



CAN-Repeater

CRep S4-.../S24/RMD

User Manual

User manual for CAN Repeater CRep S4-.../S24/RMD

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Our products are continuously improved. Due to this fact specifications may be changed at any time and without announcement.

FCC: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

WARNING: CRep S4 hardware and software may not be used in applications where damage to life, health or private property may result from failures in or caused by these components.

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1 Overview

1.1 Attributes

- Protocol transparent CAN repeater
- 4 CAN channels
- Low propagation delay
- ISO 11898 compatible bus interface
- Detach of dominant locked bus segments
- Rail mountable

1.2 General Description

The compact CAN repeater CRep S4 transmits and amplifies signals transparent to the CAN protocol. Each of the four CAN connections has the physical behaviour of a single bus node. CRep S4 permits a flexible design of the network topology and offers special support for star structured networks. Furthermore tree structures and long stub lines are supported. Through the possibility to use the network structure that fits the application best a reduction of installation costs can be reached.

The maximum data rate in CAN networks, depending on signal propagation delays, can be increased, if CRep S4 is used to improve the network structure. An increase of the maximum node count in a CAN network can be reached by splitting the network in subnets that are connected by CRep S4. Each subnet makes the number of CAN nodes possible permitted by the drivers output current. Where CAN signals have to be transmitted over long distances, CRep S4 can be used for signal conditioning. The capability to detach erroneous segments from the rest of the CAN system reduces the impact on the intact bus segments for the most commonly occurring errors.

The presence of power is indicated by a LED. Furthermore each CAN channel is provided with a LED indicating that this channel has originated a CAN message when the LED is on.

1.3 Ordering Information

12-06-0...*-xx	CRep S4-.../S24/RMD Multiport CAN repeater for rail mounting (... inhibit time)
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Note: xx denotes language of delivery:

- 10 German
- 20 English

* ... In case of ordering please specify the baud rate to determine the inhibit time.

2 Electrical Characteristics

2.1 Absolute Limiting Values

Any (also temporary) stress in excess of the limiting values may cause permanent damage on CRep S4 and connected devices.

Parameter	Min.	Max.	Unit
Storage temperature	-40	+80	°C
Operating temperature	0	+60	°C
Power supply voltage	-100	+35	V
Voltage on signal lines	-30	+30	V
Maximum power dissipation (at 60°C)	-	tbd	mW

2.2 Nominal Values

All values, unless otherwise specified, refer to a supply voltage of 24V and an environmental temperature of 20°C.

Parameter	Min.	Typ.	Max.	Unit
Current consumption (no load)	-	26	-	mA
Current consumption (250kBit/s, 100% busload)	-	65	-	mA
Power supply voltage	19	24	30	V
Propagation delay between 2 arbitrary CAN channels	-	130	200	ns

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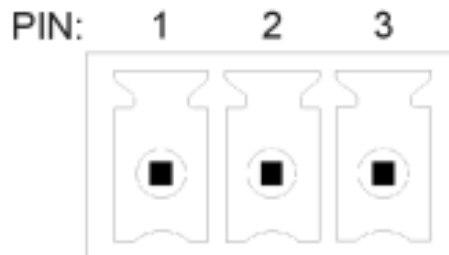
3 Operating Instructions

3.1 Pin Assignment

A CRep S4 device includes 4 CAN segments, wired by terminal blocks with 3 clamps. The power supply of CRep S4 is separately wired by a terminal block with 2 clamps.

The following table shows the terminal assignment of the CAN connector:

Pin	-	Function
1	CAN_H	CAN high bus line
2	CAN_L	CAN low bus line
3	GND	CAN ground

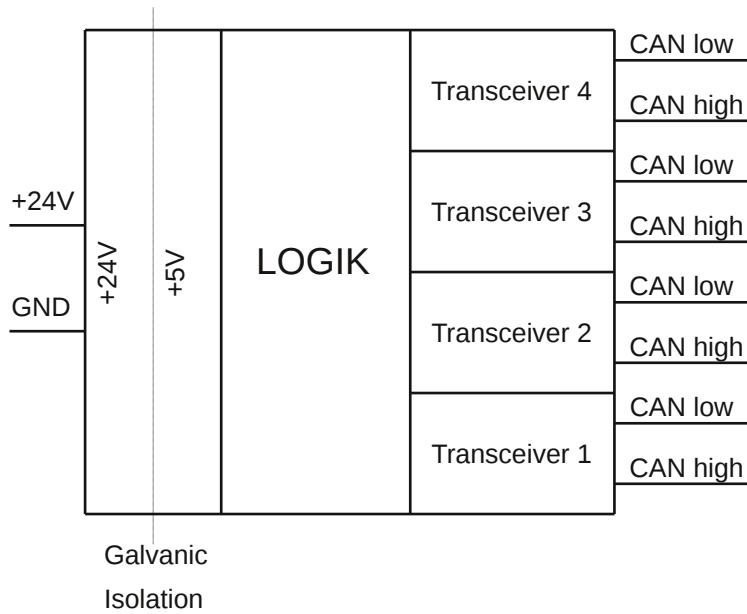


The following table shows the terminal assignment of the power connector:

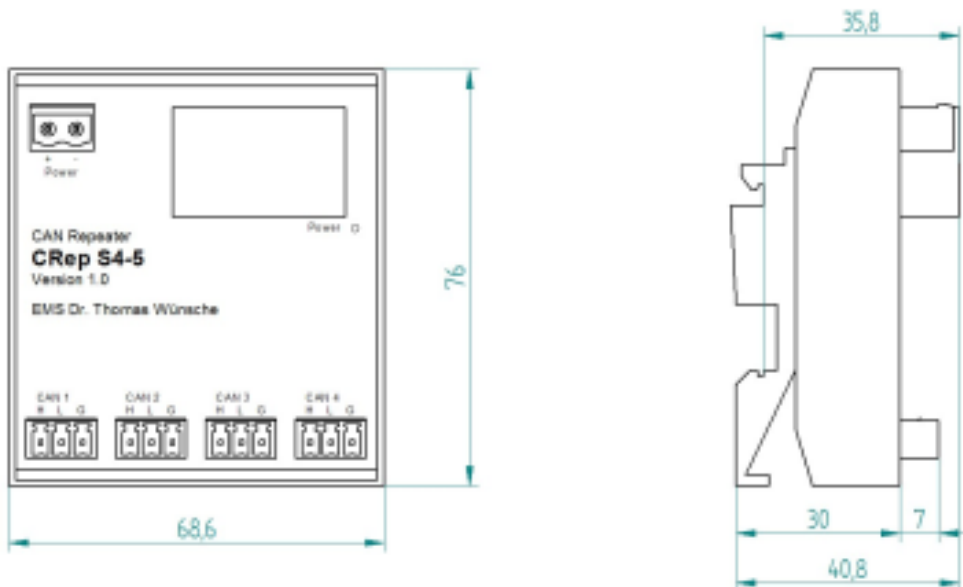
Pin	Name	Function
1	POWER +	Positive supply +24V
2	POWER -	Ground

The power supply is galvanic decoupled from the CAN system.

3.2 Block Diagram



3.3 Dimensions



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4 Appendix

4.1 Instruction for Disposal

Electronic Equipment Act (WEEE)

EMS is selling its products exclusively to commercial customers. This is the reason why all devices are designed for commercial use and have to be disposed appropriately. In accordance to § 10 para. 2 clause 3 Electronic Equipment Act (WEEE) the disposal of EMS products is regulated the following way.

The equipment must not be disposed at the public collection points. In accordance with the applicable law the disposal has to be done by the customer for own account. The same applies to products, which have been sold to third parties, if those parties do not take care of a disposal in accordance to the applicable law. As an alternative the products can be returned to EMS free of charge.

4.2 FCC Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

4.3 CE Conformity

Declaration of Conformity



The manufacturer

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Germany

hereby declares, that the following product:

Name	Article Number
CRep S4-3/S24/RMD	12-06-001-xx
CRep S4-5/S24/RMD	12-06-002-xx
CRep S4-10/S24/RMD	12-06-003-xx
CRep S4-20/S24/RMD	12-06-004-xx

meets the requirements of the following standards:

Electromagnetic Immunity

EN 55024; VDE 0878-24:2016-05 – Information technology equipment – Immunity characteristics – Limits and methods of measurement (CISPR 24:2010 + Cor.:2011 + A1:2015); German version EN 55024:2010 +A1:2015

Electromagnetic Emission

EN 55022; VDE 0878-22:2011-12 – Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement (CISPR 22:2008, modified); German version EN 55022:2010

and therefore conform with the EU requirements on:

Electromagnetic compatibility (2014/30/EU)

In accordance with the above mentioned EU directives, the EC declarations of conformity and the associated documentation are held at the disposal of the competent authorities.

RoHS 2 EEE

The RoHS 2 Directive (2011/65/EU) commits manufacturers of „Electrical and Electronic Equipment“ (EEE) to secure compliance with the RoHS Directive before placing a CE mark.

Based on technical documentation and to the best of our knowledge, we hereby confirm that the above mentioned products do not contain any of the restricted substances according to Article 4 of the RoHS Directive in excess of the maximum concentration values tolerated by weight in any of their homogeneous materials.

Ilmmünster, 04.05.2017

Dr. Thomas Wünsche

