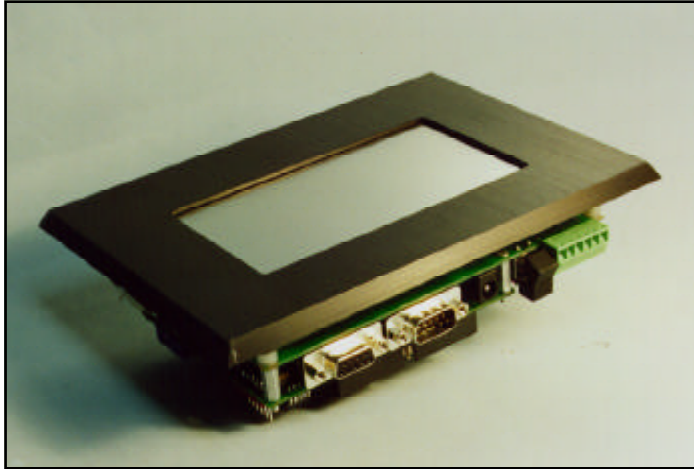




## The touch of a finger on a menu-driven display controls your product!



### Panel-Touch Controller Includes Everything You Need!

- Powerful Real-Time Controller
- Graphical User Interface
- Transparent 5x4 Touchscreen
- 128 x 240 LCD Display with CCFL Backlighting
- Programmable in C and Forth
- Hundreds of Screens, Buttons, and Menus
- Two RS232/485 Serial Ports
- Precoded Software:
  - Menu Manager
  - Graphics Routines
  - Multitasking RTOS
  - I/O Drivers
- 256K Flash/128K RAM
- 48 Analog and Digital I/O Lines
- Eight 12-Bit A/D Inputs
- Panel Mounts with Bezel

The Panel-Touch™ Controller is a C-programmable controller with a built-in graphical user interface. It's an ideal "brain" for products that need a smart user interface, computational power, analog and digital I/O and serial communications. Commanded remotely from a PC, or used stand-alone, it provides real-time control of dozens of analog and digital I/O lines. Use it for machine control, embedded systems, scientific instruments, and OEM applications – wherever you need an I/O-rich computer and a smart user interface.

### A Ready-Made Graphical User Interface

The Panel-Touch Controller features a touchscreen controlled graphical user interface. Combining a high contrast 128 x 240 pixel display and a 5 x 4 touchscreen, it comes complete with menuing software that makes it easy to control your application using buttons, menus, graphs, and bitmapped pictures.

Display your own user-defined graphics on a bright white-on-blue cold-cathode fluorescent (CCFL) backlit screen. Display screens and graphics objects are quickly developed with most Windows paint programs, such as PC Paintbrush, allowing you to create sophisticated displays including your company logo, system diagrams, and icon-based control panels. Real-time data plotting routines are precoded for you, so the user can see what your instrument is doing. Startup screens and your application program execute automatically on power-up.

You can use hundreds of screens, each with software configurable buttons. A precoded menu manager simplifies menu-driven control, making it easy to define buttons, menus, and their associated actions. With the touch or release of a button, the menu manager software responds, sending an appropriate command to your application program. Onboard software draws the screen graphics and responds to button presses for you, so you can concentrate on your application.

### A Powerful Controller and Operating System

The Panel-Touch Controller includes a powerful microcontroller programmed in Control C™ or QED-Forth™. It comes loaded with a real-time multitasking operating system and hundreds of precoded device drivers. Programming is a snap using the interactive debugger and multitasking executive. Libraries of hardware control routines including drawing and plotting functions for the display are preprogrammed for you. Program in ANSI C by compiling your application on your PC and downloading the code to the Panel-Touch Controller where it is automatically executed. The real-time operating system in onboard FLASH memory manages all required initializations and autostarts your application code.

### All the I/O You Need

Control dozens of analog and digital I/O lines in real time. The Panel-Touch Controller commands eight 12-bit analog input channels, eight 8-bit analog inputs, eight 8-bit D/A lines, 24 digital I/O lines including timer-controlled and PWM channels, 4 high current drivers, and two RS232/485 ports. Pre-coded I/O drivers are provided for all I/O, and make it easy to do data acquisition, pulse width modulation, motor control, frequency measurement, data analysis, analog control, PID control, and communications.

### Plenty of Memory

256K Flash and 128K RAM memory provides plenty of room for your application code and graphic screens. For those really extensive applications that require lots of memory and removable data storage, the Panel-Touch Controller directly mates to the QED Memory Interface Board, providing an additional 256K Flash and 128K battery-backed RAM and a complete hardware/software interface to Flash or RAM PCMCIA Cards (also called PC Cards) up to 32 Megabytes in size.

### Get a Fast Start with the Panel-Touch Starter Kit™

This development package includes everything you need to develop an instrument with a state of the art touchscreen front panel interface, including documentation, battery backed 128K memory, power supply and all cables. For a sleek look you can add a black anodized aluminum bezel. The Panel-Touch Controller can either be flush mounted using the bezel or directly mounted to a panel with a cutout.

Our free technical phone support and comprehensive documentation will help you get the most from this powerful computer.

# Technical Specifications

## CPU

- 16 MHz 68HC11F11
- Address space expanded to 8 MB

## Onboard Memory

- 256K flash
- Up to 256K RAM
- 320 bytes EEPROM available

## Interrupts

- 21 interrupts support I/O subsystems

## Real-Time Clock

- Optional real-time clock

## Touchscreen/Display User Interface

- 128 x 240 pixel graphics display
- 2.5" by 4.5" display area
- 16 lines of text with 40 characters per line
- Software controlled CCFL backlight
- Bright, high contrast display
- 4-row by 5-column transparent touchscreen

## Digital Input and Output

- 28 user-configurable I/O lines including 3 or 4 input capture functions, 4 or 5 output compare functions and a pulse accumulator

## Power

- Input +5V or 6-12 VDC at 450 mA
- Onboard regulation with digital shutdown
- Power fail early warning
- EMI filter
- Onboard surge protection

## Communications

- RS232 or RS485 hardware UART at up to 19.2 Kbaud
- RS232 software UART at up to 4800 baud
- Fast synchronous serial peripheral interface at up to 2 megabaud

## Digital to Analog Conversion

- 8 channels of 8 bit multiplying D/A conversion, cascadable

## Analog to Digital Conversion

- 8 channels of 8 bit A/D at up to 100 kHz sampling rate
- 8 channels single-ended or 4 channels differential 12 bit A/D at up to 30kHz sampling rate with unipolar (0 TO 5V) or bipolar (-5 TO 5V) input

## Connectors

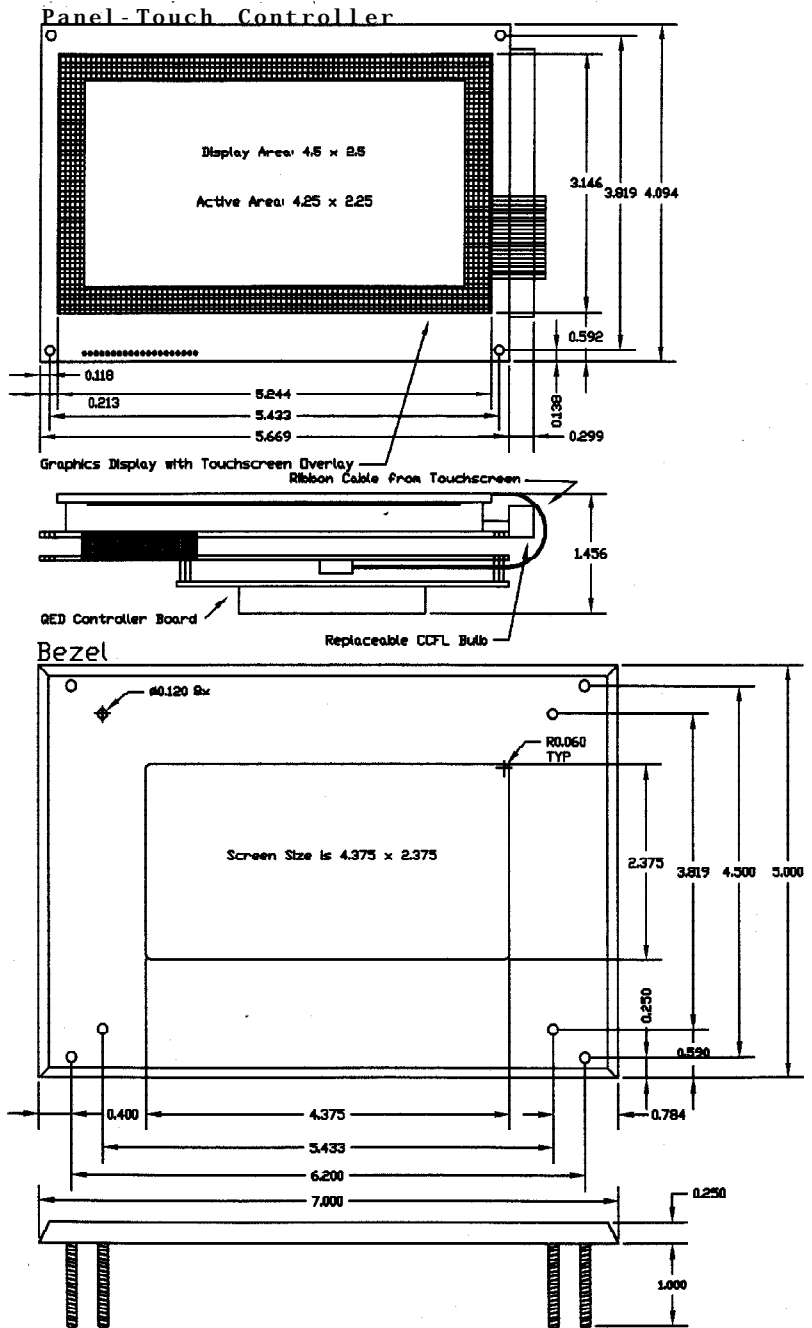
- 40 pin digital I/O
- 40 pin analog I/O
- 40 pin address/data bus
- 10 pin serial communications
- 6 pin power connector
- Enhanced version provides additional connectors

## Runtime Security

- Watchdog timer
- Clock monitor

## High Current Drivers

- Four open-drain MOSFETs with onboard snubbers drive 150 mA continuously or 1 amp intermittently



## Ordering Information

### Part Number

### Product

ST-1

**Panel-Touch Controller™: Standard Configuration**

Includes QED-Flash Board, 256K flash, 128K RAM, 128x240 pixel graphics display, touchscreen overlay, precoded menu software

ST-1E

**Panel-Touch Controller™: Enhanced Configuration**

Includes QED-Flash Board, 256K flash, 128K RAM, 128x240 pixel graphics display, touchscreen overlay, precoded menu software, built-in serial communications connectors, on/off switch, power jack, screw terminals for on-board high current drivers

STSK-1

**Panel-Touch Starter Kit™**

Enhanced Configuration of Panel-Touch Controller, plus battery-backup of the 128K RAM on the QED-Flash Board, 9-pin serial cable, power supply, documentation

BZL-ST

**Black Anodized Aluminum Bezel**

ENSTA-TOPCON

**Black Anodized Aluminum Enclosure with Bezel (openings on top panel)**

ENSTA-REARCON

**Black Anodized Aluminum Enclosure with Bezel (openings on back panel)**

ENSTP-TOPCON

**Black Plastic Enclosure**