

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

Repeater power supply with and without HART

INTERFACE

Data sheet
100250_en_01

© PHOENIX CONTACT 2011-02-08

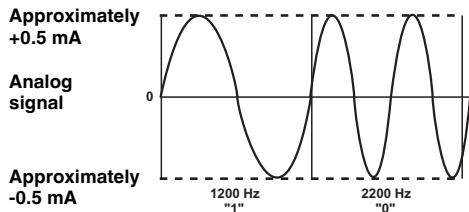


1 Description

The repeater power supply MCR-CPS(S)-I/I-44-E has the task of supplying 2 or 3-conductor measuring transducers located in the field and transmitting the analog signals isolated from the transmitter.

In addition to these basic functions, the repeater power supply MCR-CPS(S)-I/I-44-E is designed to transmit the data protocol (e.g. HART) for SMART transmitters bidirectionally.

Simultaneous analog and digital signal transmission

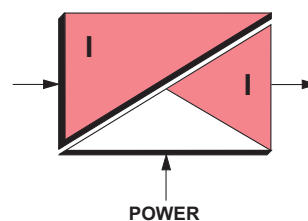


The digital data communication signals between the transmitter and the control device of the process system are superimposed on the analog current signal. They are used for diagnostics and adjustment of the transmitters located in the field.

Female connectors on the front make it possible to connect a configuration device on site easily and quickly, in order to communicate with the measuring transducer in the field.

Features:

- Supply 2 or 3-conductor transmitters
- Isolate the analog sensor signal
- Transmit data for SMART transmitters



Make sure you always use the latest documentation.
It can be downloaded at www.phoenixcontact.net/catalog.



This data sheet applies to the products listed on the following page:

2 Ordering data

Products

Description	Type	Order No.	Pcs./Pkt.
MCR repeater power supply, input signal: 4...20 mA, output signal: 4...20 mA	MCR-CPS-I/I-44-E	2814553	1
MCR repeater power supply, additionally with HART protocol, input signal: 4...20 mA, output signal: 4...20 mA	MCR-CPSS-I-I-44-E	2810900	1

3 Technical data

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 open circuit	> 20 mA 0 mA

Connection data

Conductor cross-section	
solid	0.2 mm ² ... 2.5 mm ²
stranded	0.2 mm ² ... 2.5 mm ²
Stripping length	8 mm

General data

	MCR-CPS-I/I-44-E	MCR-CPSS-I-I-44-E
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
Step response (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	-20°C to 65°C
Connection method	Pluggable screw terminal block	Pluggable screw terminal block
Mounting position/mounting	Any	Any
Housing material	Polyamide PA, non-reinforced	Polyamide PA, non-reinforced

Conformance/approvals

Conformance	CE-compliant
UL, USA/Canada	

Conformance with EMC Directive 2004/108/EC

Noise immunity according to EN 61000-6-2
Noise emission according to EN 61000-6-4

4 Dimensions

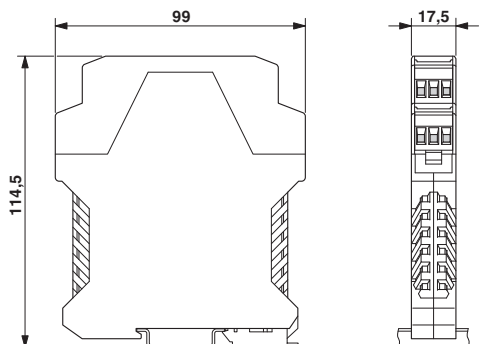


Figure 1 Dimensions (nominal sizes in mm)

5 Block diagram

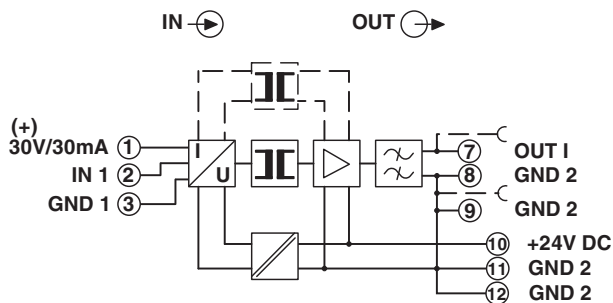


Figure 2 Block diagram

6 Application and connection example: temperature measurement and configuration of the measuring transducer via the HART® protocol

2-conductor measuring transducers must be connected to the terminal blocks ① and ② in such a way that the transducer current of 4...20 mA flows into the measuring circuit.

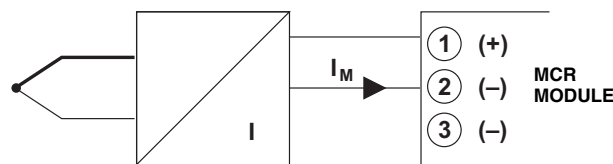


Figure 3 Connection example: 2-wire measuring transducer

3-conductor measuring transducers are connected to terminal blocks ①, ② and ③. The measuring transducer is powered through terminal blocks ① and ③. The signal (4...20 mA) flows into the measuring circuit through terminal block ②.

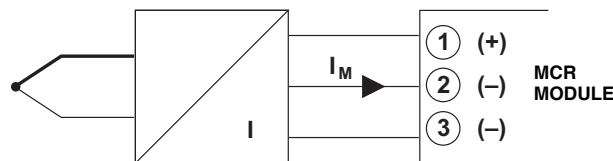


Figure 4 Connection example: 3-wire measuring transducer

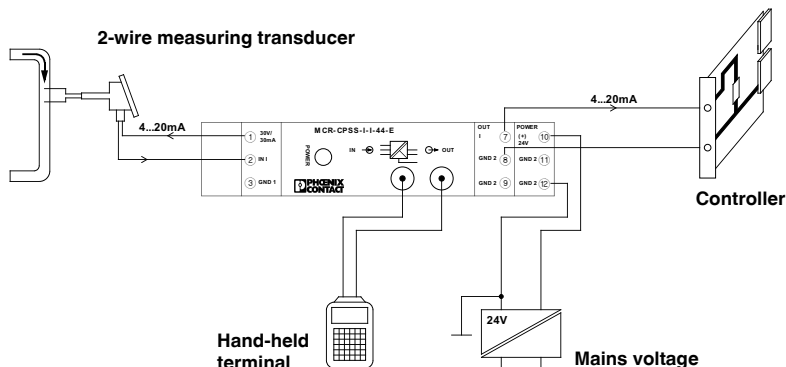


Figure 5 Application example



**SCATTERGOOD
& JOHNSON LTD**
ELECTRICAL ENGINEERING & FLUID CONTROL DISTRIBUTORS

Est.1899

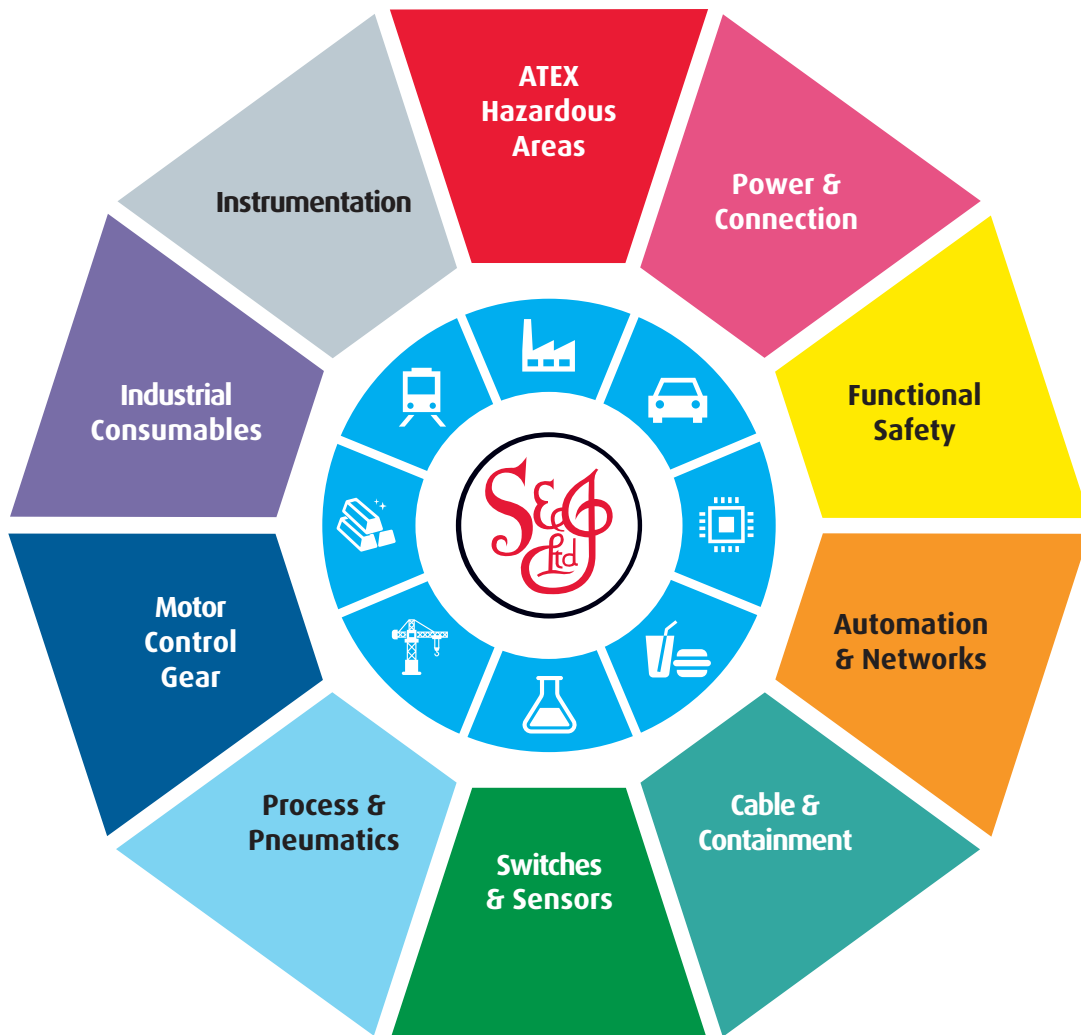
At Scattergood & Johnson Ltd, we pride ourselves on being a technical distributor to specialist industries.

Working with a range of quality product suppliers across a number of specialist markets, we are not your average 'box shifter' - we are your technical and supply chain partner.

We fully support every product we sell - for free! Our internal team and external sales engineers can answer any product or application question, no matter the complexity.

Backing up this technical ability is a range of 50,000+ products available from stock for nationwide next day delivery (same day if required!), or you can collect what you need from any of our trade counters around the UK.

Select your specialist interest below to learn more about how we can help.



Online, In Branch and On the Road - Scattergood & Johnson Ltd, there when you need us.

www.scatts.co.uk