FOTEMP1 Handheld

is a mobile 1 channel-optical fiber thermometer used for measuring temperature in an environment with high electromagnetic interference, or with the presence of high power microwave fields. It can also be used in places where measurement with an electric temperature probe is not possible.

With the FOTEMP1 Handheld you are able to operate a comfortable and safe temperature measurement, even in difficult situations, with an overwhelming aggregated system accuracy of ± 0.2°C.

Via the serial connector type of the instrument, by using the delivered software, is it possible to do a great monitoring about the results.

FOTEMP1 Handheld is a compact, user-friendly, and easy to operate instrument for many fields of application, e.g.:

- Medical engineering such as nuclear spin tomography
- High Frequency heating processes
- Microwave power heating processes
- Electric motors
- Generators and transformers
- Aeronautical engineering
- Chemistry and petro chemistry

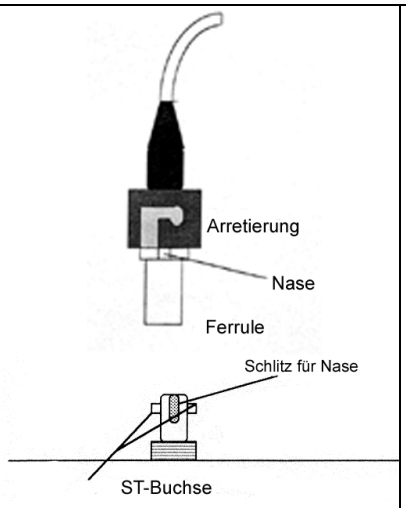
Starting up

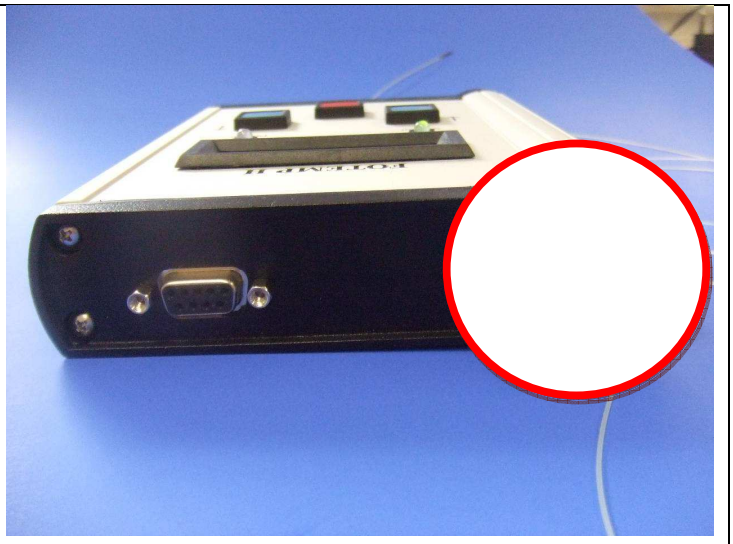
1. Plug the provided optical fiber temperature probes to the ST-socket on the instrument.
2. Connect the provided RS-232 interface cable between the instrument and a free serial port of a PC or Notebook
3. Connect the instrument in stationary status just with the delivered power pack, which is also recharging the integrated accumulator. Turn the power switch to the “ON” position.
4. While using the device en route, turn the power switch to the “ON” position.
5. In approximately 2 seconds, the display will show „ --,-C “, then the temperature of each channel will come up in sequence.
6. The instrument is ready for temperature measurement.

When temperatures probes are connected the instrument will show the temperature at each end of the probe and the LED signalizes acceptance by flashing green. In case of no sensor is connected the display will show „ --,-C“ and the LED in the front flashes red.

Connection of the optical fiber temperature probes

The ST plugs of the temperature probes on the top are connected to the ST at the top of the instrument. Insert each plug socket into a corresponding socket, push against the spring pressure and rotate clockwise into the locked position.



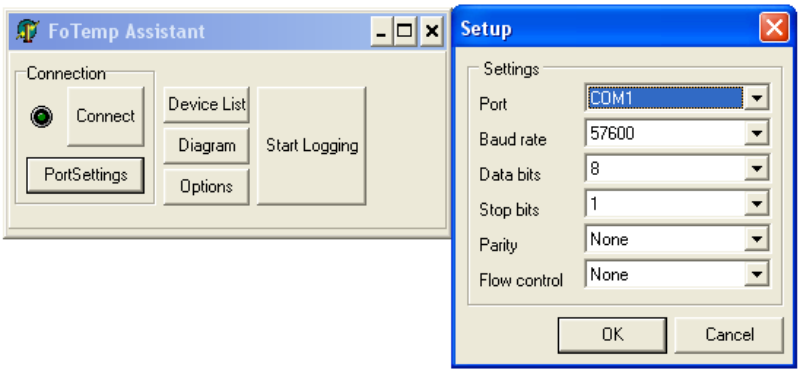


Software installation

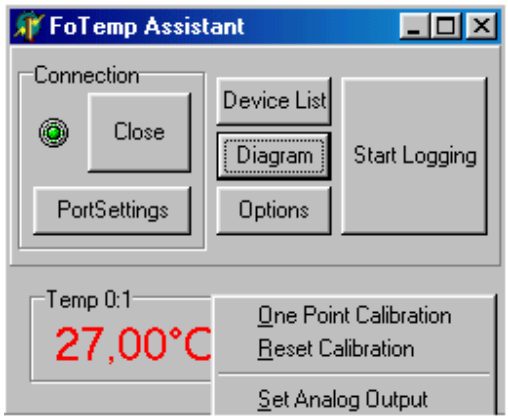
The delivered Software “FoTempMKT” establishes the connection to the FOTEMP device, displays the measured temperatures graphically and writes them to a logfile, if needed.
For installation simply copy the file „FOTEMPMKT.EXE“ to a local harddisk folder and start the program.

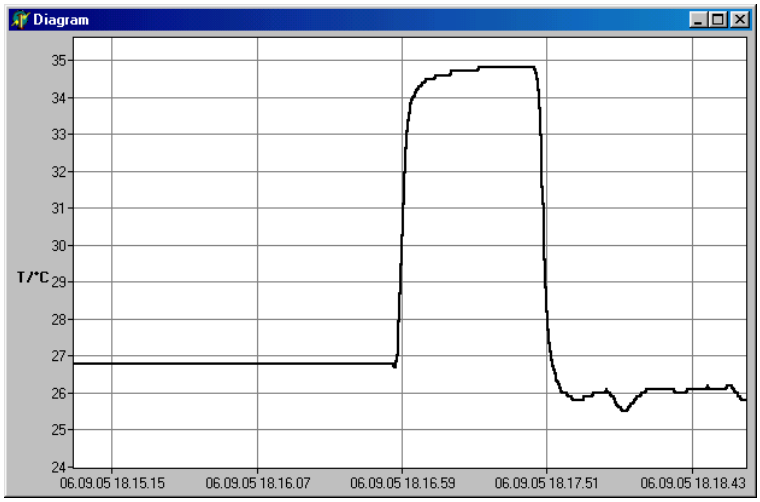
General Usage:

Before establishing the first connection, please check whether the FOTEMP device is connected to the power supply and the PC via the RS232 cable respectively.
Furthermore the COM port and connection settings should be set correctly (button “Portsettings”).
Required COM port settings: Baudrate: 57600; data bits:8; stop bits: 1; no parity, no flow control

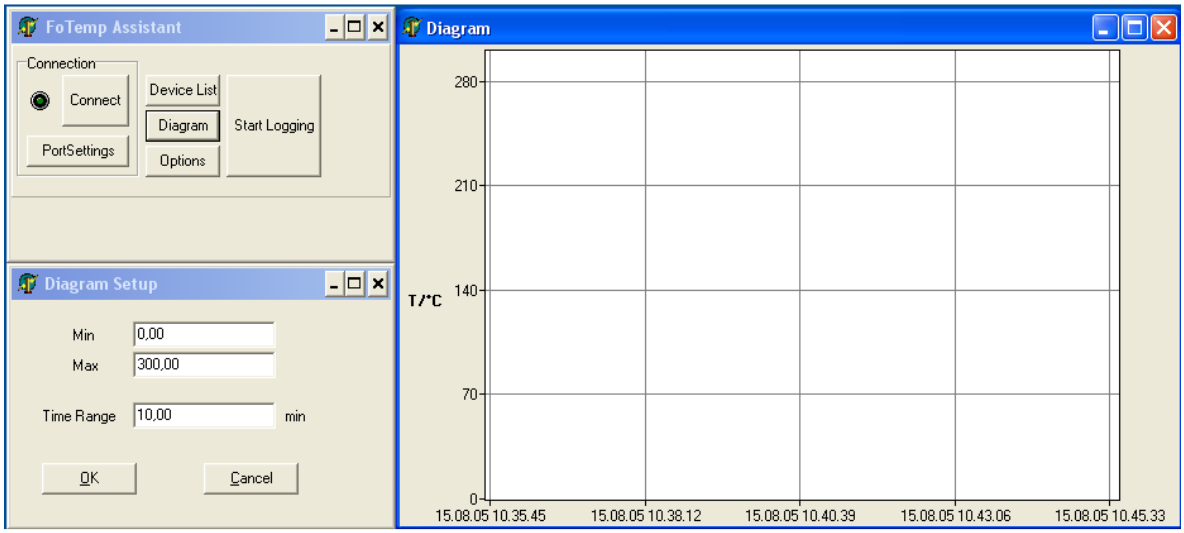


Press “Connect“ Button: all connected devices should create a temperature display after a short while. If an error occurs during the measurement (e.g. no probe applied) the associated panel will display “--,--°C” and the LED flashes red.

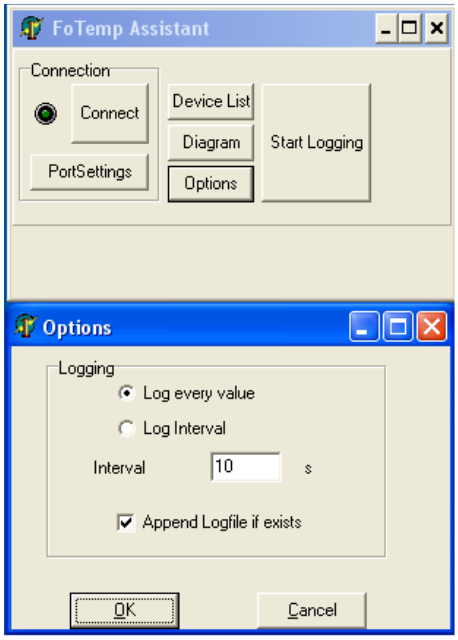




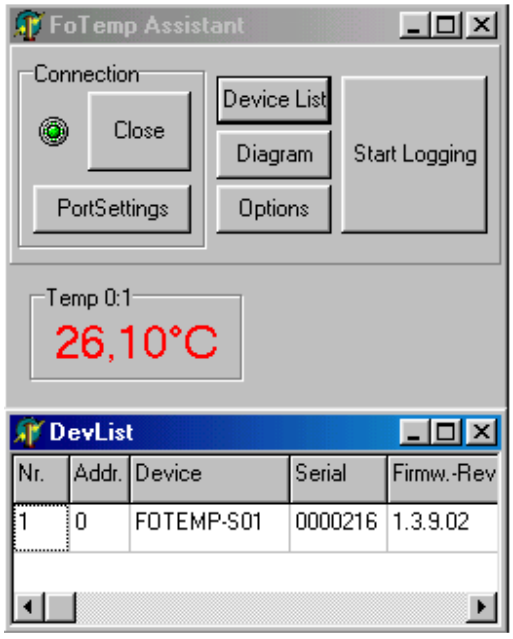
The diagram window with the temperature plot(s) may be hidden/displayed by clicking the “Diagram“ button.
Doubleclick on the diagram window pops up a dialog by which the featured window can be adjusted (min/max temperature, time range in minutes).



Clicking “Start Logging“ and choosing the log-files activates the logging of the measured data. The Logfile holds the data formatted in columns for date/time and temperature values of all channels.
By clicking “Options” the log interval can be selected.



“Device List“: some information about the connected device(s) is shown.



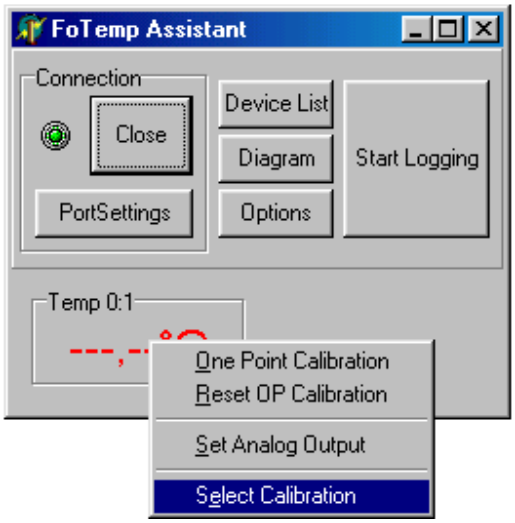
You can choose between two different calibration data:

Calibration 1:
Contains the data of Sensors TS3 S/N A690 – A693 (channel 1-4)

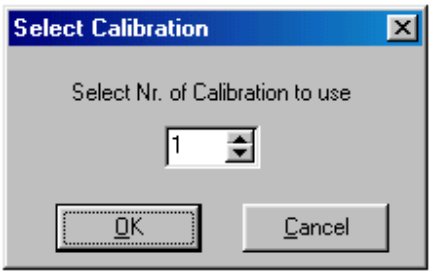
Calibration 2:
Contains the data of Sensors TN4 (NANO) S/N 300 – 303 (channel 1-4)

To Do:

Right-Click to the channel.



select: „Select Calibration“

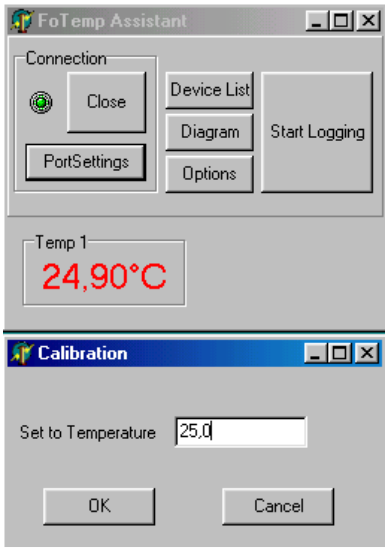


Switch Calibration 1 to 2, Enter „OK“

You must switch every channel separately!

One point calibration

If a slight deviation between real and displayed temperature is encountered, it is possible to eliminate the difference by one point calibration at a well known temperature.
Click with the right mouse button on the temperature panel which shall be adjusted. A context menu appears – select “one point calibration”, enter the real temperature and click “OK”. The device should now display the correct temperature.
One point calibration can be made undone at any time selecting „reset calibration“ from the context menu.



One point calibration can be made undone at any time selecting „reset calibration“ from the context menu.

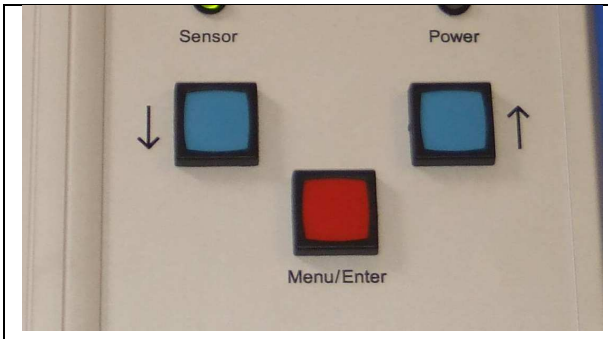
Save and Print the temperature curves

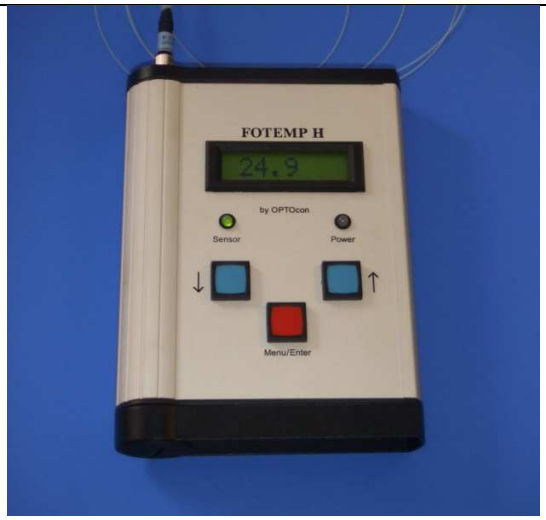
To save the temperature curves, press “Window”, then “Save to Bitmap”.
To print the temperature curves, press “Window”, then “Print”.
The function “copy to clipboard”, copy the screenshot in the clipboard.

Setting possibilities

The FOTEMP-service provides a keyboard devided into three parts. All of the functions, e.g. one point calibration, could be arranged by the software. By pressing the middle button “Menu/Enter” leads to the menu. The navigation could be handled with the buttons “Arrow up” and “Arrow down”. The selection can be affirmed by the middle button. The data can be changed by the buttons “Arrow up” and “Arrow down”. Affirmation of the data with middle button “Menu/Enter”. To leave the menu chooses the menu point “Quit” und affirm with the middle button.

Keyboard





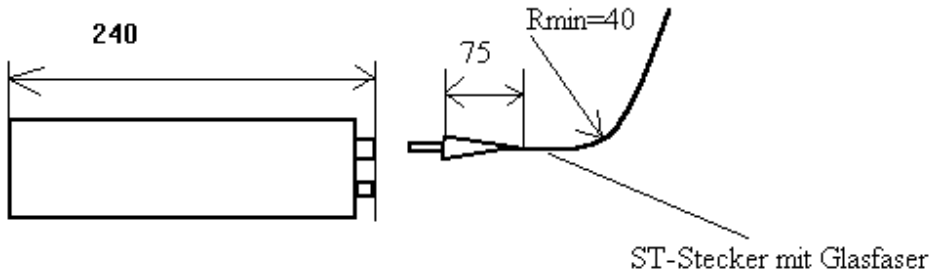
Technical data

Instrument:

Number of channels:	4
Power Requirements:	9 VDC, power pack included
Current:	1,5 A
Display range:	0 to 300°C
Accuracy:	± 0.2°C
Resolution:	0,1°C
Communication:	RS-232
Display:	LCD display 1x8 digits, background lighting
Storage temperature:	-20°C to +50°C
Operating temperature:	0°C to +40°C

Probe:

Accuracy:	± 0.2°C
Length:	2m, 5m or 10 m, different probe lengths and configurations on request
Diameter:	1,3 mm (probe tip 2cm, OD 1,7mm), totally made of nonmetallic material
Time constant:	< 1°C in case auf temperature-fluctuations
Temperature range (probe):	0°C to 300°C
Connector:	ST-Connector
System-accuracy (Instrument and probe):	± 2°C in the temperature range 0°C - 300°C
Calibration:	One-point temperature calibration by the user possible
	Accuracy close to the calibration point is ± 0,1°C



Maintenance

To achieve an accuracy and reliability as high as possible, it is recommended to clean the optical fiber probes and the ST-connectors with isopropanol before changing the sensor. Otherwise dust particles could influence the measurement.
Once in a while the inner surface of the plug socket should be cleaned in this way.

Warranty

OPTOcon offers a three-year warranty on the performance of the optical fiber temperature measuring instrument FOTEMP4 if it is operated by an expert personnel.
The optical fiber probes are not covered by this warranty.

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