The MK33-Li-Ex0 is used to operate intrinsically safe 2-wire loop powered transducers in explosion hazardous areas and to transfer signals to the safe area.

The MK33-Li-Ex0 is a single channel device with an input and output circuit of 0/4 to 20 mA. A green LED indicates that the device is powered.

The input circuit is isolated from the output circuit and from the supply voltage. Input signals are passed (1:1) without attenuation to the source-mode output located in the non-hazardous area.

Due to the 1:1 transmission characteristic of the loop powered transducer circuit, wire-break or short-circuit faults are shown as 0 mA or 21 mA, respectively.

For applications with HART transducers, there are loop-isolaters available which not only transmit analogue signals but also transfer digital signals bidirectionally.

Type names:
- MK33-11Ex-HLi
- MK33-11Ex-HLi/24 VDC

- Intrinsically safe input circuits, [EEx ia] IIC
- Supply of 2-wire loop powered transducers
- Galvanic isolation between input circuit, output circuit and supply voltage
- Defined current limitation in the transducer circuit
- Input circuit 0/4…20 mA
- Output circuit 0/4…20 mA
- Linearity ≤ 0.1 %
- Temperature drift ≤ 0.01 %/K of final value
- Constant transducer voltage
### Analogue Data Transmitters

#### Type
- **MK33-Li-Ex0/24VDC**
- **MK33-Li-Ex0/12VDC**

#### Supply Voltage $U_b$
- **Ripple $W_{pp}$**
  - $\leq 10\%$
- **Current consumption**
  - $\leq 100\ mA$
- **Galvanic isolation**
  - between input circuit, output circuit and supply voltage for $250\ V_{rms}$, test voltage $2.5\ kV_{rms}$

#### Transducer Circuits
- **Input resistance**
  - $50\ \Omega$
- **Input voltage**
  - $15.2\ V$ constant voltage
- **Current**
  - $21\ mA$
- **Short-circuit current**
  - $22\ mA$

#### Output Circuits
- **Active source-mode output**
- **Current output**
  - $0/4...20\ mA$
- **Load impedance**
  - $\leq 500\ \Omega$

#### Ex-Approvals acc. to Certificate of Conformity
- **PTB Ex-94.C.4045**

#### Operating characteristics
- **Input circuit**
  - Maximum values
    - **No load voltage**
      - $21\ V$
    - **Short-circuit current**
      - $86\ mA$
    - **Internal impedance** $R_i$
      - $385\ \Omega$ (trapezoidal curve)
    - **Power** $P_{max}$
      - $711\ mW$
  - **Maximum external inductances/capacitances**
    - $[\text{EEx ia}] IIC$
      - $0.5\ mH/61\ nF$
    - $[\text{EEx ib}] IIC$
      - $3.5\ mH/170\ nF$

#### Transfer Characteristics
- **Linearity tolerance of setpoint adjustment**
  - $\leq 0.1\%$ of final value
- **Measuring tolerance**
  - $\leq 0.2\%$
- **Long term error**
  - $0.1\%$/year
- **Load impedance**
  - $\leq 0.02\%$ of final value
- **Effect of load impedance**
  - $\leq 0.05\%$ of final value
- **Ambient temperature sensitivity**
  - $\leq 0.01\%$/K of final value
- **Pulse rise time (10%...90%)**
  - $<50\ ms$
- **Release time (90%...10%)**
  - $<50\ ms$

#### LED Indication
- **Power "ON"**
  - green

#### Housing
- **8-pole, 18 mm wide, Polycarbonate/ABS**
- **flammability class V-0 per UL 94**
- **Snap-on clamps for top-hat rail (DIN 50022)**
- **or screw terminals for panel mounting**
- **Connection via flat terminals with self-lifting pressure plates**
  - $2 \times 2.5\ mm^2$ or $2 \times 1.5\ mm^2$
  - **with wire sleeves**
- **Degree of protection (IEC 60529/EN 60529)**
  - IP20
- **Operating temperature**
  - $-25...+60\ ^\circ\ C$