1.14 Inch IPS TFT LCD Module SPI Interface Wide Temperature for Industrial Application

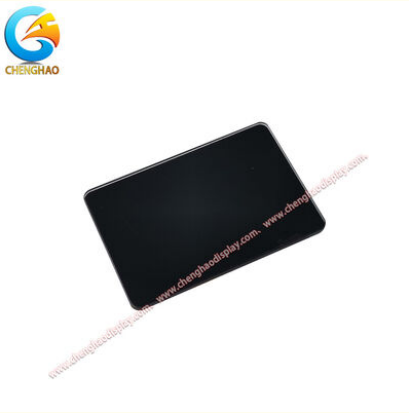
Our Product Introduction

Basic Information

- Place of Origin: China
- Brand Name: chenghao optoelectronic
- Certification: RoHS & CE & FCC
- Model Number: CH114QV01A-L-PA
- Minimum Order Quantity: 100 pcs
- Price: Negotiable
- Packaging Details: Standard export packaging
- Delivery Time: 7-15 work days
- Payment Terms: T/T
- Supply Ability: 300,000 pieces/month

Product Specification

- Module No: CH114QV01A-L-PA
- Display Mode: IPS / Transmissive / Normally Black
- Screen Size: 1.14 Inch
- Resolution: 135×RGB×240 Dots
- Viewing Direction: 80/80/80/80 (IPS Full Viewing)
- Screen Brightness: 350 Cd/m²
- Module Interface: SPI
- FPC Pin Numbers: 8 Pins
- Operating Temperature: -20°C ~ +70°C
- Storage Temperature: -30°C ~ +80°C
- Module Size: 27.80×31.00 Mm (TFT OD)
- Active Area Size: 14.86×24.91 Mm
- Highlight: **1.14 inch IPS TFT LCD module**, **SPI interface LCD screen**, **industrial wide temperature LCD**



More Images

Product Description

The CH114QV01A-L-PA is a compact 1.14 inch IPS TFT LCD module designed for industrial and embedded applications requiring reliable display performance in space-constrained environments. This small form factor display features a resolution of 135×RGB×240 dots, delivering clear and sharp visuals suitable for user interfaces, status indicators, and data visualization panels.

Built with advanced IPS (In-Plane Switching) technology, this TFT LCD module offers an exceptional full viewing angle of 80/80/80/80 degrees, ensuring consistent color reproduction and image quality from virtually any viewing direction. The transmissive display mode with normally black state provides excellent contrast ratio, making it ideal for both indoor and controlled lighting environments.

The module utilizes SPI (Serial Peripheral Interface) communication protocol, which significantly reduces the number of required connection pins to just 8 pins on the FPC. This simplified interface architecture makes the CH114QV01A-L-PA particularly suitable for integration with microcontrollers and embedded systems where GPIO resources are limited.

With a typical luminance of 350 cd/m², this display delivers adequate brightness for most indoor applications while maintaining power efficiency. The module is engineered to operate reliably across a wide temperature range from -20°C to +70°C, with storage capability extending from -30°C to +80°C, ensuring dependable performance in demanding industrial environments.

A distinctive feature of this module is the integrated Glass LENS protective cover with 1.8mm thickness, providing enhanced mechanical protection for the underlying TFT panel without touch functionality. This robust construction makes the display suitable for applications where physical durability is essential but capacitive touch interaction is not required.

The active area measures 14.86×24.91 mm within an overall TFT outline dimension of 27.80×31.00 mm, offering an optimal balance between display real estate and compact footprint for portable and handheld devices.

Product Features

Compact Size for Space-Constrained Applications The 1.14 inch form factor makes this IPS TFT LCD module an excellent choice for handheld devices, portable instruments, and embedded systems where board space and enclosure volume are at a premium. The small footprint allows designers to integrate a functional display without significantly increasing product dimensions.

IPS Technology for Superior Viewing Experience Unlike conventional TN panels, the IPS technology employed in this module provides consistent color accuracy and brightness across all viewing angles. Users can view the display from any direction without experiencing color shift or contrast degradation, which is particularly valuable for collaborative environments where multiple users may view the same screen.

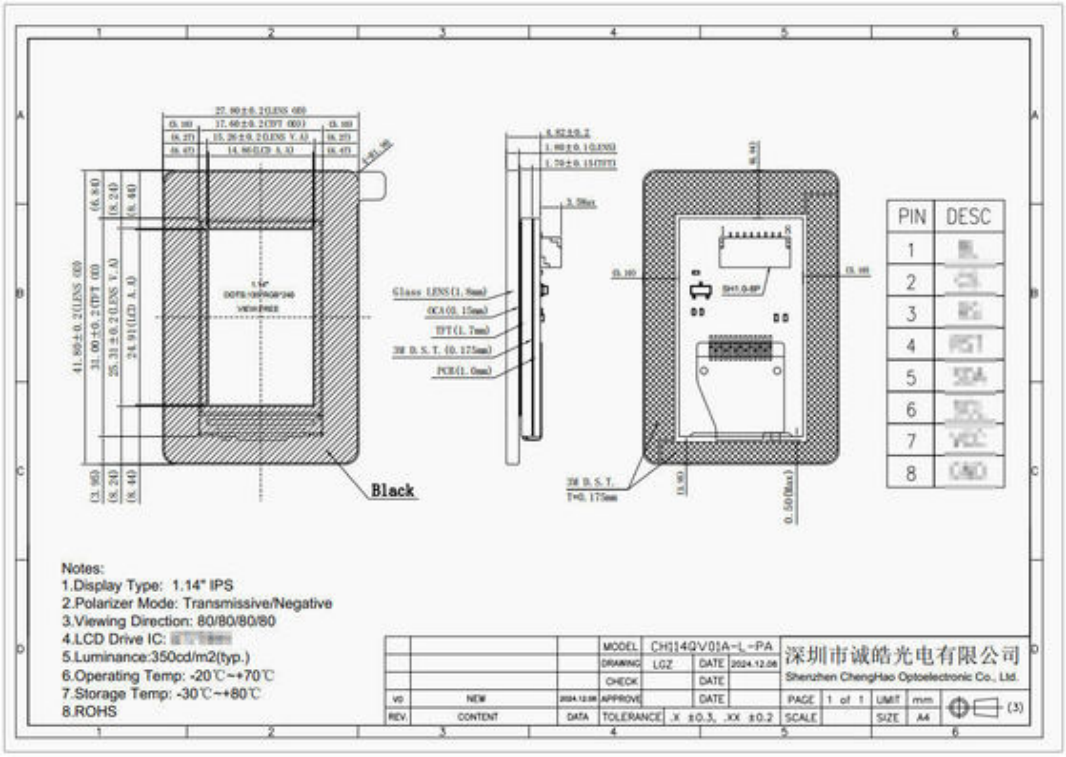
SPI Interface for Simplified Integration The SPI communication protocol reduces the interface complexity to just 8 pins, making this module highly compatible with a wide range of microcontrollers including ARM Cortex-M series, ESP32, and other popular embedded platforms. The simplified pin count also reduces FPC routing complexity and improves overall system reliability.

Wide Temperature Operating Range With operational capability spanning from -20°C to +70°C, this display module is engineered to perform reliably in challenging industrial environments. From cold storage facilities to outdoor kiosks in temperate climates, the CH114QV01A-L-PA maintains stable performance without requiring additional heating or cooling systems.

Protective Glass LENS Construction The integrated 1.8mm thick Glass LENS cover provides robust mechanical protection against scratches, impacts, and environmental contaminants. This feature extends the module's service life in applications where the display may be exposed to physical contact or harsh operating conditions.

Energy-Efficient Operation The 350 cd/m² brightness level strikes an optimal balance between visibility and power consumption. This efficiency makes the module suitable for battery-powered devices where display power budget must be carefully managed to maximize operational runtime.

Product Drawing



Detailed Specifications

Item	Value
Module Name	1.14 inch IPS TFT LCD Module
Module No	CH114QV01A-L-PA
Display Mode	IPS / Transmissive / Normally Black
Screen Size	1.14 inch
Resolution	135×RGB×240 dots
Viewing Direction	80/80/80/80 (IPS Full Viewing)
Screen Brightness	350 cd/m²
Module Interface	SPI
FPC Pin Numbers	8 pins
Operating Temperature	-20°C ~ +70°C
Storage Temperature	-30°C ~ +80°C
Module Size	27.80×31.00 mm (TFT OD)
Active Area Size	14.86×24.91 mm

Item	Value
Touch Type	No Touch (with Glass LENS 1.8mm)
LCD Drive IC	ST****V

Customized Introduction

Chenghao offers comprehensive customization services for TFT LCD modules, mono LCD displays, color OLED modules, and mono OLED modules. For the CH114QV01A-L-PA and similar small-size IPS TFT displays, we provide flexible customization options to meet diverse application requirements.

FPC Customization We can customize the FPC shape, length, and pin configuration according to your PCB layout. Whether you need specific connector orientations, extended FPC length for flexible routing, or modified pin assignments, our engineering team can design the optimal FPC solution for your product.

Interface Options While this module features SPI interface, Chenghao supports a wide range of interface types including MCU, RGB, MIPI, LVDS, eDP, and HDMI. For applications requiring higher bandwidth or different protocol compatibility, we can recommend alternative interface solutions from our product portfolio.

Brightness Customization The standard 350 cd/m² brightness suits most indoor applications. For outdoor or high-ambient-light environments, we offer high-brightness options exceeding 500 cd/m² for sunlight readability. Conversely, for power-sensitive applications, lower brightness variants can be configured to extend battery life.

Cover Glass Solutions The integrated Glass LENS can be customized in terms of thickness, shape, and surface treatment. Options include anti-glare (AG) coating for reduced reflections, anti-fingerprint (AF) treatment, and custom silk printing for branding or functional overlays.

Touch Integration Although this specific module does not include touch functionality, Chenghao provides both capacitive touch (CTP) and resistive touch (RTP) integration options for compatible display modules. Touch solutions can be tailored for different use cases, from basic single-touch to advanced multi-touch with glove support.

Application Cases

Portable Test Instruments The compact 1.14 inch display is ideal for handheld multimeters, portable oscilloscopes, and field measurement devices. The IPS full viewing angle ensures readings remain visible from various positions, while the SPI interface simplifies integration with embedded processors commonly used in test equipment.

Industrial Control Panels Small-size HMI panels in industrial automation systems benefit from this module's wide temperature range and robust Glass LENS protection. The display can show status indicators, parameter values, and simple graphical interfaces in control cabinets, PLC systems, and distributed I/O modules.

Medical Diagnostic Devices Portable medical instruments such as pulse oximeters, glucose monitors, and handheld diagnostic tools require compact displays with reliable performance. The 350 cd/m² brightness ensures clear visibility in clinical environments, while the protective glass cover withstands frequent handling and cleaning protocols.

Smart Home Controllers Wall-mounted thermostats, smart switches, and IoT control hubs can utilize this display for showing temperature readings, status icons, and menu interfaces. The SPI interface's low pin count makes it suitable for resource-constrained IoT devices, and the wide temperature tolerance ensures reliable operation in varying indoor conditions.

Consumer Electronics Portable audio players, portable health monitoring devices, and handheld gaming devices benefit from the small form factor and energy-efficient operation. The IPS technology provides consistent color reproduction for user interfaces, while the protective glass extends product durability in everyday use scenarios.

FAQ

Q1: What is the advantage of SPI interface for this display module?A1: The SPI (Serial Peripheral Interface) requires only 4 signal lines (SCL, SDA, CS, DC) plus power and ground, significantly reducing pin count compared to parallel interfaces. This makes the module ideal for microcontrollers with limited GPIO resources, simplifies PCB routing, and reduces overall system cost. The trade-off is slightly slower refresh rates, which is acceptable for static or slowly updating user interfaces.

Q2: Can this module be used outdoors? A2: With 350 cd/m² brightness, this module is suitable for shaded outdoor areas or indoor environments with ambient light. For direct sunlight applications, we recommend our high-brightness variants exceeding 500 cd/m². The wide operating temperature range (-20°C to +70°C) also supports outdoor deployment in temperate climates without additional environmental control.

Q3: What is the purpose of the Glass LENS cover?A3: The 1.8mm thick Glass LENS provides mechanical protection for the underlying TFT panel, shielding it from scratches, impacts, and dust ingress. This makes the module suitable for applications where the display may be exposed to physical contact or harsh environments. Note that this cover glass does not include touch functionality.

Q4: How does IPS technology improve the viewing experience? A4: IPS (In-Plane Switching) technology eliminates the color shift and contrast degradation typical of conventional TN panels when viewed from off-axis angles. With 80/80/80/80 viewing angles, users see consistent colors and brightness from virtually any direction, making this display excellent for collaborative environments or handheld devices used in various orientations.

Q5: What customization options are available for this module? A5: Chenghao offers FPC customization (shape, length, pin configuration), brightness variants (standard to high-brightness), cover glass options (AG coating, AF treatment, custom silk printing), and alternative interface solutions. For touch-enabled applications, we can recommend compatible capacitive or resistive touch variants from our product portfolio.

Q6: What is the typical lead time for samples and mass production?A6: Standard samples are typically available within 7-15 working days. For mass production orders, lead time depends on quantity and customization requirements, generally ranging from 4-8 weeks. Contact our sales team for specific lead time estimates based on your project requirements.

Q7: Is technical support available for integration?A7: Yes, Chenghao provides comprehensive technical support including driver code examples, initialization sequences, integration guidelines, and direct engineering consultation. Our technical team can assist with interface configuration, power management optimization, and troubleshooting during your product development process.

Shenzhen ChengHao Optoelectronic Co., Ltd.

+86 755-27806536 add@chenghaolcm.com chenghaolcd.com

7th floor, building C5, Hengfeng Industrial City, Hangcheng street, Bao'an District, Shenzhen