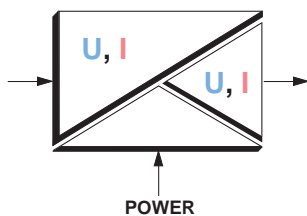


# Configurable 3-Way Isolation Amplifier With Long-Range Supply MCR-FL-C-UI-UI-DCI-24/230

- 3-way isolation
- Safe isolation in accordance with EN 61 010
- Configurable inputs and outputs
- Adjustable cut-off frequency <10 Hz / 10 kHz, approximately
- Operating voltage 20...253 V AC/DC
- 12.5 mm (0.492 in.) ME Housing



## 1. Description

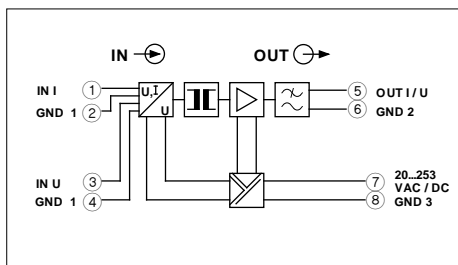
The configurable MCR-FL-C-UI-UI-DCI-24/230 3-way standard signal isolation amplifier can process 0...20 mA, 4...20 mA and 0...10 V standard signals on the input side.

The 3-way isolation between signal input, output and supply is set up as "safe isolation" with a test voltage of 4 kV ~. Depending on the application, the signal transmission cut-off frequency can be set as either 10 kHz (approximately) or as a < 10 Hz filter. On the output side, any of the three standard signals are available. Adjustment after configuration is not necessary, as each transmission variant is calibrated and stored in the device. The transmission error is always < 0.1%.

The 3-way standard signal isolation amplifier has a long-range supply of 20...253 V AC/DC and is available in 12.5 mm (0.492 in.) narrow housing with pluggable screw connection.

**Configurable 3-Way Isolation Amplifier With Long-Range Power Supply – MCR-FL-C-UI-UI-DCI-24/230**

**2. Technical Data**



**MCR-FL-C-UI-UI-DCI-24/230**

with configurable inputs and outputs, safe isolation and long-range supply



M 3

8



	fixed [mm <sup>2</sup> ]	flexible AWG
Connection data	0.2-2.5	0.2-2.5 24-14

Housing width 12.5 mm (0.492 in.)

(UL, UL, BL) planned

Description

**MCR 3-Way isolation amplifier,**  
for electrical isolation of analog signals

Type	Order No.	Pcs. Pkt.
MCR-FL-C-UI-UI-DCI-24/230	28 14 83 8	1

**Technical Data**

**Input**

Input signal

Maximum input signal  
Input resistor

Overload capability

Current/voltage  
Current input  
Voltage input  
Current input  
Voltage input

0...20 mA, 4...20 mA, 0...10 V  
reconnectable, switchable / default: 0...20 mA  
22 mA / 11 V, approximately  
Voltage drop 250 mV, approximately, at 20 mA  
1 MΩ, approximately  
< 300 mA  
Voltage limitation via suppressor diode at 30 V,  
maximum permissible continuous current 30 mA

**Output**

Output signal

Maximum output signal  
Load

Ripple

Current/voltage  
At output current  
At output voltage

0...20 mA, 4...20 mA, 0...10 V switchable,  
default: 0...20 mA  
22 mA / 11 V, approximately  
600 Ω at 20 mA  
1 kΩ at 10 V  
< 10 mV<sub>eff</sub>

**General Data**

Supply voltage  
Current consumption  
Transmission error  
Temperature coefficient  
Cut-off frequency (3 dB)  
Response time (10-90%)  
Test voltage:  
Operational voltage (basic isolation)

Input/output/power supply

20...253 V AC/DC  
AC (48...62 Hz): 2 VA / DC, approximately: 1 W, approximately  
0.1% of the final value  
0.005%/K  
< 10 Hz / 10 kHz, approximately, switchable, default: 10 kHz  
35 ms / 35 μs  
4 kV ~  
1 kV AC/DC at surge voltage category II and degree of pollution 2 in  
accordance with DIN EN 61 010 Part 1  
Increased isolation in accordance with DIN EN 61 010 section 1 and  
safe isolation in accordance with VDE 0100 section 410 in the sense of  
VDE 0106 section 101 to 300 V AC/DC at overvoltage category II and  
degree of pollution 2 between input, output and power supply  
IP 20  
-10°C (14°F) to +70°C (158°F)  
Plug-in COMBICON screw-clamp terminal block  
Any  
Polyamide PA, unarmored

Protection against dangerous  
shock currents

Degree of protection  
Ambient temperature range  
Connection method  
Mounting position/mounting  
Housing material

**Configurable 3-Way Isolation Amplifier With Long-Range Power Supply – MCR-FL-C-UI-UI-DCI-24/230**



**Conforms to the EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC**

**EMC (electromagnetic compatibility)**

Noise immunity in accordance with EN 50082-1/EN 50082-2

• Electrostatic discharge (ESD)	EN 61000-4-2	8 kV air discharge <sup>2)</sup>
• Electromagnetic HF field Amplitude modulation Pulsed modulation	EN 61000-4-3	10 V/m <sup>1)</sup> 10 V/m <sup>1)</sup>
• Fast transients (burst)	EN 61000-4-4	Input/output: 2 kV/5 kHz <sup>2)</sup>
• Surge current load (surge)	EN 61000-4-5	Input/output: 2 kV/42 Ω <sup>2)</sup>
• Conducted interference	EN 61000-4-6	Input/output: 10 V <sup>1)</sup>
• Network frequency magnetic field		30 V/m <sup>1)</sup>

Noise emission in accordance with EN 50081-1/EN 50081-2

EN 55022 Class A

EN 61000 corresponds to IEC 1000/  
EN 55022 corresponds to CISPR22

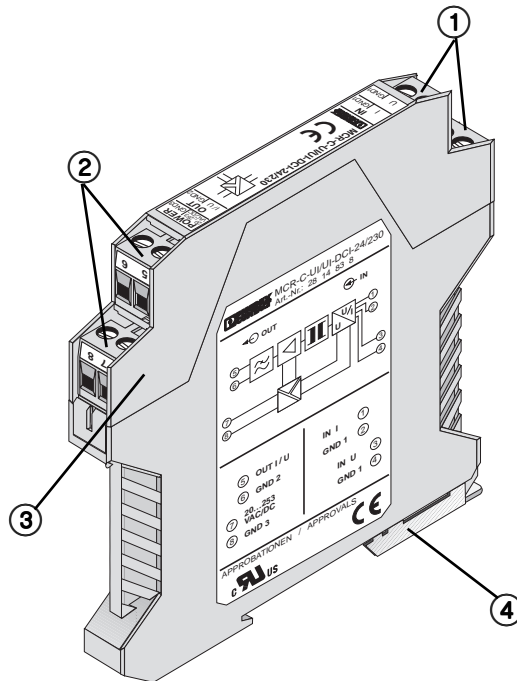
<sup>1)</sup>Criterion A: Normal operating characteristics within the specified limits.

<sup>2)</sup>Criterion B: Temporary adverse effects on the operating characteristics, which the device corrects itself.

Class A: Industrial application, without special installation measures

**MCR-FL-C-UI-UI-DCI-24/230  
Configurable 3-Way Isolation Amplifier  
With Long-Range Supply (Figure 05)**

- ① Plug-in COMBICON screw-clamp terminal block
- ② Plug-in COMBICON screw-clamp terminal block
- ③ Housing cover, can be removed for DIP switch setting
- ④ Metal lock for fastening on the DIN rail



**Figure 05**

Configurable 3-Way Isolation Amplifier With Long-Range Power Supply – MCR-FL-C-UI-UI-DCI-24/230

### 3. Configuration

#### 3.1. Opening the Device (Figure 06)

The locked housing cover is released on both sides using a screwdriver (1). The housing cover and electronics can now be pulled out (2).

**Ensure you take sufficient measures against electrostatic discharge**

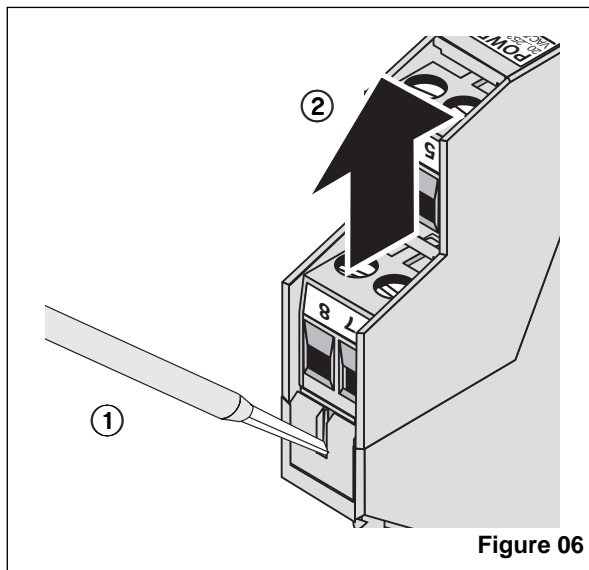


Figure 06

#### 3.2. Setting (Figure 07)

Setting the required input and output areas with the DIP switches S1 and S2 using the table.

Configuration Table: Input and Output Signals

Input	Output	S1			S2		
		1	2	3	1	2	3
<sup>1)</sup> 0 - 20 mA	0 - 20 mA						x
0 - 20 mA	4 - 20 mA	ON					x
0 - 20 mA	0 - 10 V		ON		ON	ON	x
4 - 20 mA	0 - 20 mA	ON	ON				x
4 - 20 mA	4 - 20 mA						x
4 - 20 mA	0 - 10 V			ON	ON	ON	x
0 - 10 V	0 - 20 mA	ON		ON			x
0 - 10 V	4 - 20 mA		ON	ON			x
0 - 10 V	0 - 10 V	ON	ON	ON	ON	ON	x
Bandwidth 10 Hz		x	x	x	x	x	ON
<sup>1)</sup> Bandwidth 10 kHz		x	x	x	x	x	

<sup>1)</sup> Factory setting  
 x ≠ Not relevant for this setting

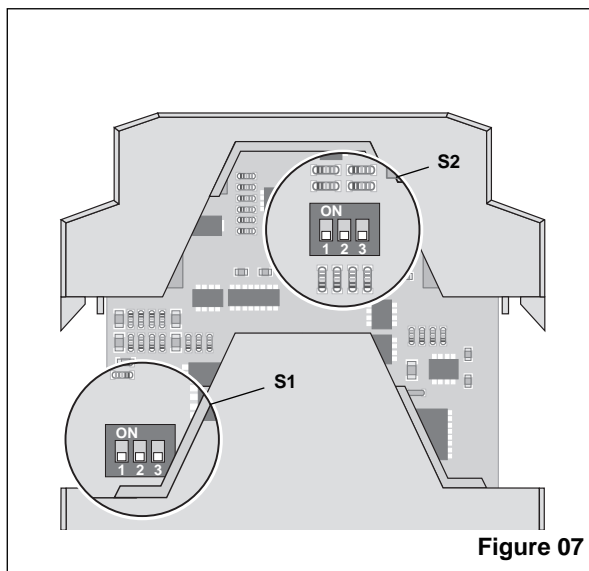


Figure 07

#### 3.3. Paper Machine Application Example (Figure 08):

Drum speed synchronization

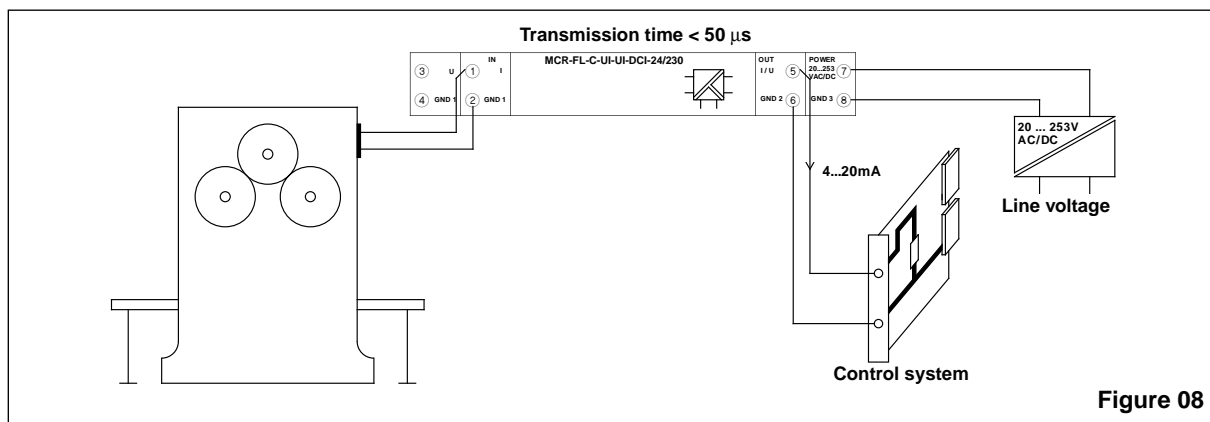


Figure 08

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