 24V and a minimum current of 20mA for the standard version or contact type -6 (electromagnetic slow-break contact).

Contact-operated relays

With regard to electromechanical limit contacts, we recommend the use of *multi-functional relays* in the MSR series from *Wiebrock Mess- und Regeltechnik GmbH, Herford.* These switching amplifiers increase the switching reliability and capability of slow-break and magnetic snap-action contacts, and reduce their contact load.
Undesirable switching actions of the limit contacts due to vibration are greatly reduced by a drop-out delay.
Multi-function relays are strictly recommended when using limit contacts in oil.
In the case of inductive limit contacts, transistor relays type WE77/Ex.. from Pepperl & Fuchs can be used. The intrinsic safety EEx ia II C T6 is only ensured in conjunction with the transistor relays mentioned above.