



CAN Repeater

CRep-S10I-.../S24/RMD

User Manual

User manual CRep-S10I-.../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.

WARNING: CRep-S10I-.../S24/RMD 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
- 10 galvanic separated CAN channels
- Galvanic separation of CAN channels to power supply
- ISO 11898 compatible bus interface (NXP PCA82C251)
- Detach of dominant locked bus segments
- Rail mountable

1.2 General Description

The compact CAN repeater CRep S10I transmits and amplifies signals transparent to the CAN protocol. Each of the ten CAN connections has the physical behaviour of a single bus node. CRep S10I 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 S10I 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 S10I. 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 S10I 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.

Each CAN channel is galvanic separated to each other and to the power supply. This makes CRep-S10I suitable for applications with diverging ground potentials.

The presence of power is indicated by a LED. Each CAN channel is provided with a LED indicating that this channel has originated a CAN message.

1.3 Ordering Information

12-05-0xx-10	CRep S10I-.../S24/RMD Multiport CAN repeater, rail mountable, (... inhibit time)
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2 Electrical Characteristics

2.1 Absolute Limiting Values

Any (also temporary) stress in excess of the limiting values may cause permanent damage on CRep S10I and connected devices.

Parameter	Min.	Max.	Unit
Storage temperature	-40	+80	°C
Operating temperature	-20	+70	°C
Power supply voltage	-100	+35	V
Voltage on signal lines	-30	+30	V

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
Supply current ¹⁾	-	120	260	mA
Supply voltage ²⁾	+10	+24	+30	V
Termination resistor	118,8	120	121,2	Ω
Propagation delay between 2 arbitrary CAN channels	-	150	230	ns
Isolation voltage between CAN channels	-	500	-	V
Isolation voltage between CAN channels and power supply	-	500	-	V

1) supply voltage 24V, typ: idle bus; max: 125kBaud, 100% busload

2) device is not tested over full temperature range for minimum supply voltage

3 Operating Instructions

3.1 Pin Assignment

CRep-S10I includes 10 CAN segments, wired by terminal blocks with 3 clamps.

The power supply is separately wired by a terminal block with 2 clamps.

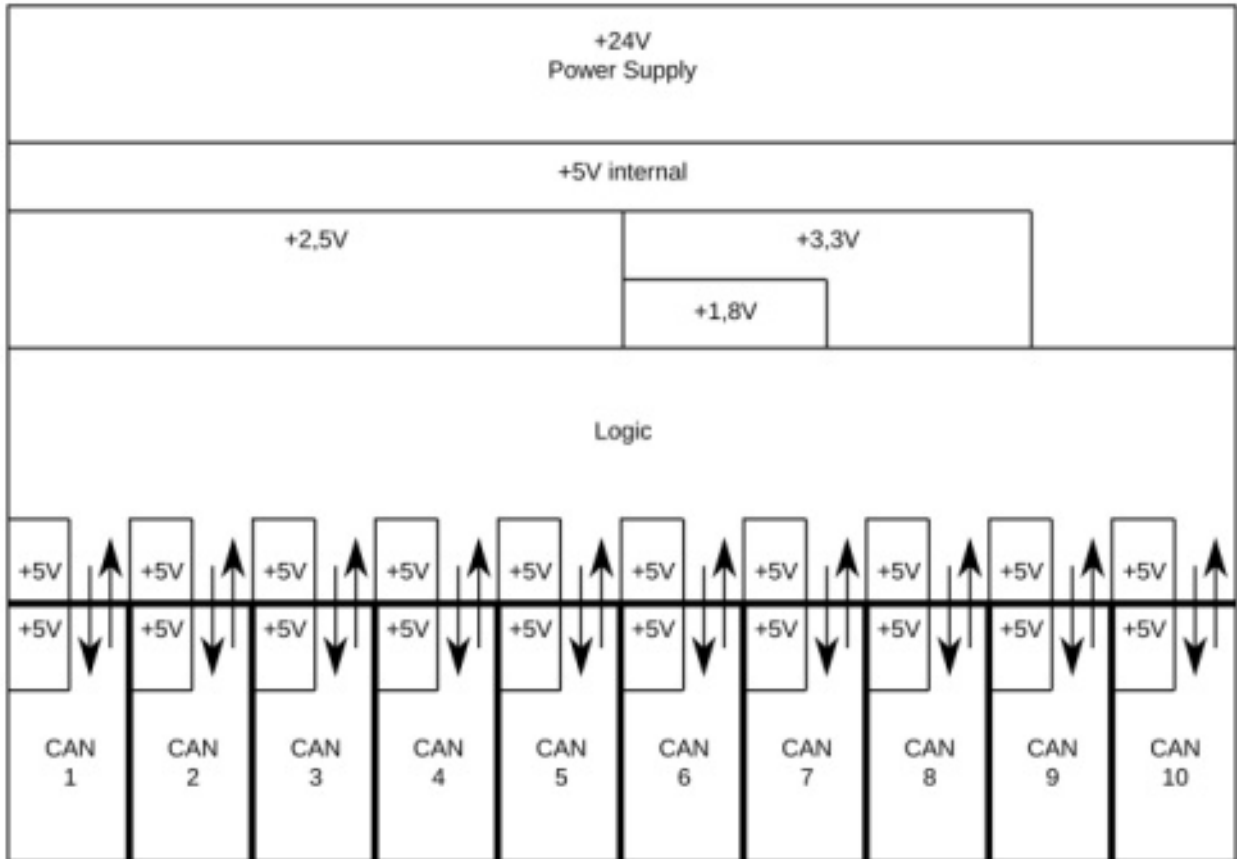
The following table shows the terminal assignment of the CAN connector:

Pin	Name	Description
Pin 1	CAN_H	CAN bus line, dominant high
Pin 2	CAN_L	CAN bus line, dominant low
Pin 3	GND	Ground

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

Pin	Name	Description
Pin 1	+24V	Positive power supply
Pin 2	GND	Ground potential of power supply

3.2 Block Diagram



4 Dimensions

