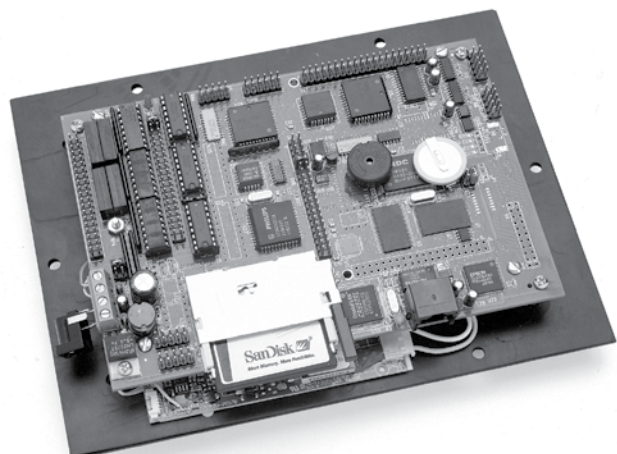


# SmartTFT™ (ST) *Ultra-bright, Wide Viewing Angle, Rich Color*

*Low cost industrial controller with 16-bit ADC/DAC, Opto, Ethernet & CompactFlash*



## Features:

- 6.5 x 4.5 inches, 40 MHz 186 CPU, program in C/C++
- Switching regulator, 50 mA standby, 160 mA at 12V
- 256 KW SRAM, 256 KW Flash, 512 bytes EEPROM
- 20+ TTL I/O, 6 16-bit timer/counters, RTC, Battery
- 4 mechanical relays, 12 Opto-coupler inputs.
- 20+ solenoid drivers (14 can be high voltage inputs)
- 12 ch. 16-bit ADCs, 14 ch. 16/12-bit DACs
- Precision reference and on-board temperature sensor
- Supports multiple QVGA Panels from several manufacturers
- 4-wire analog touch screen controller
- 5 RS232/RS485 serial ports, 10 BaseT Ethernet with TCP/IP
- CompactFlash with Windows compatible file system support
- 2 ch. Quadrature decoders, 2 ch. 4-20 mA outputs
- 160 field removable industrial screw terminals

The **SmartTFT (ST)** is a low cost industrial controller ideal for OEM applications. Those with premium graphic requirements will benefit from the ultra-bright, wide viewing angle active TFT color display. A LCD controller (S1D13075, EPSON) has internal 80KB image buffer, supporting QVGA color graphic TFT/LCD with 320x240 pixels. A touch screen controller (ADS7846) supports 4-wire resistive touch screen. Comprehensive, user-friendly software libraries and samples are provided. User can easily design their custom functions keys, text, logo, and graphics. Supported by the CF file system, 20 impressive color images can be displayed per second via DMA transfer. The 40 MHz 16-bit 186 CPU with 256KW flash, 256 KW battery-backed SRAM is C/C++ programmable. The **ST** is designed for mounting on the backside of a Kyocera QVGA TFT/LCD as easy integration.

The **ST** also supports 16-bit ADC/DACs, RS232/485 ports, timer/counters, RTC, opto-couplers, relays, quadrature decoders, 4-20 mA drivers, Ethernet, and CompactFlash. All these features can be installed on the same PCB at the same time. I/O signals can be accessed via up to four **W40s** to provide 160 field removable industrial screw terminals.

Four RS232 serial ports are default on-board. One serial port can be configured to RS485/422. Optional SCC2691 can provide the

5<sup>th</sup> RS-232/485 port. There are 20+ TTL I/Os, 4 mechanical relays with contact rating of 200V, 0.5 Amp., 12 opto-couplers that can handle high voltage with opto isolation. 20+ solenoid drivers are capable of sinking or sourcing 350 mA at 50V each. 14 of the solenoid drivers can be hardware configured to be high voltage (0-30V) inputs. Two quadrature decoders (HCTL2020/2021) can be used for motion position feedback. Three 16-bit programmable counters (71054, NEC) can count up to 10MHz. Three 16-bit CPU internal timer/counters support PWM, or pulse-width demodulation. An optional 10-baseT Ethernet LAN controller (CS8900) can be installed. Software stack library is available, supporting network protocols such as ARP, DHCP, UDP, ICMP, and of course TCP over the Ethernet network.

There are a total of 12 analog inputs and 14 analog outputs: 4 ch. 16-bit parallel ADC (AD7655, 1 MHz, 0-5V), 8 ch. 16-bit serial ADC (ADS8344, 0-5V, 10KHz), 2 ch. of 12-bit serial DACs (DAC7612, 0-4.095V, 10KHz), 8 ch 16-bit serial DACs (LTC2600, 0-5V, 10KHz), and 4 ch. 12-bit parallel DAC (DA7625, 200KHz, 0-2.5V). 2 ch 4-20 mA current drivers, driven by LTC2600, support many types of industrial devices.

The **ST** supports 50-pin CompactFlash cards for removable mass data storage. TERN software supports Windows compatible FAT16 flash file system. On-board switching regulator (LM2575) allows 8-30V unregulated DC power input without over heating.

## Ordering Information

**ST** **\$299/\$199/\$99** **Qty 1/100/1K+**

Includes: 186 CPU 40MHz, PPIx2, 256 KW Flash, 256KW SRAM, EE, 4 RS232, solenoid drivers, opto-couplers, Relays, RTC, BAT, SR and CF

NOT including options. OEM option discounts available.

**EV-P or DV-P kit** (Software and ST) **\$449/\$899**

## Add-on Options:

- |  |             |
|--|-------------|
| 1) 2 ch. 12-bit DAC (DAC7612).....               | \$20        |
| 2) 8 ch. 16-bit DAC (LTC2600).....               | \$40        |
| 3) UART (SCC2691) + (a) RS232 or (b) RS485 ..... | \$30        |
| 4) 4 ch. 12-bit DAC, 200 KHz (DA7625).....       | \$40        |
| 5) 4 ch. 16-bit ADC, 1MHz (AD7655).....          | \$40        |
| 6) 8 ch. 16-bit ADC (ADS8344).....               | \$30        |
| 7) Quad. Decoders (up to 2 chips) .....          | \$30 each   |
| 8) RS485/422 for the DUART.....                  | \$10/20     |
| 9) Ethernet Interface(ET).....                   | \$30        |
| 10) TFT/STN, TouchScreen, CCFL, Bezel .....      | \$500/\$400 |
| 11) 2 ch. 4-20 mA drivers (for LTC2600).....     | \$20        |
| 12) W40S (40 screw Terminal-pin headers).....    | \$20 each   |

## Typical Order Example:

**ST + W40Sx2**

**ST + 1x2 = \$299 + \$20x2 = \$339**



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