CAUTION! – This product is not intended for medical use or use on humans

OMEGA®

User's Guide

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OSHFV-Series
OS-HFV50 Model
High Field of View, High Temp, Fixed IR Sensor with 6 digit LCD and analog/digital outputs

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The OS-HFV50 Model is a non-contact infrared temperature sensor. The electronics are protected by a rugged IP64 aluminum alloy(A6061) housing. They calculate the surface temperature based on the emitted infrared energy of objects and convert the energy into temperature signal.

Infrared thermometer is an optoelectronic sensor. Any object of a temperature above absolute zero (-273 ° C) emits electromagnetic radiation. Infrared thermometer calculates the surface temperature on the basis of the emitted infrared radiation from the object. By determining its radiation intensity the temperature of an object can thereby be determined in a non-contact way.

1. Scope of Delivery

- OS-HFV50 Model Sensor
- Mounting nut x 1
- Fixed mounting bracket x 1
- 3m connection cable (standard, 4-cores)
- User manual

2. Maintenance

Keep the lens clean at all times. Any foreign matter on the lens would affect measurement accuracy. Blow off loose particles using clean compressed air. The lens surface can be cleaned with a soft, humid tissue moistened with water or a water-based glass cleaner. Never use cleaning compounds which contain solvents for the lens.

3. Electrical Interference

Keep away from strong EMF. Avoid static electricity, arc welders, and induction heaters. Avoid abrupt changes of the ambient temperature. To avoid ground loops, make sure that only one point is earth grounded.

4. Factory Defaults

Emissivity LR=0.95 H1=1.00 Average LR=0.2 H1=0

Factory Default Setting：
Press the down (∨) key (keep pressed), and then the up (∧) key. The display will appear INIT for confirmation.

5. Technical Data

Measurement Specifications

Model	LR	H1
Temperature Range	0°C～1300°C	600°C～1600°C
Spectral Response	8～14μm	1 μm
Field of View	120:1	300:1
Response Time (95%)	150 ms	5 ms
Accuracy*1	±1% of reading or ±1.5°C, which is greater	±(0.5% of reading+2°C)
Repeatability*1	±0.5% of reading or ±1°C, which is greater	±(0.5% of reading+2°C)
Emissivity	0.100～1.000	

*1 At 23±5°C, emissivity LR=0.95, H1=1.00

Electrical Specifications

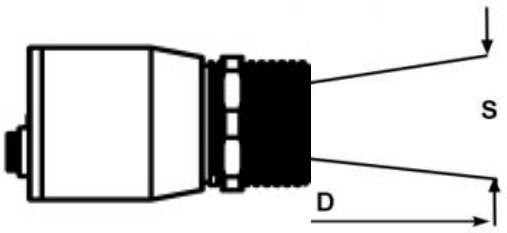
Signal Output	4 ~20mA
Digital Communication	TTL / USB (with optional communication cables)
Max. Loop Resistance	500Ω
Power Supply	24 VDC ±20%, < 100 mA
Display	6-digit backlight LCD

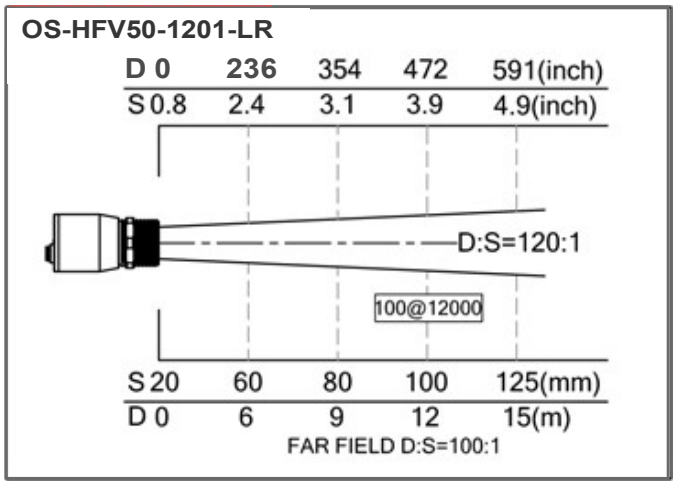
General Specifications

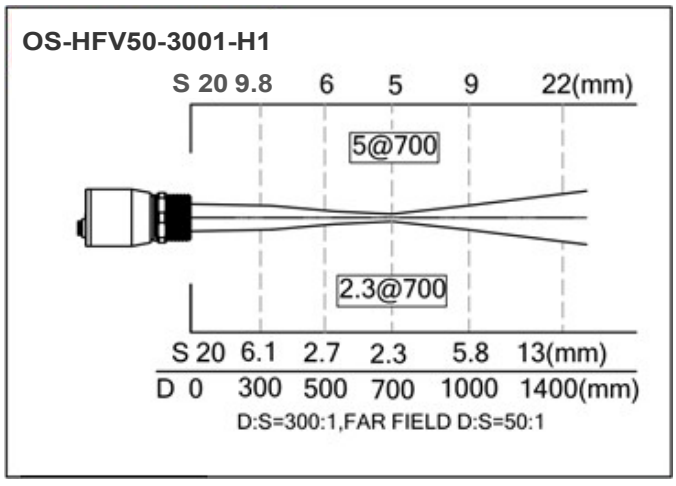
Environmental Rating	IP 64
Ambient Temperature	0°C~70°C
Storage Temperature	-20°C ~ 85°C
Relative Humidity	10% ~ 95%
Cable Temperature	-20°C~ 80°C
Cable Length	3 m
Weight	500g (without cable)

6. Optical Chart

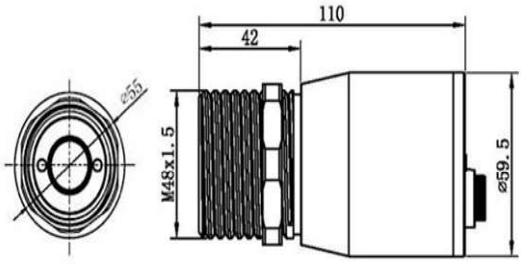
The optical diagrams indicate the target spot diameter at any given distance between the target object and the sensing head. The spot size will change in longer distance corresponding to the following drawing. In order to prevent measuring errors the object must be as least as big as the spot size.







7. Dimensions (mm)



8. Installation

Mechanical Installation

The OS-HFV50 Model comes with a standard 3 m cable, a mounting nut and fixed mounting bracket. You can mount the sensor in brackets or cutouts of your own design. For easy mounting and aligning the sensor to the measured object a fixed or adjustable mounting bracket is available.

For exact measurement of the object temperature the sensor must be aligned correctly onto the object. Mount the sensor so the measured spot is the same or smaller than the target.

Wiring

red	24VDC power (+)
black	24VDC power (-)
white	4~20mA signal (+)
green	4~20mA signal (-)
orange	TX (TTL),optional
grey	RX (TTL), optional
blue	GND (TTL), optional
bare	Shield Ground

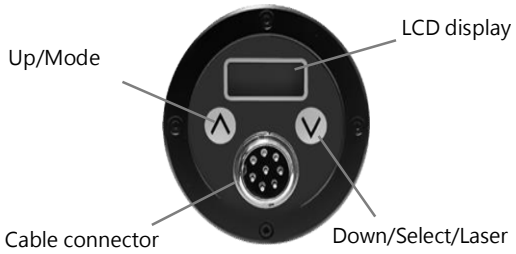
9. Aiming and Focusing

Position the sensor so the two laser beams are marking the exact location and size of the target. Please gently move it around until the temperature signal reads the highest. Hold the sensor in place and secure the mounting base. At ambient temperature > 50°C, the laser will be switched off automatically.

LASER LIGHT
DO NOT STARE INTO BEAM
CLASS 2 LASER
<1mW / 650 nm
IEC 825 (1994)

WARNING: Do not point the laser directly at the eyes of persons or animals! Do not stare into the laser beam. Avoid indirect exposure via reflective surfaces!

10. Operation

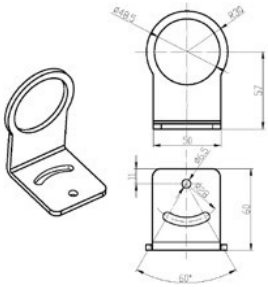


Display	Mode	Adjustment Range
S ON	Laser Sighting (ON) / (OFF)	Press the Down (∨) or Up (∧) key
E 1.000	Emissivity	0.100 ~ 1.000
A 0.2	Signal output average	0.0 ~ 600.0s
P 0.0	Signal output Peak hold (inactive)	0.0 ~ 600.0s
V 0.0	Signal output Valley hold (inactive)	0.0 ~ 600.0s
AP OFF	Advanced Peak hold (inactive)	ON / OFF
AP xxx	Trigger value for AP	depending on user
The signal processing features (Peak, Valley and AP hold) cannot be used concurrently.		
L xxx	Lower Limit signal output [4mA]	depending on model
H xxxx	Upper Limit signal output [20mA]	
Unit C	Temperature unit	°C / °F

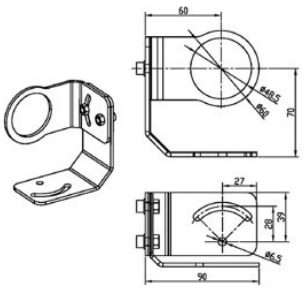
Sensor Setup：

1. Pressing the up (∧) key and down (∨) keys simultaneously to enter setup function.
2. Press the down (∨) key, when a (-) symbol appears at the right side of the selected function confirming into Setting Mode.
3. Press the down (∨) or up (∧) key to select the functional parameter.
4. No action for 7s forces the unit to leave the Setting Mode and save the parameter.
5. Laser ON/OFF：Pressing the down (∨) key to switch laser sighting on or off.

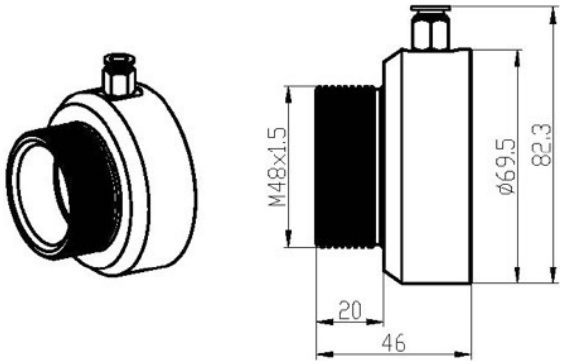
11. Accessories



Fixed Mounting Bracket OS-HFV50-FMB



Adjustable Mounting Bracket OS-HFV50-AMB



Air Purge Collar OS-HFV50-APC

12. Software

Install driver for USB Adapter

Please install the driver for USB cable first. After connecting the USB adapter cable to your PC, the system will allocate the infrared thermometer adapter driver automatically.

To find out which COM-Port number your computer set, open the device manager (Start – Settings – Control Panel – System – Hardware – Device Manager).

In the category “Ports (COM & LPT)”, you can find the “Infrared Thermometer Adapter (DR 6.x)”(only if your USB adapter is plugged in). In parenthesis the COM Port number is shown.

OMEGAonline Software

Please connect the sensor to your PC and start OMEGAonline software, and open at first [Menu: Setup(S)\Interface Settings], to choose the correct Com port and set the Baud Rate to 115,200.
After the unit connected to your personal computer, and the OMEGAonline software is started successfully; the communication has been established. The status line will be displayed in the left bottom: active COM port and successfully communication with the connected sensor. The target temperature will show onthe left in digital form.

Starting the measurement
Please press the measuring key: [Menu: Measurement(M)\ Start]

Scaling of the temperature axis
In the menu item settings
Global Auto Scaling: the temperature range of the diagram is automatically adapted to the respective peak values.
Local Auto Scaling: the temperature range of the diagram will be dynamically adapted to the respective peak values.
Manual scaling: It can be done at any time using the control elements of the temperature axis.

Stop the measurement
To stop the current measurement, please press the stop key [Menu: Measurement(M)\ Stop].
The save key [Menu: File(F)\Save Diagram] opens an explorer window to select destination and file name.

Diagram setting
The menu item settings [Menu: Diagram(A)\Settings] enable the settings for data diagram.
Color: temperature graph and digital display.
Initial Time Interval(S): time frame on x-axis at the beginning of measurement.

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.

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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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