

<b>PRODUCT FUNCTIONAL DESCRIPTION</b>				<b>DOC. NO:</b> <b>FD009</b>	
<b>PRODUCT:</b> <b>CAN Voltage converter 12-24V -- Generic</b>					
<b>1. Purpose</b>					
The CAN1224 can be used to interface between two CAN networks of different operating voltages: one at 12V, one at 24V.					
<b>2. Application</b>					
To connect the CAN bus networks of two vehicles of different voltages, such as a 24V truck and a 12V trailer, in order to facilitate use of electronic braking systems.					
<b>3. Comments</b>					
<b>Rev</b>	<b>QOF</b>	<b>Description of change</b>	<b>Rev. Page</b>	<b>Date</b>	<b>Rev. by</b>
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**1 Introduction**

Trucks in Australia use both 12 and 24V power supplies, whilst most trailers are 12V. Voltage supply conversion systems for trailers and trucks are well established, but conversion systems for the CAN bus networks still need to be established.

**2 Application**

To connect the CAN bus networks of two vehicles of different voltages, such as a 24V truck and a 12V trailer.

**3 Acronyms and abbreviations**

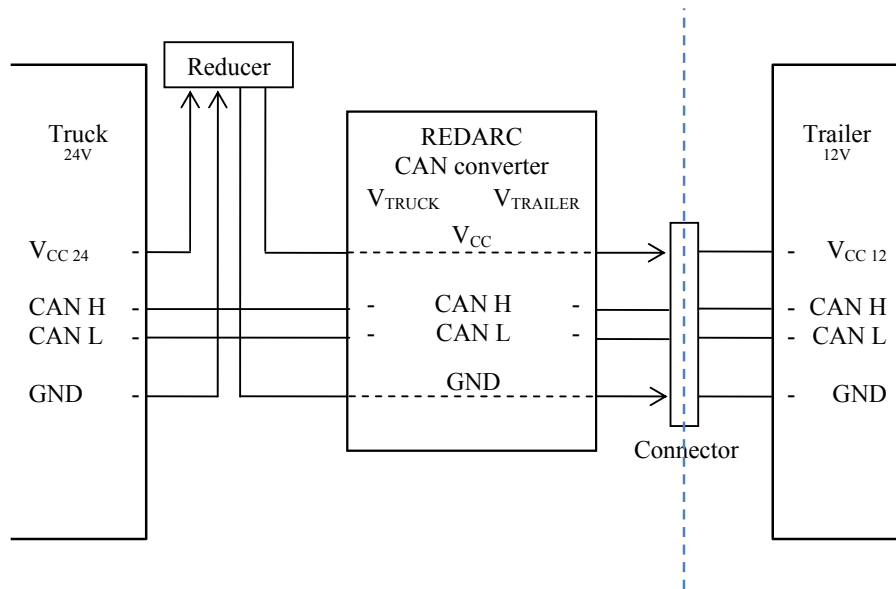
Acronym	Full Title
CAN	Controller Area Network

**4 Relevant Standards/Documents**

Reference	Issue	Title
ISO 11992-1-2003		Road vehicles - Interchange of digital information on electrical connections between towing and towed vehicles - Part 1: Physical and data-link layers

**5 System Overview**

The CAN1224 can be used to interface between two CAN networks of different voltages, specifically one at 12V and one at 24V. It has two CAN interfaces, one hardwired to each voltage level, and a power supply connection which will accept input voltages from 9V to 32V.



**Figure 1: Typical application**

## 6 Functional Description

### 6.1

The CAN1224 is connected to the existing CAN bus interface through flying leads or other connection methods as specified by the customer. Care must be taken to connect the 12V and 24V interfaces to the correct networks. It will be possible to connect two wires each to the supply voltage and ground terminals, in order to daisy-chain the connections to other devices.

### 6.2

The connectors, conductor size and power interconnection are to be specified by the customer.

### 6.3

The unit enclosure and Ingress Protection (IP) rating shall be specified by the customer.

### 6.4

The CAN converter will also handle error checking on the CAN bus, and attempt to operate in single-wire mode in the event of a CAN bus error. This will be done under the control of a microcontroller.

### 6.5

The issue of data signal latency introduced into the CAN bus network by the converter has been addressed. The converter will not cause timeouts or retransmissions in the network, unless the vehicle/trailer combination has non-standard wiring characteristics and topology.

## 7 Operation

Once the unit is installed, it will perform conversion without any further attention from the user. However, if the voltage level of either vehicle's network is changed, the CAN1224

installation may need to be modified to reflect the change depending on the customer specification and requirements.

## 8 Limitations

- CAN operating voltages are set at 12V and 24V only. Other voltage levels are not supported.
- Maximum CAN data rate of 125 kbit/s.

## 9 Electrical Specification

### Power:

Input voltage range: 9V-32V

Input current: maximum 900mA

typical 150mA

Output current: CAN bus specified levels

Connector: In accordance to customer requirements

To be powered via vehicle's ignition if possible, to avoid battery drain.

### Input control signals:

Connector: In accordance to customer requirements

### Output control signals:

Connector: In accordance to customer requirements