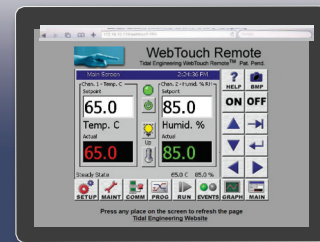


# SYNERGYMINO

Designed Specifically For Environmental Test Chambers



WebTouch Remote™



**NXP** POWERED BY  
i.MX 7

## Compact and economical and still very Synergy Controller; Empower your most cost sensitive applications.

**A two channel 1/4 DIN process controller and data logger,** Tidal's Synergy Mino 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 for the most cost sensitive applications.

**Delivering results,** the Synergy Mino is 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. Running the Microsoft Windows™ Embedded operating system, this controller offers RS-232, Ethernet, CAN bus, and GPIB communications capabilities for built in remote control/monitoring, chart printing, email alerts, and cloud data storage.

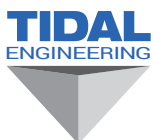
**The NXP® i.MX7 processor** in the Synergy Mino Controller makes the system very responsive and provides the computing resources to support current and future features and functionality such as Cloud connectivity, TPM, and network-based remote control.

**The Synergy Controller family,** including the Synergy Mino, equips engineers and organizations that operate, maintain, and manufacture environmental test chambers and process ovens with the product range and support they need to optimize their equipment and processes. Now in their fifth generation, Synergy Controller programming and configurations are backward compatible to support obsolescence management.



NEW

**The Synergy Mino 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 (2)

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

## LCD

- LCD Type: Color, 320 x 240 TFT
- Backlight: LED
- Touch Screen Type: Resistive

## Operating System and Processor

- Microsoft Windows™ Embedded 2013
- NXP i.MX7, Cortex™ A7, 1GHz

## Storage

- 512MB NAND Flash On-Board
- 512MB DDR2 RAM On-Board
- Removable USB Flash Disk
- Synergy Server/Network Share

## Communications

- 10/100 BaseT Ethernet: E-mail, Telnet, FTP, ModbusTCP, 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, Command, 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

## Data Logging

- Capacity: 100 MB /file
- Interval: 1 Second to 60 Minutes
- Data:
  - Process Variables & Setpoints
  - PID Variables & Constants
  - UUT T-Type Thermocouples

## Alarm Types

- Low Program & Storage Memory
- Temp-Guard External Monitor
- Open Sensor
- High/Low Process & Dev. Limit
- User Programmable Alarms

## 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:
  - All internal control variables: SP, PV, PID.

## 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) (12 w/TE2251-4)

- Ground: TRUE, Open Circuit: FALSE
- Voltage Range: - 0.5 to +5.5 VDC

## Universal Inputs (1)

- 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%

## Power Requirements

- 18-36 VDC 10 Watts
- TE2198-24 DIN Power Supply (Included)

## Operating Conditions

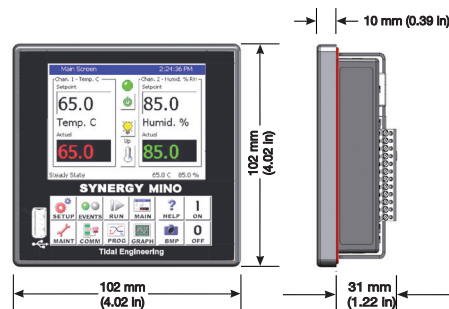
- Temperature: 10° C to 30° C
- Humidity: 0 to 90% RH, non-condensing

## Warranty

- 3 Year Limited Warranty

## Size and Weight

- 3.78" W x 3.78" H x 1.54" D, 0.5 lbs. (0.23kg)



## Synergy Mino Controller and Accessories Part Nos:

- TE2858-1: Synergy Mino with DC Outputs
- TE2858-4: Synergy Mino with Quattro Expansion
- TE1299-16: Synergy UUT Thermocouple Monitor
- TE1299-1: TCweb Thermocouple Monitor
- TE1499-16: Synergy Current Monitor, 16-Channel
- TE2551-12S: Super-Switching Module, 12-Channel
- TE2251-6: Triac Output Board, 6-Channel
- TE1708-6: Relay Output Board, 6-Channel
- TE2251-1-DIN Four 8-Channel Thermotron Outputs
- TE2251-2-DIN Opto-22 Output Rack
- TE2251-4-DIN Analog/Digital Input Expander
- TE2251-5-DIN SSR Outputs, 5-Channel (VTIII Retrofits)
- TE1566-1: Synergy Lab Manager Software
- TE1865: Synergy LabVIEW Driver
- TE2367-6: Synergy CAN Bus Adapter
- TE1588: Synergy488 GPIB option
- TE1803: Signal Conditioner, 5V, 10V, 4-20mA
- TE2013: Synergy Pressure/Altitude Control
- TE2042: Synergy Cascade Control Feature
- TE2271: Synergy Premium Connectivity Subscription
  - TE1567: Synergy WebTouch Remote
  - TE2175: Synergy Printer & WebChart
  - TE2176: Synergy Server
  - TE2177: Synergy Network Share
  - TE2373: ModbusTCP Server

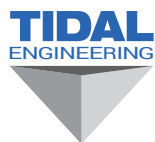
## NEW DIN Rail Mounted Synergy Modular IO:

- TE2406-XX: Synergy Modular IO Stack



*"We share success stories  
and product highlights  
at TidalEng.com"*

SYNERGY MAN & KID RETRO



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