

AD-DVA-M18

Product Manual

Revision: 1.0.1105.2



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Revision History

The latest revision of the product manual can be obtained through the Design-Com Technologies website located at www.designcom.com.au

The following is a list of changes made to this document:

Revision	Date	Description of Changes
1.0.1105.2	12-11-2010	Initial Release

Table 1: Revision History

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1. Introduction

1.1. Glossary

- *RS-485*
 - Industry standard differential serial data bus
- *Encoder*
 - Unit which converts lift controller data to Design-Com RS-485 data

1.2. Package Contents

- *AD-DVA-M18 Voice Annunciator*
- *Product Manual*
- *SD CARD with preloaded software and audio files*

1.3. System Overview

The AD-DVA-M18 is a voice annunciator which plays pre recorded voice messages stored on the SD CARD upon receiving a valid input. Background music can be enabled to play in idle mode or when the device does not receive a valid input.

The AD-DVA-M18 comes packed with the following features:

- Supports up to 64 floor levels
- Supports up to 16 lift messages
- Supreme audio quality at 44KHz
- Digital volume control
- Can be configured as lift encoder

2. Installation

2.1. Installation Diagram

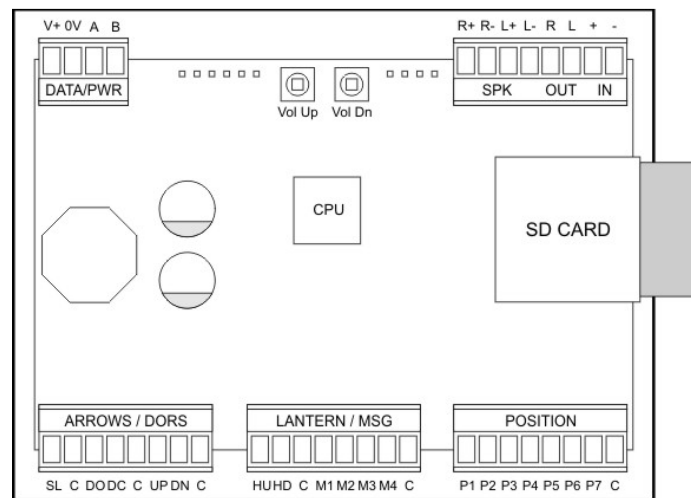


Figure 1 - Installation diagram of DVA-M18

2.1.1. Data / Power

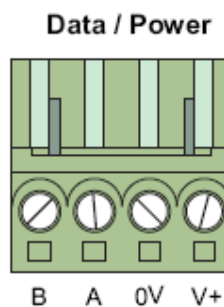


Figure 2 - Data / Power Connections

Module	Connections	Designations	Description
Data / Power	4	V+	Main power supply (+ve)
		0V	Main power supply (-ve)
		A	Data bus to displays (A)
		B	Data bus to displays (B)

Table 2 - Data / Power Connections

2.1.2. Arrows / Doors

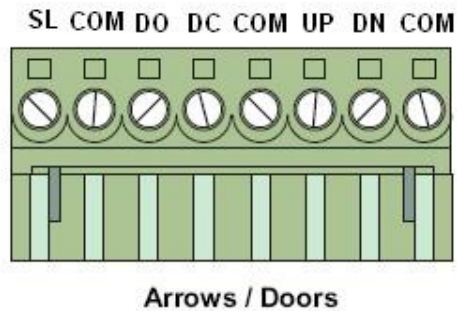


Figure 3 – Arrows / Doors Connections

Module	Connections	Designations	Description
Arrows / Doors	8	SL	Slow Trigger
		COM	Common reference for Trigger
		DO	Doors Opening
		DC	Doors Closing
		COM	Common reference for DO / DC
		UP	Arrow Up
		DOWN	Arrow Down
		COM	Common reference for UP / DOWN

Table 3 – Arrows / Doors Connections

2.1.3. Lanterns / Messages

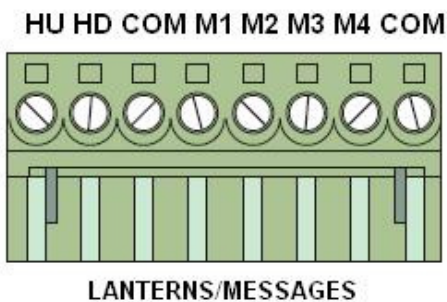


Figure 4 – Gongs / Lanterns Connections

Module	Connections	Designations	Description
Lanterns / Messages	8	HU	Hall Lantern Up
		HD	Hall Lantern Down
		COM	Common reference for LTU / LTD
		M1	Message Input # 1
		M2	Message Input # 2
		M3	Message Input # 3
		M4	Message Input # 4
		COM	Common reference for messages

Table 4 – Lanterns / Messages Connections

2.1.4. Inputs

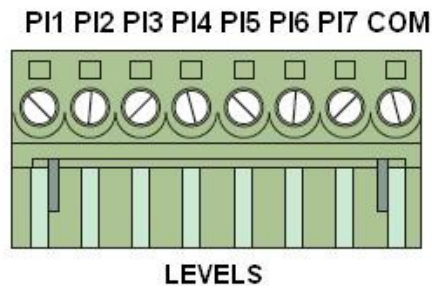


Figure 5 – Position Indicator Inputs

Module	Connections	Designations	Description
Position Indicators	8	PI1 – PI7	Position Indicator Inputs PI1 – PI7
		COM	Common reference point for Inputs PI1-PI7

Table 5 – Input Groups A and B Connections

2.2. Site Requirements

Whilst the system in itself is quite simple in its approach to wiring and configuration, it is important to be considerate of the requirements before attempting to install the system on site.

A basic voice network using the AD-DVA-M18 requires the following:

- 1 x Shielded Twisted Pair for data. Recommended Belden 8723, up to 400m maximum distance¹.
- 1 x Power Supply Pair. Note: Cable supplied must be able to supply the voltage/current required all displays².
- 1 x Speaker.
- 1 x SDCARD.

The SD CARD must be formatted using windows in **FAT** format.

A shielded cable does not guarantee immunity from noise. The most likely side effect from ineffective cabling is incorrect or missing annunciations.

All cabling for this system should **never** be run along with high voltage cabling. All efforts must be made to ensure the cabling is protected from induced noise from external systems.

¹ Data is connected directly to other Design-Com equipment

² Power supply is usually connected directly to a Design-Com Power Supply and supplies power to other Design-Com equipment

Design-Com Technologies assumes no responsibility for incorrect or incomplete cabling installed onsite. A qualified electrician / network engineer must always approve and install all components of a network that are connected to Design-Com equipment. Consult individual product manuals for electrical specifications³.

³ Product manual electrical specifications are for a single product only

3. Software Configuration Tool

The AD-DVA-M18 is configured using the AD-DVA-M18 Configuration Tool, which comes preloaded on the SD Card.

3.1. Software Requirements

The AD-DVA-M18 Configuration Tool has been tested on PC's running XP, Vista and Windows 7.

Ensure the following you have the following requirements installed and running.

- JRE (Java Run Time Enviroment). If not installed this can be found on the SD Card provided at the following location <storage card>:\AD-DVA-M18 Config Tool\JRE\
- Windows XP, Vista or 7 operating system.
- SD Card reader

3.2. Operation

Open the AD-DVA-18 Config Tool.jar located at <storage card>:\ AD-DVA-M18 Config Tool \ .

Select File > Open, and locate the Config.txt file in the root directory of the SD card. The factory default setting will populate the field on screen.

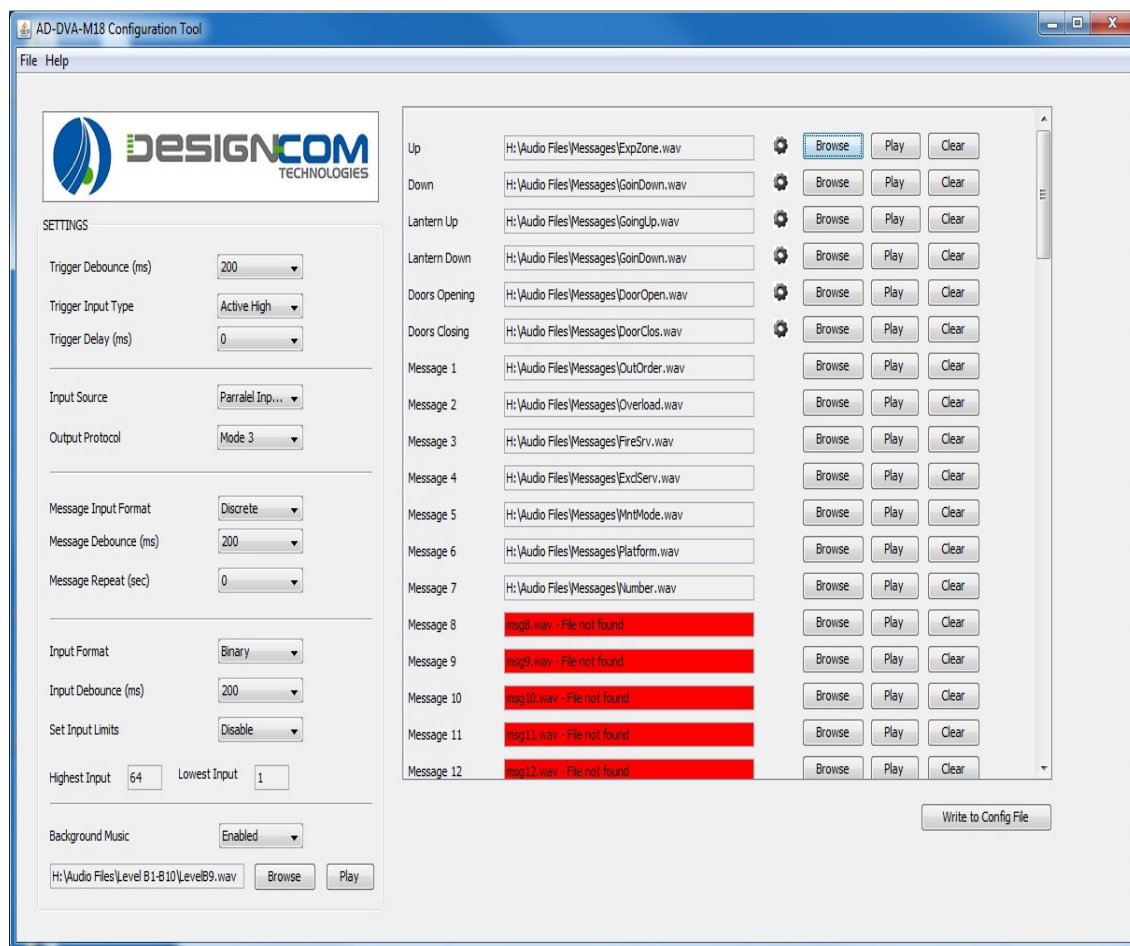


Figure 6 - AD-DVA-M18 Config Tool

3.2.1. Settings Configuration

The settings are used to configure the main operational parameters of the product. Following are the key parameters that are defined in this section:

Trigger, Message and Input Debounce (ms)

The Input Debounce is the time taken to measure a steady state of the electrical signal before considering it to be consistent. This applies to both the active and inactive states.

Trigger Input Type

The Active Input Level is the logic level in which the CT-E9 will activate the input and send it to the network. This ignores the electrical polarities. Almost all cases will be Active HIGH.

Trigger Delay (ms)

The Activation Delay is used to delay an input after it has been debounced. This is mainly used for triggering particular events where the Lift Controller signals aren't as accurate as they should be.

Input State Change = Trigger Debounce Time + Trigger Delay

Input Source

The Input Source gives 2 options to select from, these being 'DCT Serial' and 'Parallel Inputs'. The DCT Serial option allows the unit to receive MODE-2 and MODE-3 data from the RS-485 input port. The Parallel Inputs option allows the unit to receive inputs from the onboard inputs.

Output Protocol

When the Input source is set to 'Parallel Inputs' the Output Protocol feature is enabled. This allows the board to be configured as an encoder with MODE 2 and MODE 3 as selectable output protocols.

Message Input Format

The Message Input Format gives 2 options, Discrete and Binary. This will need to be selected depending on the message inputs being fed into the unit from the lift controller.

Message Repeat (sec)

The Message Repeat setting is used to set the duration it takes for a message to repetitively announce. This feature can be disabled by selecting '0'.

Input Format

The Input Format gives 3 options Discrete, Binary and Gray code. This will need to be selected according to the message inputs being fed into the unit from the lift controller.


Set Input Limits

The Set Input Limits gives the option of setting a minimum and maximum floor. This will force an up arrow on the lowest level and a down arrow on the highest level input.

Background Music

Background music when enabled, plays the selected audio file continuously when the unit is in idle mode. Only when an input is triggered does the music pause, play the appropriate message for the input which has been triggered, then resume the background music playback.

3.2.2. Arrows, Lanterns & Doors Settings

Individual settings are created for the Up Arrow, Down Arrow, Doors Opening, Doors Closing, , Up Lantern and Down Lantern inputs. To access and change these settings click on the  icon, which will open up the Input Settings window as shown in Figure 7.

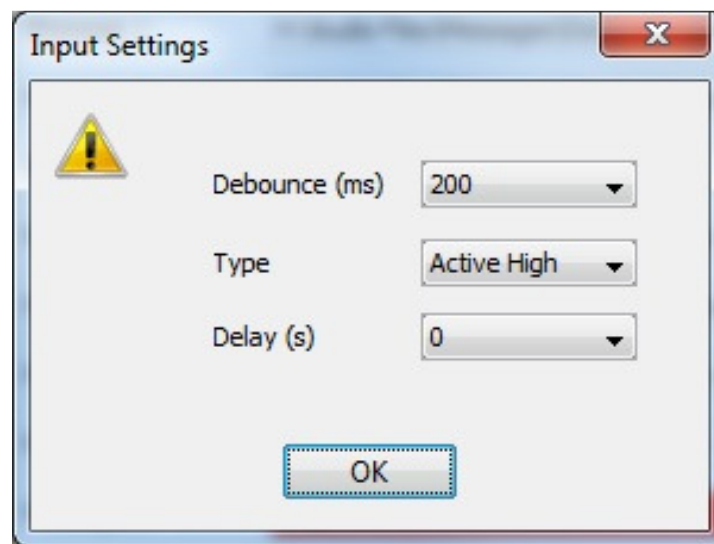


Figure 7 - Input Settings

Following are the key parameters that can be set individually for each input in its respective setting:

Debounce (ms)

The Input Debounce is the time taken to measure a steady state of the electrical signal before considering it to be consistent. This applies to both the active and inactive states.

Type

The Active Input Level is the logic level in which the AD-DVA-M18 will activate the input and send it to the network. This ignores the electrical polarities. Almost all cases will be Active HIGH.

Activation Delay (ms)

The Activation Delay is used to delay an input after it has been debounced. This is mainly used for triggering particular events where the Lift Controller signals aren't as accurate as they should be.

Input State Change = Input Debounce Time + Activation Delay

3.2.3. Input audio file table

Audio files will need to be allocated for each input required. The .daf (Audio) files can be located at <[storage card](#)>:\Audio Files\ on the SD Card. If an input is not required its audio file field should be cleared. The unit comes with a factory default configuration, which has most fields populated for demo use. If custom audio recordings are required they can be recorded according to the specification in section 3.3, and stored in the Custom Recording folder under Audio Files.

3.2.4. Saving Configuration

Once all settings have been set and audio daf files have been assigned to each required input, the config file will need to be saved to the SD Card, this can be done by clicking on the “Write to Config File” button. It may take a while to write to the config file depending on how many inputs have been configured. Once complete a window will pop up stating ‘Configuration Completed’.

3.3. Voice files

The AD-DVA-M18 plays voice files stored in our daf audio file format with the following specifications:

- Audio sample rate: 44100 Hz
- Sample size: 16bit
- Channels: Stereo
- Audio format: PCM
- Default volume: 0dB

The daf file names on SD CARD must follow **8.3 Short File Name** convention where filenames have at most eight characters, followed by a period "." and a file name extension of three characters eg. "wav" or "daf". Custom recordings can be recording in the wav file format, and the AD-DVA-M18 configuration tool will convert these to the daf format when writing to the config file.

4. Operation

4.1. Input Polarities

Inputs can be connected electrically as either positive or negative commons. The only restriction is that a group of inputs connected to the same common reference must be of the same type of polarity.

When an activate voltage is applied to a terminal with the appropriate common connected an associated LED will illuminate:

- **RED:** Negative Common
- **GREEN:** Positive Common

If an LED does not illuminate when the lift controller outputs a signal it indicates a wiring issue.

4.2. Trigger

- Trigger
- Electrical Common Reference: COM

The Trigger is used mainly to trigger voice messages on AD-DVA-M18 or tenant information on screens⁴.

4.3. Arrows

- Arrow Up
- Arrow Down
- Electrical Common Reference: COM

Arrows are used to indicate the direction in which the lift is currently travelling. AD-DVA-M18 annunciates the direction of travel when the trigger signal is active along with the direction. Lift displays use this signal as their standard arrow that is drawn on the screen.

4.4. Doors

- Doors Opening
- Doors Closing
- Electrical Common Reference: COM

Doors signals are used to indicate a change in event of the doors. AD-DVA-M18 looks at the rising edge event of this signal and plays the appropriate message, along with the intended direction of travel⁵⁶.

⁴ When the AD-DVA-M18 is used as an encoder

⁵ Direction of travel is played along with doors opening signal only.

⁶ Lantern signals are read to determine direction of travel.

4.5. Lanterns

- Lantern Up
- Lantern Down
- Electrical Common Reference: COM

Lanterns are used to indicate the direction in which the lift is currently travelling. AD-DVA-M18 announces the direction of travel when the doors opening signal is active along with the direction.

4.6. Messages

- Message Inputs M1 – M4
- Electrical Common Reference: COM
- Messages are announced whenever at least one of the message signals is active.
- Supports discrete and binary input configuration.

An example site with four discrete messages on M1-M4:

Physical Input	Message #	Play
M1	1	Fireserv.daf
M2	2	Docserv.daf
M3	3	Overload.daf
M4	4	Group.daf

Table 6 - Message Example

4.7. Position Indicators

- Position Indicator Inputs PI1 – PI7
- Electrical Common Reference: COM

Position Indicators are announced whenever at least one of the inputs PI1 – PI7 is active along with active trigger.

An example of a site with discrete inputs on PI1-PI6 for a building with the floors B, G, 1-4 and having voice files configured as B.daf, G.daf, Level1.daf, Level2.daf, Level3.daf and Level4.daf.

Physical Input	Position Input #	Play
PI1	1	B.daf
PI2	2	G.daf
PI3	3	Level1.daf
PI4	4	Level2.daf
PI5	5	Level3.daf
PI6	6	Level4.daf

Table 7 - Position Indicator Example

4.8. Volume adjustment

- Volume Up button

- Volume Down button

Volume levels for background music and operational messages can be adjusted while playing and are stored separately in the internal memory. Operational messages being short duration can be adjusted when the device is running in demo mode.

4.9. Demo mode

Pressing “Volume Down” button for 3 seconds makes the device enter/exit demo mode. In demo mode, voice messages are played continuously in the following order:

1. Arrow Up
2. Arrow Down
3. Doors opening
4. Doors Closing
5. Hall Lantern Up
6. Hall lantern Down
7. Messages 1 – 16
8. Position Indicator 1 – 64

5. Troubleshooting

If you encounter a problem with this product, before sending it back for repair, please check for the following.

PROBLEM	SOLUTION
Input LED doesn't activate	Voltage on input is not high enough or Common for the required input is not connected
Input LED turns on but no information is played	Voltage on input is present but not high enough Device is configured to read data from the network over serial bus
No flashing LED (heartbeat)	There is no power to the board
Fault LED is blinking	SDCARD is not inserted or is faulty
Message or Level Inputs are incorrect	Incorrect mode selected (Section 4.6) Inputs have been configured incorrectly (Section 4.7)

Table 8 - Troubleshooting

Please note under no circumstances should you attempt to repair this product yourself as this will void the warranty.

6. Reference

6.1. Technical Specifications

Operating Voltage	12VDC – 30VDC
Operating Current (24V DC)	100mA (maximum)
Individual Input Voltage	10VDC (min)– 30VDC (max), 13VAC (min) – 30VAC (max)
Operating Temperature	0°C - 75°C
Dimensions	124.0mm x 88.0mm x 43.5mm
Manufactured	Melbourne, Australia

Table 9 - Technical Specifications

6.2. Dimensions

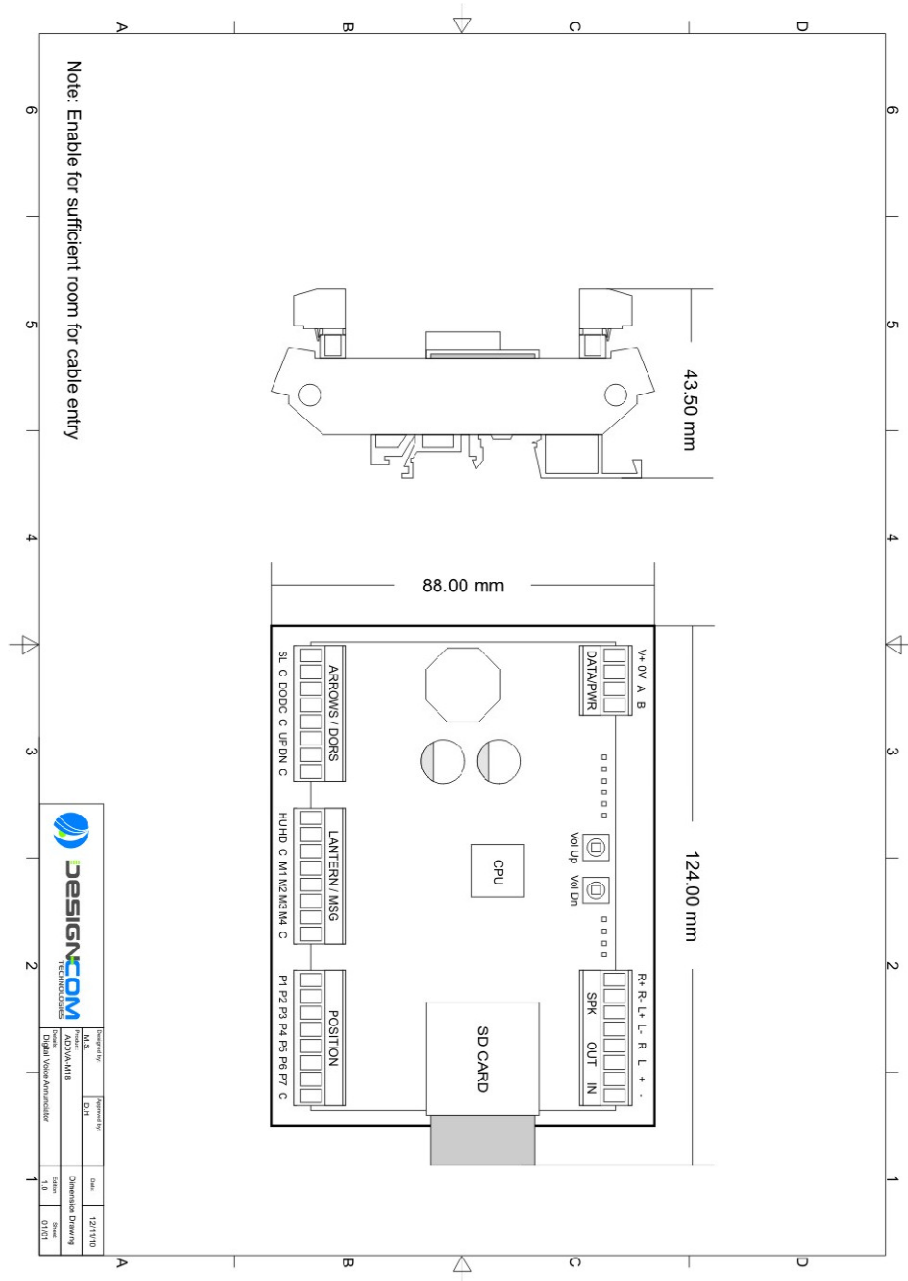


Figure 8 – Product Dimensions

6.3. Wiring Diagram

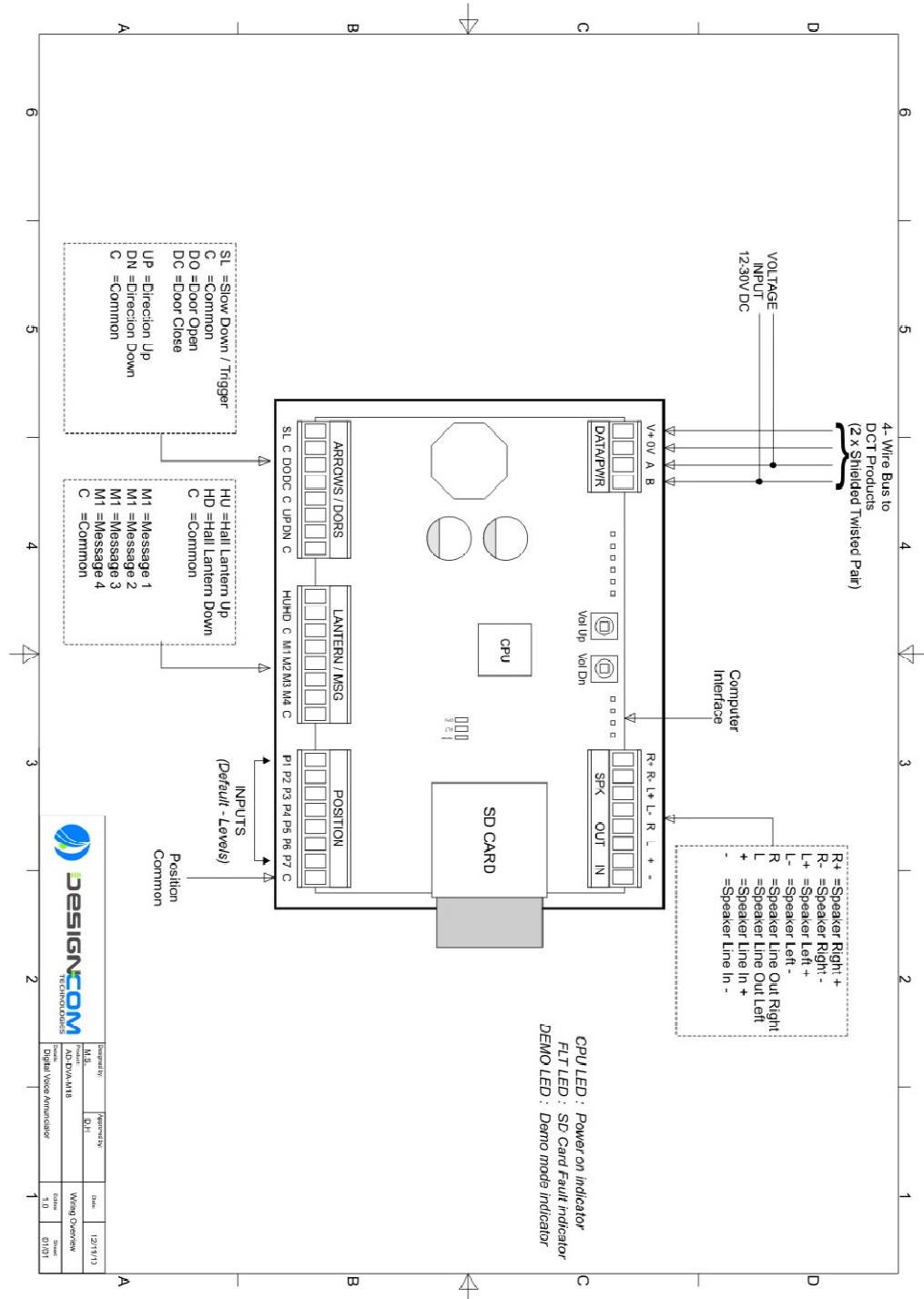


Figure 9 – AD-DVA-M18 Wiring Diagram

7. Maintenance

7.1. Replacement Parts

There are no replacement parts available for this product.

8. Safety and Handling Precautions



CAUTION - Permanent Damage will occur if the input/supply voltages exceed the maximum levels specified. Take care to avoid static damage to any component on this product. Transport and/or store the product in its protective static-free packaging until required. When handling an exposed circuit board, avoid touching its connector pins and handle the board by its edges only. All high voltage areas, if present, will be displayed with a danger/caution label, please observe and stay clear of these areas.

9. Warranty

9.1. Terms and Conditions

This document sets out the terms and conditions of product warranties for **Design-Com Technologies** products. It is an important document. Please keep it with your proof of purchase documents in a safe place for future reference should you require service for your **Design-Com Technologies** products.

General Terms and Conditions:

1. In this warranty:
 - a. 'Design-Com Technologies' means **Design-Com Technologies Pty Ltd** ABN 31 091 941 838 in respect of Products purchased in Australia;
 - b. 'Product' means any **Design-Com Technologies** product purchased by you accompanied by this document;
 - c. 'Warranty Period' means the period of time within '18' months from the Date of Purchase;
2. **Design-Com Technologies** warrants that, when dispatched from a Design-Com Technologies warehouse, the Product is free from defects in materials and workmanship.
3. During the Warranty Period **Design-Com Technologies** will (at no extra charge and subject to these terms and conditions) repair or replace any parts, which it considers defective.
4. Service repair parts not supplied by **Design-Com Technologies** are not covered by this warranty.
5. Proof of purchase is required before you can make a claim under this warranty.
6. You may not make a claim under this warranty unless the defect claimed is due to faulty or defective parts or workmanship. **Design-Com Technologies** is not liable in the following situations (which are not exhaustive):
 - a. The Product(s) is damaged by:
 - i. Accident
 - ii. Misuse or abuse, including failure to properly maintain or service
 - iii. Abnormal wear and tear
 - iv. Power surges, sags, electrical storm damage or incorrect power supply
 - v. Incomplete or improper installation

- vi. Incorrect, improper or inappropriate operation
 - b. The Product(s) is modified without written authority from **Design-Com Technologies**.
 - c. The warranty seal and serial number of the Products(s) has been removed or defaced.
 - d. The Product(s) was serviced or repaired by anyone other than **Design-Com Technologies** or its Authorized Service Personnel.
7. This warranty, the contract to which it relates and the relationship between you and **Design-Com Technologies** are governed by the law applicable in the Australian State where the product was manufactured (Victoria).

9.2. Extended Warranty

1. Extended Warranty is a service offered by Design-Com Technologies at the time of purchasing that extends the Warranty Period on Design-Com manufactured products.
2. The Extended Warranty Period of Cover is dependent on which option is purchased (2, 3, 4 or 5 years) and commences from the Original Date of Purchase.
3. The Extended Warranty Period of Cover includes the 18 Month Manufacturing Warranty Period

9.3. Limitation of Liability

1. To the extent permitted by law:
 - a. **Design-Com technologies** excludes all warranties other than as contained in this document;
 - b. **Design-Com technologies** shall not be liable for any loss or damage whether direct or indirect or consequential arising from your purchase, use or non-use of the Product.
2. Provisions of the Trade Practices Act and State consumer legislation in Australia, imply warranties or conditions, or impose obligations, upon **Design-Com Technologies** which cannot be excluded, restricted or modified. To the extent permitted by law, the liability of **Design-Com Technologies** (if any) arising out of or in relation to the Product or any services supplied by **Design-Com Technologies** shall be limited (where it is fair and reasonable to do so):
 - a. In the case of the Product, at its option, to the replacement or repair of the Product or the supply of equivalent products or the payment of the cost of replacing the Product or having the Product repaired or of acquiring an equivalent Product. Upon being replaced, any parts and the Product become the property of **Design-Com Technologies**.
3. Subject to these conditions, **Design-Com Technologies** offers all returns and repairs with a back to base warranty.

9.4. Privacy

You acknowledge that in the event that you make a warranty claim it will be necessary for **Design-Com Technologies** and its Authorized Agents to exchange information in relation to you to enable **Design-Com Technologies** to meet its obligations under this warranty.

9.5. Important Notice

Before calling a Service Technician please carefully examine the operating instructions and the warranty terms and conditions. For details on the **Design-Com Technologies** Warranty Procedure, please visit http://www.designcom.com.au/support_display.php

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