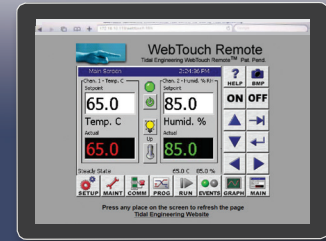


SYNERGY NANO

Designed Specifically For Environmental Test Chambers



WebTouch Remote™



Maximize the capabilities of your environmental chambers.

A four channel 1/4 DIN process controller and data logger, Tidal's state of the art Synergy Nano controller is engineered to offer all the features needed to maximize the capabilities of your environmental chambers and process ovens in a 1/4 DIN 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.

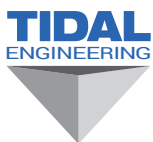
The Synergy Nano features a fully functional data logger supporting all controller process inputs and control variables. Process inputs include RTD, thermocouples, voltage, current and up to 64 optional T-Type Thermocouples. It moreover allows users to program up to nine custom even outputs for special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



The Synergy Nano is part of a family of controllers that share common software and UI and can be applied across a wide range of applications.



TIDAL ENGINEERING CORPORATION
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Headquartered in Randolph, NJ, Tidal Engineering Corp. has been designing and building award-winning embedded hardware and software for environmental test and measurement and data acquisition applications since 1992. [Learn more at www.TidalEng.com](http://www.TidalEng.com)

Channels (1 to 4)

- Process Variables: Temperature, Humidity, Altitude, Vibration, and Light

LCD

- LCD Type: Color, 320 x 240 TFT
- 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, 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%

Process Voltage Inputs (2)

- Resolution: 16 Bits, 0-5 VDC, +/- 0.05%

Virtual Sensors

- Wet Bulb-Dry Bulb Humidity Sensing
- Vaisala HMM30C Humidity Sensor
- Multi-Sensor, Min., Max., Average
- Pressure (Torr) to Altitude (Kft)

Analog Outputs (2)

- 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:
 - Internal control variables: SP, PV, PID.

Main Outputs (6)

- DC Outputs: Model TE1858-1
 - 0 to 24 VDC max., 50 mA, Open Collector
- Relay Outputs: Model TE1858-2
 - Contact Rating: 1.5 A, 250 VAC
- SSR Outputs: Model TE1858-3
 - Contact Rating: 1 A, 250 VAC

Auxiliary Outputs (6)

- 0 to 24 VDC max., 50 mA, Open Collector

Event Outputs (6) Optional

- TE2251-6: Triac Outputs, 3A, 100-240VAC
- TE1708-6: Relay Outputs, 6A, 100-240VAC

Digital Inputs (4)

- Ground: TRUE
- Open Circuit: FALSE
- Voltage Range: - 0.5 to +5.5 VDC (Up to 16 Digital Inputs in Expanded Mode)

Data Logging

- Interval: 1 Second to 60 Minutes
- Data:
 - Process Variables
 - Process Setpoints
 - PID Variables
 - PID Constants
 - 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

Compliance

- Touch Safe Terminals
- CE Compliance:
 - EN 61010-1 and EN 61326
- IP-65 and Nema 4X

Power Requirements

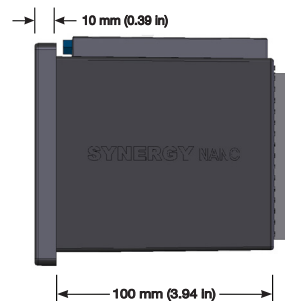
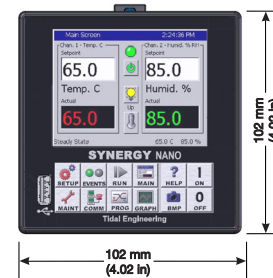
- 100 to 240 VAC, 47 to 63 Hz
- 10 Watts

Operating Conditions

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

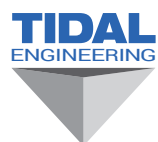
Size and Weight

- 3.78" W x 3.78" H x 3.94" D, 1.5 lbs.



Synergy Nano Controller Part Numbers:

- TE1858-1: DC Outputs
- TE1858-2: Relay Outputs
- TE1858-3: SSR Outputs
- TE1858-4: with External Olympic Board
 - RTD Temperature inputs (2)
 - 0-5 VDC, +/- 2 mV, Process inputs, (4)
 - 0-5 VDC, +/- 5 mV, General Purpose Inputs, (8)
 - Outputs (32)
 - Digital Inputs (16)
 - GPIB/IEEE 488 Communications
- TE1566: Synergy Lab Manager Software
- TE1299-16: Synergy UUT Thermocouple Monitor
- TE2251-6: Triac Output Board, 6-Channel
- TE1708-6: Relay Output Board, 6-Channel
- TE1865: Synergy LabVIEW Driver
- TE1588: Synergy488 GPIB option
- TE1803: Signal Conditioner, 5V, 10V, 4-20mA



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*"We share success stories
and product highlights
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