

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

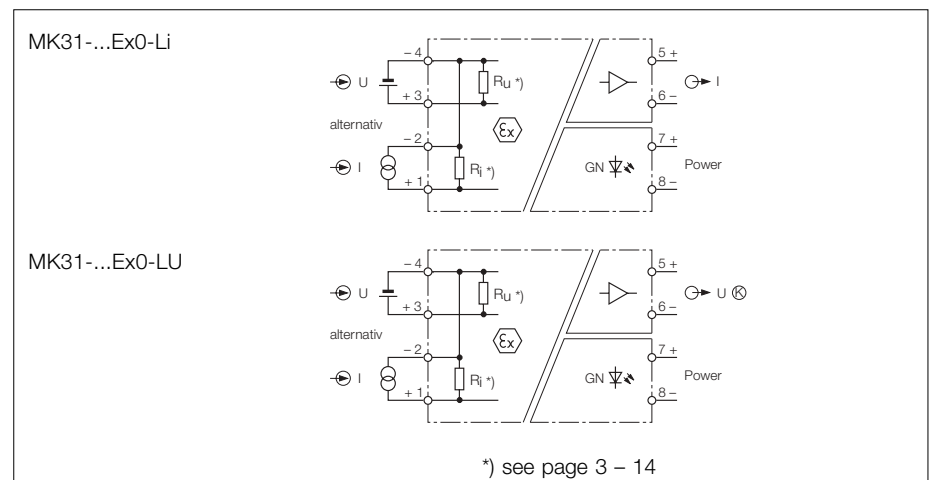


- **1-channel current repeater/voltage repeater**
- **Galvanic isolation of standard analogue signals**
- **Intrinsically safe input circuits EEx ia**
- **Area of application according to ATEX: II (1) G**
- **Input circuit: current or voltage**
- **Output circuit: current or voltage - depending on type**
- **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	MK31-121Ex0-LU 7506226
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	MK31-122Ex0-LU 7506227
2...10 mA / 1...5 V	MK31-119Ex0-Li 7506019	MK31-115Ex0-Li 7506017	MK31-119Ex0-LU 7506224	MK31-115Ex0-LU 7506221	MK31-120Ex0-LU 7506225	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	MK31-...Ex0-Li	MK31-...Ex0-LU
Ident-no.	see table page 3 – 13	see table page 3 – 13
Supply voltage U_B	19...29 VDC	19...29 VDC
Ripple W_{PP}	$\leq 10 \%$	$\leq 10 \%$
Current consumption	approx. 50 mA	approx. 50 mA
Galvanic isolation	between input circuit, output circuit and supply voltage for 250 V_{rms} , test voltage 2.5 kV_{rms}	between input circuit, output circuit and supply voltage for 250 V_{rms} , test voltage 2.5 kV_{rms}
Input circuits	intrinsically safe according to EN 50020	intrinsically safe per EN 50020
Voltage input (3 and 4)		
– Operating characteristics/Input resistance R_u	0/2...10 V (< 39 V)/50 $k\Omega$ 0/1...5 V (< 39 V)/70 $k\Omega$ 0...2.5 V (< 39 V)/90 $k\Omega$	0/2...10 V (< 39 V)/50 $k\Omega$ 0/1...5 V (< 39 V)/70 $k\Omega$
Current input (1 and 2)		
– Operating characteristics/Input resistance R_i	0/4...20 mA (< 40 mA)/100 Ω 0/2...10 mA (< 40 mA)/175 Ω 0...5 mA (< 23 mA)/325 Ω	0/4...20 mA (< 40 mA)/100 Ω 0/2...10 mA (< 40 mA)/175 Ω
Output circuits	current output	voltage output, short-circuit protected
Output current/load	see table/ $\leq 500 \Omega$	
Output voltage/load resistance		see table/ $\geq 500 \Omega$
Ex-approvals acc. to certificate of conformity	PTB 97 ATEX 2104	PTB 97 ATEX 2104
Maximum nominal values from both inputs		
– No load voltage U_0	7.2 V	7.2 V
– Short-circuit current I_0	1 mA	1 mA
Maximum values (external intrinsically sensors)		
– No load voltage U_i	40 V	40 V
– Power P_i	0.5 W	0.5 W
– Short-circuit current I_k	–	–
Max. external inductances/capacitances L_C/C_0		
– [EEx ia] IIC	1 H/13.5 μF	1 H/13.5 μF
Marking of devices	II (1) G [EEx ia] IIC	II (1) G [EEx ia] IIC
Transfer characteristics		
Linearity tolerance of setpoint adjustment	$\leq 0.1 \%$ of final value	$\leq 0.1 \%$ of final value
Measuring tolerance	$\leq 0.2 \%$	$\leq 0.2 \%$
Long term error	0.1 %/year	0.1 %/year
Ambient temperature sensitivity	$\leq 0.02 \%$ /K of final value	$\leq 0.02 \%$ /K of final value
Pulse rise time (10 %...90 %)	≤ 300 ms	≤ 300 ms
Release time (90 %...10 %)	≤ 300 ms	≤ 300 ms
LED indications		
– Power	green	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 2×1.5 mm ² with wire sleeves	
Degree of protection (IEC 60529/EN 60529)	IP20	
Operating temperature	-25...+60 °C	

