# Versatile TFT Interface

Versatile high-performance interface for controlling almost all TFT's even with unusual resolutions and timings

VTI

The Nickl Versatile TFT Interface VTI was especially designed to control TFT displays in embedded applications. It is capable to generate almost all output timings allowing the user to realize a lot of applications. For example a small 16:9 TFT with unusual timings can be implemented in a show car to demonstrate future visions by utilizing a standard PC or Notebook. The adaption in format and resolution is done by zooming, shrinking and cropping. Also the frame rate is converted by storing up to two frames in a 6 MByte SDRAM. For special cases, the image may be rotated by 180° or flipped horizontally or vertically. Compared to standard interface boards, the embedded VTI concept allows adaption to application specific connectors etc. via your base board. In addition, the system dimension can be reduced and robustness can be improoved by avoiding cables.
The integrated touch screen controller allows using a resitive 4-wire or 8-wire sensor.

- **Adaptable to end applications**
- **Input up to SXGA@75 Hz analog, DVI or Video CVBS/S-Video**
- **Output TTL and LVDS, single- and double-wide port**
- **Single supply 12 V +/- 10%**
- **Output timing configurable for almost all TFTs**
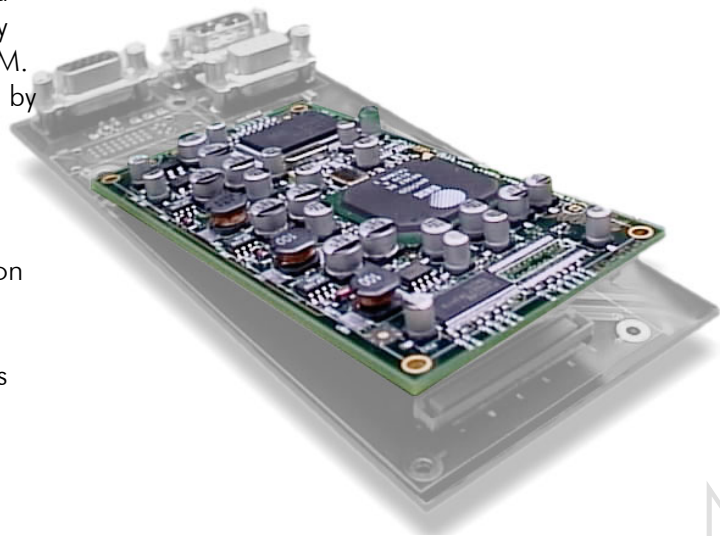
Applications
- Equipment for show cars
- Creating multi media systems
- Building video monitors for NTSC, PAL and SECAM

Nickl

Elektronik-Entwicklung

www.nickl.de

Displays are our business...

Versatile TFT Interface

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Input Signal	Analog RGB DOS-Text, VGA, SVGA, XGA and SXGA up to 75 Hz S-Video: PAL, SECAM and NTSC Video CVBS: PAL, SECAM and NTSC DVI video on request
Output Signal	TTL-single-port: 18-bit, 24-bit, TTL-double-port: 36-bit and 48-bit LVDS-single-port and LVDS-double-port
Output Timings	Configurable via RS-232 with configuration utility (Win32) Pixel clock 6..135 MHz All resolutions up to 1200 x 1024
Format Adaption	Zoom: Small input formats are stretched Shrink: Large input formats are shrinked Crop/Border: Input will be mapped to output pixel-by pixel and either cropped or extended by a border Mode is selectable by the user via OSD
Interfaces	Keyboard matrix 3 x 3 for 9 keys and 3 LED-outputs RS-232 TTL-level for touch controller and configuration utilty Backlight control via PWM or I²C bus
Backlight Control	PWM output for legacy inverters I²C bus for digital Nickl backlight inverter Enable output for controlling power supply of inverter LDR input for measuring environmental light and backlight adaption
Touch Controller	8-wire and 4-wire port for resistive touch sensors Connection to operating system via RS-232 Protokol: Dynapro SC3, drivers for Win98/ME/NT/2000/XP available
Frame Rate Conversion	6 MByte frame store for adapting frame rate
Connectors	Connectors to be used on your base board: Hirose FX8-100S-SV
Dimensions	(103,55 x 55 x 10) mm³

1EMVTI/EVAL

VTI Evaluation-Board, for development and prototyping

1EMVTI-B2

Versatile TFT interface, PCB module, resolution VGA..UXGA, dual-LVDS

1EMVTI-A2

Versatile TFT interface, PCB module, resolution VGA..SXGA, dual-LVDS

1EMVTI-A1

Versatile TFT interface, PCB module, resolution VGA..SXGA, single-LVDS

- Further variants on request -
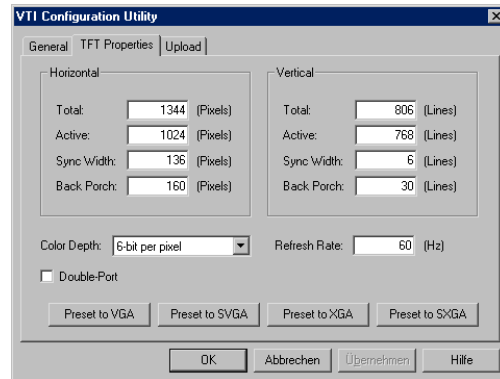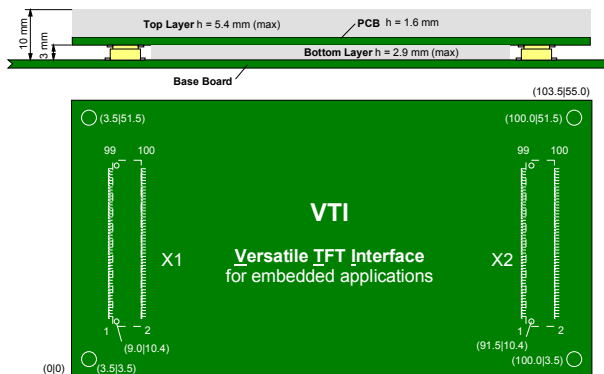
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