

Limit transducer electronic - Inductive contact / electronic contact -



DESCRIPTION

It is the task of the limit transducer to close or open power circuits via a contact arm that is moved by the current value indicator. The target value indicator is set to the value at which the switching process is to take place, using a removable key. The target value indicator can be adjusted over the entire range of the scale.

The standard power connection is via a cable connection box.

Limit transducers can be installed in pressure meters and thermometers!

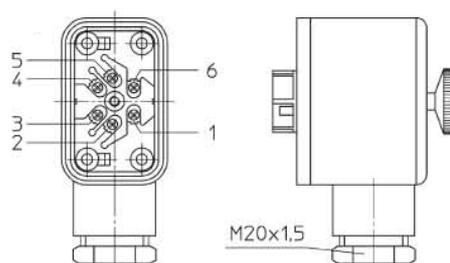
Inductive limit transducers I are contact-free approximation switches, which are therefore free from wear and tear and require no maintenance. They are frequently used in locations where there is an explosive risk, as well as for applications with a high switching frequency.

When using the isolator amplifiers KF 16... EX 1, the operating medium must be in accordance with the inherent safety of the detonation protection (also see "slotted initiators" in safety technology, etc.). EC type test certificates are available on request.

Electronic limit transducers E with a PNP slotted initiator are a special type of inductive contacts (without EC type tests). The PNP switch output is used for directly activating DC loads up to 100 mA, e.g. an SPS; it takes into account the associated low voltages and current and increases the switching safety. The SVA switch amplifiers used for inductive contacts are not required in this case. Installation is possible in all devices from NG 63 to NG 160 mm.

Electrical connection

The standard power connection is via a cable connection box attached to the housing.



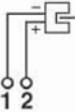
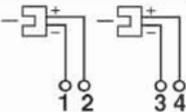
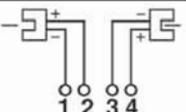
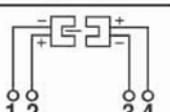
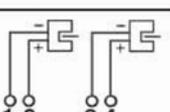
The terminals in the cable connection box have been numbered according to the circuit diagrams. The cable box is equipped with an M20 x 1.5 cable connection with a cable grip.

ORDER INFORMATION

Please add to the measuring device specifications:

- Type reference letter **I** or **E**
- Reference number for the switch function
- Possible special features

TECHNICAL DATA - inductive limit transducer I

Principle circuit diagram	Switch functions and control behaviour for indicator movements in clockwise direction	Type / reference number
Limit transducer with one limit value		
	Opener ¹⁾	I 2
	Closer ²⁾	I 1
Limit transducer with two limit values		
	1st and 2nd limit value: Opener ¹⁾	I 22
	1st limit value: Opener ¹⁾ 2nd limit value: Closer ²⁾	I 21
	1st limit value: Closer ²⁾ 2nd limit value: Opener ¹⁾	I 12
	1st and 2nd limit value: Closer ²⁾	I 11

1) "**Opener**" = 2
 The control lug enters the slotted initiator if the indicator moves in a clockwise direction. The control current is very low (≤ 1 mA), the resistance value of the initiator increases, the relay in the downstream switch amplifier drops out when an operating current is used.

2) "**Closer**" = 1
 The control lug leaves the slotted initiator if the indicator moves in a clockwise direction. The control current increases again (≥ 3 mA), the resistance value of the initiator decreases, the relay in the downstream switch amplifier operates when an operating current is used.

Circuit diagrams for limit transducers with 3 (or 4) limit values are available on request. The switch functions must also be given for an indicator moving in a clockwise direction.

e.g. 1st limit value: Opener
 2nd limit value: Closer
 3rd limit value: Closer (e.g. I 2.21)

Special versions

- **Adjustment device** with fixed key
- **Safety design (SD)**: can be used in combination with disconnecter units to make up self-monitoring control systems (**safety switches**) in safety technology. If an error should occur, either on the slotted initiator or on the switch amplifier, the initial state must become "0". The design of these safety switches was tested and approved by the TÜV according to the technical safety requirements for important switches. The electrical reference values correspond to the EN 50227 (formerly).
- Limit transducer with 2 limit values, optionally with **linked limit values** or with a target value indicator and a **fixed distance between the contacts** (e.g. contact spacing 3 Φ).
- Adjustment device (MS-nickel-plated) with **fixed key**;
 Adjustment device made from CrNi steel with a loose or fixed key on request.
- Other plug-in connections on request.

TECHNICAL DATA - electronic limit transducer E

	Switch functions and control behaviour for indicator movements in clockwise direction	Reference number
Limit transducer with one limit value		
	Closer ¹⁾	E 1
	Opener ²⁾	E 2
Limit transducer with two limit values		
	1st and 2nd limit value: Closener ¹⁾	E 11
	1st limit value: Closener ¹⁾ 2nd limit value: Opener ²⁾	E 12
	1st limit value: Opener ²⁾ 2nd limit value: Closener ¹⁾	E 21
	1st and 2nd limit value: Opener ²⁾	E 22

1) **"Closener" = 1**

The control lug of the slotted initiator contact is open, i.e. the power circuit has been interrupted and the output is no longer active; If the limit value is exceeded in a clockwise direction, the lug moves into the control head, the circuit is closed, i.e. the output becomes active.

2) **"Opener" = 2**

The control lug is in the slotted initiator, the contact (power circuit) is closed, the output is active; If the limit value is exceeded in a clockwise direction, the lug moves out of the control head, the power circuit opens, i.e. the output becomes inactive.

Circuit diagrams for limit transducers with 3 (or 4) limit values are available on request. The switch functions must also be given for an indicator moving in a clockwise direction.

e.g. 1st limit value: Opener
 2nd limit value: Closener
 3rd limit value: Closener

Electrical data:	3-wire connection (standard design)	2-wire connection (special design)
Operating voltage range	10 - 30 VDC	10 - 30 VDC
Residual ripple	10 %	≤ 10 %
No-load current	≤ 10 mA	≤ 0,8 mA (typ. ≤ 0,6 mA)
Reverse polarity protected	conditional (Ub)	yes
Induction protection	1 kV, 0.1 ms, 1k	1 kV, 0.1 ms, 1k
Oscillator frequency	approx. 1000 kHz	240 kHz
EMV according to EN 60947-5-2 Appendix ZA	yes	yes
Switch frequency	1000 Hz	1000 Hz
Switch hysteresis	3...15%	3...15%
Type of output	PNP	PNP
Switching current	≤ 100 mA	≤ 100 mA
Type of protection (EN 60529 / IEC 529)	IP67	IP67
permissible environmental temperature	-25 ... +70°C	-25 ... +70°C
Resistance to insulation voltage	0.5 kV	0.5 kV
Cable diameter	0.08 mm ²	0.08 mm ²

