

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.

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.

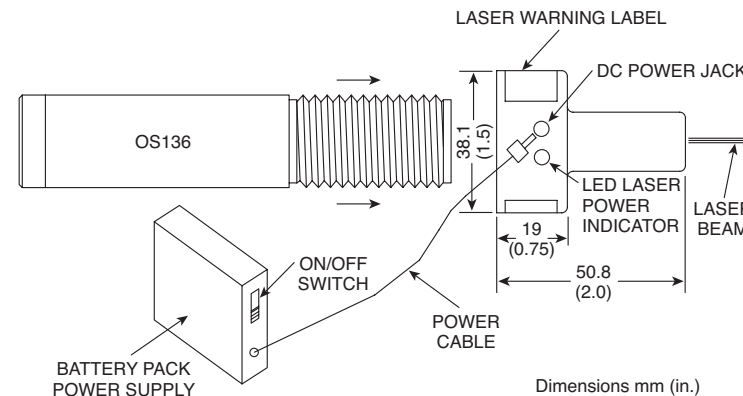
OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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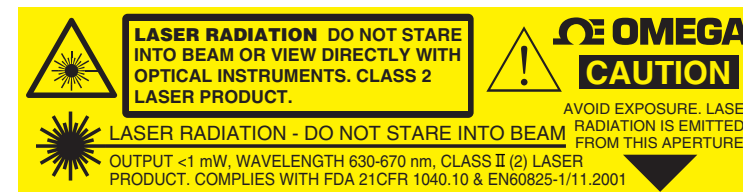
5

Operation the Laser Sight Accessory

The Laser sight accessory screws onto the front of the transmitter sensor head. This accessory is only used for alignment of the transmitter head to the target area. After the alignment process, the accessory has to be removed from the front of the transmitter head before temperature measurement is made.



Laser Sight Accessory, OS100-LS



Laser Warning Label

Specifications

Temperature Range:	
OS136-1	-18 to 204°C (0 to 400°F)
OS136-2	149 to 538°C (300 to 1000°F)
Accuracy: @22°C (72°F) ambient	
OS136-1	3% of Rdg or 4.4°C (8°F) whichever is greater
OS136-2	3% of Rdg or 5.5°C (10°F) whichever is greater
Repeatability: 1% of Rdg.	
Optical Field of View:	6 to 1 (Distance to Spot Size)
Spectral Response:	5 to 14 microns
Response Time:	150 msec, 0 to 63% of final value
Emissivity:	Fixed at 0.95

6

Analog Output:	
MA	4 to 20 mA
V1	0 to 5 Vdc
V2	0 to 10 Vdc
K	K type Thermocouple, compensated
MVC	10 mV/°C
MVF	10 mV/°F
Output Load Requirements:	
Min. Load (0 to 5 Vdc)	1 K-Ohms
Min. Load (0 to 10 Vdc)	2 K-Ohms
Max. Load (4 to 20 mA) (Power Supply - 4)	/ 20 mA
Min. Load (10 mV/Deg)	10 K-Ohms
Min. Load (K T/C)	100 K-Ohms
Operating Ambient Temperature:	
No Water Cooling	0 to 70°C (32 to 158°F)
With Water Cooling (OS136-WC)	0 to 200°C (32 to 392°F)
With Air Cooling (OS136-WC)	0 to 110°C (32 to 230°F)
Operating Relative Humidity:	Less than 95% RH, non-condensing
Water Flow Rate for OS136-WC:	0.25 GPM, room temperature, minimum
Air Flow Rate for OS136-WC:	5 CFM (2.4 liters/sec)
Warm up Period:	1 to 2 minutes
Thermal Shock:	About 30 minutes for 25°C abrupt ambient Temperature change
Air Flow Rate for Air Purge Collar:	1 CFM (0.5 liters/sec.)
Transmitter Housing:	Stainless Steel 316, NEMA-4 & IP65 rated
Power:	12 to 24 VDC @ 50 mA
Dimensions:	19 OD x 89 L mm (0.75" OD x 3.5" L)
Weight:	0.40 lb (181 g)

QUICK START

For complete product manual:
www.omega.com/manuals/manualpdf/M3946.pdf



OS136 SERIES Miniature Low-Cost Non-Contact Infrared Temperature Sensor/Transmitter

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For Other Locations Visit omega.com/worldwide

It is the policy of OMEGA Engineering, Inc. to comply with all worldwide safety and EMC/EMI 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 certification.

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 OS136 Series Miniature Infrared Transmitter for quick installation and basic operation. For detailed information, refer to the User's Guide (Manual # M3946)

General Information

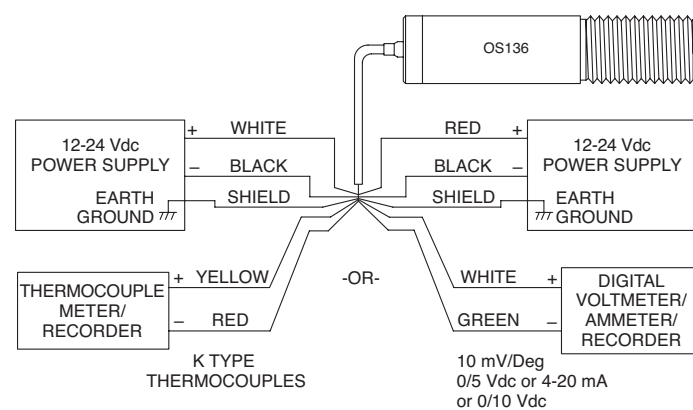
The model OS136 series is a very low-cost, super-compact infrared transmitter. It measures temperature via non-contact, and provides an analog output proportional to the measured temperature. The OS136 series is offered in two temperature ranges: -18 to 204°C (0 to 400°F) and 149 to 538°C (300 to 1000°F). The analog output is offered as 4 to 20 mA, 0 to 5 Vdc, 0 to 10 Vdc, 10 mV/Degree C or F, or K type thermocouple.

The unit has a fixed Emissivity of 0.95 which makes it easy to measure temperature, requiring no adjustments during installation and use.

The super-compact design, 19 mm OD x 78 mm Length (0.75" OD x 3.5" L) is ideal to measure temperature in confined, and hard to reach places. The Stainless Steel housing is NEMA-4 rated. The unit comes with a 1.82 m (6') shielded cable as standard.

Electrical Connection

The shielded cable provides the power and output connections.



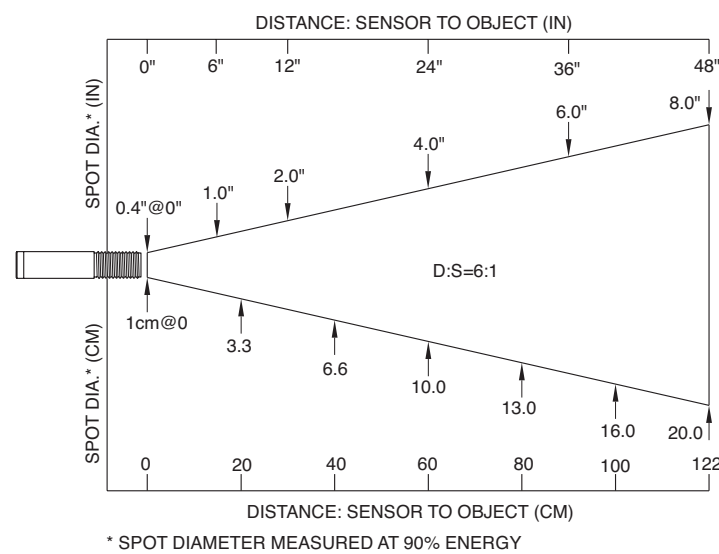
General Wiring Diagram

Operation

Measuring Temperature

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

- The Power and output connections are made (General Wiring Diagram)
- The target is larger than the optical field of view of the transmitter (Optical Field of View)
- Use the Laser Sighting accessory (Optional), to align the transmitter to the center of the target area.
- The Emissivity is fixed at 0.95. No adjustment is necessary. If the target Emissivity is less than 0.95, you can place a masking tape or paint the target area with flat black paint to raise the surface Emissivity to 0.95
- Make sure the output load is within the product specification.



Optical Field Of View

Ambient Temperature

The transmitter can operate in an ambient temperature of 0 to 70°C (32 to 158°F) without any water cool jacket. It can operate from 0 to 200°C (32 to 392°F) with the water cool jacket accessory, OS136-WC. It can operate up to 110°C (230°F) with air cooling.

There is a warm up period of 1 to 2 minutes after power up. After the warm up period, temperature measurement can be made.

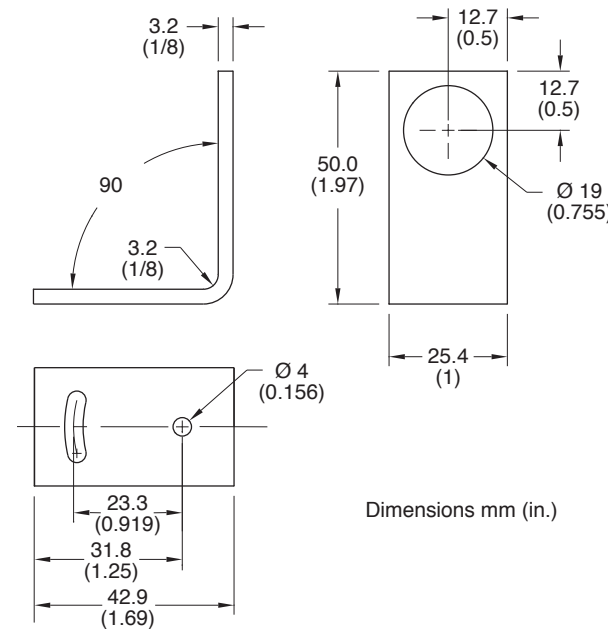
When the ambient temperature around the transmitter changes abruptly, the sensor head goes through a thermal shock. It takes a certain amount of time for

the sensor head to get stabilized to the new ambient temperature. For example, it takes about 30 minutes for the transmitter to stabilize from 25°C to 50°C ambient temperature.

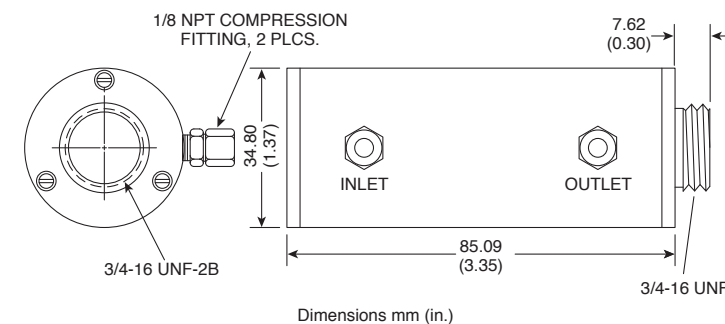
Atmospheric Quality

Environments with smoke, dust, and fume dirty up the optical lens, and cause erroneous temperature readings. To keep the surface of the optical lens clean, the air purge collar accessory is recommended, OS136-AP.

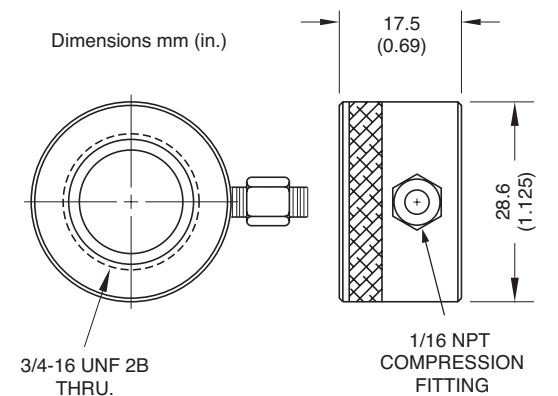
The following figures show the Mounting Bracket (OS136-MB), Water/Air Cool Jacket (OS136-WC), Air Purge Collar (OS136-AP), Stainless Steel Housing, and the Water/Air Cool Jacket Assembly.



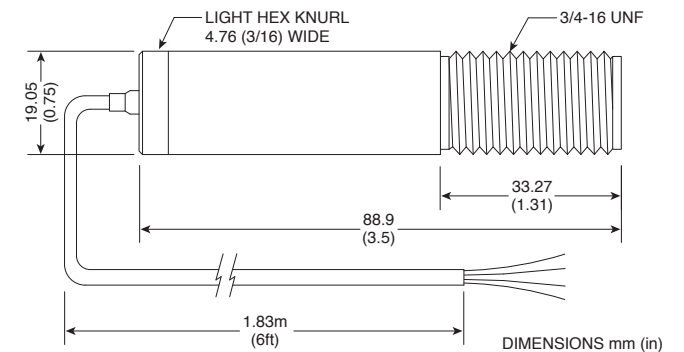
Mounting Bracket, OS100-MB



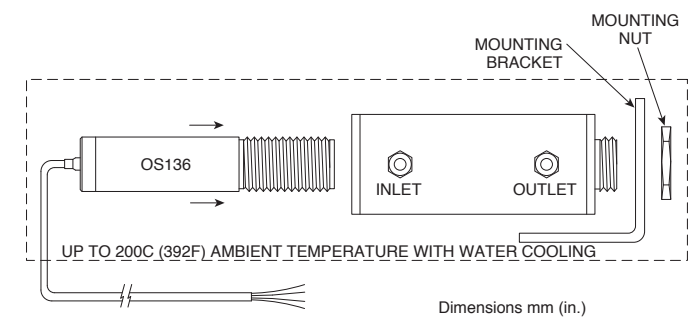
Water/Air Cool Jacket, OS136-WC



Purge Collar, OS100-AP



Stainless Steel Housing



Water/Air Cool Jacket Assembly