

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) 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.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

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.

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.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

OMEGA is a registered trademark of OMEGA ENGINEERING, INC. © Copyright 2014 OMEGA ENGINEERING, INC. All rights reserved. This document may not be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form, in whole or in part, without the prior written consent of OMEGA ENGINEERING, INC.

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 or calibration,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

5

Software Installation

Insert the OS100-Soft CD into your computer's CD-Rom drive. The installation program should start up automatically. If it does not start automatically locate and run the Setup.exe file on the CD.

NOTE:

Microsoft .NET framework 2.0 is a pre-requisite for this application and will be automatically installed from the CD if missing. This will require you to accept the license agreement prior to proceeding.

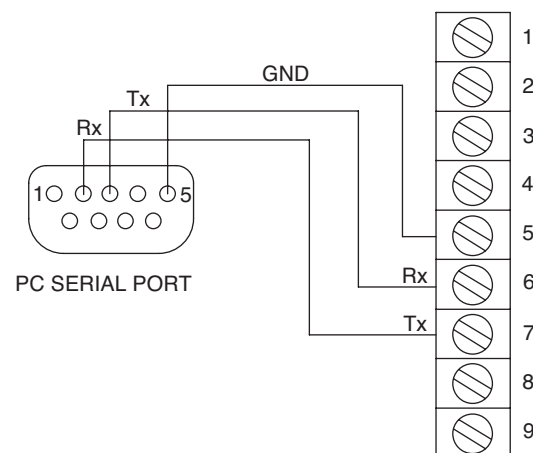
Navigate through the step-by-step screens until you have successfully installed the OS100 software.

NOTE:

The default directory for the executable is: \Programs\OS100-Soft\OS100-Soft.exe

Please review the software online guide.

RS232 Communication



PC Interface Connection

All commands sent to the OS100E series must be terminated by a carriage return or carriage return and linefeed, and is shown in this document as "CR" and "LF". Any parameters shown in square brackets "[]" are optional. Parameters are separated from commands and from each other by a space " ". Spaces within commands are shown in this document as "SP".

6

RS232 Commands

C Command:

Description: Transmit target temperature in Celsius
Syntax: C CR [LF]

F Command:

Description: Transmit target temperature in Fahrenheit
Syntax: F CR [LF]

ALARM Command:

Description: Transmit alarm setpoint
Syntax: ALARM CR [LF]

VERSION Command:

Description: Transmit model number, firmware version, and output model.
Syntax: VERSION CR [LF]

AMODE Command:

Description: Set/ Transmit alarm activation mode rising/falling.
Syntax: AMODE [SP MODE] CR [LF]
(Optional) MODE: Specifies whether the alarm will activate at the setpoint with rising temperature, or falling temperature. The valid range for this parameter is 0 to 1. A value of 1 will cause the alarm to activate on rising temperature, and 0 will cause activation on falling temperature.

Examples:

Typing "AMODE" and pressing "Enter" does not change the activation mode but it is reported.
Typing "AMODE 0" and pressing "Enter" changes the activation mode to falling and is reported as such.

EMS Command:

Description: Transmit emissivity setting
Syntax: EMS CR [LF]

CABLE Command:

Description:
Syntax: CABLE [SP LENGTH] CR [LF]
(Optional) LENGTH: Specifies the total length (in feet) of cable attached between the sensor head and the transmitter box. The valid range for this parameter is 6 to 56. If this parameter is not specified, the length currently set will be transmitted.

Examples:

Typing "CABLE" and then pressing "Enter" does not change the current cable length compensation value but is reported.

Typing "CABLE 200" and then pressing "Enter" changes the current cable length compensation value to 56 because 200 is above the max length.

QUICK START

For complete product manual:
www.omega.com/manuals/manualpdf/M3572.pdf



OS101E



OS102E

OS100 SERIES Mini-Infrared Transmitters

OMEGA

omega.com info@omega.com

Servicing North America:

U.S.A.: OMEGA Engineering, Inc., One Omega Dr.
P.O. Box 4047, Stamford, CT 06907-0047 USA
Toll-Free: 1-800-826-6342 (USA & Canada Only)
Customer Service: 1-800-622-2378 (USA & Canada Only)
Engineering Service: 1-800-872-9436 (USA & Canada Only)
Tel: (203) 359-1660 Fax: (203) 359-7700
e-mail: info@omega.com

For Other Locations Visit omega.com/worldwide

The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.
WARNING: These products are not designed for use in, and should not be used for, human applications.

Using This Quick Start Manual

Use this Quick Start Manual with your OS100E Series mini-infrared transmitter for quick installation and easy operation. Refer to the full manual for detailed information (#M3572A)

General Information

The low cost OS101E mini-infrared transmitter provides non-contact temperature measurement for industrial applications. The unit measures a temperature range of -18 to 538°C (0-1000°F) and provides a linear analog output of either 4-20 mA, 0-5 VDC, K type TC, 1 mV/°C, or 1 mV/°F.

The new OS102E mini-infrared transmitter has all the functions of OS101E plus a built-in LED display that shows the measured temperature in degrees F or degrees C which is switchable in the field.

The miniature sensor head design 2.5 cm dia. X 6.3 cm Length (1" x 2.5") is ideal for measuring temperature in confined, and hard to reach places. The aluminum sensor head as well as the rugged electronic housing (Die cast Aluminum) are NEMA-4 rated.

The sensor head is connected to the electronic housing via a 1.82 m (6 feet) shielded cable as standard. The unit provides field adjustable alarm output.

The following optional accessories are available:

| Model No. | Description |
|--------------|--|
| OS100-MB | Mounting Bracket |
| OS100-DR | DIN Rail Mounting adapter |
| OS100-WC | Water Cooling jacket |
| OS100-AP | Air purge collar |
| OS100-LS | Laser Sighting |
| OS100-CA15FT | Sensor Head Extension Cable (4.6 m, 15') |
| OS100-CA25FT | Sensor Head Extension Cable (7.6 m, 25') |
| TX8-100 | 8 Conductor stranded Shielded cable (30 m, 100') |
| PSU-93 | Unregulated 16-24 VDC Power Supply |
| CAL3-IR | NIST Traceable Calibration |

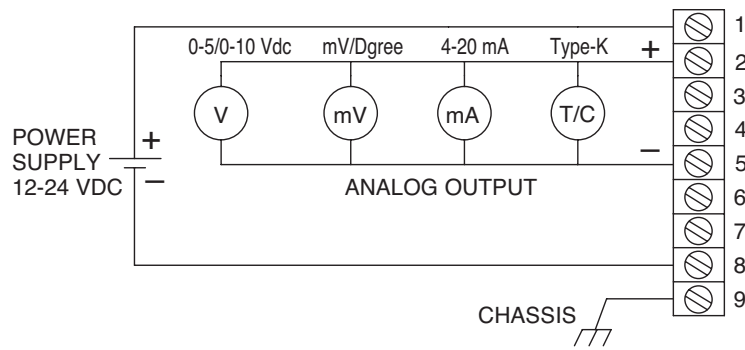
Electrical Connection

Sensor Head Cable

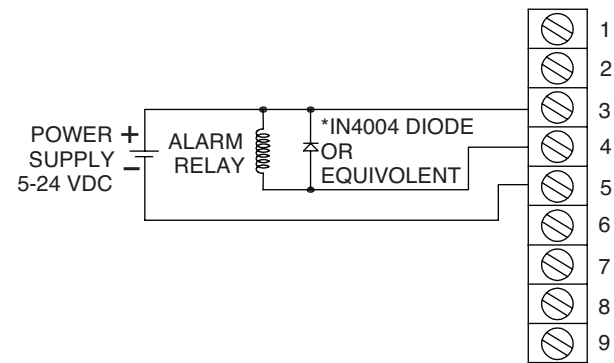
The Sensor head is pre-wired to a 1.8 m (6 feet) shielded cable. Plug & lock in the male connector to the mating female connector on the aluminum housing.

Power & Output Connection

Open the cover of the main aluminum housing. Slide the cable through the strain relief and connect the wires to the terminal block on the board as on right.



Power Supply and Analog Output Connections



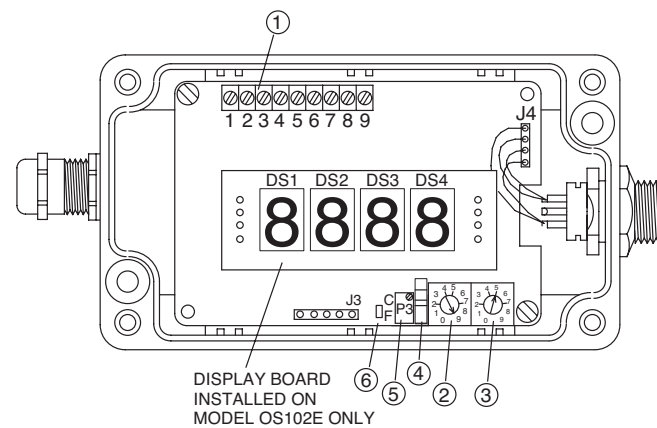
Alarm Output Connection

Operation

Main Board

Here are the important components on the Main Board, as shown below.

1. Terminal Block for Power & Output connections
2. Single Turn Potentiometer to adjust Emissivity in tenths (0.x₁)
3. Single Turn Potentiometer to adjust Emissivity in hundreds (0.₁x)
4. Slide switch to select between real time Normal Operation) and alarm set point.
5. Alarm set point adjust, P3
6. °F to °C Jumper setting



Main PC Board

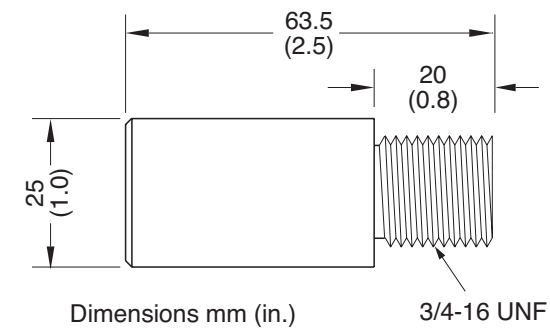
Ambient Temperature

The Sensing head can operate in an ambient temperature of 0 to °C (32 to 158°F). The Sensing head in the high temperature model (-HT) can operate in an ambient temperature of 0 to 85°C (32 to 185°F) without any cooling required. The Sensing head can operate up to 200°C (392°F) using the water cool jacket accessory OS100-WC.

There is a warm up period of 3 minutes after power up. After the warm up period, temperature measurement can be made.

When the ambient temperature around the sensor head changes abruptly, the sensor head goes through thermal shock. It takes a certain amount of time for the sensor head to stabilize to the new ambient temperature. For example, it takes about 30 minutes for the sensor head to stabilize going from 25°C to 50°C (77 to 122°F) ambient temperature.

The sensor head dimensions are shown below.

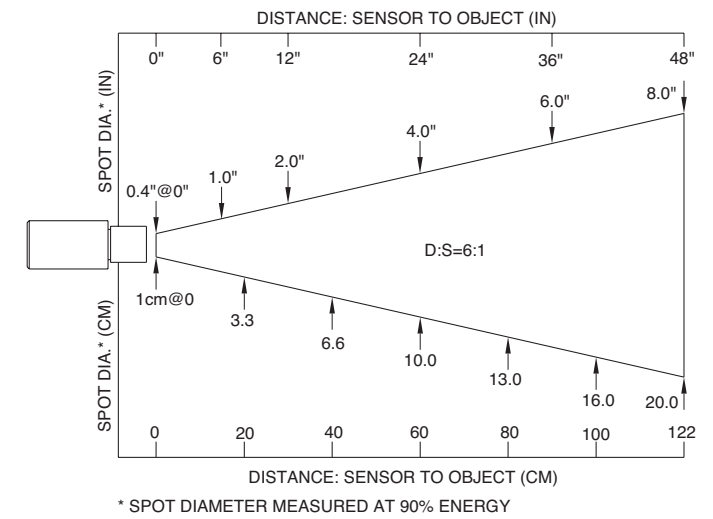


Sensor Housing

Measuring Temperature

Before starting to measure temperature, make sure that the following check list is met:

- The power and analog output connections are made
 - The sensor head is connected to the main unit
 - The slide switch (SW1) on the main board is set to real time
 - The target is larger than the optical field of view of the sensor head (see below for field of view diagram)
 - The emissivity adjustment on the main board is set properly
 - The output load is within the product specification
- For 102E transmitters, follow these additional steps:
- The temperature display is set to °F or °C
 - For 4-20mA output models, make sure an output load is added, i.e. 250 Ohms.



Optical Field of View

Alarm Setting

The unit provides 0-100% alarm set point adjustment. Here is an example of an alarm setting.

- An OS101E-MA (4/20 mA output), the alarm is to be set at 400°F temperature.
- Connect the alarm output as shown in **Alarm Output Connection** diagram.
- Set the slide switch (SW1) on the main board to the Alarm position.
- Measure the analog output, and set the Potentiometer P3 until the output reads 10.4 mA which is 40% (400°F) of the temperature range.
- Set the slide switch (SW1) back to the Real Time position.
- If the temperature reading is below the alarm set point, the alarm output stays high, otherwise it goes low.

On the OS102E, you can set the alarm set point directly based on the temperature display.

Adding Extension Cable

You can add an extension cable between the Sensor Head and the main electronic housing up to 15.2 m (50 feet). If adding an extension cable, you must refer to the section **RS-232 Communication** in order to adjust the cable offset through your PC's terminal.

Mounting Dimensions

Please refer to pages 3-10 and 3-11 in the full manual (M3572A) for diagrams of mounting dimensions.