

Accurate temperature measurements and precise temperature control in the IVF lab are essential for achieving optimal results

# METRUM 2

## Dual Channel Digital Thermometer

Designed to meet the complete spectrum of temperature measurement requirements in IVF clinics and research laboratories



# METRUM 2

## Dual Channel Digital Thermometer

### Precision embryology needs precision tools

Discover the future of precise temperature measurement with the Metrum 2 Dual Channel Digital Thermometer.

This advanced device combines cutting-edge technology with an array of features to meet various applications' diverse temperature monitoring needs.

Whether you're in an IVF Clinic, laboratory, medical facility, research environment, manufacturing, or process control the Metrum 2 Thermometer is the ultimate solution for accurate and efficient temperature analysis.

The thermometer has a dedicated sensing channel for T-Type Thermocouple sensors and another for PT100 RTD sensors. Each channel can hold up to 10 calibration configurations. This feature enables the use of 20 distinct temperature sensors with the thermometer.

This extensive range of choices ensures that you can easily find the optimal solution to meet your precise requirements.



#### High Accuracy

Temperature accuracy  $\pm 0.03^{\circ}\text{C}$  for both channels in the physiological range



#### Dual Channel

Dual channel temperature measurement



#### Multiple Sensors

Integrate up to 10 sensor probes per channel



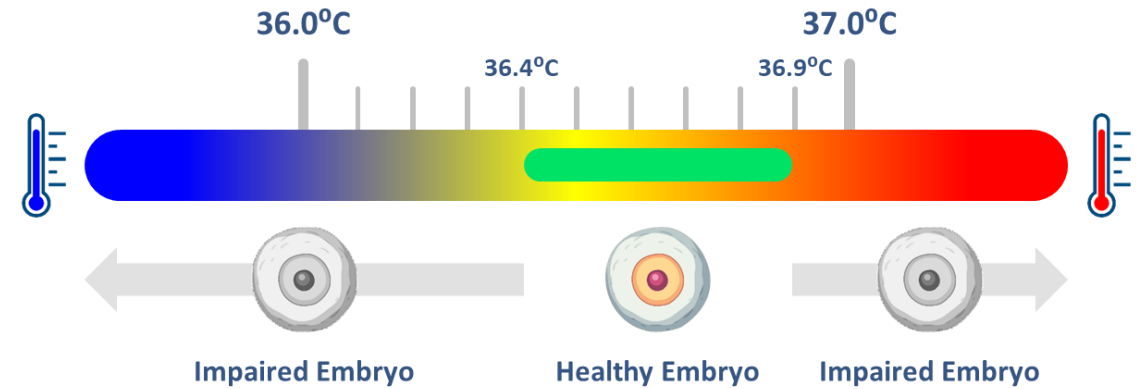
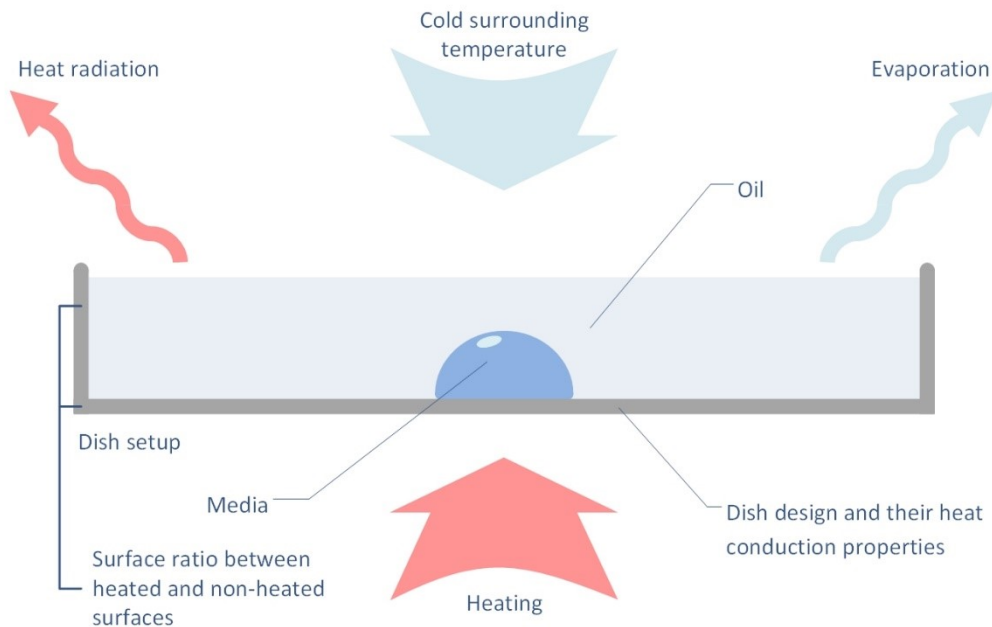
#### Desktop Software

Real time data viewing on PC

CE IEC/EN 61010 IEC/EN 61326

# Accurate temperature measurements and precise temperature control in the IVF lab are essential for achieving optimal results

Controlling the temperature of media in Petri dishes during manipulation remains challenging despite the application of heated surfaces. Simply measuring the temperature of heated surfaces is inadequate, given that media temperatures are influenced by the interplay between both heated and non-heated surfaces, along with variables such as the temperature of heated and non-heated surfaces, their ratios, evaporation, heat radiation, heat transfer, dish design, and dish setup collectively contribute to the complexities affecting media temperatures.



- Negative effect on meiotic spindle stability.
- Reduced fertilization rates, delayed embryo development.
- Expression of stress response genes.
- Conformation changes in molecules and structures.

***“ Ideal ” Temperature > 36.4°C and < 36.9°C***

The temperature measurement of media in Petri dishes positioned on heated surfaces is additionally complicated by the specific method of temperature assessment. The characteristics of certain temperature probes frequently employed in laboratories can impact their appropriateness for the diverse temperature measurements needed in this context.



# Metrum 2 Thermometer Features

- Dual-channel temperature measurement.
- Each sensing channel can be configured to operate 10 distinct types of T-Type thermocouples and PT100 RTD sensors.
- Temperature display Celsius/Fahrenheit.
- Ambient temperature measurement.
- Displays Minimum, Maximum, or Average temperature.
- Hold function.
- High and low alarms for rapid detection of temperatures outside the limits.
- Date and time display.
- Lasts up to 200 hours on a single charge.
- Powerful 3450 mAh rechargeable Lithium-ion battery.
- Ability to power via USB (Adaptor included).
- Adjustable auto power-off function.
- Battery life indicator.
- USB connectivity to monitor/analyze temperature on PC.



***“Designed and engineered for accuracy and reliable results every time ....”***

# One device with multiple temperature sensor probes



ICSI Dish Sensor Probe  
with a thin needle probe



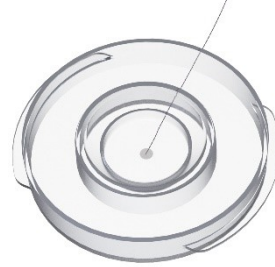
Single Well Dish Sensor Probe  
with a thin needle probe



Five Well Dish Sensor Probe  
with a thin needle probe



ICSI Dish Sensor Probe with  
thin flexible probe



Single Well Dish Sensor Probe  
with thin flexible probe



Five Well Dish Sensor Probe  
with thin flexible probe



Needle Sensor Probe



Needle Probe Stand



Thin Needle Sensor Probe



Thin Flexible Sensor Probe



Probe Stand for thin needle  
sensor, thin flexible sensor,  
and ultra-fine flexible



Surface Sensor Probe



Flexible Surface Sensor Probe



Cryo Tank Sensor Probe



Fridge/ Freezer Sensor  
Probe



Blood Cassette Sensor  
Probe

*Designed to meet the  
complete spectrum of  
temperature measurement  
requirements in IVF clinics and  
research laboratories*

## Temperature Measurement and Calibration with Petri Dish Sensor Probes

# Measuring the temperature of media and oil in a Petri dish with an integrated thin needle sensor probe

These dishes are specifically designed to emulate laboratory operational conditions, offering the capability to be filled with culture media and oil. This replication mirrors real scenarios for temperature measurements. By measuring the temperature at the center of the dish, adjustments to the heating system set point can be made to achieve the desired temperature at the central point under authentic operational conditions. The Petri dish probes are further categorized based on the type of measurement they can be utilized for.

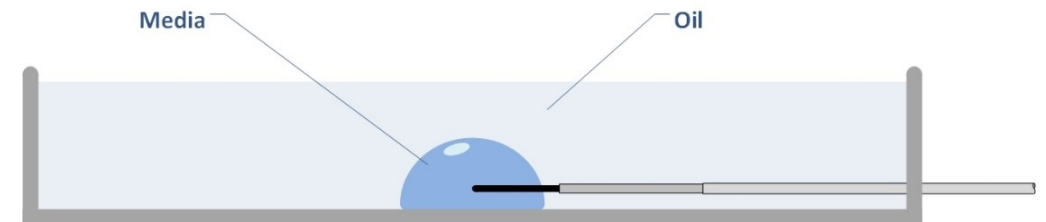
By eliminating manual positioning of measuring equipment, these probes efficiently mitigate potential complications and interferences, substantially reducing errors and inconsistencies inherent in the measuring process.

- The needle tip of the sensor probe is positioned 1mm above the bottom surface of the Petri dish without making contact with the bottom of the Petri dish.



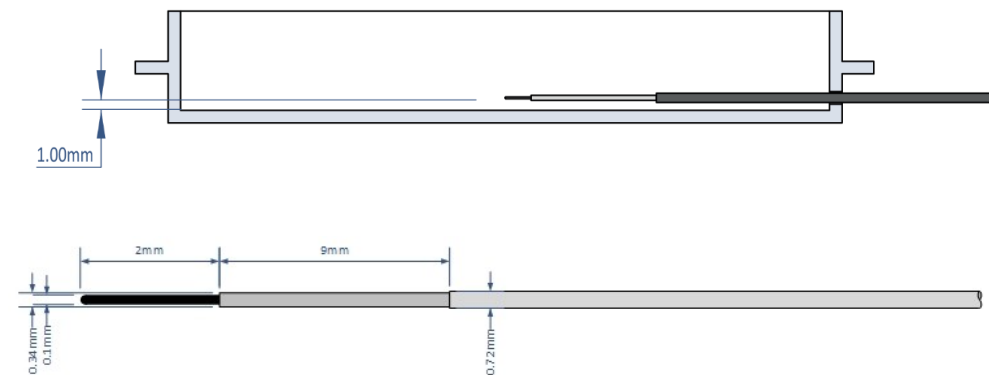
ITNDL-M-MPN (M: Manufacture name, MPN: Manufacturer part number)

- Allows direct measurement of the culture media in a Petri dish with oil.
- The sensor probes are securely adhered to the dish using clear, medical-grade glue.
- Seamless integration of sensor probes with Petri dishes from any manufacturer.
- Ultra-fast response time for quick readings.
- For accurate, easy, and consistent temperature measurements of media and oil during operations inside benchtop incubators.
- The thin flexible sensor probe wire enables the dish probe to conduct measurements within benchtop incubators with the incubator compartment lid closed.
- Effortless cleaning with the optional Ultrasonic cleaner.



# ITNDL Petri Dish Sensor Probe Specification

|                 |                                                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------|
| ITNDL-M-MPN     | Petri dish with integrated thin needle sensor probe                                                                   |
| Sensor type     | T-Type thermocouple                                                                                                   |
| Dimensions      | Sensor tip $\varnothing = 0.1\text{mm}$ ; sensor tip length = 2mm;<br>cable length = 1500mm; cable thickness = 0.72mm |
| Measuring range | -50°C to +200°C                                                                                                       |
| Accuracy        | $\pm 0.03^\circ\text{C}$ in the physiological range                                                                   |
| Response time   | 0.13s to 0.25s                                                                                                        |



Labware Manufacturers ➡ • BIRR • Nunc • Oosafe • VitroLife • Astec • Falcon

*“Integrated petri dish probes guarantee precise and stable temperature control under actual laboratory conditions.....”*

## Temperature Measurement and Calibration with Petri Dish Sensor Probes

# Measuring the bottom surface temperature of a Petri dish containing oil with an integrated thin flexible sensor probe

These dishes are specifically designed to emulate laboratory operational conditions, offering the capability to be filled with oil. This replication mirrors real scenarios for temperature measurements. By measuring the temperature at the center bottom surface of the dish, adjustments to the heating system set point can be made to achieve the desired temperature at the central point under authentic operational conditions.

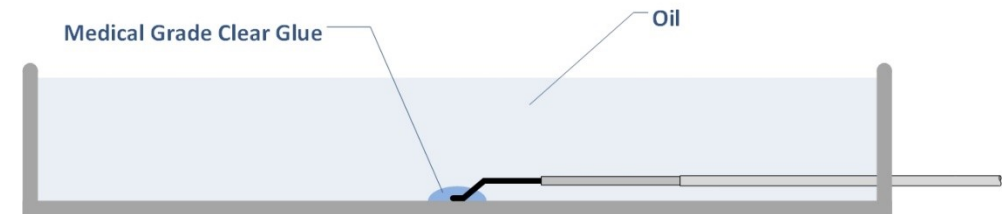
By eliminating manual positioning of measuring equipment, these probes efficiently mitigate potential complications and interferences, substantially reducing errors and inconsistencies inherent in the measuring process.

- The sensor probe's tip is securely bonded to the bottom surface using clear, medical-grade glue, enabling precise temperature measurements directly from the center of the Petri dish's bottom surface.

- The thin flexible sensor probe wire enables the dish probe to conduct measurements within benchtop incubators with the incubator compartment lid closed.
- The temperature setpoint for the incubator compartment can be adjusted to achieve the desired temperature at the center within the oil-filled dish, replicating real operational conditions.
- Ideal for heat mapping on heated glass stages and heated worksurfaces.
- Seamless integration of sensor probes with Petri dishes from any manufacturer.
- Ultra-fast response time for quick readings.
- Effortless cleaning with the optional Ultrasonic cleaner.



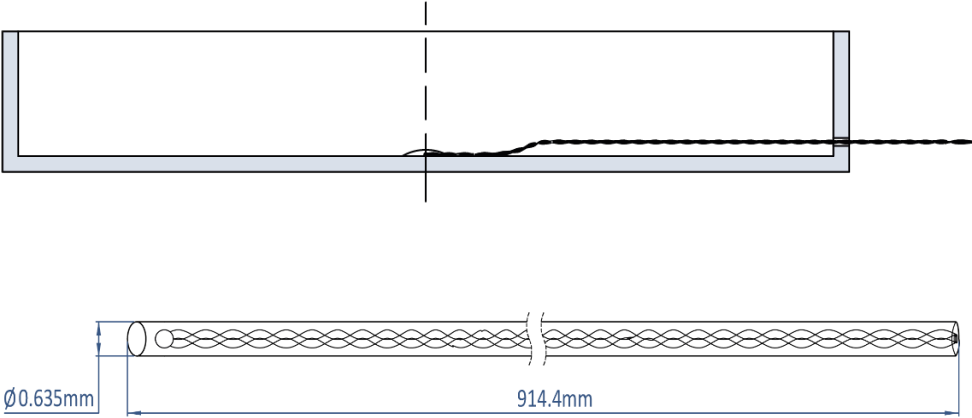
IUFT-M-MPN (M: Manufacture name, MPN: Manufacturer part number)





# IUFT Petri Dish Sensor Probe Specification

| IUFT-M-MPN      | Petri dish with integrated thin flexible sensor probe                                       |
|-----------------|---------------------------------------------------------------------------------------------|
| Sensor type     | T-Type thermocouple                                                                         |
| Dimensions      | Sensor tip $\varnothing = 0.635\text{mm}$ ; cable length = 910mm; cable thickness = 0.635mm |
| Measuring range | -100°C to +150°C                                                                            |
| Accuracy        | $\pm 0.03^\circ\text{C}$ in the physiological range                                         |
| Response time   | 0.5s to 1s                                                                                  |



Labware Manufacturers ➡ • BIRR • Nunc • Oosafe • VitroLife • Astec • Falcon

*“Integrated petri dish probes guarantee precise and stable temperature control under actual laboratory conditions.....”*



# Measuring temperature in incubators (time-lapse and benchtop)

Accurate temperature measurement within incubators, including time-lapse models, is essential for optimal operational conditions. The probe must exhibit flexibility and thinness to navigate small openings while allowing for the closure of benchtop incubator lids, ensuring uninterrupted incubator functionality.

- **Time-Lapse Incubators**

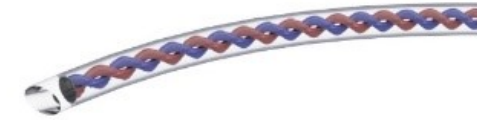
The thin flexible sensor probe wire and Ø 0.635mm sensor tip allow temperature measurements in time-lapse incubators such as the VitroLife Embryoscope.

- **Benchtop Incubators**

The thin flexible sensor probe wire enables temperature measurements within benchtop incubators with the incubator compartment lid closed.

Measure the surface temperature of both the bottom and top surfaces of the benchtop incubator chamber.

- UFT is a high-accuracy 21-gauge sensor insulated with Teflon.
- Ultra-fast response time for quick readings.



UFT (Ø 0.635mm)

**Incubator Manufacturers**



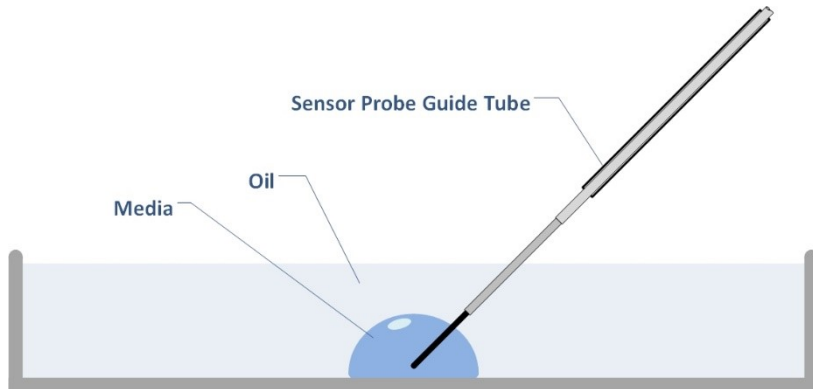
- Planer
- VitroLife
- K-Systems
- Esco
- Cook Medical
- Astec

## Temperature Measurement and Calibration with Thin Flexible Sensor Probe

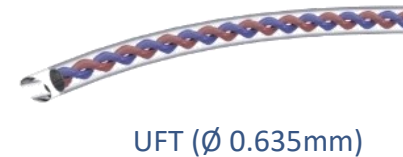
# Measuring liquid temperature in Petri dishes and test tubes

Ensuring the correct temperature inside culture media immersed in oil is crucial for IVF outcomes. Consistency in sensor probe placement also plays a critical role, maintaining a uniform approach is essential. The probe holder plays a vital role by securing the probe placement, and ensuring it is immersed in the media droplet.

- The thin flexible sensor probe with the probe guide tube and probe holder, provides flexibility to direct the sensor probe towards the media droplet in oil manually in Petri dishes.
- The probe is suitable for measuring liquid temperatures in Petri dishes placed on heated glass stages, work surfaces, and directly within test tubes.
- Ideal for heat mapping on heated glass stages, heated worksurfaces, and within Petri dishes.



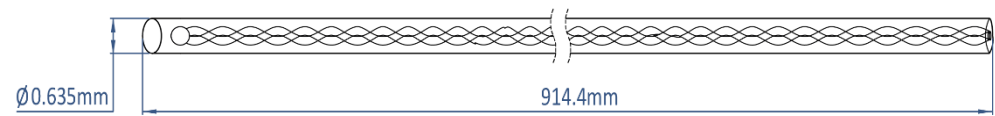
- Sensor probe holder with guide tube is designed to secure the probe in position.
- UFT is a high-accuracy 21-gauge sensor insulated with Teflon.
- Ultra-fast response time for quick readings.



*Facilitating consistent probe placement is a crucial factor that affects success rates in IVF*

# UFT Thin Flexible Sensor Probe Specification

| UFT             | Thin flexible sensor probe                                                                  |
|-----------------|---------------------------------------------------------------------------------------------|
| Sensor type     | T-Type thermocouple                                                                         |
| Dimensions      | Sensor tip $\varnothing = 0.635\text{mm}$ ; cable length = 910mm; cable thickness = 0.635mm |
| Measuring range | -100°C to +150°C                                                                            |
| Accuracy        | $\pm 0.03^\circ\text{C}$ in the physiological range                                         |
| Response time   | 0.5s to 1s                                                                                  |



*“ Even small temperature deviations from 37°C can be harmful..... ”*

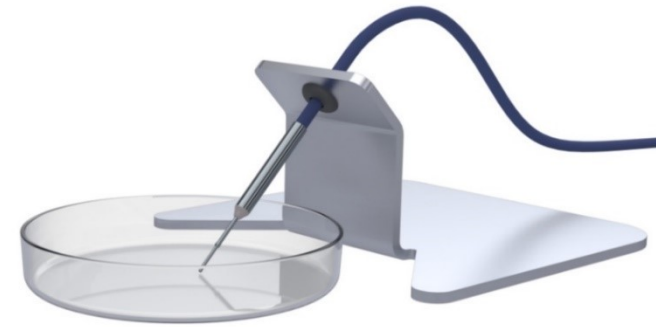
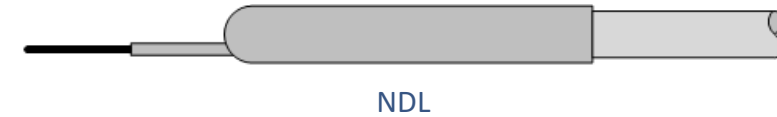


## Temperature Measurement and Calibration with Needle Sensor Probe

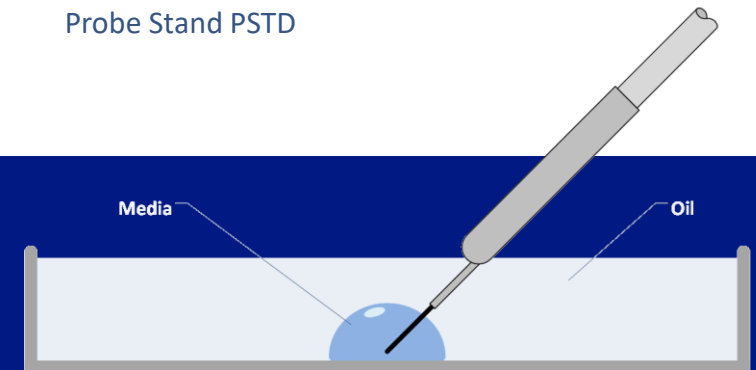
# Measuring liquid temperature in Petri dishes and test tubes

Ensuring the correct temperature inside culture media immersed in oil is crucial for IVF outcomes. Consistency in sensor probe placement also plays a critical role, maintaining a uniform approach is essential. The probe holder plays a vital role by securing the probe placement, and ensuring it is immersed in the media droplet.

- The probe with the probe holder, provides flexibility to direct the sensor probe towards the media droplet in oil manually in Petri dishes.
- The probe is suitable for measuring liquid temperatures in Petri dishes placed on heated glass stages, work surfaces, and directly in test tubes.
- Ideal for heat mapping on heated glass stages, heated worksurfaces, and within Petri dishes.
- Stainless steel shaft and 29-gauge 10 mm long needle tip.
- Sensor probe holder designed to secure the probe in position.
- Ultra-fast response time for quick readings.



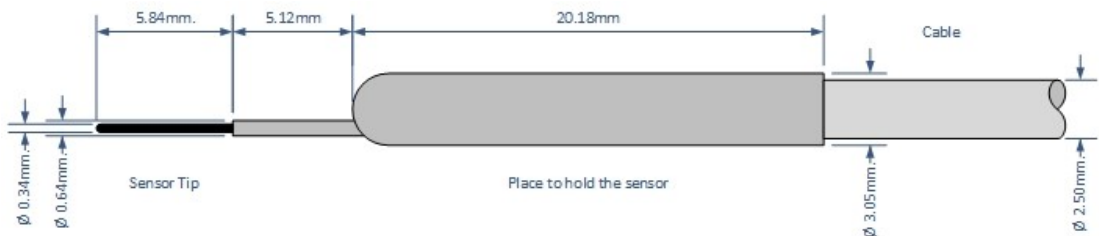
Probe Stand PSTD



***Facilitating consistent probe placement is a crucial factor that affects success rates in IVF***

# NDL Needle Sensor Probe Specification

| NDL             | Needle sensor probe                                                                                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------|
| Sensor type     | T-Type thermocouple                                                                                                    |
| Dimensions      | Sensor tip $\varnothing = 0.34\text{mm}$ ; sensor tip length = 12mm;<br>cable length = 1500mm; cable thickness = 2.5mm |
| Measuring range | -50°C to +200°C                                                                                                        |
| Accuracy        | $\pm 0.03^\circ\text{C}$ in the physiological range                                                                    |
| Response time   | 0.13s to 0.25s                                                                                                         |



*“ Temperature measurements and temperature control during the IVF process are crucial for outcomes ”*

Dr. Lars Johansson - International ART Consultant

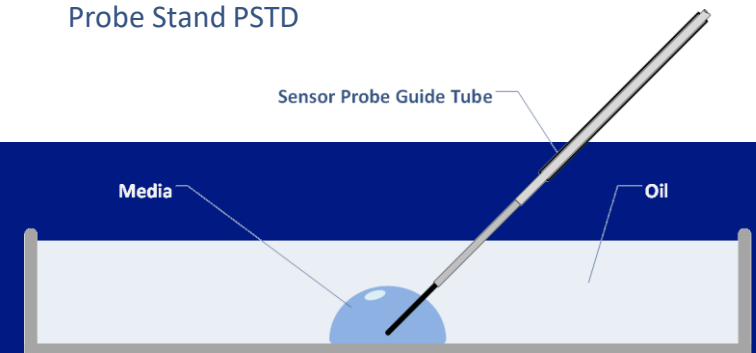
## Temperature Measurement and Calibration with Thin Needle Sensor Probe

# Measuring liquid temperature in Petri dishes and test tubes

Ensuring the correct temperature inside culture media immersed in oil is crucial for IVF outcomes. Consistency in sensor probe placement also plays a critical role, maintaining a uniform approach is essential. The probe holder and guide tube play a vital role by securing probe placement, and ensuring it is immersed in the media droplet.

- The thin needle sensor probe with the probe guide tube and probe holder, provides flexibility to direct the sensor probe towards the media droplet in oil manually in Petri dishes.
- The probe is suitable for measuring liquid temperatures in Petri dishes placed on heated glass stages, work surfaces, and directly within test tubes.
- Ideal for heat mapping on heated glass stages, heated worksurfaces, and within Petri dishes.
- Sensor probe holder with guide tube is designed to secure the probe in position.

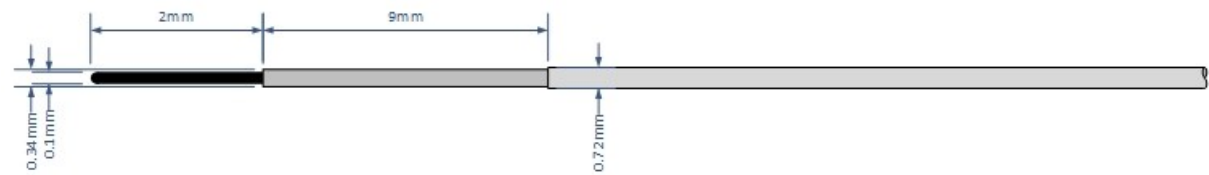
- Ultra-fast response time for quick readings.



***Facilitating consistent probe placement is a crucial factor that affects success rates in IVF***

# TNDL Thin Needle Sensor Probe Specification

| TNDL            | Thin needle sensor probe                                                                                              |
|-----------------|-----------------------------------------------------------------------------------------------------------------------|
| Sensor type     | T-Type thermocouple                                                                                                   |
| Dimensions      | Sensor tip $\varnothing = 0.1\text{mm}$ ; sensor tip length = 2mm;<br>cable length = 1500mm; cable thickness = 0.72mm |
| Measuring range | -50°C to +200°C                                                                                                       |
| Accuracy        | $\pm 0.03^\circ\text{C}$ in the physiological range                                                                   |
| Response time   | 0.13s to 0.25s                                                                                                        |



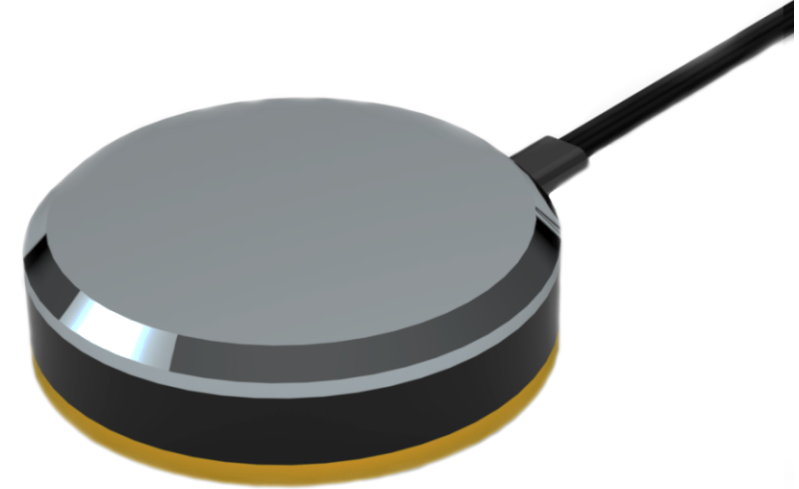
# Measuring surface temperature in heated worksurfaces and benchtop incubator compartment bottom surface

Accurate surface temperature measurement requires a probe with the right size to cover Ø32mm area and sufficient weight to prevent movement. Additionally, it should exhibit excellent thermal conductivity to ensure a quick and responsive temperature reading. The size, weight, and thermal conductivity interplay is critical for precise and efficient surface temperature measurements.

- The probe is well-suited for measuring surface temperatures in both benchtop incubators and on heated surfaces, excluding glass stages.
- Ensuring full contact and preventing unintended movement during measurements, the sensor probe is equipped with sufficient weight.
- Optimal thermal contact is facilitated by the thin copper bottom of the sensor probe.
- A flat extension cable enables the complete closure of the benchtop incubator compartment lid.
- Ideal for heat mapping on heated worksurfaces.

- **Metrum 2 MSA (Multi Sensor Adaptor):**

Simultaneously monitoring of up to 10 heated surface temperatures is achievable by using the Metrum 2 thermometer in combination with the Metrum 2 MSA.



SFC



# SFC Surface Sensor Probe Specification

| SFC             | Surface sensor probe                                                                                     |
|-----------------|----------------------------------------------------------------------------------------------------------|
| Sensor type     | 3 wire PT100 RTD                                                                                         |
| Dimensions      | Sensor disk $\varnothing$ = 32mm; disk height = 8.5mm;<br>cable length = 1000mm; cable thickness = 0.8mm |
| Measuring range | -50°C to +200°C                                                                                          |
| Accuracy        | $\pm 0.03^{\circ}\text{C}$ in the physiological range                                                    |
| Response time   | < 45s                                                                                                    |



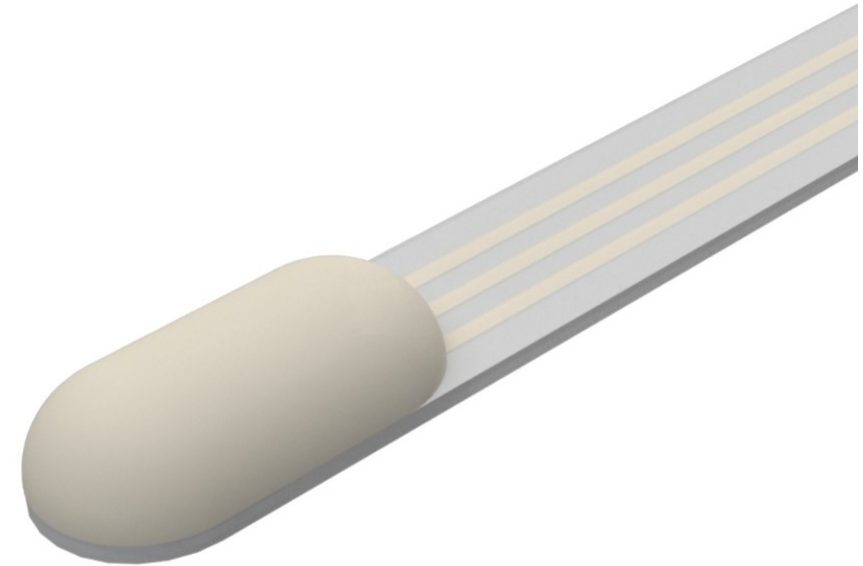
# Measuring surface temperature in heated surfaces and benchtop incubator compartments (top & bottom)

For specific applications demanding versatility and agility, consider a sensor equipped with a flat tip measuring 3mm in width and 1.35mm in thickness. This flexible probe offers rapid response capabilities and low thermal mass, enabling swift readings and maneuverability to access confined or small areas. Such features ensure optimal performance for scenarios where adaptability and quick assessment are paramount

- The probe is well-suited for measuring surface temperatures in benchtop incubators, on heated surfaces, and in glass stages.
- A flat cable enables the complete closure of the benchtop incubator compartment lid.
- Ideal for heat mapping on benchtop incubators, glass stages, and heated worksurfaces
- Ultra-fast response time for quick readings.

- **Metrum 2 MSA (Multi Sensor Adaptor):**

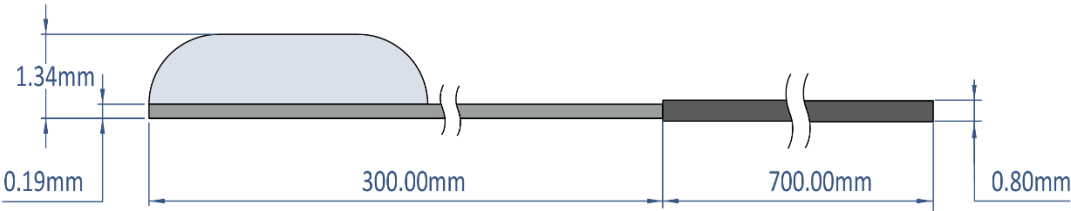
Simultaneously monitoring of up to 10 heated surface temperatures is achievable by using the Metrum 2 thermometer in combination with the Metrum 2 MSA.



FSFC

# FSFC Surface Sensor Probe Specification

| FSFC            | Flexible surface sensor probe                                                                    |
|-----------------|--------------------------------------------------------------------------------------------------|
| Sensor type     | 3 wire PT100 RTD                                                                                 |
| Dimensions      | Sensor width = 3mm; sensor thickness = 1.35mm;<br>cable length = 1000mm; cable thickness = 0.8mm |
| Measuring range | -40°C to +200°C                                                                                  |
| Accuracy        | ±0.03°C in the physiological range                                                               |
| Response time   | 1s                                                                                               |



## Temperature Measurement and Calibration with Cryogenic Sensor Probes

# Measuring temperature in cryo tanks, fridges, and freezers

Cryo tanks with larger structures necessitate longer thin probes, whereas fridge and freezer probes can be shorter. The probe cabling for both scenarios has been meticulously designed to withstand extreme temperatures, ensuring reliable performance in diverse environments.

- Suitable for application in diverse cryogenic storage freezers, refrigeration systems, and cold storage setups.
- Reliable and precise measurement ensured by a high-accuracy PT100 RTD sensor.
- Designed to operate in extreme cryogenic environments.

- **Metrum 2 MSA (Multi Sensor Adaptor)**

Simultaneously monitoring up to 10 cryo tanks, fridges, and freezer temperatures is achievable by using the Metrum 2 thermometer in combination with the Metrum 2 MSA.



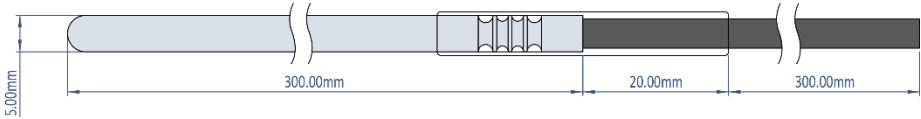
FFP - Fridges/ Freezers



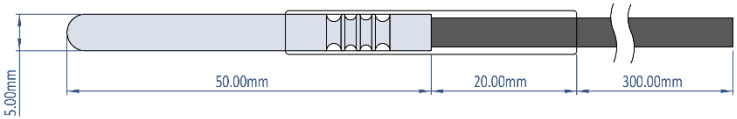
CTP - Cryo Tanks

# CTP and FFP Cryogenic Sensor Probe Specifications

| CTP             | Cryogenic sensor probe for cryo tanks                                                         |
|-----------------|-----------------------------------------------------------------------------------------------|
| Sensor type     | 3 wire PT100 RTD                                                                              |
| Dimensions      | Sensor $\varnothing$ = 5mm; sensor length = 300mm; cable length = 3m; cable thickness = 3.5mm |
| Measuring range | -200°C to +200°C                                                                              |
| Accuracy        | $\pm 0.1^{\circ}\text{C}$ @ $0^{\circ}\text{C}$                                               |
| Response time   | <60s                                                                                          |



| FFP             | Cryogenic sensor probe for fridges and freezers                                              |
|-----------------|----------------------------------------------------------------------------------------------|
| Sensor type     | 3 wire PT100 RTD                                                                             |
| Dimensions      | Sensor $\varnothing$ = 5mm; sensor length = 50mm; cable length = 3m; cable thickness = 3.5mm |
| Measuring range | -200°C to +200°C                                                                             |
| Accuracy        | $\pm 0.1^{\circ}\text{C}$ @ $0^{\circ}\text{C}$                                              |
| Response time   | <60s                                                                                         |





# Measuring temperature in blood cassettes

In cryopreservation scenarios where cryo freezers are employed for controlled-rate freezing of blood bags within cassettes, the primary sensor predominantly measures the overall freezer temperature.

It is essential to note, however, that the temperature of the blood bags may deviate from that of the freezer. This discrepancy emphasizes the critical need for a specialized sensor to monitor the blood bag's specific temperature conditions.

- Thin flexible patch sensor that can be wedged in between the blood bag and the cassette.
- 0.05°C, High accuracy between -10°C to 10 °C PT100 RTD sensor.
- Designed to operate in extreme cryogenic environments.
- A flexible lead wire that enables the freezer to close securely, preventing any potential leaks.
- Sterilization with Isopropyl alcohol (IPA).
- **Metrum 2 MSA (Multi Sensor Adaptor)**

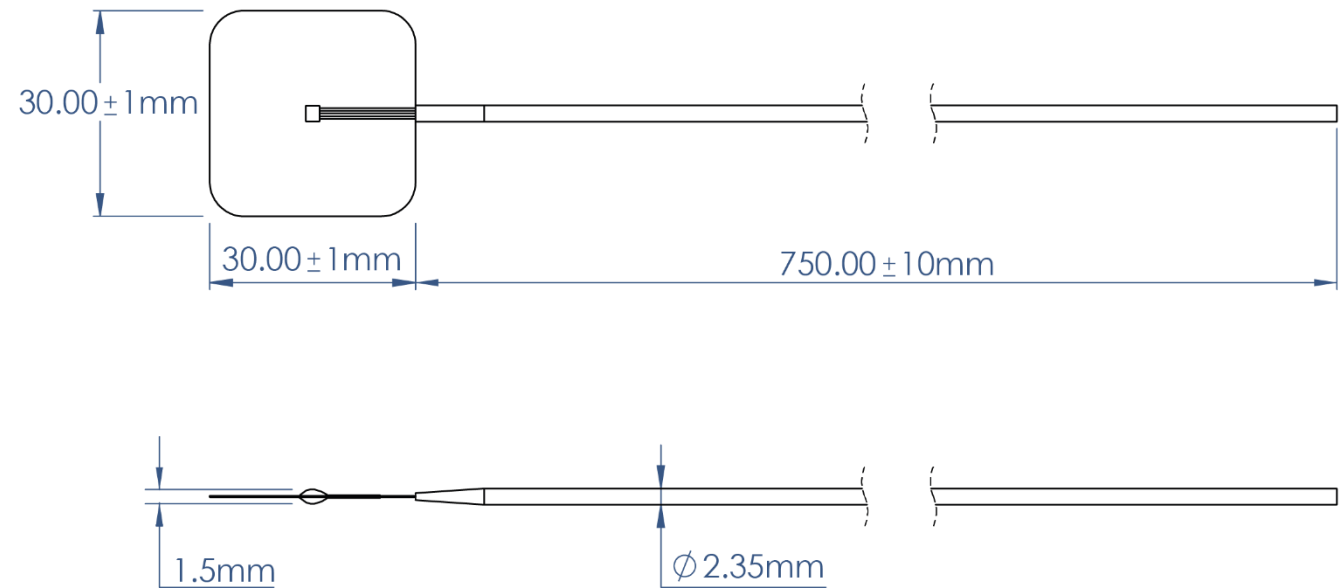
Simultaneously monitoring up to 10 blood cassette temperatures is achievable by using the Metrum 2 thermometer in combination with the Metrum 2 MSA.



BCS

# BCS Blood Cassette Sensor Probe Specification

| BCS             | Blood Cassette Sensor Probe                                                                                                                   |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Sensor type     | 3 wire PT100 RTD                                                                                                                              |
| Dimensions      | Sensor element = 2.1mm x 1.8mm x 1.05mm; Sensor head (rounded square) = 30mm x 30mm x 0.13mm; Cable length = 750mm; Cable thickness = 2.35mm; |
| Measuring range | --180°C to 50°C                                                                                                                               |
| Accuracy        | ±0.05°C between -10°C to 10 °C                                                                                                                |
| Response time   | <30s                                                                                                                                          |



# Sensor Probe Application Matrix

| Sensor Probe Description                | Part Number | Assisted with integrated sensor probes                       |                                                             | Manual                                  |                                        |                                                    |                                                              |                                                               |                       |
|-----------------------------------------|-------------|--------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------|----------------------------------------|----------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------|-----------------------|
|                                         |             | Petri dish surface measurement (Inside & outside incubators) | Petri dish liquid measurement (Inside & outside incubators) | Liquid measurement (Outside incubators) | Liquid measurement (Inside incubators) | Surface measurement (Excluding Heated Glass stage) | Surface measurement (Incubator top, bottom, Heated surfaces) | Incubator/ Time lapse incubator measurement (1.1mm Ø opening) | Test tube measurement |
| Petri dish probe (Thin Needle sensor)   | INDL-M-MPN  |                                                              | ✓                                                           |                                         |                                        |                                                    |                                                              |                                                               |                       |
| Petri dish probe (Thin flexible sensor) | IUFT-M-MPN  | ✓                                                            |                                                             |                                         |                                        |                                                    |                                                              |                                                               |                       |
| Thin flexible probe                     | UFT         |                                                              |                                                             | ✓                                       | ✓                                      |                                                    |                                                              | ✓                                                             | ✓                     |
| Needle probe                            | NDL         |                                                              |                                                             | ✓                                       |                                        |                                                    |                                                              |                                                               | ✓                     |
| Thin needle probe                       | TNDL        |                                                              |                                                             | ✓                                       | ✓                                      |                                                    |                                                              |                                                               | ✓                     |
| Surface probe                           | SFC         |                                                              |                                                             |                                         |                                        | ✓                                                  |                                                              |                                                               |                       |
| Flexible Surface probe                  | FSFC        |                                                              |                                                             |                                         |                                        | ✓                                                  | ✓                                                            |                                                               |                       |

# Custom Temperature Sensor Probes

## Customized Solutions

We offer custom sensor probes designed to meet your specific requirements.

## Industry-Leading Performance

Our capabilities ensure that we can match or surpass the performance of sensor probes from other manufacturers in the industry.

## Precision Engineering

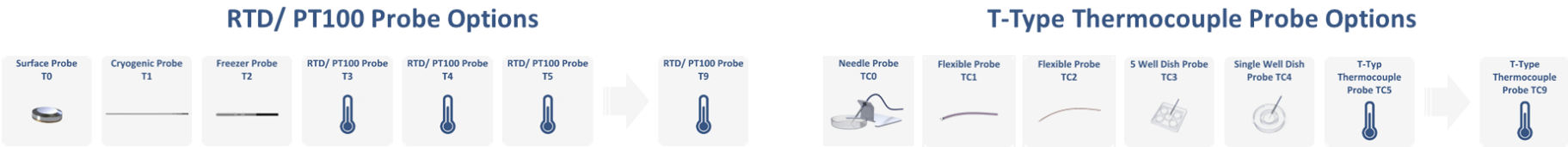
Our expertise in design and engineering ensures the highest level of accuracy.



“ I tested the Metrum 2 thermometer simultaneously with the digital thermometer from Cooper Surgical when I did calibration to my L126 IVF dual workstation from K-Systems with the engineer from Thailand. The results are compatible with both of them. Besides, it’s much cheaper than K-Systems ”

Myat Tha Zin  
Chief Embryologist | Bahosi Fertility Center

# Connect up to 10 x T-Type Thermocouple Sensors and PT100 RTD Sensors



## Limitless Potential

Connect up to 10 different types of Thermocouple sensors and 10 different types of RTD sensors.

## Seamless Interchangeability

Effortlessly switch between various thermocouple sensors and RTD sensors, with calibration values conveniently stored on the device.



*“Designed to meet the complete spectrum of temperature measurement requirements within IVF clinics and research laboratories”*

# Multi Sensor Adaptor Accessory for PT100 RTD Sensor Probes

## Metrum 2 MSA (Multi Sensor Adaptor)

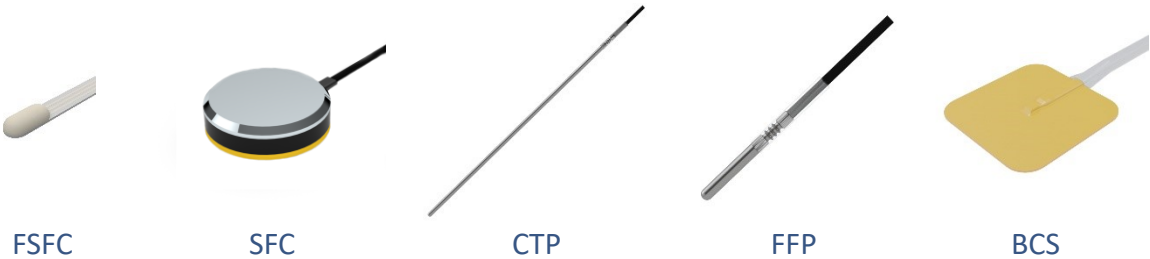
An intricately designed supplementary accessory tailored to enhance the functionality of the Metrum 2 Digital Thermometer, specifically catering to the unique demands of fertility clinics and research laboratories.

The Metrum 2 MSA (+) concurrently captures temperature from up to 10 sensor probes, encompassing surface sensor probes, cryo tank sensor probes, blood cassette sensor probes, and fridge/freezer sensor probes, either individually or in combination.

Through the establishment of a USB connection with the Metrum 2 Digital Thermometer, the Metrum 2 MSA seamlessly integrates into the system. At the same time, a distinct USB link connects to a PC, enabling real-time visualization of data.

Temperature readings are readily available on both the display of the Metrum 2 Digital Thermometer and through specialized PC software.

(+) Metrum 2 MSA can only be used in conjunction with the Metrum 2 Digital Thermometer.





**High Accuracy**  
Temperature accuracy  $\pm 0.03^{\circ}\text{C}$  all channels in the physiological range



**10 Channels**  
10 x PT100, PT1000, and RTD temperature measurement channels



**MicroSD Card**  
Data logging on MicroSD card



**Desktop Software**  
Real-time data viewing on PC real-time



## Metrum 2 MSA (Multi Sensor Adaptor)

# Product Features

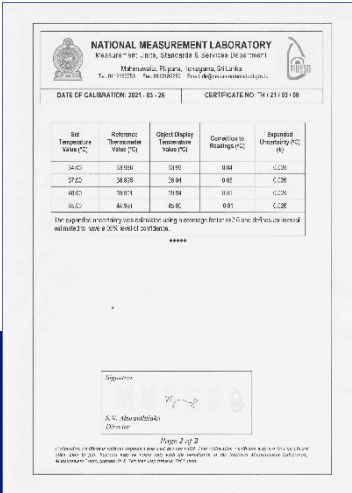
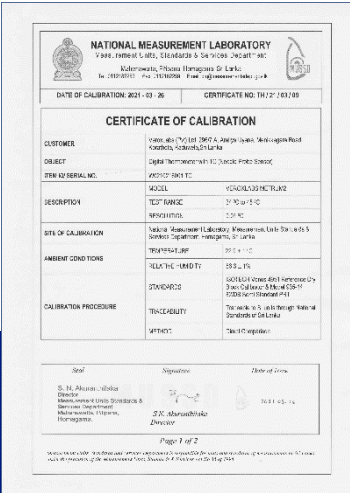


- Simultaneous measurement of up to 10 temperatures.
- Connect a combination of surface sensor probes, cryogenic sensor probes, and blood cassette sensor probes.
- Any type of PT100 RTD with connectors that adhere to industry standards can be used with the Metrum 2 MSA.
- Interface to Metrum 2 Thermometer via Micro USB.
- Temperature display Celsius/Fahrenheit.
- Computes Minimum, Maximum, or Average temperature.
- High and low alarms for rapid detection of temperatures outside the limits.
- Hold function.
- Powered by PC USB or 5V power adaptor.
- LED for Status indication.
- Date and time display.
- Ability to store data on a MicroSD card.
- USB connectivity to monitor/analyze temperature on PC.

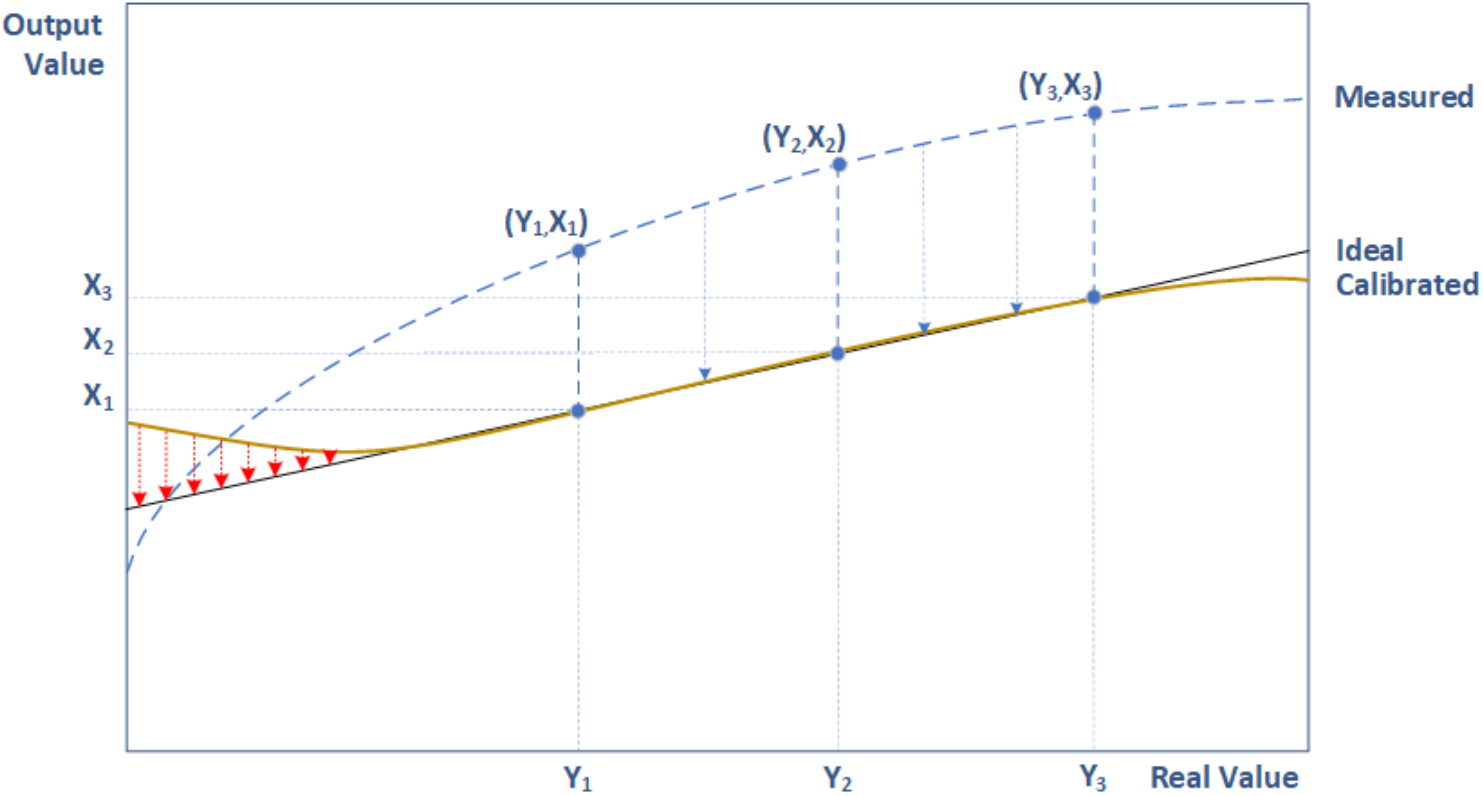
***“ Keeping control of temperature in heated worksurfaces and incubators is crucial for successful IVF treatment .... ”*** - Dr Lars Johansson, ART Consultant

# Calibration

- Inbuilt calibration function eliminates the need to add correction factors during readings.
- Unique calibration algorithm eliminates fluctuations.
- 3 - Point calibration (32°C, 37°C, 40°C) enhances accuracy.
- Traceable calibration certificate included for each sensor probe.



## 3- Point Calibration Effect

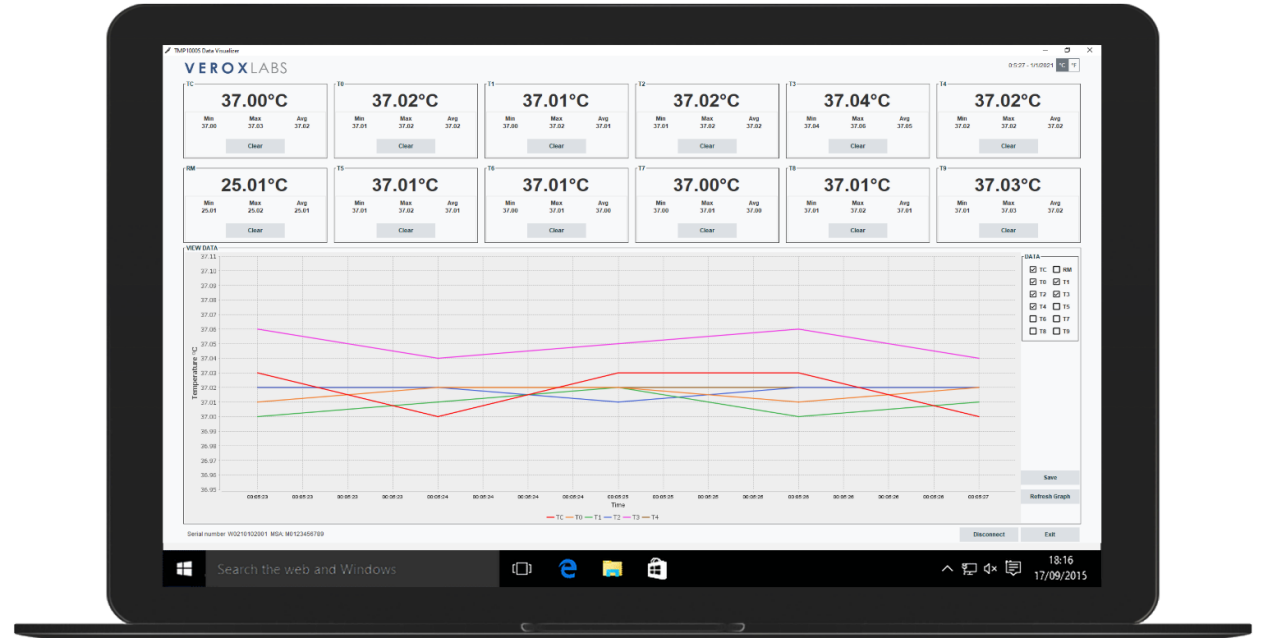


“ We are using Metrum 2 series devices easily and fondly for service purposes. It really makes our job a lot easier ”

Sumeyra Kozak  
International Relations Manager | TEKSERVIS LTD

# PC Software

- Real-time temperature analysis on PC via USB.
- In-depth analysis of data can be performed by zooming in on critical points.
- Able to export graphs from the PC software.
- Able to select channels to view temperature data.
- Data can be saved in CSV or Excel format for later use.



# METRUM 2 Dual Channel Digital Thermometer Specification

## MET2

|                                      |                                            |
|--------------------------------------|--------------------------------------------|
| Operating temperature                | 5°C to 40°C                                |
| Display type                         | Custom LCD                                 |
| Display range                        | -573.32°C to +537.77°C                     |
| Display resolution                   | 0.01°C                                     |
| Temperature resolution               | 0.01°C                                     |
| Connectivity                         | USB                                        |
| Automatic power off                  | Default 5min / adjustable                  |
| Battery type                         | 1 x 3450 mAh Lithium-ion battery           |
| Battery life                         | Approximately 200 hours on full charge (+) |
| Power supply                         | 5V USB (PC/adaptor)                        |
| Dimension (L x W x H)                | 203mm x 66mm x 54 mm                       |
| Net weight                           | 200g                                       |
| Standard warranty                    | 2 Years                                    |
| (+ ) Tested in laboratory conditions |                                            |



# Metrum 2 MSA Product Specification

## MET2-MSA

|                        |                       |
|------------------------|-----------------------|
| Operating temperature  | 5°C to 40°C           |
| Temperature resolution | 0.01°C                |
| Power On/ Off          | Push button switch    |
| Connectivity           | USB                   |
| Power supply           | 5V USB (PC/adaptor)   |
| Dimension (L x W x H)  | 180mm x 140mm x 71 mm |
| Net weight             | 565g                  |
| Standard warranty      | 2 Years               |



“ They have very interesting products, one of which we already ordered and used for some time in the service department with very good results ”

Cornelia Craciun  
Product Manager | ELTA 90 Medical



# Hard Carry Case



Metrum 2 Hard Carry Case



Metrum 2 and Metrum 2 MSA Hard Carry Case

# Ultrasonic Cleaner for Petri Dish Probes



UKC

## Specification

|                      |                                           |
|----------------------|-------------------------------------------|
| Ultrasonic frequency | 43Hz                                      |
| Tank material        | Stainless steel SUS304                    |
| Tank capacity        | 600ml                                     |
| Times                | 5 cycles: 180s - 280s - 380s - 480s - 90s |
| Power supply         | AC100-120V, 60Hz/ AC200-240V, 50Hz        |
| Ultrasonic power     | 35W                                       |
| Tank size            | 150mm x 90mm x 50mm (L x W x H)           |
| Overall size         | 206mm x 145mm x 133mm (L x W x H)         |



# Ordering Information

## Devices

| Order Code | Image                                                                             | Description                                |
|------------|-----------------------------------------------------------------------------------|--------------------------------------------|
| MET2       |  | METRUM 2, Dual Channel Digital Thermometer |
| MET2-MSA   |  | Metrum 2 MSA (Multi Sensor Adaptor)        |

## T-Type Thermocouple Sensor Probes

| Order Code      | Image                                                                             | Description                                           |
|-----------------|-----------------------------------------------------------------------------------|-------------------------------------------------------|
| NDL             |  | Needle sensor probe with stand                        |
| TNDL            |  | Thin needle sensor probe with stand                   |
| UFT             |  | Thin flexible sensor probe with stand                 |
| ITNDL-M-MPN (†) |  | Dish probe with Integrated thin needle sensor probe   |
| IUFT-M-MPN (†)  |  | Dish probe with Integrated thin flexible sensor probe |

- (†) For dish sensor probes,
  - M – Labware manufacturer
  - MPN – Manufacturer Part Number of the Dish
- Contact us to integrate sensor probes into other labware manufacturers.

## PT100 RTD Sensor Probes

| Order Code | Image                                                                               | Description                                                           |
|------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| SFC        |  | Surface sensor probe                                                  |
| FSFC       |  | Flexible surface sensor probe                                         |
| CTP        |  | Cryogenic sensor probe for Cryo Tanks                                 |
| FFP        |  | Cryogenic sensor probe for fridges and freezers with installation kit |
| BCS        |  | Blood cassette sensor probe                                           |

## Labware Manufacturers

| Order Code | Description |
|------------|-------------|
| B          | BIRR        |
| V          | VitroLife   |
| O          | Oosafe      |
| N          | Nunc        |
| A          | Astec       |
| F          | Falcon      |

# Ordering Information

## Accessories

| Order Code | Description                                                    |
|------------|----------------------------------------------------------------|
| PSTD       | Probe stand for needle/ flexible sensor probes                 |
| FFK        | Sensor probe installation kit for fridges and freezers         |
| UCK        | Ultrasonic cleaner                                             |
| CC         | Calibration certificates                                       |
| MSC        | MicroSD card                                                   |
| MPA        | 5V DC power adapter                                            |
| MUC        | Micro USB cable                                                |
| PCS        | PC Software                                                    |
| CCC        | Card board carry case                                          |
| HCS        | Hard carry case small (Metrum 2 thermometer)                   |
| HCL        | Hard carry case large (Metrum 2 thermometer with Metrum 2 MSA) |

In keeping with VeroxLabs policy for continual product development and improvement, we reserve the right to amend

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