VMP400

3.5" 320 x 480 TOUCHSCREEN FOR RASPBERRY PI® (ILI9341)

USER MANUAL

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1. Introduction

To all residents of the European Union

Important environmental information about this product

This symbol on the device or the package indicates that disposal of the device after its lifecycle could harm the environment. Do not dispose of the unit (or batteries) as unsorted municipal waste; it should be taken to a specialized company for recycling. This device should be returned to your distributor or to a local recycling service. Respect the local environmental rules.

If in doubt, contact your local waste disposal authorities.

Thank you for choosing Velleman®! Please read the manual thoroughly before bringing this device into service. If the device was damaged in transit, do not install or use it and contact your dealer.

2. Safety Instructions

	• This device can be used by children aged from 8 years and above, and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning the use of the device in a safe way and understand the hazards involved. Children shall not play with the device. Cleaning and user maintenance shall not be made by children without supervision.

	• Indoor use only. Keep away from rain, moisture, splashing and dripping liquids.

3. General Guidelines

	• Refer to the Velleman® Service and Quality Warranty on the last pages of this manual.
	• Familiarise yourself with the functions of the device before actually using it.
	• All modifications of the device are forbidden for safety reasons. Damage caused by user modifications to the device is not covered by the warranty.
	• Only use the device for its intended purpose. Using the device in an unauthorised way will void the warranty.
	• Damage caused by disregard of certain guidelines in this manual is not covered by the warranty and the dealer will not accept responsibility for any ensuing defects or problems.
	• Nor Velleman nv nor its dealers can be held responsible for any damage (extraordinary, incidental or indirect) – of any nature (financial, physical…) arising from the possession, use or failure of this product.
	• Due to constant product improvements, the actual product appearance might differ from the shown images.
	• Product images are for illustrative purposes only.
	• Do not switch the device on immediately after it has been exposed to changes in temperature. Protect the device against damage by leaving it switched off until it has reached room temperature.
	• Keep this manual for future reference.

4.   Overview

resolution .... 320 x 480
LCD type .... TFT
LCD interface .... SPI
touch screen type ....resistive
backlight.. LED
aspect ratio...8.5

5.   Pin Layout

pin no.	symbol	description
1, 17	3.3 V	power positive (3.3 V power input)
2, 4	5 V	power positive (5 V power input)
3, 5, 7, 8, 10, 12, 13, 15, 16	NC	NC
6, 9, 14, 20, 25	GND	ground
11	TP_IRQ	touch panel interrupt, low level while the panel detects touching
18	LCD_RS	instruction/data register selection
19	LCD_SI/TP_SI	SPI data input of LCD/touch panel
21	TP_SO	SPI data output of touch panel
22	RST	reset
23	LCD_SCK/TP_SCK	SPI clock of LCD/touch panel
24	LCD_CS	LCD chip selection, low active
26	TP_CS	touch panel chip selection, low active

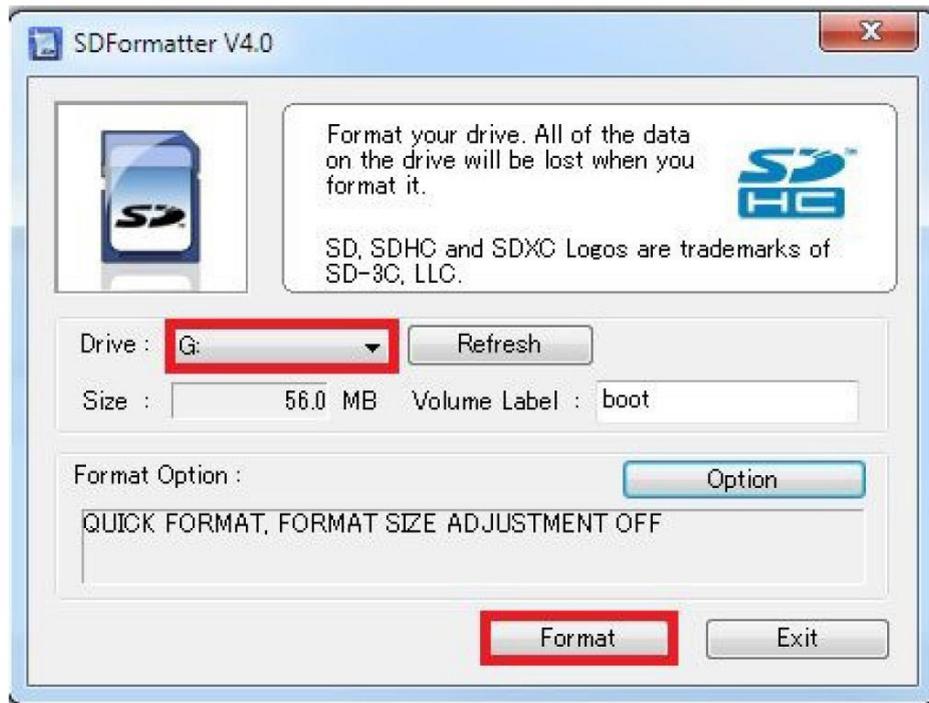## 6.   Example

Required Hardware
- 1 x Raspberry Pi® 1/2/3 main board
- 1 x microSD card (> 8 GB, image file ± 7.5 GB)
- 1 x microSD card reader
- 1 x micro USB cable
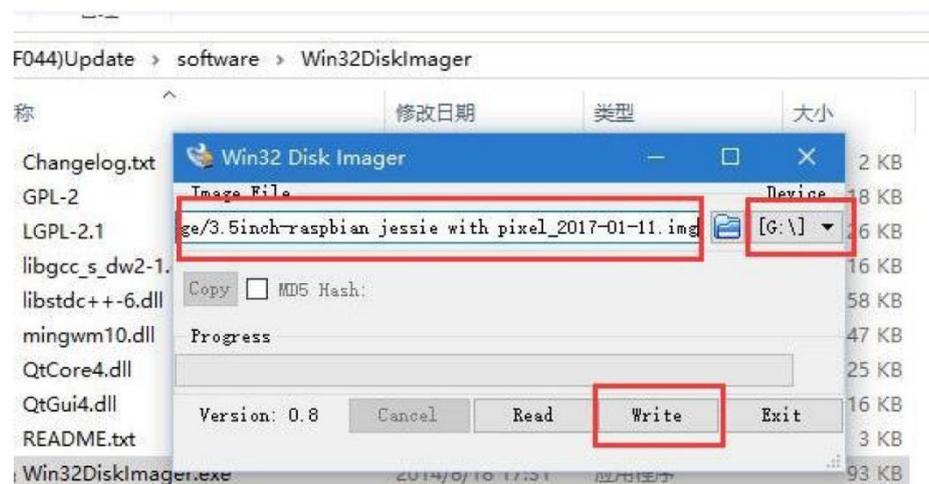- 1 x USB keyboard
- 3.5" LCD module (VMP400)

Required Software
- SD formatter
- Win32DiskImager
- Raspberry Pi® OS IMAGE
- LCD Driver

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1. Format the SD card. Open SDFormatter, select your SD card and click <Format>.

2. Burn the Raspberry Pi® OS IMAGE onto the SD card. Open Win32DiskImager, select the file and SD card, and click <Write>. The burning process may take a few minutes.

3. Make the hardware connection. Connect the VMP400 screen to the Raspberry Pi®. Wait for the device to switch on.

7.   Driver Installation

7.1   Install the Raspbian official IMAGE.

Download the latest Raspbian IMAGE from the official website https://www.raspberrypi.org/downloads/.

Format the TF card with an SDFormatter.

Burn the official image onto the TF card using Win32DiskImager.

7.2   Obtain the LCD driver.

Online Installation

Log onto the Raspberry Pi® user system to command line (initial user name: pi, password: raspberry).

Get the newest driver from GitHub (the LCD should be connected to the Internet).

```
git clone https://github.com/goodtft/LCD-show.git
chmod -R 755 LCD-show
cd LCD-show/
```

Offline Installation

Extract from the included CD-ROM or ask your seller.

Copy the LCD-show-160701.tar.gz drive to the Raspberry Pi® system root directory. Copy flash the driver directly onto the TF card after installing the Raspbian IMAGE, or copy by SFTP or other remote copy methods. Unzip and extract the driver files as the following command:

```
cd /boot
sudo tar zxvf LCD-show-160701.tar.gz
cd LCD-show/
```

7.3   Install the LCD driver.

The corresponding execution for this 3.5" LCD:

```
sudo ./LCD35-show
```

The corresponding execution to switch back to the traditional HDMI display:

```
sudo ./LCD-hdmi
```

Wait for a moment after executing the above command before you can use the LCD.

Velleman® Service and Quality Warranty

Since its foundation in 1972, Velleman® acquired extensive experience in the electronics world and currently distributes its products in over 85 countries.

All our products fulfil strict quality requirements and legal stipulations in the EU. In order to ensure the quality, our products regularly go through an extra quality check, both by an internal quality department and by specialized external organisations. If, all precautionary measures notwithstanding, problems should occur, please make appeal to our warranty (see guarantee conditions).

General Warranty Conditions Concerning Consumer Products (for EU):

• All consumer products are subject to a 24-month warranty on production flaws and defective material as from the original date of purchase.

• Velleman® can decide to replace an article with an equivalent article, or to refund the retail value totally or partially when the complaint is valid and a free repair or replacement of the article is impossible, or if the expenses are out of proportion.

You will be delivered a replacing article or a refund at the value of 100% of the purchase price in case of a flaw occurred in the first year after the date of purchase and delivery, or a replacing article at 50% of the purchase price or a refund at the value of 50% of the retail value in case of a flaw occurred in the second year after the date of purchase and delivery.

• **Not covered by warranty:**
- all direct or indirect damage caused after delivery to the article (e.g. by oxidation, shocks, falls, dust, dirt, humidity...), and by the article, as well as its contents (e.g. data loss), compensation for loss of profits;
- consumable goods, parts or accessories that are subject to an aging process during normal use, such as batteries (rechargeable, non-rechargeable, built-in or replaceable), lamps, rubber parts, drive belts... (unlimited list);
- flaws resulting from fire, water damage, lightning, accident, natural disaster, etc.…;
- flaws caused deliberately, negligently or resulting from improper handling, negligent maintenance, abusive use or use contrary to the manufacturer's instructions;
- damage caused by a commercial, professional or collective use of the article (the warranty validity will be reduced to six (6) months when the article is used professionally);
- damage resulting from an inappropriate packing and shipping of the article;
- all damage caused by modification, repair or alteration performed by a third party without written permission by Velleman®.

• Articles to be repaired must be delivered to your Velleman® dealer, solidly packed (preferably in the original packaging), and be completed with the original receipt of purchase and a clear flaw description.

• Hint: In order to save on cost and time, please reread the manual and check if the flaw is caused by obvious causes prior to presenting the article for repair. Note that returning a non-defective article can also involve handling costs.

• Repairs occurring after warranty expiration are subject to shipping costs.

• The above conditions are without prejudice to all commercial warranties.

The above enumeration is subject to modification according to the article (see article's manual).