2 YEAR WARRANTY

MADE IN USA

OMEGA®

User's Guide

NOTE:
Model is factory set for type _____ input only.
Serial No. _____

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CSC32 SERIES
Mini Benchtop Controller

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Section **Page**

List of Figures

Section 1 - Introduction

Your CSC32 series Benchtop controller is ideal for laboratory use and applications requiring portable temperature or process control. Pre-wired input and output receptacles on the rear panel enable quick and easy connections to main ac power, signal input, control output and two way digital communications. These controllers are factory configured and calibrated for a dedicated input type by model number. It is important that you read this manual and controller manual number M2897 completely and follow all safety precautions in both manuals before operating this unit.

1.1 Precautions

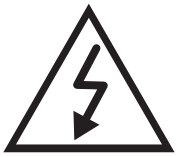
- Follow all safety precautions and operating instructions outlined in this manual.
- Keep out of reach of all children.
- Do not operate in flammable or explosive environments.
- Never operate with a power cord other than the one provided with your unit.
- Remove and/or disconnect main power cord before attempting any maintenance or fuse replacement.
- Do not connect and/or operate this unit to a non-grounded, non-polarized outlet or power source.
- Do not reconfigure the input type factory set in the controllers program. Incorrect readings and/or control may result.

NOTE:

There are no user serviceable parts inside your unit. Attempting to repair or service your unit may void your warranty.

1.2 Safety Warnings and IEC Symbols

This device is marked with international safety and hazard symbols in accordance with IEC 1010. It is important to read and follow all precautions and instructions in this manual before operating or commissioning this device as it contains important information relating to safety and EMC. Failure to follow all safety precautions may result in injury and or damage to your calibrator. Use of this device in a manor not specified by the manufacturer may impair protection provided within the unit.



Caution, risk of electric shock

Caution, refer to accompanying documents

Figure 1. IEC Symbols

1.3 Statement on CE Marking

It is the policy of OMEGA to comply with all world-wide safety and EMI/EMC regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon verification of compliance.

NOTE:

Your unit is not CE marked.

1.4 Available Models

Available Models	Input Type	Control Output	Range
CSC32J	J	DUAL 5 AMP SSR	-0 to 800°C/32 to 1472°F
CSC32K	K		-50 to -1200°C/-58 to 2192°F
CSC32E	E		0 to 600°C/32 to 1112°F
CSC32T	T		-200 to -250°C/-273 to 482°F
CSC32R	R		-50 to 40°C/40 to 1768°F
CSC32S	S		0 to 1600°C/32 to 2912°F
CSC32RTD	RTD		-200 to 400°C/-273 to 752°F
CSC32MV	MV		0 to 20 mV (-250 to 3000 Max. Scale)
CSC32MA	MA		0 to 20 mA (-250 to 3000 Max. Scale)

Section 2 - Installation

2.1 Unpacking

Remove the packing list and verify that you have received all your equipment. If you have any questions about the shipment, please call our Customer Service Department at

1-800-622-2378 or 203-359-1660. We can also be reached on the Internet at **omega.com**
e-mail: cservice@omega.com

When you receive the shipment, inspect the container and equipment for any signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

NOTE:

The carrier will not honor any damage claims unless all shipping material is saved for inspection. After examining and removing contents, save packing material and carton in the event reshipment is necessary.

The following items are supplied in the box:

- CSC32 Series benchtop Controller (1 each)
- This Users Guide and Controller Manual #M2897, CN9300/CN9500 Autotune Temperature Controllers. (1 each)
- Power Cord (1 each)
- Mating Input Connector(s),
  - Thermocouple Models: (1 each) standard OST Series male and (1 each) miniature SMP Series male.
  - RTD, MA and MV Models: (1 each) Omega Model TA3F
- DB9, DB25 Adapter/RJ12 Cable (1 set) Communication models only.
- CN9-SW Communication Software (1 each) Communication models only
- Software Communications Manual #M2896 (1 each) Communications models only.

2.2 Power Connection

2.2.1 108-125 VAC ~, 50/60 Hz

Your Benchtop Controller comes with a standard North American 3-prong AC power cord. Do not use any other power cord other than the one provided. This cord provides the proper grounding and has been safety tested by the proper safety agencies.

CAUTION:

Electrical connections and wiring should be performed only by suitably trained personnel.

Section 3 - Operation

3.1 Front Panel Controls, Indicators and Connections

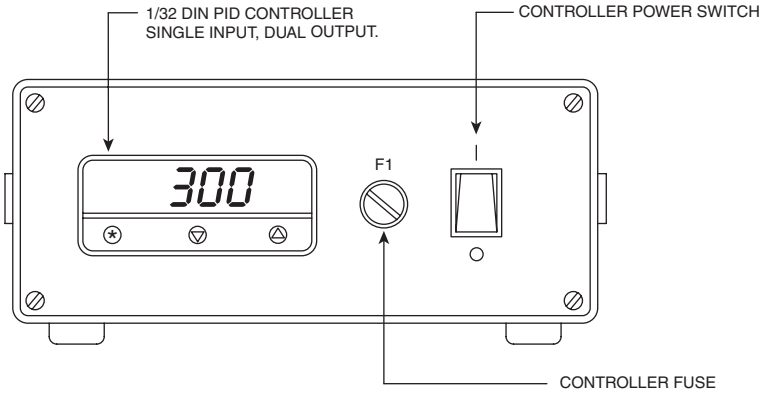


Figure 2a. Front Panel (108-125 Vac Models)

3.2 The Universal Thermocouple Panel Jack shown is patented.

NOTE:

The Universal Thermocouple Panel Jack Shown is patented.

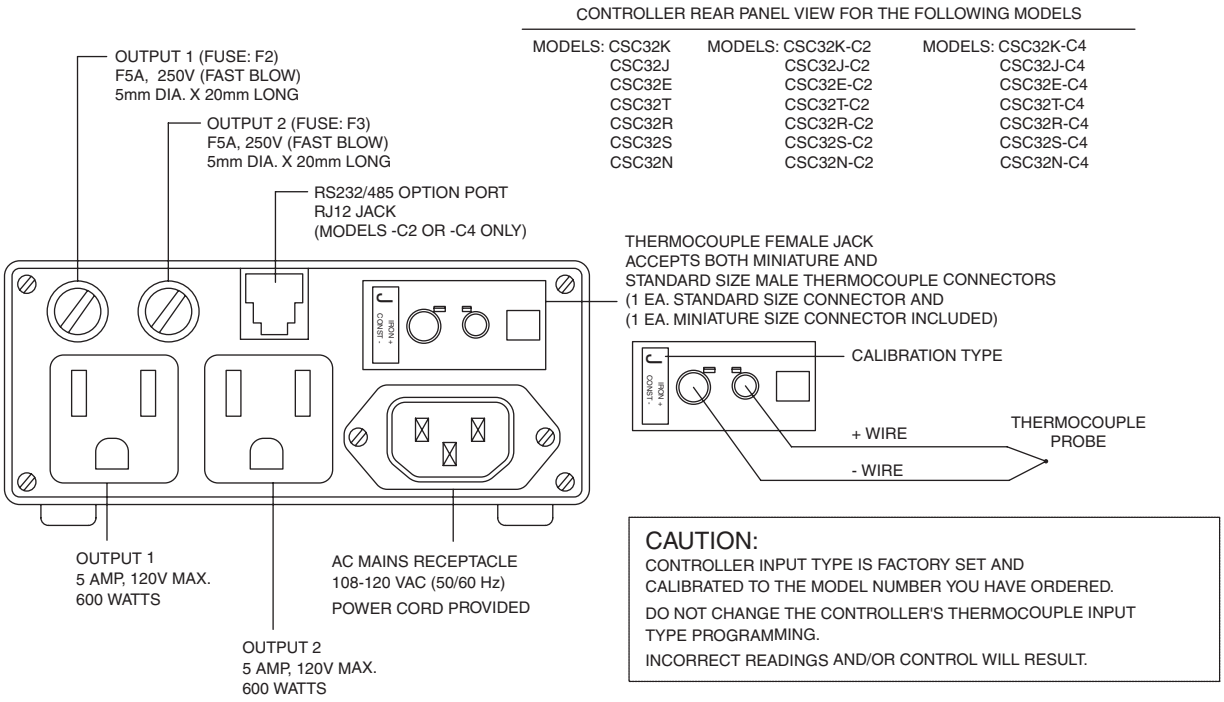


Figure 2b. Rear Panel (Thermocouple Models)

3.3 Rear Panel (RTD, MV, MA Models)

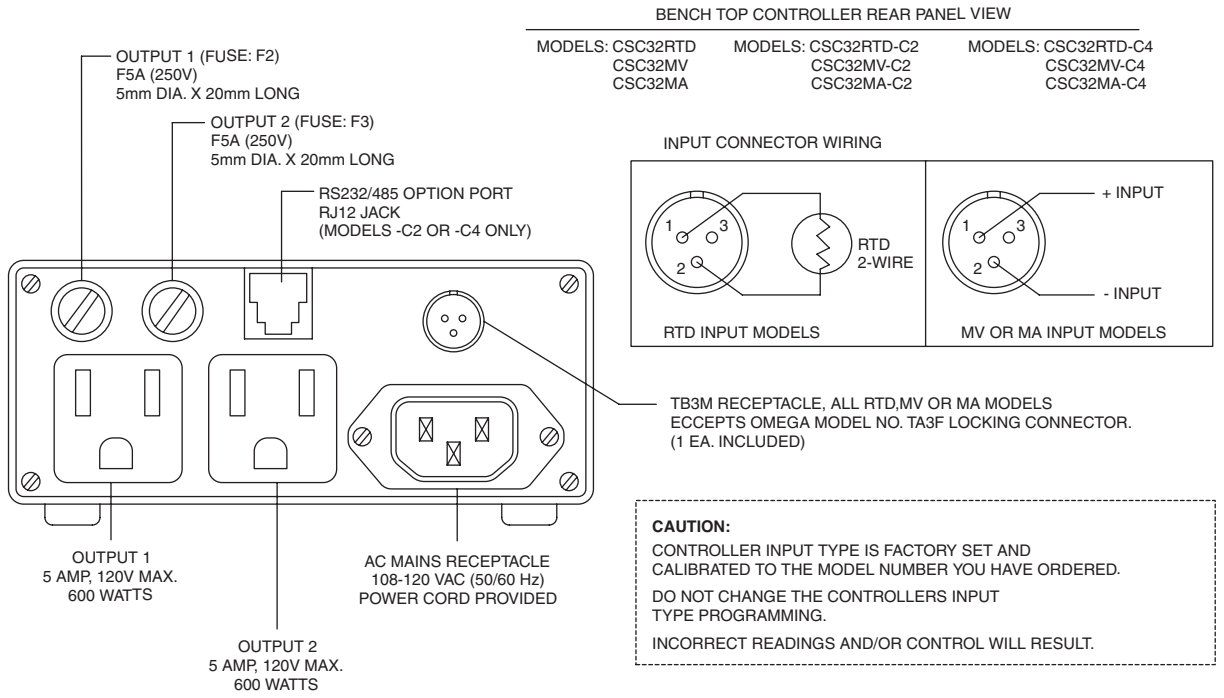


Figure 2c. Rear Panel (RTD, MV and MA Models)

3.4 Controller Setup and Programming

3.4.1 Input Type Setup

No setup or programming is required. Your unit has been manufactured, programmed and calibrated for the input type you ordered by model number.

Do not change or reprogram the controllers input type. Incorrect readings and/or control will occur.

3.4.2 Output Type Setup

No setup or programming is required. Your unit has been manufactured and programmed for dual dc pulse outputs to drive the internal dual solid state relay built into your unit. Do not change or reprogram the controller's output type. Incorrect control and/or damage to your unit may occur.

3.4.3 Changing the Temperature/Process Setpoint

The CSC32 incorporates a PID digital setpoint controller. In the default mode the digital display indicates the temperature or process known as (PV) Process Variable. Holding down the "MODIFY" key causes the display to show the current programmed setpoint known as (SV) Setpoint Variable. To make changes to setpoint press and hold the "MODIFY" key, then press the "INCREASE" or "DECREASE" key to make the your change. In this mode, holding the "INCREASE" or "DECREASE" key for an extended period will cause the setpoint to advance more rapidly the longer you hold it.

Modify Key

Press/hold to view change setpoint

Decrease Key

Press in conjunction with Modify Key to decrease setpoint.

Increase Key

Press in conjunction with Modify Key to increase setpoint.

3.4.4 All Other Settings and Programming

For all other settings such as… Units, Decimal, Setpoint, Autotune, Control Parameters and Communication refer to the controller's manual # M2897, CN9300/CN9500 Autotune Temperature Controllers. For -C2 (RS-232) or –C4 (RS-485) models with the communication option refer to the communication manual for settings and programming.

Section 4 - RS-232 or RS-485 Communication (Optional)

4.1 Communication Cable Connections

Your controller unit has been factory pre-wired and configured for ease of use with an RJ12 rear panel connection that will requires no additional wiring. An interface cable, Part No. DB25-R12 is included with your unit for easy connection between your benchtop controller and PC.

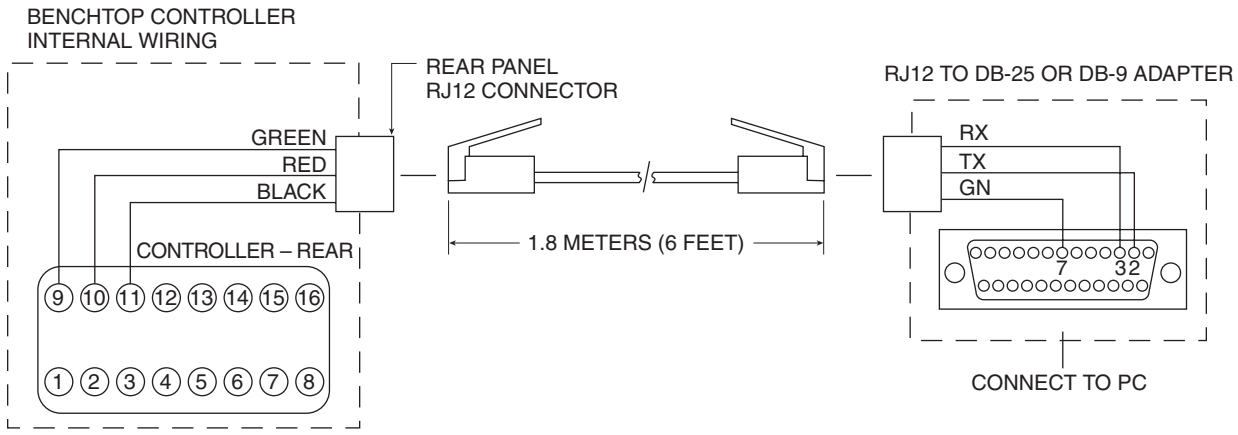


Figure 3. Communications Cable Connections

4.2 CN9-SW Communication Software

Benchtop controllers with the –C2 or –C4 option come complete with communication software, Omega part number CN9-SW. The software is designed to interface with your benchtop controller when the optional communication hardware has been factory installed in your unit.

NOTE:

The CN9-SW software is Windows® 95/98/NT/ME/2000/XP compatible.

4.3 Communication Settings and Programming

Refer to the Software Communication Manual (M2896) for factory default settings and for making changes to the communication settings and programming.

Section 5 Maintenance

5.1 Calibration

This unit has been fine tuned and factory calibrated to give optimum performance over its full operating range for the input type you have selected by model number. It is recommended that the unit be returned annually for recalibration.

CAUTION:

Remove all electrical connections and power before attempting any maintenance or cleaning.

5.2 Cleaning

Lightly dampen a soft clean cloth with a mild cleaning solution and gently clean the benchtop controller.

5.3 Fuse replacement

WARNING:

Disconnect all power from source before attempting fuse replacement.

CAUTION:

For continued protection against the risk of fire, replace fuses with only the same size, type and rating indicated here and on the rear panel of your unit.

5.3.1 108-125 VAC ~, 50/60 Hz Models

Controller Power Fuse: (Front Panel) F1	1 each F.250A, 250 VAC, (Fast-Acting, 0.250 Amp) UL./CSA/VDE APPROVED (5mm dia. x 20 mm long).
Output Fuse:	2 each F5A, 250 VAC, (Fast-Acting, 5 Amp) (Rear Panel) F2, F3 UL./CSA/VDE APPROVED (5 mm dia. x 20 mm long).

Section 6 - Troubleshooting Guide

Problem	Solution
1. Unit will not turn on.	a. Check all electrical connections b. Check front panel fuses. c. Unit requires service, contact our customer service department.
2. Unit turns on, but will not control.	a. Check all electrical connections. b. Check rear panel fuses. c. Check that you have programmed and set all the correct parameters for your application. Ref. Manual No. M2897 d. Contact our application engineering-department for help.
3. Rear Panel Output Fuse(s) keeps blowing.	a. Check all electrical connections. b. Check rear panel fuses for correct rating. c. Check that your output load does not exceed the 5 Amp (600 watts) maximum limit. d. Contact our application-engineering department for help.

Section 7 - Specifications

7.1 Benchtop Configuration

Accuracy

Thermocouple Models: (J, K, T, E, R, S, N)	±.25% full scale ±1.5°C
RTD, MA, MV Models:	±0.25% full scale

Power

Standard Models:	108-125 Vac, 50/60 Hz.

Input Connection

Thermocouple Models: (J, K, T, E, R, S, N)	Universal Female Panel Jack (Patented) (Accepts both standard or miniature male thermocouple connector)
RTD, MA, MV Models:	Omega T-Series Model No. TB3M (Male) (Accepts Omega T-Series Model No. TA3F (Female) Keyed 3-pin Locking Connector)

Output Connection

Outputs:	2
Output Rating	5 Amp (120 Vac) Max
Output Connections:	Standard 3-Prong Grounded

Enclosure

Material:	Painted Aluminum
Size:	135 W x 59 H x 159 mm L (5.3 W x 2.4 H x 6.5" L)
Weight:	0.91 kg. (2 lbs.)

7.2 Controller Model CN9522 Specifications

See User Manual #M2897, CN9300/CN9500 Autotune Temperature Controllers for complete controller specifications and programming.

MADE IN USA

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **25 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **two (2) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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