

## HART® isolating transducer MK33-22...Ex0-HLi/24VDC



- **Intrinsically safe input circuits II (1) G/D [EEx ia] IIC**
- **Supply of intelligent 2-wire transducers using the HART® communication protocol as well as connection to active 2-wire transmitters and to passive 3-wire transmitters**
- **Complete galvanic isolation**
- **Short-circuit protected transducer circuit**
- **Two input circuits 4...20 mA**
- **Two output circuits 4...20 mA**
- **Linearity tolerance  $\leq 0.1\%$**
- **Temperature coefficient  $\leq 0.01\%$ /K of final value**
- **Constant voltage in transducer circuit**
- **EMC acc. to NE21**
- **Ex data and internal resistance are type-dependent**

The isolating transducer MK33-22...Ex-HLi/24VDC is used to energise intrinsically safe 2-wire HART® transducers in the hazardous area and to transmit the measuring signals to the non-hazardous area. In addition to analogue signals, digital HART® communication signals can be transferred bidirectionally.

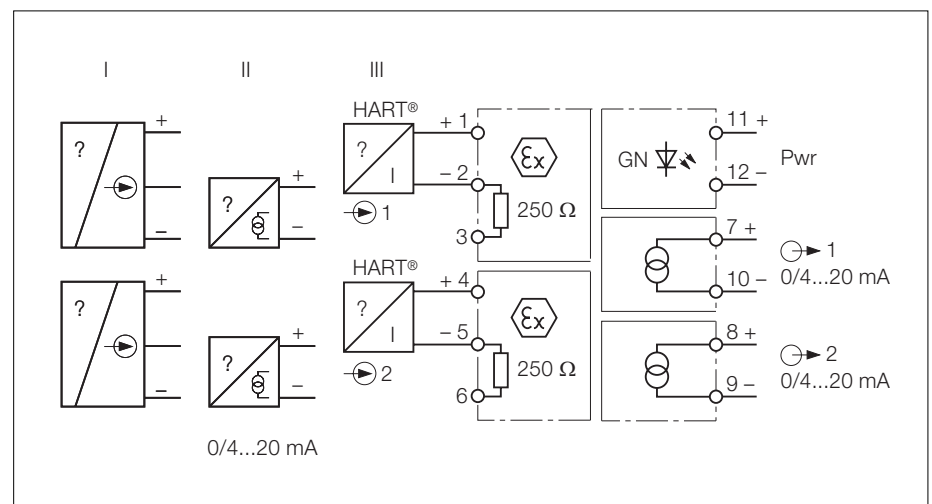
Further it is possible to connect active 2-wire (II) and passive 3-wire (I) transmitters. The device features two channels with 0/4...20 mA input and output circuits.

A green LED indicates operational readiness.

A 24 VDC voltage supply is required for operation. The input circuits are galvanically isolated from the output circuits, the supply voltage and from each other.

The input signals are transferred without attenuation (1:1 transfer) to the output circuits in the non-hazardous area.

Due to the 1:1 transmission characteristic, wire-break or short-circuit conditions in the transducer circuit are indicated by an output current of 0 mA or  $> 22.5$  mA, respectively.



## HART® isolating transducer MK33-22...Ex0-HLi/24VDC

Type	MK33-221Ex0-HLi/24VDC	MK33-222...	MK33-223...	MK33-224...
Ident-no.	75 064 31	on request	on request	on request
<b>Supply Voltage</b> P <sub>wr</sub>	19...29 VDC	19...29 VDC	19...29 VDC	19...29 VDC
Ripple W <sub>pp</sub>	≤ 10 %	≤ 10 %	≤ 10 %	≤ 10 %
Power consumption	3.2 W	3.2 W	3.0 W	3.2 W
Galvanic isolation	between input circuit, output circuit and supply voltage for 250 V <sub>eff</sub> , test voltage 2.5 kV <sub>eff</sub>			
<b>Transducer circuits</b>	intrinsically safe according to EN 50020			
Input resistance	250 Ω	250 Ω	250 Ω	250 Ω
Operating characteristics				
– Voltage	17 V at 20 mA	15 V at 20 mA	13,5 V at 20 mA	17 V at 20 mA
– Current	0...22 mA	0...22 mA	0...22 mA	0...22 mA
Short-circuit current (short-term)	60 mA (for 50 ms)	60 mA (for 50 ms)	60 mA (for 50 ms)	60 mA (for 50 ms)
<b>Output circuits</b>				
Current output	0/4...20 mA	0/4...20 mA	0/4...20 mA	0/4...20 mA
– Load impedance	≤ 500 Ω	≤ 500 Ω	≤ 500 Ω	≤ 500 Ω
– Wire-break indication	0 mA	0 mA	0 mA	0 mA
– Short-circuit indication	> 22.5 mA	> 22.5 mA	> 22.5 mA	> 22.5 mA
<b>Ex-approval acc. to certificate of conformity</b>	TÜV 00 ATEX 1595			
Maximum values				
– No load voltage U <sub>0</sub>	< 21.9 V	< 19.8 V	< 17.7 V	< 21.9 V
– Short-circuit current I <sub>0</sub>	< 99.1 mA	< 74.2 mA	< 104 mA	< 115 mA
– Internal resistance R <sub>0</sub>	317 Ω	435 Ω	273 Ω	273 Ω
Maximum values of external input				
– Voltage U <sub>i</sub>	≤ 40 V	≤ 40 V	≤ 40 V	≤ 40 V
– Power P <sub>i</sub>	≤ 0.65 W	≤ 0.65 W	≤ 0.65 W	≤ 0.65 W
External inductances/capacitances				
– [EEx ia] IIB	5 mH/260 nF	5 mH/345 nF	5 mH/330 nF	5 mH/235 nF
– [EEx ia] IIC	0.36 mH/58 nF	1.1 mH/88 nF	0.37 mH/210 nF	0.15 mH/30 nF
Temperatur range T <sub>u</sub>	-25...60 °C	-25...60 °C	-25...60 °C	-25...60 °C
Marking of devices	II (1) G/D [EEx ia] IIC	II (1) G/D [EEx ia] IIC	II (1) G/D [EEx ia] IIC	II (1) G/D [EEx ia] IIC
<b>Transfer characteristics</b>				
Linearity tolerance (o.f.v. = of final value)	≤ 0.1 % o.f.v.	≤ 0.1 % o.f.v.	≤ 0.1 % o.f.v.	≤ 0.1 % o.f.v.
Measuring tolerance	≤ 0.2 %	≤ 0.2 %	≤ 0.2 %	≤ 0.2 %
Long term error	0.1 %/year	0.1 %/year	0.1 %/year	0.1 %/year
Load impedance	≤ 0.02 % o.f.v.	≤ 0.02 % o.f.v.	≤ 0.02 % o.f.v.	≤ 0.02 % o.f.v.
Input voltage effect	≤ 0.05 % o.f.v.	≤ 0.05 % o.f.v.	≤ 0.05 % o.f.v.	≤ 0.05 % o.f.v.
Temperature effect	≤ 0.01 %/K o.f.v.	≤ 0.01 %/K o.f.v.	≤ 0.01 %/K o.f.v.	≤ 0.01 %/K o.f.v.
Pulse rise time (10 %...90 %)	< 50 ms	< 50 ms	< 50 ms	< 50 ms
Release time (90 %...10 %)	< 50 ms	< 50 ms	< 50 ms	< 50 ms
<b>LED indication</b>				
– Supply voltage P <sub>wr</sub>	green	green	green	green

<b>Terminal housing</b>	12-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	removeable terminal blocks, reverse-polarity protected, screw connection
Connection profile	≤ 1 x 2.5 mm <sup>2</sup> or 2 x 1.5 mm <sup>2</sup> with wire sleeves
Degree of protection (IEC 60529/EN 60529)	IP20
Operating temperature	-25...+60 °C

