

Current Repeater/ Voltage Repeater MK31-...Ex0-Li/24VDC MK31-...Ex0-LU/24VDC 1-channel



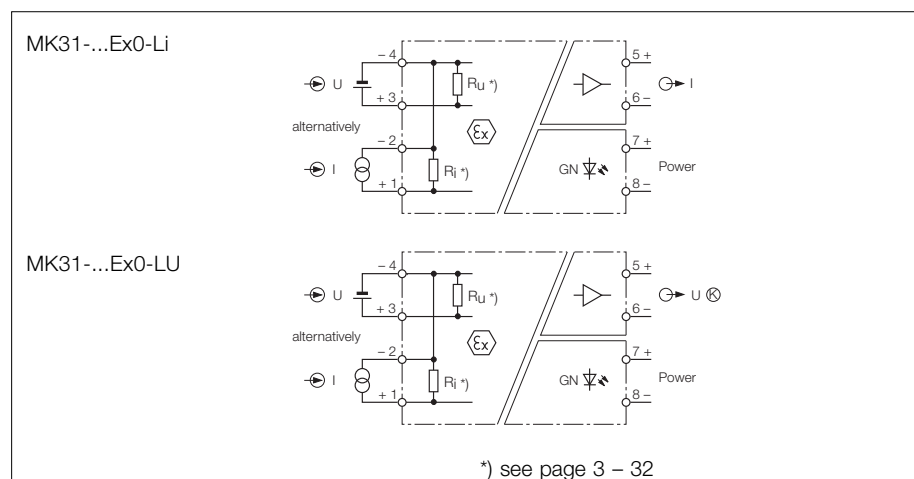
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- **1-channel current repeater/voltage repeater**
- **Galvanic isolation of standard analogue signals**
- **Intrinsically safe input circuits EEx ia**
- **Area of application according to ATEX: II (1) G**
- **Input circuit: current or voltage**
- **Output circuit: current or voltage - depending on type**
- **Linearity $\leq 0.1 \%$**
- **Temperature drift $\leq 0.02 \%/K$ of final value**

The MK31-...Ex0-Li and MK31-...Ex0-LU current/voltage repeaters are designed to isolate and transmit standard analogue signals from the explosion hazardous area to the non-hazardous area. The devices provide a current and a voltage input which may be used alternatively. Depending on the type of device,

the output is either a current or a voltage output. The function truth table lists the available versions with the respective ident-numbers and the transmission modes. The input circuits are galvanically isolated from the output circuits and from power supply. A green LED indicates that the device is powered.

Types – Transmission characteristics



Input \ Output	0...20 mA	4...20 mA	0...10 V	2...10 V	0...5 V	1...5 V
0...20 mA / 0...10 V	MK31-11Ex0-Li 7506005	MK31-111Ex0-Li 7506010	MK31-11Ex0-LU 7506205	MK31-111Ex0-LU 7506210	MK31-116Ex0-LU 7506222	
4...20 mA / 2...10 V	MK31-112Ex0-Li 7506015	MK31-11Ex0-Li 7506005	MK31-112Ex0-LU 7506215	MK31-11Ex0-LU 7506205	MK31-117Ex0-LU 7506223	MK31-116Ex0-LU 7506222
0...10 mA / 0...5 V	MK31-115Ex0-Li 7506017	MK31-113Ex0-Li 7506016	MK31-115Ex0-LU 7506221	MK31-113Ex0-LU 7506216	MK31-11Ex0-LU 7506205	
2...10 mA / 1...5 V		MK31-115Ex0-Li 7506017		MK31-115Ex0-LU 7506221		MK31-11Ex0-LU 7506205
0...5 mA / 0...2.5 V		MK31-116Ex0-Li 7506020				

Current Repeater/Voltage Repeater MK31-...Ex0-Li/MK31-...Ex0-LU

Type Ident-no.	MK31-...Ex0-Li see table page 3 – 31	MK31-...Ex0-LU see table page 3 – 31
Supply voltage U_B Ripple W_{PP} Current consumption Galvanic isolation	19...29 VDC $\leq 10\%$ approx. 50 mA between input circuit, output circuit and supply voltage for 250 V _{rms} , test voltage 2.5 kV _{rms}	19...29 VDC $\leq 10\%$ approx. 50 mA between input circuit, output circuit and supply voltage for 250 V _{rms} , test voltage 2.5 kV _{rms}
Input circuits Voltage input (3 and 4) – Operating characteristics/Input resistance R_i Current input (1 and 2) – Operating characteristics/Input resistance R_i	intrinsically safe according to EN 50020 0/2...10 V (< 39 V)/50 k Ω 0/1...5 V (< 39 V)/70 k Ω 0...2.5 V (< 39 V)/90 k Ω 0/4...20 mA (< 40 mA)/100 Ω 0/2...10 mA (< 40 mA)/175 Ω 0...5 mA (< 23 mA)/325 Ω	intrinsically safe per EN 50020 0/2...10 V (< 39 V)/50 k Ω 0/1...5 V (< 39 V)/70 k Ω 0/4...20 mA (< 40 mA)/100 Ω 0/2...10 mA (< 40 mA)/175 Ω
Output circuits Output current/load Output voltage/load resistance	current output see table/ $\leq 500\ \Omega$	voltage output, short-circuit protected see table/ $\geq 500\ \Omega$
Ex-approvals acc. to certificate of conformity Maximum nominal values from both inputs – No load voltage U_0 – Short-circuit current I_0 Maximum values (external intrinsically sensors) – No load voltage U_i – Power P_i – Short-circuit current I_k Max. external inductances/capacitances L_0/C_0 – [EEx ia] IIC Marking of devices	PTB 97 ATEX 2104 7.2 V 1 mA 40 V 0.5 W – 1 H/13.5 μ F Ⓔ II (1) G [EEx ia] IIC	PTB 97 ATEX 2104 7.2 V 1 mA 40 V 0.5 W – 1 H/13.5 μ F Ⓔ II (1) G [EEx ia] IIC
Transfer characteristics Linearity tolerance of setpoint adjustment Measuring tolerance Ambient temperature sensitivity Pulse rise time (10 %...90 %) Release time (90 %...10 %)	$\leq 0.1\%$ of final value $\leq 0.2\%$ $\leq 0.02\%$ /K of final value ≤ 300 ms ≤ 300 ms	$\leq 0.1\%$ of final value $\leq 0.2\%$ $\leq 0.02\%$ /K of final value ≤ 300 ms ≤ 300 ms
LED indications – Power	green	green
Housing Mounting Connection Connection profile Degree of protection (IEC 60529/EN 60529) Operating temperature	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 via flat terminals with self-lifting pressure plates $\leq 2 \times 2.5\text{ mm}^2$ or $2 \times 1.5\text{ mm}^2$ with wire sleeves IP20 -25...+60 °C	