FOTEMP OEM-PLUS
USER MANUAL

WEIDMANN

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GENERAL

The fiber optical thermometer described in the operating instructions has been designed and manufactured using state-of-the-art technology.

All components are subject to stringent quality and environmental criteria during production.

These operating instructions contain important information on handling the instrument. Working safely requires that all safety instructions and work instructions are observed.

Observe the relevant local accident prevention regulations and general safety regulations for the instrument‘s range of use.

The operating instructions are part of the product and must be kept in the immediate vicinity of the instrument and readily accessible to skilled personnel at any time.

Skilled personnel must have carefully read and understood the operating instructions prior to beginning any work.

The manufacturer‘s liability is void in the case of any demage caused by using the product contrary to its intended use, non-compliance with these operating instructions, assignement of insufficiently qualified skilled personnel or unauthorised modifications to the instrument.

The general terms and conditions contained in the sales documentation shall apply.

Subject to technical modifications.

Further information at:
www.optocon.de

SAFETY

This manual contains important information to ensure personal safety and to prevent damage. Explanation of symbols:

Information:
• Points out useful tips, recommendations and information for efficient and trouble-free operation.

Caution:
• Indicates a potentially dangerous situation that can result in light injuries or damage to equipment or the environment, if not avoided.

Warning:
• Indicates a potentially dangerous situation that can result in damaging the device, injury or death, if not avoided.

Skilled personnel:
Commissioning and operation of devices only by qualified personnel.

Skilled personnel are understood to be personnel who, based on their technical training, knowledge of measurement and control technology and their experience and knowledge of country-specific regulations, current standards and directives, are capable of carrying out the work described and independently recognizing potential hazards.

Intended use:
The instrument has been designed and built solely for the intended use described here, and may only be used accordingly. The technical specifications contained in these operating instructions must be observed.

UNPACKING, INSPECTION, SERVICE

When unpacking and inspecting your system components, you need to do the following:

1. Check all materials against the enclosed packing list.

2. Carefully unpack and inspect all components for visible damage.

3. Save all packing materials, until you have inspected all components and find that there is no obvious or hidden damage.

4. Before shipment, each instrument is assembled, calibrated, and tested. If you note any damage or suspect damage, immediately contact us.

Behavior in case of malfunctions, defects or damaged products:
for more information or service requests please visit our homepage:
www.optocon.de

Please send returns to following address:
Weidmann Technologies Deutschland GmbH
Washingtonstraße 16/16a
01139 Dresden
Germany

Disposal
Inoperable instruments must be disposed of in compliance with local regulations for electronic materials.

INTRODUCTION

The respective sensors of the fiber optic temperature measurement system FOTEMP OEM-PLUS are ideal for the use in microwave and high frequency fields, in high voltage systems, in high electromagnetic fields, or suitable aggressive environments.
This measuring system can be used anywhere where the useage of metal temperature sensors (e.g. RTC, TC, etc.) is not possible.

The measuring principle is based on the optical properties of gallium arsenide (GaAs) and its inherent relationship between band gap energy and temperature.
The measurement device contains a light source, a spectrometer and electronics with dedicated interfaces and a display.

The FOTEMP OEM-PLUS has a 2.8-inch color display and displays both current measurment as well as sensor status.

Various interfaces (e.g. USB, RS232 and RS485 - for further details please see datasheet) makes the device very versatile. The extensive software „FOTEMP Assistant“ allows the control and a detailed evaluation via PC with direct export of data.

The TS series fiber optic temperature sensors are composed of a length of large core glass fiber with a GaAs crystal (gallium arsenide) fixed at the sensor tip. The FOTEMP instrument launches broadband light into the fiber and the internal spectrometer evaluates the reflected spectrum. The transition (or cutoff) wavelength of the reflected light is directly related to temperature. The sensor is completely non-conductive.

On request, a traceability chart according to ISO 17025 can be provided.

CALIBRATION

To ensure an accurate temperature measurement in critical areas, we offer a comprehensive calibration service for our fiber optic temperature measurement instruments. Through our modern labs and our qualified staff we can guarantee you a very accurate and fast calibration.
Within a few days you get your unit back and can start your fiber optic measurement projects.

Your fiber optical thermometer comes factory calibrated. An annual re-calibration is not necessary, except for internal company regulations.
All calibrations are performed at our factory. For each calibrated measurement instrument by us, a full certificate of test results is supplied by Weidmann Technologies Deutschland GmbH.

Our customer service will support you. Please visit our homepage for contact details:
http://www.optocon.de/en/contact

In addition, you are welcome to send an email message to tell us your concern:
info.wtde@weidmann-group.com
We will get in touch with you as soon as possible.

Our delivery address:
Weidmann Technologies Deutschland GmbH
Washingtonstraße 16/16a
01139 Dresden
Gerrmany

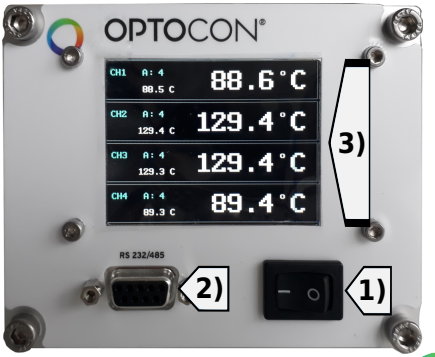
QUICK START

This quick reference guide gives you an overview for quick usage. However, it can not replace extensive literature with important information and safety warnings.

The following presents an overview the user interfaces and instructions on how to use the thermometer.

Front panel

The following figure shows the thermometer front panel:



1) Power switch
To start the device turn the power switch into the position ON "I". By switching into the position OFF "0" the device will be disconnected from the power supply.

2) RS232/RS485 interface
By connecting the PC with this Interface via a corresponding data cable, information for evaluation of the measurement results can be extract. When connecting, make sure that the data cable is fixed correctly for a firmly connection to the device.

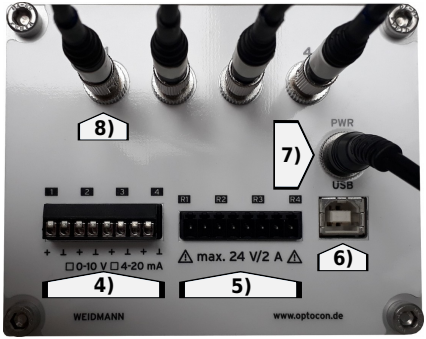
3) Display
After switching on the device the display shows the information which are detected by sensors and evaluated through the device. Hereby are shown (top to bottom):

- Description of the channels („CH1“, „CH2“, „CH3“, „CH4“)
- Selected mean value (see „A: [value]“)
- Determined temperature value (small font size)
- Evaluated current temperature (large font size)

QUICK START

Back panel

The following figure shows the thermometer back panel:



4) Analog output
For monitoring the analog output for max. 4 channels. As ordered, either (0-10V or 4-20mA)

5) Relay output
Relay contact connections for max. 4 channels

6) USB interface
Type B USB Interface for connection to PC/ Notebook per supplied cable

7) Power supply
Make sure the power supply in connected and powered. Please use only the power supply provided.

8) Sensor connectors
These are ST receptacles for connection to an optical temperature sensor (up to 4 max, left to right). For further information please see chapter „sensor connection“

GETTING STARTED

1. Plug the provided fiber optic temperature sensors to the ST-bushing located at the rear of the instrument. Please make sure that the sensor marked as „CH1“ is connected to ST-socket numbered with „1“.
Sensor marked with „CH2“ must be connected to ST-socket with the number „2“ etc. This ensures best measurement accuracy based on internal calibrations.

2. Connect the provided RS232 (or RS485) interface cable to the thermometer and a free serial port of the PC or Notebook.

3. To power the thermometer, please, use the provided power supply or getting support by skilled personnel.

4. After powering and switching on the thermometer, our company logo and temperature values will be displayed for the different channels.

5. After 30 seconds the thermometer is ready for measurement and the measured temperature of each sensor will be shown. If no sensor is connected, the display will show „SP. LOW“.

Each channel can be activated/ deactivated using the supplied FOTEMP Assistant software. In this case the device will display the status „OFF“.

⚠ Caution!
FOTEMP fiber optic thermometers will only function with Weidmann Technologies Deutschland GmbH fiber optic temperature sensors. Please do not use temperature sensors of other brands.

General installation guidelines :
Please read the instructions for installing the fiber optic instrument carefully. Please note especially the order of the instructions exactly.

Sensor handling:
The sensor consists of a ST-plug at the end and a gallium arsenide crystal at the tip of the sensor. The crystal should not be exposed to excessive mechanical stress. Please note the information about the bending radius of the sensor as exceeding bend radius specifications can result in sensor breakage. In this case the sensor is damaged and can only be be repaired/replaced by the factory.

GETTING STARTED

General installation guidelines

Connection with PC:
Before establishing the first connection, please check whether the FOTEMP device is connected to the power supply and the PC via the prefered interface.

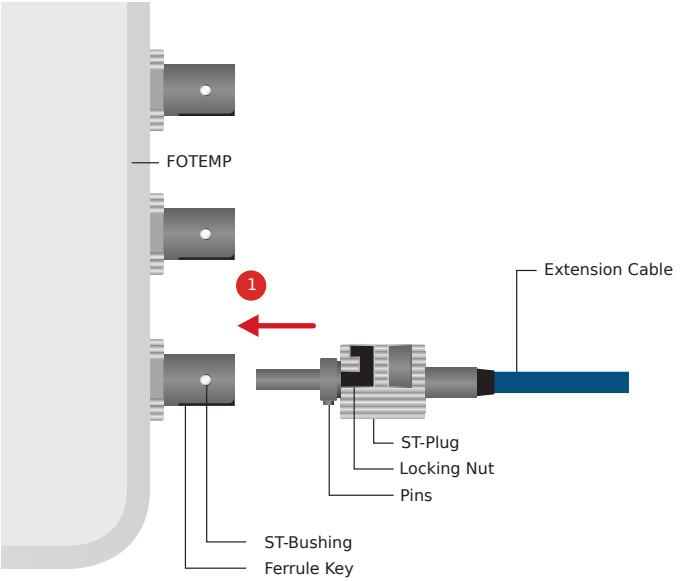
You have the option to use the RS232/RS485 data cable for connecting the device with the PC (COM port).
Furthermore a connection can be established through USB between device and PC with the supplied data cable.
The measurement device is now connected to the PC.
For communication with the devices the installation of the software "FOTEMP Assistant" is necessary.

Connection with sensors:
The temperature sensors are connected via the ST-plugs to the ST-bushings at the device.
Please note to insert the plugs by first prealigning the key, pushing slightly against the spring pressure, and turn with clockwise rotation to lock the connection.

All fiber optic temperature sensors of Weidmann Technologies Deutschland GmbH can be connected.

SENSOR CONNECTION

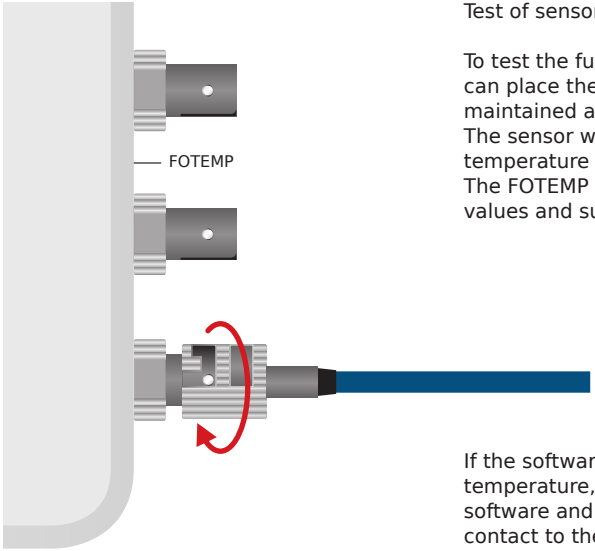
Any unused channels must be protected with supplied dust caps.



To ensure accurate measurements and long life of the fiber optic sensors and instruments, it is necessary to clean them regularly.

Maintaining clean connections is necessary to to avoid inaccurate measurement results.
More information about cleaning can be found on the following pages.

SENSOR CONNECTION



Test of sensor functionality:

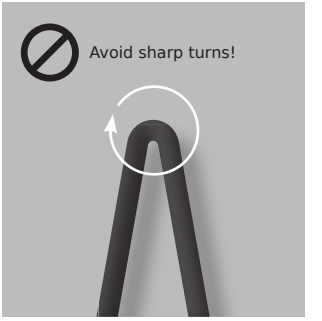
To test the functionality of the sensor, you can place the sensor into a test liquid maintained at a known temperature.
The sensor will respond with the given temperature within a few seconds.
The FOTEMP instrument will display the values and submit the results to the PC.

If the software does not display temperature, please re-install the software and check if the sensor has good contact to the measuring object.
Our technical support team is available to help you by email or telephone.

SENSOR HANDLING

General advise

Bending radius:
Fibers with a core diameter
of 200µm have a
short time (≤10min) bending radius
of 10,0mm applies;
long time (>10min) bending radius
of 27,0mm.



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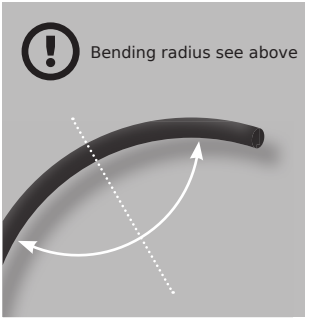
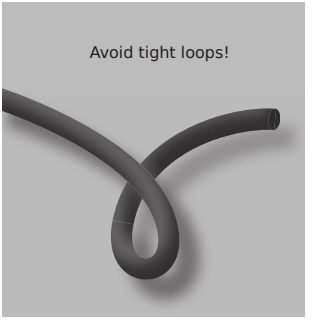
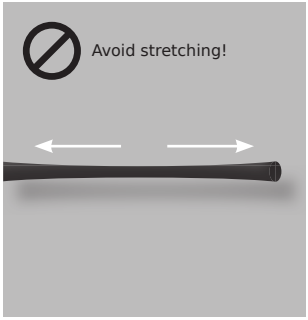
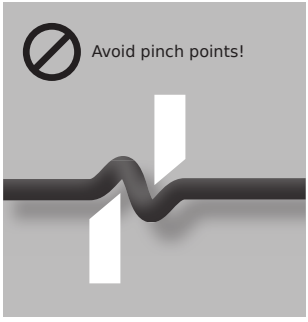




SENSOR HANDLING

↓ Mechanical load





Storage:
When not in use, the senosr should be carefully stored in its delivery box or suitable storage container to prevent bending or crushing.

TROUBLESHOOTING

Error	Activities
Display is dark	Device connected to power supply? Yes: contact the manufacturer No: see manual Chapter " Start-up".
Device not showing the sensor readings	Sensors connected? Yes: contact the manufacturer No: see manual Chapter " Start-up".
Display: „“SP.LOW“	No sensor connected or Sensor has a defect. Connect the Sensor or contact the manufacturer
Display „OFF“	Channel deactivated. Activate the channel using the software.
Irrational readings displayed	Contact the manufacturer
No PC communication	Use software in other languages: http://www.optocon.de/support/downloads-fotemp/
Other errors/disturbances	Contact the manufacturer

WEIDMANN

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