**Isolating Switching Amplifier**

**MK15-12Ex0-PN/24VDC**

1-channel

The MK15-12Ex0-PN/... is a single channel type special switching amplifier, particularly suited for transfer of high pulse frequencies (e.g. when used in scanning turbine rotation).

They can be connected to sensors according to EN 60947-5-6 (NAMUR), variable resistors or potential-free contacts.

The device is equipped with one short-circuit protected pnp transistor output and one short-circuit protected npn output transistor.

Three front panel programming switches set the channel function (normally open mode (NO) and normally closed (NC) mode), pulse expansion and the selection of pulse processing for the input signal (static or dynamic).

If pulse expansion is active, the output pulse is extended by 10 ms.

With static pulse processing, the NAMUR switching thresholds are scanned in a range of 0...5 kHz.

Dynamic pulse processing is to be used with sine and square wave input signals whose absolute value switching thresholds do not correspond to the NAMUR standard. A signal deviation (current change) of approx. 0.5 mA in an operating range of 1.5...3.5 mA switches the output.

The green LED on the front cover indicates that the devices are powered. The yellow LED indicates the switching status of the output (LED on – transistor conducting).
## Isolating Switching Amplifier MK15-12Ex0-PN

### Type
- Ident-No.
  - MK15-12Ex0-PN/24VDC
  - 7541316

### Supply voltage
- \( U_B \): 10...30 VDC
- Line frequency/ripple \( f_{pp} \): \( \leq 10 \% \)
- Power/current consumption: approx. 20 mA
- Galvanic isolation: between input circuit, output circuit and supply voltage for 250 V

### Input circuits
- Operating characteristics: according to EN 60947-5-6 (NAMUR), intrinsically safe according to EN 50020
- Voltage: 8.2 V
- Current: 8.2 mA
- Switching threshold (static): 1.55 mA
- Hysteresis (static): 0.2 mA (typ.)

### Output circuits
- Two transistor outputs
- Voltage drop output (5): \( \leq 2.5 \) V
- Voltage drop output (6): \( \leq 2.5 \) V
- Switching current output (5): \( \leq 100 \) mA, short-circuit protected, pnp
- Switching current output (6): \( \leq 100 \) mA, short-circuit protected, npn
- Switching frequency: \( \leq 5 \) kHz

### Ex-approval acc. to certificate of conformity
- TÜV 03 ATEX 2121

### Maximum nominal values
- No load voltage \( U_0 \): 11.3 V
- Short-circuit current \( I_0 \): 14 mA
- Power \( P_0 \): 39 mW
- Internal resistance \( R_i \): 823 \( \Omega \)
- Characteristic: linear

### Ex-approval acc. to certificate of conformity
- Max. external inductances/capacitances \( L_i/C_0 \):
  - \([EEx ia] IIC\) 0.9 mH/710 nF / 1.9 mH/620 nF / 4.9 mH/530 nF
  - \([EEx ia] IIB\) 4.9 mH/2.7 \( \mu \)F
- Internal inductance \( L_i \): 120 \( \mu \)H
- Ambient temperature \( T_u \): -25...+70 °C
- Marking of device: II (1/2) GD [EEx ia/ib] IIC/IIB

### LED indications
- Switching status: yellow
- Power: green

### Housing
- 8-pole, 18 mm wide, Polycarbonate/ABS, flammability class V-0 per UL 94

### Mounting
- snap-on clamps for top-hat rail (DIN 50022) or screw terminals for panel mounting

### Connection
- via flat terminals with self-lifting pressure plates
- Connection profile: \( \leq 2 \times 2.5 \) mm\(^2\) or \( 2 \times 1.5 \) mm\(^2\)
  - with wire sleeves

### Degree of protection (IEC 60529/EN 60529)
- IP20

### Operating temperature
- -25...+60 °C