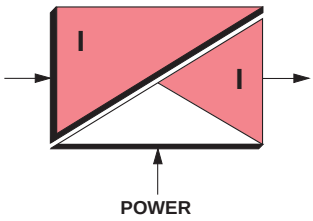
PHOENIX CONTACT
INNOVATION IN INTERFACE

Power Supply Isolator With and Without HART
MCR-CPS(S)-I/I-44-E

- **Supply of 2- or 3-wire transmitters**
- **Isolation of the analog sensor signal**
- **Transmission of data for SMART transmitters**

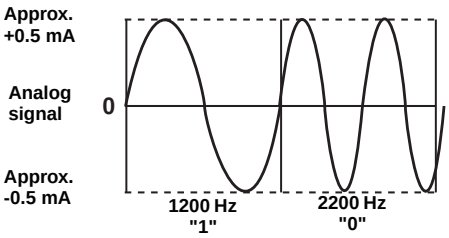


1. Description

The MCR-CPS(S) power supply isolator has the task of supplying 2- or 3-wire measuring transducers located in the field and transmitting analog signals electrically isolated from the transmitter.

In addition to this basic function, the MCR-CPSS-I/I-44-E power supply isolator is designed so that the data protocol (e.g., HART) can be transmitted bi-directionally for SMART transmitters.

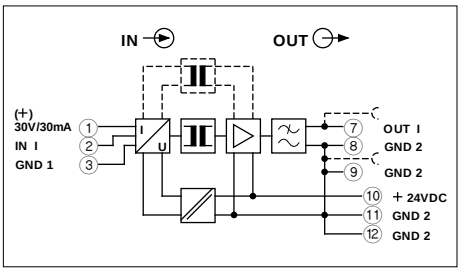
Simultaneous analog and digital signal transmission

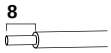


The digital signals for data communication between the transmitter and control device in the process control system take precedence over the analog current signal and are used for the diagnostics and calibration of the transmitters located in the field.

The sockets on the front plate enable the quick and easy local connection of a configuration device, in order to communicate with the measuring transducer.

2. Technical Data





MCR-CPS(S)-I/I-44-E

with signal isolation: 4...20 mA
and optional data transmission for SMART transmitters

	rigid [mm²]	flexible	AWG	I [A]	U [V]
Connection data	0.2-2.5	0.2-2.5	24-14	*	*

Housing width 17.5 mm (0.689 in.)

Description	Input Signal	Output Signal
MCR power supply isolator, also with HART® protocol	4...20 mA 4...20 mA	4...20 mA 4...20 mA

Type	**Order No.**	Pcs. Pkt.
MCR-CPS-I/I-44-E **MCR-CPSS-I/I-44-E**	**28 14 55 3** **28 10 90 0**	1 1

Technical Data		**MCR-CPS-I/I-44-E**	**MCR-CPS-I/I-44-E**
Input			
Input signal (sensor circuit)		4…20 mA	
Maximum input current		100 mA	
Transmitter supply voltage		20 V - 32 V	
Transmitter supply current		< 30 mA	
Output			
Output signal		4…20 mA	
Maximum output signal		Approximately 28 mA	
Load		≤ 500 Ω	
Output signal on	– Short circuit	> 20 mA	
	– Open circuit	0 mA	
General Data			
Supply voltage		20 - 30 V DC	20 - 30 V DC
Current consumption (without load)		70 mA	70 mA
Transmission error		≤ 0.1%	≤ 0.1%
Temperature coefficient		≤ 0.01%/K	≤ 0.01%/K
Cut-off frequency (3 dB) for data communication (bypass)		–	Approximately 30 kHz
Cut-off frequency (3 dB)		30 Hz	30 Hz
Response time (10-90%)		Approximately 10 ms	Approximately 10 ms
Test voltage:	Input/output	1 kV, 50 Hz, 1 minute	1 kV, 50 Hz, 1 minute
Protective circuit		Transient protection	Transient protection
Ambient temperature range		-20°C to 65°C (-4°F to 149°F)	-20°C to 65°C (-4°F to 149°F)
Connection method		Plug-in screw-clamp terminal	Plug-in screw-clamp terminal
Mounting position/mounting		Any	Any
Housing material		Polyamide PA, unarmored	Polyamide PA, unarmored

CE

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 50082-2		
• Electrostatic discharge (ESD)	EN 61000-4-2	8 kV air discharge[2)] 6 kV contact discharge[2)]
• Electromagnetic HF field Amplitude modulation Pulsed modulation	EN 61000-4-3	10 V/m[1)] 10 V/m[1)]
• Fast transients (burst)	EN 61000-4-4	Input/output/supply voltage 2 kV/5 kHz[2)]
• Surge current load (surge)	EN 61000-4-5	Supply voltage: 0.5 kV/2 Ω[2)]
• Conducted interference	EN 61000-4-6	Input/output/supply voltage 10 V [1)]
Noise emission in accordance with EN 50081-2	EN 55011	Class A

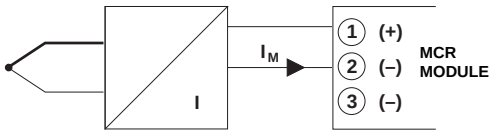
EN 61000 corresponds to IEC 1000/
EN 55011 corresponds to CISPR11

[1)]Criterion A: Normal operating characteristics within the specified limits.
[2)]Criterion B: Temporary adverse effects on the operating characteristics that the device corrects independently.

Class A: Industrial application, without special installation measures

3. Application and Connection Example: Temperature Measurement and Configuration of the Measuring Transducer Via the HART® Protocol

2-wire measuring transducers must be connected to terminals ① and ②, so that the measuring transducer current of 4…20 mA flows into the measuring circuit.



3-wire measuring transducers are connected to terminals ①, ② and ③. Terminals ① and ③, are used to supply the measuring transducer. The 4…20 mA signal flows into the measuring circuit via terminal ②.