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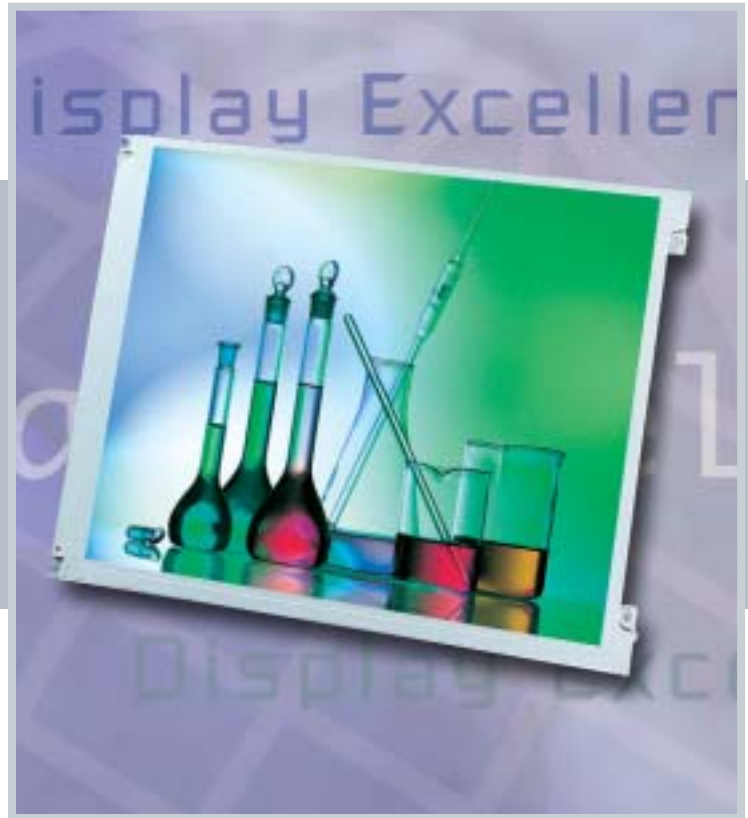
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Overview

Hitachi, a leading manufacturer of flat panel displays, can offer a broad range of standard monochrome and colour display modules. Hitachi also offers a full custom display design and manufacturing capability. In-house design and production of key components such as colour filters, LCD drivers and back-lights, allows Hitachi to provide cost and performance optimised solutions and continuity of supply.



Combining extensive design experience with advanced manufacturing technologies, Hitachi can meet the most stringent customer requirements. Whether you need a standard display or a customised product Hitachi LCD modules deliver exceptional performance, value and quality.



Hitachi is continually enhancing an extensive range of industry standard LCD modules. Integrated DC/DC converters, wide temperature range LC fluids, long life high brightness CCFL tubes, low power white LED's and analogue resistive touch screens are being integrated to provide LCD modules suitable for many varied market environments and applications.

Features:

- Screen sizes: 3.6" to 10.4"
- Manufactured using TCP (tape carrier package) and COG (chip on glass) construction
- Exceptional optical performance, high brightness, excellent colour saturation
- Low power consumption, advanced LCD drivers, low voltage LC materials
- Industry standard, screen sizes, format and resolution

Typical Applications:

- | | |
|---------------|-------------------|
| ■ Industrial | ■ Process Control |
| ■ Consumer | ■ epos |
| ■ White goods | ■ Instrumentation |
| ■ Telecoms | ■ Front Panels |

Monochrome STN LCD Modules

Hitachi offers a range of monochrome STN LCD modules featuring sizes up to 10.4" and resolutions up to VGA.



Features

- **Excellent Visibility**
High twist LC material and film compensated STN technology produce high contrast and excellent readability.
- **Compact, Lightweight Design**
Tape Carrier Package (TCP) construction and Chip on Glass (COG) produce compact mechanical dimensions and lightweight modules.
- **High Brightness and White LEDs**
CFL lamps and white LEDs produce high brightness and power efficient backlight solutions.
- **Outstanding Reliability**
Rigorous qualification procedures and durability tests provide high quality, high reliability modules.
- **Ease of Use and Serviceability**
Several displays have built in controller and display memory for easy interfacing to a microcontroller. Replaceable backlight units allow easy maintenance.

Applications

Data Loggers, epos,
Process Control, Instrumentation
Front Panels, Security Systems
Information Terminals,
Ticketing Systems, MMI

Display Excellence Products

SP14N001

The SP14N001 series includes four 240 x 128 modules that all boast an enhanced optical performance and feature an integrated Toshiba T6963C controller.

They also offer mechanical compatibility with Hitachi's existing LMG742x and SP14N00x display module family.

All SP14N001 displays feature a long life CCFL backlight that provides a half brightness lifetime of 50,000 hours and a brightness of 150cd/m².

The new modules use a TCP (tape carrier package) construction, which provides a compact, lightweight module with excellent reliability

SP24V001

The SP24V001 is further result of Hitachi's continuous enhancement policy.

This 9.4" VGA monochrome LCD module provides a direct drop in upgrade for the existing LMG5278XUFC module.

Enhancements include a long life CFL backlight, providing a half-brightness lifetime of 50,000 hours and improved optical performance.

The SP24V001-ZZA provides an integrated 4-wire analogue resistive touchscreen

New Products

4.8" 256 x 64 SP12N002

- Transmissive Film-STN
- Replaceable CFL Backlight
- Toshiba T6963C Controller

5.1" 240 x 128 SP14N001 Series

- Transmissive Film-STN
- 50K Hour CFL Backlight
- Toshiba T6963C Controller
- Touchscreen Option

9.4" 640 x 480 SP24V001 Series

- Transmissive Film-STN
- 50K Hour CFL Backlight
- LMG5278XUFC compatible
- Touchscreen Option



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Size	Resolution	Part Number	Display Type	Mode	Module Dimensions	Backlight	Inverter	Touchscreen Version	Features
4.0"	240 x 160	SP10Q002-Z1	Black/White Film STN	Transmissive	120 x 80 x 7.0	CFL	INVC445, INVC473	on request	1/8 VGA
4.0"	240 x 160	SP10Q002-T	Black/White Film STN	Transflective	120 x 80 x 7.0	CFL	INVC445, INVC473	on request	1/8 VGA, Sunlight readable
4.8"	256 x 64	SP12N001-T	Blue/Grey STN	Transflective	160 x 68 x 9.5	EL	Pacel P4	n/a	Sanyo LC7981, LMG6381QHGE replacement
4.8"	256 x 64	SP12N002	Black/White Film STN	Transmissive	160 x 68 x 12	CFL	INVC191	n/a	Toshiba T6963C, LMG7380QHFC replacement
5.1"	240 x 128	SP14N001	Black/White Film STN	Transmissive	159.4 x 101 x 11	CFL	INVC191	SP14N001-ZZA	Toshiba T6963C, 50K hour CFL, DC/DC
5.1"	240 x 128	SP14N001-Z1	Black/White Film STN	Transmissive	159.4 x 101 x 11	CFL	INVC191	SP14N001-Z1A	Toshiba T6963C, 50K hour CFL, LMG7420PLFC compatible
5.1"	240 x 128	SP14N002	Black/White Film STN	Transmissive	159.4 x 101 x 11	CFL	INVC191	n/a	Sanyo LC7981, LMG7400PLFC replacement
5.1"	240 x 128	SP14N003	Blue/White STN	Transmissive	159.4 x 101 x 11	CFL	INVC191	n/a	Sanyo LC7981, LMG7401PLBC replacement
9.4"	640 x 480	SP24V001	Black/White Film STN	Transmissive	257.5 x 174 x 7	CFL	INVC218, INVC378	SP24V001-ZZA	50K hour CFL, LMG5278XUFC compatible
9.4"	640 x 480	SP24V001-A	Black/White Film STN	Transmissive	257.5 x 174 x 7	CFL	INVC218, INVC378	on request	50K hour CFL, Sharp LM64P83L compatible
10.4"	640 x 480	LMG7550XUFC	Black/White Film STN	Transmissive	264 x 183 x 9	CFL	INVC444, INVC445, INVC473	on request	

1/4 VGA Monochrome STN LCD Modules



New Product

3.8" 1/4 VGA SP10Q010 series

- Transmissive and Transflective
- White LED backlight 110cd/m²
- Wide Temperature Range
- Touchscreen Option

Features

- **Extensive Range**
1/4 VGA LCD modules are available in a range of industry standard sizes: 3.8", 4.7" and 5.7"
- **Integrated Features**
Include touchscreens, long life CFL backlights, high brightness, white LED backlights and wide temperature range options.
- **Exceptional Optical Performance**
High contrast, high brightness, paper white saturation.
- **Compatibility**
Mechanically compatible 1/4 VGA colour LCD modules enable a complete and comprehensive product portfolio.

Display Excellence Products

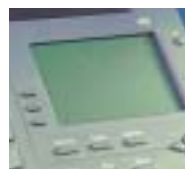
SP14Q005/SP14Q006

The SP14Q005 is the result of continuous enhancement of the industry standard SP14Q00x family of 5.7" 1/4 VGA display modules.

The SP14Q005 features wide temperature operation (-20 to +70 deg °C), a long life, high brightness CFL backlight, providing a half-brightness lifetime of 50,000 hours, enhanced contrast and full backward compatibility with all previous SP14Q00x modules.

Further enhancement continues with the introduction of the SP14Q006 which features a low power, high brightness white LED backlight providing a brightness of 150 cd/m².

All SP14Q00x versions are available with an optional 4-wire analogue resistive touchscreen.





New Products

5.7" 1/4 VGA SP14Q005

- Transmissive Film-STN
- CFL backlight 220 cd/m²
- Wide Temperature Range
- Touchscreen Option

5.7" 1/4 VGA SP14Q006 series

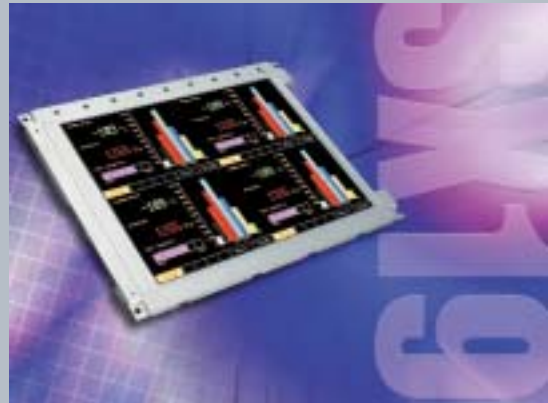
- Transmissive and Transflective
- White LED backlight 150 cd/m²
- Wide Temperature Range
- Touchscreen Option

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Size	Resolution	Part Number	Display Type	Mode	Module Dimensions	Backlight	Inverter	Touchscreen Version	Features
3.8"	240 x 320	SP10Q005-T	Black/White Film STN	Transflective	71.5 x 92.1 x 7.9	White LED	n/a	SP10Q003-T	Portrait mode
3.8"	320 x 240	SP10Q010	Black/White Film STN	Transmissive	94.7 x 73.3 x 5.5	White LED	n/a	SP10Q010-ZZA	White LED, High brightness, WTR
3.8"	320 x 240	SP10Q010-T	Black/White Film STN	Transflective	94.7 x 73.3 x 5.5	White LED	n/a	SP10Q010-TZA	White LED, Sunlight readable, WTR
4.7"	320 x 240	LMG7520RPFC	Black/White Film STN	Transmissive	129.6 x 92.6 x 7.5	CFL	INVC445, INVC473	on request	
4.7"	320 x 240	LMG7525RPFF	Black/White Film STN	Transflective	129.6 x 92.6 x 7.5	CFL	INVC445, INVC473	on request	Sunlight readable
5.7"	320 x 240	SP14Q002-A1	Black/White Film STN	Transmissive	167 x 109 x 10	CFL	INVC132, INVC186, INVC196	SP14Q002-C2A	
5.7"	320 x 240	SP14Q002-C1	Black/White Film STN	Transmissive	167 x 109 x 10	CFL	INVC132, INVC186, INVC196	SP14Q002-C1A	50K hour CFL, WTR
5.7"	320 x 240	SP14Q002-T	Black/White Film STN	Transflective	167 x 109 x 10	CFL	INVC132, INVC186, INVC196	on request	Sunlight readable
5.7"	320 x 240	SP14Q003	Blue/White STN	Transmissive	167 x 109 x 10	CFL	INVC132, INVC186, INVC196	SP14Q003-ZZA	Blue mode
5.7"	320 x 240	SP14Q003-C1	Blue/White STN	Transmissive	167 x 109 x 10	CFL	INVC132, INVC186, INVC196	SP14Q003-C1A	50K hour CFL, Blue mode, WTR
5.7"	320 x 240	SP14Q005	Black/White Film STN	Transmissive	167 x 109 x 10	CFL	INVC132, INVC186, INVC196	SP14Q005-ZZA	50K hour CFL, High brightness, WTR
5.7"	320 x 240	SP14Q006	Black/White Film STN	Transmissive	167 x 109 x 10	White LED	n/a	SP14Q006-ZZA	White LED, High brightness, WTR
5.7"	320 x 240	SP14Q006-T	Black/White Film STN	Transflective	167 x 109 x 10	White LED	n/a	SP14Q006-TZA	White LED, Sunlight readable, WTR

Colour LCD Modules



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New Products

3.6" 1/4 VGA SX09Q005

- Colour STN
- White LED backlight
- Wide Temperature Range
- Touchscreen Option

5.7 1/4 VGA TX14D11VM1CBA

- TFT
- High Brightness
- Wide Viewing Angle
- Touchscreen Option

7.5" VGA SX19V010

- Colour STN
- High Brightness
- 2 x CFL backlight
- Touchscreen Option

Features

- **Excellent Optical Performance**
Advanced LCD drivers and Hitachi's black matrix colour filters provide high contrast, reduced shadowing and excellent colour saturation.
- **Compact Dimensions**
Drawing on Hitachi's experience as a leading supplier of Note PC displays, all modules are extremely compact.
- **Low Power Consumption**
Low voltage LC materials, Hitachi's advanced LCD drivers featuring High Frequency Amplitude Selection (HIFAS) result in significantly reduced power consumption.
- **Applications**
Portable Terminals, e-books, epos, Internet Terminals, MMI, Process Control



Display Excellence Products

TX14D11VM1CBA

The TX14D11VM1CBA is designed to provide a cost effective, colour display solution for a wide range of applications.

The TX14D11VM1CBA complements and offers mechanical compatibility with all Hitachi's existing 5.7" 1/4 VGA monochrome and colour display modules.

The 320 x 240 pixel display module features exceptionally wide viewing angles, excellent colour saturation and a contrast ratio of 350:1.

The module also includes an integrated DC/DC converter which enables ease of use with a single 3.3V power supply.

The TX14D11VM1CBA features a long life CFL backlight, providing a half-brightness lifetime of 50,000 hours and a brightness of 350 cd/m².

The TX14D11VM1CAA provides an integrated 4-wire analogue resistive touchscreen.



Size	Resolution	Part Number	Display Type	Mode	Module Dimensions	Backlight	Inverter	Touchscreen Version	Features
3.5"	240 x 320	TX09D50VM1CBA	TFT	Transmissive	64.0 x 86.0 x 4.0	White LED	n/a	TX09D50VM1CAA	
3.5"	240 x 320	TX09D50VM1CDA	TFT	Transmissive	64.0 x 86.0 x 6.5	White LED	n/a	TX09D50VM1CCA	Built-in timing controller
3.6"	320 x 240	SX09Q005	Colour STN	Transmissive	94.7 x 73.3 x 6.0	White LED	n/a	SX09Q005-ZZA	White LED
5.7"	320 x 240	SX14Q001	Colour STN	Transmissive	167 x 109 x 10	CFL	INVC667	SX14Q001-ZZA	50K hour CFL, DC/DC, SP14Q00x compatible
5.7"	320 x 240	SX14Q004	Colour STN	Transmissive	167 x 109 x 10	CFL	INVC667	SX14Q004-ZZA	50K hour CFL, DC/DC, wide viewing angle
5.7"	320 x 240	TX14D11VM1CBA	TFT	Transmissive	167 x 109 x 10	CFL	INVC657, INVC617	TX14D11VM1CAA	50K hour CFL, DC/DC, SP/SX14Q compatible
6.2"	640 x 240	SX16H006	Colour STN	Transmissive	173 x 70 x 7	CFL	INVC658	SX16H006-ZZA	50K hour CFL, DC/DC, wide viewing angle
6.2"	640 x 240	TX16D11VM2CBA	TFT	Transmissive	173 x 70 x 7	CFL	INVC659	TX16D11VM2CAA	DC/DC, SX16 compatible
7.0"	800 x 480	TX18D16VM1CAA	TFT	Transmissive	165 x 106 x 10.5	CFL	INVC617, INVC657	on request	High brightness, wide viewing angle
7.5"	640 x 480	SX19V009	Colour STN	Transmissive	197 x 145 x 8.1	CFL	INVC662	SX19V009-ZZA	
7.5"	640 x 480	SX19V010	Colour STN	Transmissive	197 x 145 x 8.1	2 x CFL	INVC662	SX19V010-ZZA	High brightness
8.0"	800 x 480	TX20D16VM2BAA	TFT	Transmissive	189 x 120 x 10.5	CFL	INVC617, INVC657	on request	High brightness, wide viewing angle
10.4"	640 x 480	TX26D01VM1CAA	TFT	Transmissive	243 x 181.6 x 12.5	2 x CFL	INVC655	on request	High brightness

Custom LCM Design

Hitachi is a leading supplier of customised LCD modules for mobile computing, telecommunication and white goods.

Combining leading edge technology, developed by Hitachi's research facilities, with cost optimised design and production in Taiwan, Hitachi can offer excellent performance at a competitive price.



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Through in-house design of major components such as colour filters, LC cells and LCD drivers/controllers Hitachi can match the various components to meet the most stringent customer requirements.



LCD Technologies

- STN Graphics Type
- Film Compensated STN
- Extended Twist STN (Paper White)

Backlighting Technologies

- Cold Fluorescent Lamp (CFL)
- Light Emitting Diode (LED)
- Electroluminescent Foil (EL)

Driver Packages and Mounting Technologies

- Straight TCP (Tape Carrier Package)
- Bent TCP
- COG (Chip on Glass)
- Heat Seal Connection
- RAM Drivers
- Low Power HI-FAS Drivers

Peripheral Technologies

- Analog and Matrix Type Resistive Touch Panel
- Built in LCD Controller and Memory
- Built in Power Supply and Contrast Adjustment Circuit

Custom LCM Development



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Hitachi Europe Ltd. retain the right to make changes to these specifications at any time without notice.

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