

Electrical alarm contacts with Magnetic snap-action or Sliding contacts in pressure and temperature gauges

Examples:



Thermometer
Model 55

Pressure Gauge
Model 212.20.100



Part of your business

Contents

1. Safety instructions
2. Description, Application
3. Mechanical connection
- 3.1 Special requirements for the installation point
4. Wiring details
5. To set desired value indicator
6. Ingress protection IP
7. Admissible ambient temperatures
8. Maintenance and servicing/Cleaning
9. Repairs
10. Power ratings
11. Overcurrent protection devices
12. Switch version appropriate to gauge type and range

1. Safety instructions



The appropriate national safety regulations (i.e. VDE 0100) must be observed when installing, putting into operation and running these instruments.

Do not work on gauge while under voltage.

Serious injuries and/or damage can occur should

the appropriate regulations not be observed.

The gauges are **no safety accessories** as defined by the Pressure Equipment Directive 97 / 23 / EC.

Only appropriately qualified persons should work on these instruments.

2. Description, Application


The built-in electric alarm contacts (magnetic snap-action or sliding) are auxiliary current switches which open and close the connected electrical circuits at the set points via the contact arm, which is driven by the main instrument pointer.

3. Mechanical connection

According to the general technical regulations for pressure gauges and temperature measuring instruments, respectively (i.e. EN 837-2 or EN 13 190). When screw-fitting the gauges the force required for this must not be applied through the case or terminal box but just through the spanner flats (with suitable tool) provided for this purpose.

Installation with
open-end wrench



With safety pattern gauges (see dial symbol ) you need to pay attention to the fact that the free space behind the blow-out back will be at least 15 mm.

3.1 Special requirements for the installation point

Instruments must be mounted in a location free from vibration in order to avoid contact chatter and the resulting increased wear. If the measuring point is not adequately stable a measuring instrument holder should be used for fastening (and possibly via a flexible capillary line). If the pressure gauge is exposed to vibration or pulsating pressure or both, then a liquid filled pressure gauge may provide considerably better performance and readability. Instruments should be protected against coarse dirt and wide fluctuations in ambient temperature.

4. Wiring details

The electrical connections should be made by qualified electricians. Connection details and switch functions are given on the instrument type plate. Connection terminals and ground terminal are appropriately marked.

The mains connection lines to be provided must be dimensioned for maximum instrument power consumption and comply with IEC 227 or IEC 245.

Power ratings and overcurrent protection devices see overleaf.

5. To set desired value indicator

The desired value indicators for the alarm contacts are adjustable over the adjustment lock in the window with the aid of adjustment key (included in delivery; to be found on standard gauges on the outside edge of the junction box).



The desired value indicators for the alarm contacts are adjustable over the full range of the instrument. Switching points shall be set in the ranges between 10 % and 90 % of the scale, to ensure switching accuracy and long life of the mechanical measuring system.

6. Ingress protection IP

The type of enclosure to EN 60 529 for protection against external influences depends on the basic instrument and is found in the respective data sheet.

7. Admissible ambient temperatures

The permissible ambient temperatures for alarm contacts is -20 to +70°C. Where this span exceeds the permissible temperature limits for the instrument to which the contacts are fitted, the limits for the instrument apply (see data sheet).

8. Maintenance and servicing / Cleaning

The instruments require no maintenance or servicing. The indicator and switching function should be checked once or twice every 12 months. The instrument must be disconnected from the process to check indication with a pressure or temperature testing device.

The instruments should be cleaned with a damp cloth moistened with soap solution. For cleaning inside the instrument the mains power supply should be disconnected by means of the plug box or plug connection. It must be ensured that all the parts are dry before the power is switched on again.

9. Repairs

Repairs are to be only carried out by the manufacturer or appropriately trained personnel.

For further details see WIKA data sheet AC 08.01 or the type sheet for the respective basic gauge.

10. Power ratings

Table 1: Maximum contact rating

Maximum contact rating with non-inductive (ohmic) load	Magnetic snap-action contact model 821		Sliding contact model 811
	Dry gauges	Liquid filled gauges	Dry gauges
Max. voltage (MSR) $U_{\text{eff max.}}$	250 V	250 V	250 V
Current ratings: 1)			
Make rating	1.0 A	1.0 A	0.7 A
Break rating	1.0 A	1.0 A	0.7 A
Continuous load	0.6 A	0.6 A	0.6 A
Maximum load	30 W 50 VA	20 W 20 VA	10 W 18 VA

1) The values for nominal working currents shown in the above table apply to instruments with switch version S. For instruments with switch version L these values should be halved. (refer to point 12 for appropriate version)

Note: None of the limit values for voltage, current and capacity are to be exceeded! We recommend the following load values to ensure safe, continuous operation:

Table 2: Recommended contact ratings with different nominal voltages and instrument versions

Voltage (DIN IEC 38)	Magnetic snap-action contact model 821						Sliding contact model 811		
	Dry gauges			Liquid filled gauges			Dry gauges		
DC / AC	ohmic load		inductive load	ohmic load		inductive load	ohmic load		inductive load
V	DC mA	AC mA	$\cos \varphi > 0,7$ mA	DC mA	AC mA	$\cos \varphi > 0,7$ mA	DC mA	AC mA	$\cos \varphi > 0,7$ mA
230	100	120	65	65	90	40	40	45	25
110	200	240	130	130	180	85	80	90	45
48	300	450	200	190	330	130	120	170	70
24	400	600	250	250	450	150	200	350	100

The switching current must not be less than 20 mA with low voltages for switching reliability reasons. For higher loads, and instruments with liquid-filled cases, we recommend the use of a separate relay, WIKA Models 905.1X.

11. Overcurrent protection devices

No overcurrent protection devices are installed in the instruments.

Should overcurrent protection devices be required we recommend the following values in accordance with EN 60 947-5-1.

Table 3: Overcurrent protection devices

Voltage	Magnetic snap-action contact model 821						Sliding contact model 811					
	Switch version S 1)			Switch version L 1)			Switch version S 1)			Switch version L 1)		
V	Nominal size of gauge			Nominal size of gauge			Nominal size of gauge			Nominal size of gauge		
	63	100	160	63	100	160	63	100	160	63	100	160
24	1 A	2 A	2 A	0.63 A	1 A	1 A	0.63 A	1 A	1 A	0.315 A	0.63 A	0.63 A
250	0.63 A	1 A	1 A	0.315 A	0.63 A	0.63 A	0.125 A	0.315 A	0.315 A	0.063 A	0.125 A	0.125 A

All data refers to miniature fuses M and a maximum short circuit current 100 A.

1) Refer to point 12 for appropriate version

12. Switch version appropriate to gauge type and range

The switch versions S and L are used according to the basic instrument model, measuring range and number of alarm contact switches. The following table 4 shows the gauges model 2 with the allocated switch version L.

Table 4: Switch version appropriate to gauge model and range

WIKA basic gauge model	Nominal size	Number of contacts sets	Measuring ranges	Switch version
2XX.XX	100 and 160	1	≤ 1 bar	L
2XX.XX	100 and 160	2	≤ 1.6 bar	L
2XX.XX	100	3 or 4	≤ 4 bar	L
2XX.XX	160	3 or 4	≤ 2.5 bar	L
214.11	96x96 and 144x144	1	≤ 1 bar	L
214.11	96x96 and 144x144	2	≤ 1.6 bar	L
214.11	96x96	3	≤ 4 bar	L
214.11	144x144	3	≤ 2.5 bar	L

All other gauges model 2 are manufactured with switch version S.

For WIKA gauges model 3, 4, 5, 6 and 7 as well as model 55 and 73 switch version L is used.

Technical alteration rights reserved.



WIKA Alexander Wiegand GmbH & Co. KG
 Alexander-Wiegand-Straße 30
 63911 Klingenberg • Germany
 Phone (+49) 93 72/132-0
 Fax (+49) 93 72/132-406
 E-Mail info@wika.de
 www.wika.de

2003325 04/2003 GB/DF