

## Limit value switches (electromechanical)

### Low-action contact

#### General

Electromechanical limit value switches in pointer-type measuring instruments are auxiliary current switches which - depending on the direction of movement- open or close electrical circuits at the set limit values by means of a contact arm which is moved by the actual value pointer.

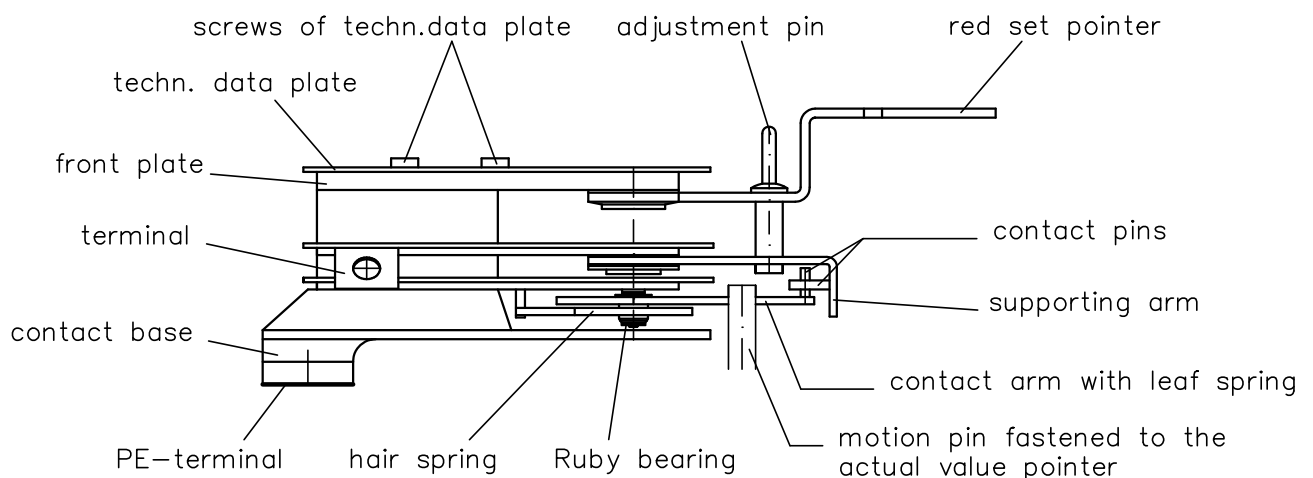
Low-action contacts essentially comprise:

- an adjustable red set pointer
- a supporting arm which is connected to the red set pointer and carries the contact pin and
- a contact arm moved by the actual value pointer carrying the second contact pin.

An adjusting lock provided with a separate or fixed key is used for external adjustment of the set pointers of the built-in limit value switches to set the value at which the switching operation is to take place.

Our limit value switches are designed in such a way that the actual value pointer can move past the adjusted set pointer after the contact has been made; once made, however, the contact is maintained which means that even in the event of a power failure, this configuration guarantees stable switching in harmony with the position of the actual value pointer.

In our limit value switches, we use a non wearing jewel bearing consisting of a stainless steel shaft and 2 axially arranged synthetic rubies. This bearing is easy running, electrically insulating, resistant against aggressive media, and guarantees optimum safety even under extreme conditions of application.



#### Mode of operation

The low-action contact is a mechanical contact for switching capacities up to 10 W 18 VA max. Contact making will not be delayed and will be analogous to the movement of the actual value pointer.

As a result of the uniform switching operation carried out analogously with the pointer type measuring instrument, this construction is known as low-action execution. Switching takes place without delay when the red set pointer and the actual value pointer are congruent.

A technically perfect function will, of course, require an optimum contact adjustment. Kindly refer to our instructions on catalogue page K 14-10.040.

## Application

Low-action contacts may be used in applications which do not require high switching capacities or involve vibrations. These switches are not recommended for use with high switching rates, in aggressive atmospheres where the contact would oxidize, in liquid filled measuring instruments or in areas which are under a risk of explosion.

The range of application may, however, be extended by the use of pulse-controlled contact protection amplifiers.

For high switching rates and to avoid switching errors (caused by vibration) we recommend our pulse controlled multifunctional amplifiers of the -MSR- series. These amplifiers are a special development for use with electromechanical limit value switches (re. catalogue group K 11).

### A basic condition for safe switching will always be a clean, electrically conductive surface of the contact pins.

If used in liquid filled measuring instruments and in areas under a risk of explosion, the best solution will always be obtained by our inductive contacts (re. catalogue group K 03).

## Available models

Low-action contacts are available in 2 versions.

1. As low-action contact without a magnet holder.  
This contact can only be used in the low-action range.
2. As low-action contact with a magnet holder.  
We call this model „KOMBI“ because it may be used for both low-action (without screwed-in magnets) as well as for snap-action (with screwed-in magnets).  
The appropriate magnets may be ordered individually from us and screwed-in by the user (re. catalogue page K 02-00.020 about snap-action contacts).  
The technical data plate may be exchanged to adapt the electrical data to the model used.

Free shoulder screws to fasten the contacts will be supplied upon request (re. catalogue page K 13-40.020).

## Technical data:

Rated operational voltage:	250 V max.	
Making and breaking current:	0.7 A max. *	
Permanent current:	0.6 A max. *	
Switching capacity:	DC 10 W max.	AC 18 VA cos. $\varphi > 0,7$ max. *
Contact material (standard):	Ag80 Ni20 gold plated (special material against a price supplement)	
Creep and air distances:	acc. to EN 60947-1:1991, overvoltage category II, pollution degree 2	
Ambient temperature:	-20°C to +70°C	
Setting range:	280° max.	
Voltage test :	circuit/protective earth conductor	2000 VAC 1 minute
	circuit / circuit	2000 VAC 1 minute

Definition: Low-action and snap-action contacts are auxiliary current switches in accordance with EN 60947-5-1 (IEC 947-5-1)

Standards: EN 60947-1 EN 60947-1A11 EN 60947-5-1

Recommended short-circuit protection device:

U	normal hair springs			light hair springs		
	DN 63	DN 100	DN 160	DN 63	DN 100	DN 160
24 V	0,63 A	1 A	1 A	0,315 A	0,63 A	0,63 A
250 V	0,125 A	0,315 A	0,315 A	0,063 A	0,125 A	0,125 A

All data stated in connection with fuses refer to fuses (m) and a maximum short circuit current of < 100 A.

\* The validity of the technical data is subject to the fitting instructions described on catalogue page K 14-10.041.  
For contacts with light hair springs the nominal operating currents must be reduced to half of their values because of the narrow cross cut of the hair spring.

Quality and operation of the contacts are subject to supervision within the scope of our internal inspections.

For rated operational voltages of  $\geq 50$  V AC or  $\geq 75$  V DC the contacts are subject to the low voltage directive.

For load tables applicable to limit value switches kindly refer to catalogue page K 14-10.010.

## Availability:

- DN 63 up to double
- DN 100 up to quadruple
- DN 160 up to quadruple