NEXTION NX3224K024

Nextion Enhanced 2.4 inch Display NX3224K024 User Manual

Model: NX3224K024 | Brand: NEXTION

1. INTRODUCTION

The Nextion Enhanced 2.4 inch Display NX3224K024 is a Human Machine Interface (HMI) LCD resistive touch screen designed for integration with microcontrollers such as Arduino and Raspberry Pi. This enhanced version offers several improvements over basic Nextion displays, including support for a built-in Real-Time Clock (RTC), the ability to save data to Flash memory, General Purpose Input/Output (GPIO) capabilities, a larger flash capacity, and a faster CPU. This manual provides essential information for setting up, operating, and maintaining your Nextion display.

2. PACKAGE CONTENTS

Please verify that all items listed below are included in your package:

- 1 X Nextion Enhanced 2.4 Display (NX3224K024)
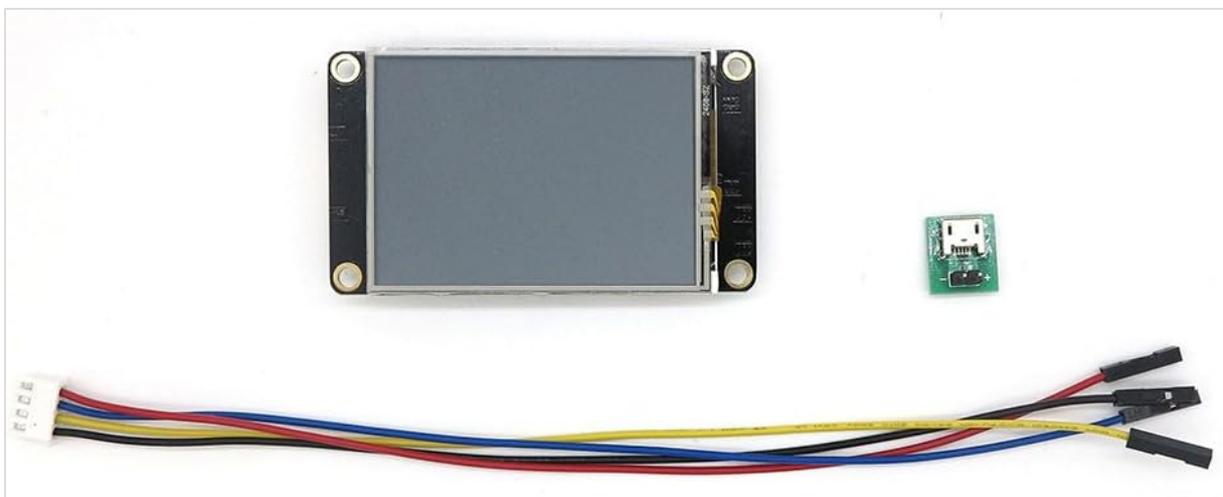- 1 X 2-pin power supply test board
- 1 X 4-pin cable

Figure 1: Contents of the Nextion Enhanced 2.4 inch Display package. Shown are the display unit, a small green 2-pin power supply test board, and a multi-colored 4-pin cable.

3. TECHNICAL SPECIFICATIONS

Feature	Specification
Model	NX3224K024
Display Size	2.4 inch
Resolution	320 × 240 pixels
Color Depth	65K (65536) colors
Visual Area	48.96mm(L) × 36.72mm(W)
Layout Size	74.4(L) × 42.72(W) × 5.8(H) mm
Touch Type	Resistive
Backlight	LED
Backlight Lifetime	>30,000 Hours (Average)
Flash Data Storage	16MB
EEPROM	1024 byte
RAM	3584 byte
Instruction Buffer	1024 byte
Built-in RTC	Yes
GPIO Support	Yes
SD Card Interface	Supports max 32G Micro TF/SD card (FAT32 format)
Adjustable Brightness	0~180 nit, 1% interval
Recommended Power Supply	5V 500mA DC
Connectivity	GPIO, USB (via adapter)

4. SETUP GUIDE

4.1 Power Supply

The Nextion display requires a stable 5V DC power supply with a minimum current of 500mA. It is strongly recommended to use the provided 2-pin power supply test board or a dedicated 5V power source. Powering the display directly from a microcontroller's 5V pin without sufficient current can lead to unstable operation or potential damage to the screen.

4.2 Connecting to a Microcontroller

To communicate with a host microcontroller (e.g., Arduino, Raspberry Pi), a USB to TTL adapter is typically required to connect the display to your computer for programming and debugging. The display communicates via a serial interface. Ensure correct wiring of TX, RX, VCC, and GND pins.

4.3 SD Card for Project Upload

The display features an SD card interface that supports Micro TF/SD cards up to 32GB. The SD card must

be formatted to FAT32. This interface is primarily used for uploading project files created with the Nextion Editor to the display's internal flash memory.

4.4 Real-Time Clock (RTC) Battery

The Nextion Enhanced display includes a built-in Real-Time Clock (RTC) function. A small coin cell battery (not included) can be installed to maintain the RTC's timekeeping when the display is powered off. This battery does not supply power to the display for operation.

5. OPERATING INSTRUCTIONS

5.1 Nextion Editor Software

The Nextion display is programmed using the official Nextion Editor software, available for download from the manufacturer's website. This software allows you to design graphical user interfaces (GUIs), create interactive elements (buttons, text fields, progress bars), and define the display's behavior. The display operates by receiving commands and sending data via its serial interface, enabling interaction with a host microcontroller.

5.2 Uploading Projects to the Display

Projects created with the Nextion Editor can be uploaded to the display's internal flash memory using one of two methods:

1. **Via MicroSD Card:**
   - Export your compiled project (.tft file) from the Nextion Editor to a FAT32 formatted MicroSD card.
   - Insert the MicroSD card into the display's SD card slot.
   - Power on the display. The display will automatically detect the .tft file and begin the upload process.
   - Once the upload is complete, power off the display, remove the SD card, and then power it back on to run the new project.

2. **Via USB to TTL Adapter:**
   - Connect the display to your computer using a USB to TTL adapter.
   - In the Nextion Editor, select the appropriate COM port for your adapter and initiate the upload directly.

6. MAINTENANCE

To ensure the longevity and optimal performance of your Nextion display, follow these maintenance guidelines:

- **Cleaning:** Keep the display clean and free from dust. Use a soft, dry, lint-free cloth to gently wipe the screen surface. Avoid using abrasive cleaners, solvents, or excessive moisture, as these can damage the screen or touch panel.
- **Environmental Conditions:** Operate the display within its specified temperature and humidity ranges. Avoid exposing it to extreme temperatures, direct sunlight for prolonged periods, or high humidity.
- **Backlight Lifetime:** The LED backlight has an average lifetime of over 30,000 hours under normal operating conditions. Dimming the backlight when not in active use can extend its lifespan.

7. TROUBLESHOOTING

If you encounter issues with your Nextion Enhanced 2.4 inch Display, refer to the following common

problems and solutions:

- **Display not powering on:**
    - Verify that the 5V 500mA DC power supply is correctly connected and providing adequate power.
    - Check all power connections for secure contact.

- **Display not responding to touch:**
    - Ensure the resistive touch panel is properly connected.
    - If applicable, check for touch calibration settings within your Nextion project.

- **Project upload failure:**
    - When using an SD card, confirm it is formatted to FAT32 and the .tft file is placed in the root directory.
    - Verify the integrity of the project file.
    - If using a USB to TTL adapter, ensure the correct COM port is selected in the Nextion Editor and the adapter is functioning correctly.

- **Real-Time Clock (RTC) not keeping time:**
    - Ensure a compatible coin cell battery is installed correctly in the RTC battery holder (if present and used).

- **Communication issues with microcontroller:**
    - Double-check all wiring between the display and the microcontroller (TX, RX, VCC, GND).
    - Verify that the baud rates configured in your microcontroller's code match the settings in your Nextion project.
    - Review your microcontroller's code for correct serial communication implementation.

For further assistance, please refer to the official Nextion documentation and community forums, or contact the seller directly.

8. WARRANTY AND SUPPORT

For warranty information, technical support, or any product-related inquiries, please contact the seller directly through the platform where the product was purchased. When contacting support, please provide your order details and a clear description of the issue to facilitate a prompt resolution.

To contact the seller (DIYmalls) on Amazon, navigate to the product page, locate the "Sold by DIYmalls" link (typically found under the "Buy Now" button), and click on "Ask a question" on the new page.

Related Documents - NX3224K024

	[Nextion Editor Quick Start Guide](#) A comprehensive guide to using the Nextion Editor software for visual building of graphic interfaces for embedded GUI-intensive devices with TFT displays and Touch Panels.
	[Nextion NX4832T035 HMI Display Datasheet and Specifications](#) Detailed specifications and technical information for the Nextion NX4832T035 HMI display, including features, dimensions, electrical characteristics, and operating environment.
	[Nextion NX8048T050 HMI TFT Display Datasheet and Specifications](#) Detailed technical specifications, features, and overview of the Nextion NX8048T050 Human Machine Interface (HMI) TFT display, including models NX8048T050_011N and NX8048T050_011R. Covers electronic characteristics, performance, and dimensions.
	[Nextion NX8048P050-011C: 5.0-inch Intelligent Series HMI Touchscreen Datasheet](#) Detailed specifications and overview of the Nextion NX8048P050-011C, a 5.0-inch Intelligent Series HMI touchscreen display. This document covers its features, electronic characteristics, interface performance, memory, and environmental parameters.
	[Nextion 5-Year Availability Guarantee](#) ITEAD Studio guarantees the availability of Nextion Series products for a minimum of 5 years, ensuring long-term product availability and backward compatibility through potential redesigns.