Maximize the capabilities of your environmental chambers.

A four channel process controller and data logger, Tidal’s state of the art Synergy Quattro controller is engineered to offer all the features needed to maximize the capabilities of your environmental chambers and process ovens in a compact package. Designed to take complete command of the chamber’s conditioning systems, its algorithms automatically select heating/cooling modes as required, and totally control programming of temperature, vibration, altitude and humidity versus time.

The Synergy Quattro features a fully functional data logger supporting all controller process inputs and control variables. Process inputs include RTD, thermocouples, voltage, current and up to 64 optional T-Type Thermocouples. It moreover allows users to program up to nine custom even outputs for special applications and optional features.

Boosting the Microsoft Windows™ CE operating system, this controller offers RS-232, Ethernet and GPIB communications capabilities for built in remote control/monitoring, chart printing, email alerts, and cloud data storage.

Popular on new equipment and retrofits, the Synergy Quattro Controller may be specified on most chamber models from industry leading chamber manufacturers and is easily retrofit into legacy equipment with Tidal Engineering supplied configuration files.

The Synergy Controller family, (Quattro, Nano, Micro 2, and Quattro Plus) equips engineers and organizations that operate, maintain, manufacture and manage environmental test chambers and process ovens with a range of controllers and the support they need to optimize their equipment and processes. Now in their fourth generation, Synergy Controller programming and configurations are backward compatible with prior generations.

Highlights
- 4-Channel Controller
- 100 MB Data Logger
- Ethernet and Serial are included
- E-Mail Data Delivery
- Text messaging
- WebTouch Remote™ Remote Control
### Channels (1 to 4)
- **Process Variables:** Temperature, Humidity, Altitude, Vibration, and Light

### LCD
- **Type:** Color 320 × 240
- **Backlight:** LED
- **Touch Screen Type:** Resistive

### Operating System and Processor
- **Microsoft Windows™ CE 5**
- **Marvel, Xscale ARM, 312 MHz, 1 Core**

### Storage
- **1 GB Removable SD Flash Memory**
- **Removable USB Flash Disk**
- **64 MB SDRAM**

### Communications
- **10/100 BaseT Ethernet**
- **E-mail, Telnet, FTP, and WebTouch™**
- **RS-232 Communications**
- **IEEE 488 (Optional, P/N TE1588)**
- **USB Host (1), USB Device (1)**
  - **USB Flash Memory for program & log files**
  - **USB Mouse, Keyboard, Barcode scanner**

### Programming
- **Windows-friendly program file names**
- **Step Types:**
  - Set Point, Jump Loop, Auto Start, Hold, Pause, Command and Stop
- **Program Storage:**
  - Only limited by onboard storage
  - **Software Features:**
    - Real Time clock with battery backup
    - Automatic resume after power failure
    - Software configurable chamber type

### Universal Inputs (2)
- **RTD Inputs**
  - Temp. Range: -200° C to 630° C
  - Accuracy: +/- 0.05 Ohms
  - 100 or 500 Ohm Pt., JIS or DIN
- **Thermocouples**
  - T/C Accuracy: +/- 1° C
  - Types E, B, J, K, R, S, and T
- **Process Current Inputs**
  - Resolution: 16 Bits, 4-20 mA, +/- 0.05% FS

### Voltage Inputs (2)
- **Resolution:** 16 Bits 0-5 VDC, +/- 0.05% FS

### Analog Aux Inputs (8) (optional)
- **Resolution:** 12 Bits
  - Range: 0-5 VDC, +/- 5mV
  - Range: 0-10 VDC, +/- 10mV (Optional TE1803)
  - Range: 4-20 mA, +/- 0.1% (Optional TE1803)
- **Analog Output Functions:**
  - All internal variables including SP, PV, PID.

### Main Outputs (30)
- **Open Collector: 24 VDC, 50 mA Max.**

### Relay Outputs (2)
- **240VAC, 125VDC Max, 5 Amps Max.**

### Event Outputs (6) Optional
- **TE1151-6: Triac Outputs**
- **TE1708-6: Relay Outputs**

### Voltage Range: -0.5 to +5.5 VDC

### Digital Inputs (8)
- **Voltage Range:** 0.5 to +5.5 VDC
- **Ground:** TRUE, Open Circuit: FALSE

### Digital Aux Inputs (8) (Optional)
(Order TE2251-4 for this option)

### Data Logging
- **Capacity:** 100 Mbytes
- **Interval:** 1 Second to 60 Minutes
- **Data:**
  - Process Variables
  - Process Setpoints
  - PID Variables
  - UUT T-Type Thermocouples

### Alarm Types
- **Low Program Memory**
- **Low Storage Card Memory**
- **Temp-Guard External Monitor**
- **Open Sensor**
- **High/Low Process Limit**
- **High/Low Deviation Limit**
- **User Programmable Alarms**
- **Internal communications failure**

### Power Requirements
- **Dual Supply Capability**
  - 100 to 240 VAC, 47 to 63 Hz
  - 24 VDC
- **15 Watts**

### Operating Conditions
- **Temperature:**
  - 10° C to 30° C
- **Humidity:** 0 to 90% RH, Non-condensing

### Warranty
- 3 Year Limited Warranty

### Size and Weight
- **9.25” W x 6.50” H x 2.93” D, 1.5 lbs.**

---

**Synergy Quattro Controller and Accessories Part Nos.**
- **TE1961 Synergy Quattro Controller**
- **TE1299-16 Synergy UUT Thermocouple Monitor**
- **TE2551-12 Triac Output Board, 12-Channel**
- **TE2551-6 Triac Output Board, 6-Channel**
- **TE1151-8 Triac Output Board, 8-Channel**
- **TE1708-6 Electro-Mechanical Relay Board, 6-Channel**
- **TE2251-1 Four 8-Channel Thermotron Outputs**
- **TE2251-2 Opto-22 Output Rack**
- **TE2251-4 Analog/Digital Input Expander**
- **TE2251-5 SSR Outputs, 5-Channel, 1.5 A**
- **TE1865 LabVIEW Driver**
- **TE1588 Synergy488 GPIB option**
- **TE1566-1 Synergy Lab Manager Software**
- **TE1567 Synergy WebTouch Remote Feature**
- **TE2013 Synergy Pressure Feature**
- **TE2042 Synergy Cascade Control Feature**
- **TE2175 Synergy Printer Feature**
- **TE2176 Synergy Server Feature**

**Delivering Test Results**
The Synergy Controller platform improves lab efficiency by reducing costs for software development and training and providing innovative data logging and communications features.

---

“We share success stories and product highlights at TidalEng.com”

**SYNERGY MAN & KID RETRO**

---

**TIDAL ENGINEERING CORPORATION**
Emery Avenue, Randolph, NJ 07869
973.328.1173 • info@tidaleng.com