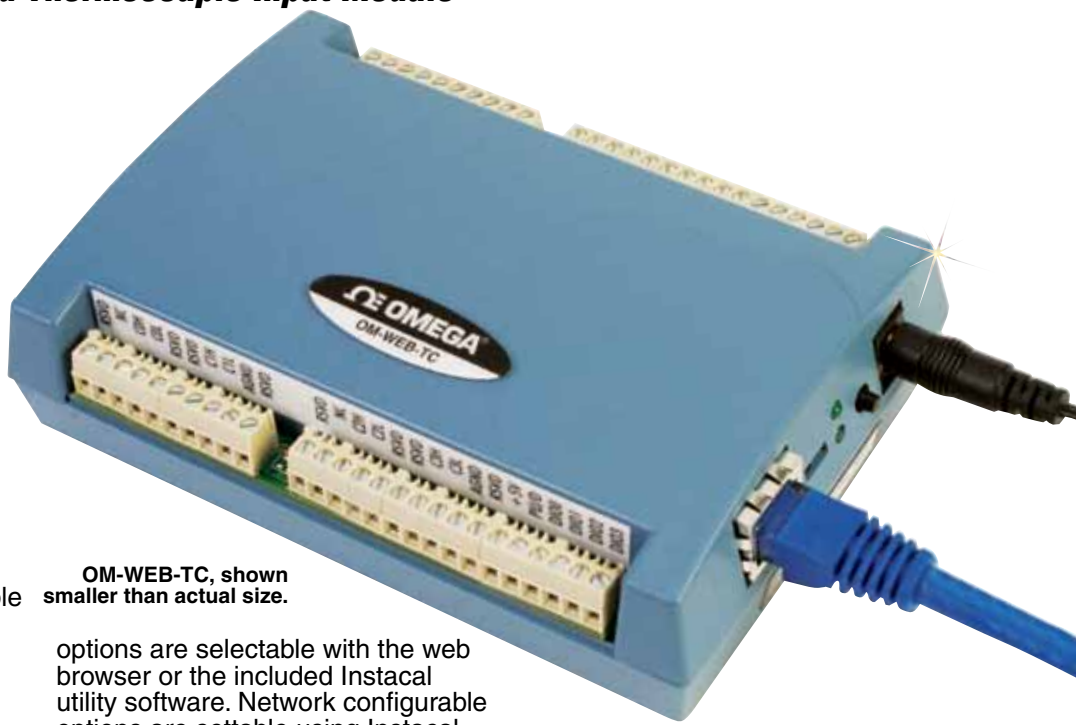
Eight Channel Web-Enabled Thermocouple Input Module

OM-WEB-TC

1 YEAR WARRANTY

- Built-In Web Server
- 8 Thermocouple Input Channels
- Supports Types J, K, T, E, N, R, S, B Thermocouples
- Built-In Cold Junction Compensation and Open Thermocouple Detection
- 24-Bit Measurement System
- 8 Digital I/O–User Configurable for Alarms
- Free Software Included



OM-WEB-TC, shown smaller than actual size.

The OM-WEB-TC is a thermocouple measurement device with built-in web server. Simply connect the device to an Ethernet port or hub and view current data using a standard web browser.

The OM-WEB-TC's embedded web interface provides access to current data and configuration settings using a standard web browser. Browse to the device's home page by entering the URL that is printed on the device into the browser. View current thermocouple measurements and channel data, and configure hardware options from the device's home page. Only one user can change configuration options on the device at a time. The web interface is built into the device's firmware, and does not need to be installed on a computer. No external software is required other than a web browser and a TCP/IP connection. Connect the device's 10Base-T Ethernet port to a local or wide area network using the supplied ethernet cable, to a single computer through a hub using the supplied ethernet cable, or directly to a computer using a standard CAT-5 crossover cable. The web browser used to access the OM-WEB-TC's web interface must support JavaScript.

The OM-WEB-TC provides 8 thermocouple channels and 8 digital I/O channels. The included external power supply (ac adaptor) is used to provide power. On-board LEDs display the status of communications and external power. All hardware configurable options are selectable with the web browser or the included Instacal utility software. Network configurable options are settable using Instacal. When using Instacal, if the login settings have been changed from the default, a login name and password are required to change the configuration settings.

The OM-WEB-TC provides 8 differential thermocouple input channels. A 24-bit analog-to-digital (A/D) converter is provided for each pair of analog inputs. Thermocouple types J, K, T, E, N, R, S, B are supported. The thermocouple type is software programmable for each channel. Four cold junction compensation (CJC) sensors are provided for thermocouple measurements. Each CJC sensor is dedicated to two thermocouple input channels. An open thermocouple detection feature lets you detect a broken thermocouple. An on-board microprocessor automatically linearizes the measurement data.

The OM-WEB-TC features 8 independent temperature alarms, Each alarm controls an associated digital I/O channel as an alarm output. The input to each alarm is one of the temperature input channels, the output of each alarm is software configurable as an active high or low. The user configurable threshold conditions activate each alarm. When an alarm is activated, the associated DIO channel is driven to the active output state selected.

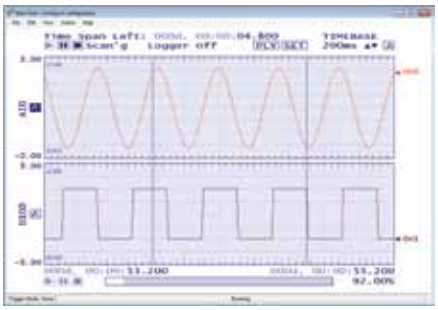
Eight digital I/O channels are provided to communicate with external devices and to generate alarms. The digital bits are software programmable for input or output. The digital output voltage is switch-selectable for 3.3V or 5V logic. A screw terminal is provided for pull-up or pull-down configuration.

The OM-WEB-TC web interface displays current data read from the device and does not log or store historical data. Use the included TracerDAQ software to log or graphically trend your data.

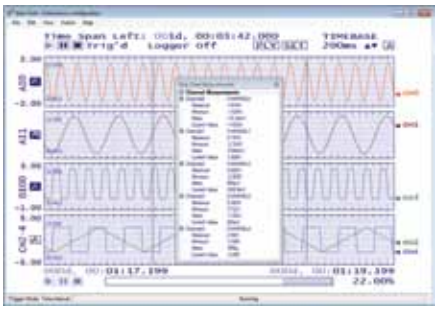
The OM-WEB-TC module ships with an impressive array of software, including TracerDAQ®, a full-featured, out-of-the-box data logging, viewing, and analysis application. Driver support and detailed example programs are included for Universal Library programming libraries for Microsoft® Visual Studio® programming languages, and other languages, including DASYLab®, and ULx for NI LabVIEW® (comprehensive library of VIs and example programs compatible with 32-bit and 64-bit LabVIEW 2010 or later) and InstaCal™ installation, calibration and test utility-powerful solutions for programmers and nonprogrammers alike. These modules operate under Microsoft Windows® VISTA/7/8/10 (32-bit and 64-bit) operating systems.

The OM-WEB-TC data acquisition module is supplied with TracerDAQ software which is a collection of four virtual instrument applications used to graphically display and store input data and generate output signals:

- Strip Chart—Log and graph values acquire from analog inputs, digital inputs, temperature inputs and counter inputs
- Oscilloscope—Display values acquired from analog inputs
- Function Generator—Generate waveforms for analog outputs
- Rate Generator—Generate waveforms for counter outputs



TracerDAQ Strip Chart.



TracerDAQ Pro Strip Chart with Measurements.

TracerDAQ PRO is an enhanced version of TracerDAQ and is available as a purchased upgrade (SWD-TRACERDAQ-PRO).

A comparison of some of the features included in TracerDAQ vs TracerDAQ PRO is shown below.

Features Comparison

Strip Chart

Features	TracerDAQ	TracerDAQ Pro
Channel Types	Analog input, temperature input, digital input, event counter	Analog input, temperature input, digital input, event counter
Number of Channels	8	48
Number of Lanes	2	8
Maximum Samples per Channel	32,000	1 million
Alarm Conditions	No	Yes
Measurements Window	No	Yes
Enter Annotations	No	Yes
Software Triggering	No	Yes
Hardware Triggering	No	Yes
Time-of-Day Triggering	No	Yes
Linear Scaling	No	Yes

Oscilloscope

Features	TracerDAQ	TracerDAQ Pro
Channel Type	Analog input	Analog input
Number of Channels	2	4
Measurements Window	No	Yes
Reference Channel	No	Yes
Math Channel	No	Yes

Rate Generator

Features	TracerDAQ	TracerDAQ Pro
Channel Type	Counter output	Counter output
Number of Channels	1	20

Function Generator

Features	TracerDAQ	TracerDAQ Pro
Channel Type	Analog output	Analog output
Number of Channels	1	16
Waveform Types	Sine	Sine, square, triangle, flat, pulse, ramp, random, arbitrary
Duty Cycle	No	Yes
Phase	No	Yes
Gate Ratio	No	Yes
Rate Multiplier	No	Yes
Sweep (Linear and Exponential)	No	Yes

Specifications

ANALOG INPUTS

A/D Converter: Four dual 24-bit sigma delta A/D converters
Input Isolation: 500 Vdc minimum between field wiring and USB interface
Number of Channels: 8 differential thermocouple inputs
Differential Input Voltage Range: ±0.080V
Absolute Maximum Input Voltage: ±25V (power on), ±40V (power off)
Throughput Rate: 2 samples/sec maximum for all active channels
Input Impedance: 5 GΩ minimum
Input Leakage Current: 105 nA maximum (with open thermocouple detection enabled)
Normal Mode Rejection Ratio: 90 dB minimum
Common Mode Rejection Ratio: 100 dB minimum
Warm-Up Time: 30 minutes maximum

Open Thermocouple Detection: 3 sec open detection time (maximum)

CJC Sensor Accuracy: -0.75 to 0.5ºC maximum (15 to 35ºC); -1.5 to 1.25ºC maximum (0 to 55ºC)

DIGITAL I/O

Number of Digital I/O Channels: 8

Type: CMOS

Configuration: Each DIO bit can be independently configured for input or output. Switch selectable output voltages of 5V or 3.3V. Power on reset is input mode unless bit is configured for alarm

Pull-Up/Pull-Down Configuration: All pins are connected to 47 kΩ resistors (user configurable for pull-up mode to 5V or pull-down mode)

Digital I/O Transfer Rate (Software Paced):

- **Digital Input:** 50 port reads or single bit reads per second (typical)
- **Digital Output:** 100 port writes or single bit writes per second (typical)

Input High Voltage: 4.0V minimum, 5.5V absolute maximum (5V mode); 2.64V minimum, 5.5V absolute maximum (3.3V mode)

Input Low Voltage: 1.0V maximum, -0.3V absolute minimum (5V mode); 0.66V maximum, -0.3V absolute minimum (3.3V mode)

Output High Voltage: 4.3V minimum (5V mode), 2.7V minimum (3.3V mode); IOH = -2.5 mA

Output Low Voltage: 0.6V maximum (IOL = 2.5 mA)

Temperature Alarms: 8 (one per digital I/O line)

NETWORK

Ethernet Compliance

- **Device Type:** IEEE 802.3 ethernet 10Base-T
- **Device Compatibility:** IEEE 802.3-2003 10 Mpbs media access control

Ethernet Connection

- **Ethernet Type:** 10Base-T
- **Connector:** RJ-45, 8 position
- **Cable:** CAT-5 shielded, unshielded twisted pair
- **Length:** 100 m (328') maximum
- **MAC Address:** 00:12:71: Cx:xx:xx where xxxxx is the device's serial number

Network Factory Default Settings

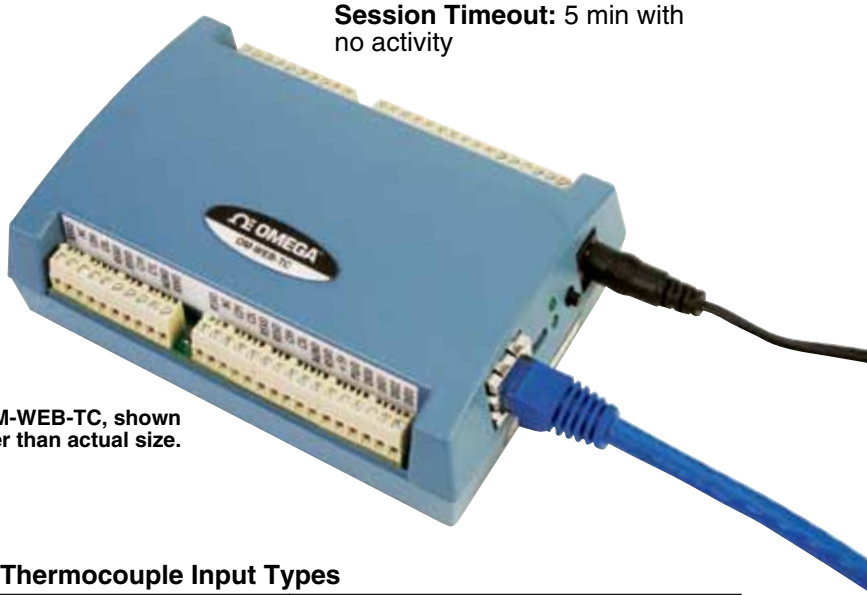
- **IP Address:** 192.168.0.101
- **Subnet Mask:** 255.255.255.0
- **Gateway:** 192.168.0.1
- **DHCP Setting:** Enabled
- **User Name:** webtc
- **Password:** omega
- **Web Server:** Enabled

Network Protocols

- **Protocols Implemented:** IP, ARP, ICMP, DHCP, UDP, TCP, NBNS, HTTP
- **UDP Messaging Protocol:** UDP port 54211
- **TCP Downloading Protocol:** TCP port 54267
- **HTTP 1.0 Alternate Port:** TCP port 49152-65535 (not including 54267)
- **Network Name:** webtc_xxxxx, where xxxxx is the device's serial number
- **Maximum Number of Simultaneous HTTP Connections:** 3
- **Maximum Number of Non-HTTP TCP Sockets:** 5

Network Security

- **Security Implementation:** IP address based session manager with username/password login for configuration and control transactions (data is not secured)
- **Session Timeout:** 5 min with no activity



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Compatible Thermocouple Input Types

Type	Temperature Range	Accuracy (ºC)*
J	-210 to 1200ºC (-346 to 2192ºF)	±1.762 typ, ±3.098 maximum (-210ºC) ±0.724 typ, ±1.282 maximum (0ºC) ±0.684 typ, ±1.178 maximum (1200ºC)
K	-210 to 1372ºC (-346 to 2502ºF)	±1.843 typ, ±3.318 maximum (-210ºC) ±0.730 typ, ±1.292 maximum (0ºC) ±0.799 typ, ±1.495 maximum (1372ºC)
T	-200 to 400ºC (-328 to 752ºF)	±1.797 typ, ±3.226 maximum (-200ºC) ±0.754 typ, ±1.334 maximum (0ºC) ±0.496 typ, ±0.856 maximum (400ºC)
E	-200 to 1000ºC (-328 to 1832ºF)	±1.708 typ, ±3.050 maximum (-200ºC) ±0.826 typ, ±1.465 maximum (0ºC) ±0.564 typ, ±1.010 maximum (1000ºC)
R	-50 to 1768ºC (-58 to 3214ºF)	±1.124 typ, ±2.010 maximum (-50ºC) ±0.475 typ, ±0.844 maximum (250ºC) ±0.347 typ, ±0.612 maximum (1768ºC)
S	-50 to 1768ºC (-58 to 3214ºF)	±1.058 typ, ±1.892 maximum (-50ºC) ±0.479 typ, ±0.853 maximum (250ºC) ±0.416 typ, ±0.734 maximum (1768ºC)
B	250 to 1820ºC (482 to 3308ºF)	±2.192 typ, ±2.199 maximum (250ºC) ±0.821 typ, ±0.824 maximum (700ºC) ±0.469 typ, ±0.471 maximum (1820ºC)
N	-200 to 1300ºC (-328 to 2372ºF)	±1.897 typ, ±3.406 maximum (-200ºC) ±0.735 typ, ±1.300 maximum (0ºC) ±0.571 typ, ±0.978 maximum (1300ºC)

** Includes cold junction compensation measurement error.*

Username/Password Encryption: Base64 (the default web page does not support encryption if Javascript is disabled in the web browser)

Vulnerabilities: Denial of service attacks, username/password spoofing, script probing and simple decryption

GENERAL

Memory: EEPROM (512 bytes for sensor configuration); FLASH (2 MB for device configuration and website storage)

Microcontroller: One high-performance 8-bit RISC microcontroller and one high-performance 16-bit RISC microcontroller

Power Supply Voltage (Supplied by Included External Power Supply): 5 Vdc ±5%

Power Supply Current (Supplied by Included External Power Supply): 440 mA maximum

User Output Voltage (5V): 4.65V min to 5.25V maximum

Dimensions: 127 L x 89 W x 36 mm D (5.0 x 3.5 x 1.4")

Input Connections: Screw terminal blocks (accept 16 to 30 AWG wire)

Operating Temperature: 0 to 55°C (32 to 131°F), 0 to 90% RH non-condensing

Storage Temperature: -40 to 85°C (-40 to 185°F)

Weight: 160 g (5.6 oz)

OM-WEB-TC, shown smaller than actual size.

OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
OM-WEB-TC	8-channel web-enabled thermocouple input module
SWD-TRACERDAQ-PRO	TracerDAQ Pro software

Comes complete with ethernet cable, 100 to 240 Vac AC adaptor with USA plug, quick start guide, software and operator's manual on CD.

***Ordering Example: OM-WEB-TC,** 8-channel web-enabled thermocouple input module and **OCW-1** OMEGACARE℠ 1 year extended warranty adds 1 year to standard 1 year warranty.*