TVG
The Vehicle Group

OEMTech

Excellence Through Innovation

Product Guide

CVAS CAN
Announcement System

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Read guide fully before commencing installation.
This guide must be present during time of install.
This guide is to be used in conjunction with training.

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MADE IN BRITAIN

Document Change Control

Date	Version	Author	Approval	Changes
13/11/24	V2.0	A. Barker	M. Blackbourn	Complete rewrite of document
21/07/25	V2.1	A. Barker	M. Blackbourn	Updated with CANbus notification.

Table of Contents

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General Notices

- Before starting installation, please read the documentation fully as the performance of the device is dependent on correct installation.
- This device is designed for automotive use only. It must not be used in situations where human life is dependent on its performance.
- Installation of this device may conflict with some countries regulations, or the vehicle manufacturers instructions. Compliance with these regulations shall solely be the customers responsibility. Improper installation may invalidate the vehicle warranty.
- Prior to the commencement of any work, the correct PPE should be worn and a risk assessment should be conducted in accordance with your company policies.
- Ensure manufacturers guidance is followed during the installation.
- The device must be installed by a suitably qualified and experienced professional skilled in automotive electronics.
- Misuse, physical damage and incorrect installation will invalidate the warranty of this device or systems using this device.
- Vehicle batteries should be isolated before working on any electrical systems.
- If using the OEM body builders module to gain CANbus information, ensure the module is correctly configured by the manufacturer.
- Do not secure the device in a way where it will interfere with the vehicles control systems. E.g. steering column, brake pedals etc.
- Other people may install equipment after you, so your work must be firmly secured in place, this includes devices and cabling.
- Connecting the power supply and ground should be done as per OEM specifications. Once any jointing or crimping has been completed, testing should be conducted to ensure the joint is compliant with the crimp specifications and all other relevant standards.
- We do not recommend drilling through vinyl (vehicle decals etc) as this will lead to blistering from the heat generated. Hole should be fitted with a grommet and sealed with appropriate sealant.
- Any alteration to metal must be de-burred and all sharp edges removed. Exposed bare metal must be treated with appropriate anti-corrosion solution in accordance with manufacturers recommendations. Any swarf produced must be collected by placing a magnet or catchment device under the area of modification. No swarf is to be left on or in a vehicle.
- We recommend using flexible polyurethane sealants. Any sealed areas must be sealed to a minimum of IP65 and must comply with the vehicle manufacturers recommendations.
- Any serial / key numbers from the equipment being installed must be logged against the vehicle identity for future reference.

Introduction

The TVG Commercial Vehicle Announcement System (CVAS) CAN is a tough and reliable audible alert safety solution for businesses operating commercial and plant vehicles. It has been tested to work in extreme environments and also conforms to night operation noise regulations.

Purpose

CVAS CAN has been designed to monitor two digital inputs and up to two CANbus channels (dependant on its configuration). There are 2 possible configurations dependant on what outputs and inputs are required by the user, these configurations are shown on Page 7.

Config A is designed to read data on a single CAN bus. It has a set of output channels (Pins 5 and 6) which are hi-side smart FETs and are suitable for 500 mA audible outputs.

Config B is designed so that the speaker can listen and be triggered from two different CAN channels. The extra CAN channels in Config B take the place of the two output channels on Pin 5 and 6 in Config A. In this configuration the speaker loses the option of having any 500mA outputs.

CVAS CAN is able to be programmed with up to 250 seconds of sounds / messages, and when the unit receives the relevant trigger data, it will output the correct warning message.

For example it could be configured to monitor vehicle speed, and the left turn indicator signal. The CVAS CAN could detect when the vehicle is indicating to turn left and is also travelling below 15mph (24kph). In this scenario CVAS CAN would play the audio alert “Warning vehicle turning left”. Conversely, when the vehicle is traveling over 15mph the system will not play the message as it is not required.

Technical Information

Electrical

Operational voltage	10 – 32 Volts
Idle current 12V	1mA
Active Current 12V	14mA
Idle current 24v	1mA
Active Current 24V	14mA
Output amps per channel	500mA

CANbus

Number of channels	2
Max Speed	1 Mbps
Max Packet filters	16
Max Buffers	16

Dimensions & Weight

Length	120mm
Width	120mm
Height	65mm
Weight	506g

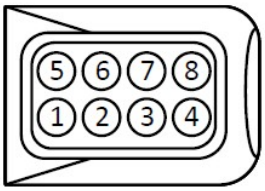
Configuration

CVAS CAN has many firmware configurations to suit clients requirements, we can also design bespoke firmware if required. The TVG sales team can help select the right firmware to meet clients needs.

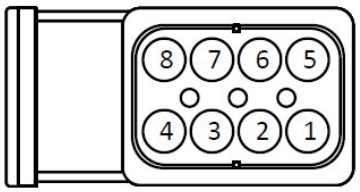
CVAS CAN is programmed to read up to two separate CANbus networks and react to the selected CANbus data received with any spoken word alert and/or directional multi frequency sound.

Connector Pin Layout

CVAS CAN is supplied fitted with a blueline 650mm long cable terminated in an 8-way male connector. This can be extended and terminated using the cables shown on page 11 of this document.



8-Way Connector Housing Male



TE Connectivity, MPC 2 Row 8-Way In-Line Mount Socket

Pin	Colour		Function - Config A	Function - Config B
1		Red	V+	V+
2		Black	Ground	Ground
5		Blue	Output 2	CAN H
6		Green	Output 1	CAN L
4		White	CAN H	CAN H
3		Yellow	CAN L	CAN L
7		Orange	Speed Pulse Input	Speed Pulse Input
8		Pink	Input 2	Input 2

CVAS CAN - Features

Sounds

The TVG CVAS CAN speaker can be loaded with up to 250 seconds of sounds. CVAS CAN can be commanded to play any of these sounds using a command packet. The address of the sound command packet is configured using a configuration packet.

Volume

Each sound can be assigned its own volume. This is set using the first byte of the sound command packet. The standard volume set for external warnings is 92dBA.

Low Power Mode

If the CVAS CAN has not received any CAN bus traffic for a few seconds the speaker will go to sleep. It will wake on any change of the input states, or when receiving new CAN bus data.

CVAS CAN can be kept awake by giving it a CAN packet every second if required.

Input Status

The CVAS CAN will, while awake, transmit a CAN packet every 100mS. If the CVAS CAN is asleep it will wake when an input changes state, and will stay awake for a few seconds sending packets every 100mS. The inputs have a built in debounce of 500mS to avoid any input chattering.

The input states CAN packet has a configurable transmit address which can be changed using the CVAS CAN configuration packet.

CAN bus Notification

The CVAS CAN will emit a low volume audible chirp when a valid CAN bus is connected and is operational, this also happens when the CVAS CAN has been awoken by CAN bus activity.

Speed Pulse Input

Input 1 can be used as a speed pulse input, the vehicle speed is then transmitted onto the CAN network in Kph. The pulses per meter setting is fully adjustable using the CVAS CAN configuration CAN packet.

CVAS CAN - Features

Configuration Packet

CVAS CAN can be configured to have its receive and transmit CAN addresses changed using a formatted packet addressed to 0X502. The speed pulses per meter can also be adjusted using the same packet.

The configuration information is saved to the CVAS CAN flash memory and will be recalled if the unit is powered down.

CAN bus Automatic Data Speed Detection

When first powered up the CVAS CAN will attempt to detect the speed of the attached CAN bus. The CVAS CAN can use the following CAN speeds:

125k 250k 500k 1000k

The CVAS CAN will detect the appropriate setting by attempting to receive valid data on each of these CAN speeds in sequence.

CVAS CAN will not enter low power mode until the CAN bus has been configured and valid data has been received.

Default Settings

CVAS CAN will have the following settings if no others are available:

- Sound Command Packet Address = 0x500
- Input Status Packet Address = 0x501
- Speed Pulse Input Pulses Per Meter = 4

The configuration packet address is not configurable and is set to 0x502

CVAS CAN Installation

- Before starting work ensure all relevant safety precautions have been taken.
- Locate a suitable mounting position for the CVAS CAN, it should usually be closer to the nearside of the vehicle.
- The speaker should be installed with the face / cone to 90° of the vehicle body or face down to prevent water filling the cone.
- Connect the 650mm speaker cable to the applicable extension loom so that it clicks and locks securely in place.
- Where possible the suitable CVAS CAN extension loom should be routed following a factory fitted loom through a pre-existing hole and grommet.
- The final extension cable should be routed into the vehicle cab following a factory fitted loom through a pre-existing hole and grommet if possible.
- Connect the output loom flying connectors to the appropriate vehicle outputs / inputs.
- To maintain OEM compliance we recommend using the TVG EasyReader to connect to the vehicle CANbus in a galvanically isolated way.
- Connect the power wires. Red to +Supply (with 3A fuse), and Black to 0v (Ground).
- Carry out all relevant safety checks before switching the ignition on and commencing functions tests.

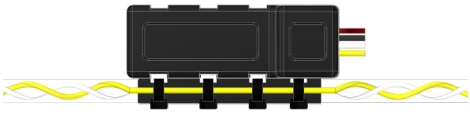
CVAS CAN Accessories

EasyReader 303940

Galvanically isolated CANbus Reader)

EasyReader (ND) 304126

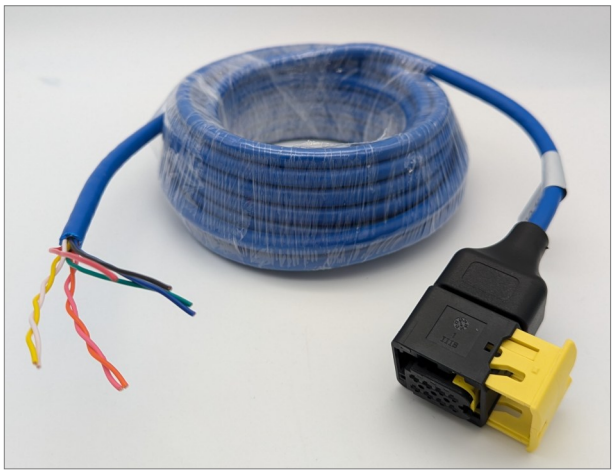
Galvanically isolated CANbus Reader)



CVAS Blueline Extension Cables

TVG Part Number	Description	Length	Connectors
304899	CVAS Blueline extension lead	3m	1 x 8-way connector (female). 1 x 8-way connector (male).
304901	CVAS Blueline extension lead	6m	1 x 8-way connector (female). 1 x 8-way connector (male).
304776	CVAS Blueline lead	6m	1 x 8-way connector (female). 8 x individually insulated flying leads (used to connect to vehicle inputs, outputs & power)

Extension cable male / female



Vehicle output lead female / flying

About Us

The Vehicle Group Limited (TVG) is a leading manufacturer of high quality safety and security systems for commercial vehicles. Our facility in North Yorkshire, where we have circa 100 employees, is home to our design, manufacturing, engineering, and service centre. We are especially proud of our market leading, British engineered and manufactured CCTV solution Oculux®, which is used Worldwide.

Our technology's include:

- Oculux® Cameras.
- Automotive CCTV.
- CANbus Readers.
- Commercial Vehicle Announcement System (CVAS).
- Vehicle Solar Systems.
- Cable Harness Design & Manufacture.
- Electronic Design & Manufacture.
- Systems Development.

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