

# THERMOTRON-CE

SINCE 1991



## ONE-STOP TEMPERATURE SOLUTIONS

Temperature | Thermowell | Level | Heater |  
Insulation | Calibration



THERMOTRON-CE  
GREENMARK



# CONTENTS

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We go beyond off-the-shelf solutions, providing fully customized products tailored to your specific system design and performance criteria

Our team works closely with you to develop solutions that maximize efficiency, ensure compatibility, and support long-term operational reliability.

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## ABOUT US

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Thermotron-Ce Technology Pte Ltd is a reliable and trusted manufacturer and supplier of specialized temperature control measurement solutions since 1991. Our company manufactures a diverse range of high quality Temperature Sensors. This includes Thermocouples, RTD, Thermistors, Thermo-well, Float level Switches as well as all types of temperature control systems and temperature related products for use in diverse industries.

Our products are known for their reliability, accuracy, responsiveness and durability. Our years of R&D and manufacturing experience translates into the ability to service the most demanding and customized needs of our customers. All products are tested with rigorous quality control prior to making them available to customers. And our expert staff use their specialized expertise to provide and delight our customers with the highest quality products that they have come to expect from Thermotron-Ce.

Our philosophy is to commit to being a customer-driven and customer-focused company that excels in delivering temperature control solutions that meets and/or exceeds our customers' expectations. Our dedicated team of after sales and service staff are committed to ensuring that customers are well taken care of at all times after our products are purchased. As a result of this excellence, we count many large multi-national companies, government owned entities and local companies across different industries and many countries, as happy customers who make many repeat purchases.

Our aim is to maintain a long-term business relationship with all our customers so as to continuously delight them with solutions that meet all their temperature control measurement needs.

# THERMOCOUPLE

It's a sensor using various type of metal creating millivolt to convert reading into temperature.

Many types of Thermocouple can be chosen from starting from the most common and budget type until to the purest metal element. Each with its own unique characteristics in terms of temperature range; durability, vibration resistance, chemical resistance and application compatibility.

Type K, J, T, N & E are "Base Metal" thermocouples, the most common and inexpensive types of thermocouple. They are used in application with temperature ranges -200 to 1350°C.

Type R; S; B & C are "Noble Metal" thermocouples; which are used in high temperature application where temperature range can be from 0 – 1700°C.

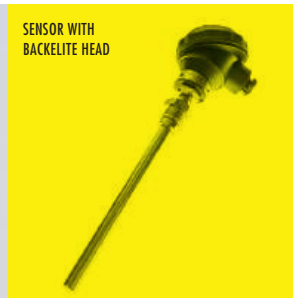


SENSOR WITH CONNECTOR

FITTING SENSOR WITH CONNECTOR



SENSOR WITH BACKLITE HEAD



REMOTE THERMOCOUPLE WITH TEFLON COATING



SENSOR WITH LED HEAD



SENSOR WITH PVC BOX



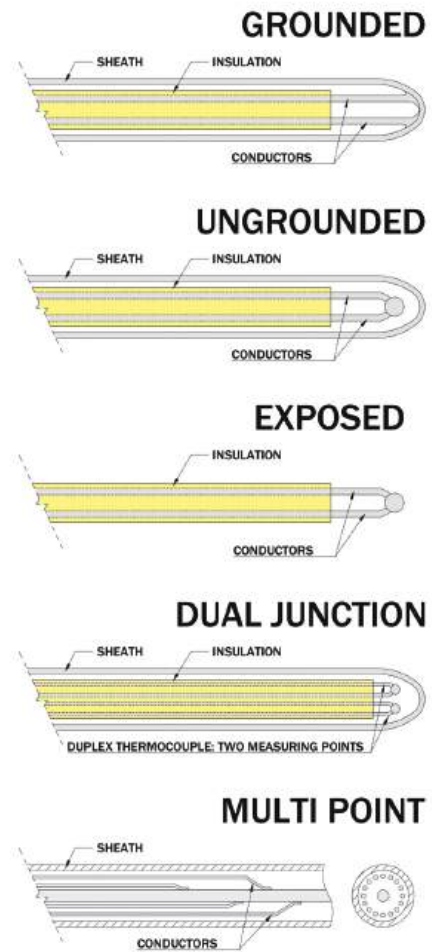
SANITARY SENSOR



# THERMOCOUPLE

## Thermocouple Junction:

- Grounded Junction** = where elements and the sheath are all welded together to form one junction at the probe tip. Very good respond time because of the direct contact with the sheath, allowing heat to transfer easily. The only negative point about this junction is that this junction provide more susceptible to electrical interference as the sheath often comes into contact with the surrounding area, providing a path for interference.
- Ungrounded Junction** = where elements being welded together but they are insulated from the sheath and normally being separated by MGO powder. Although slower to respond than grounded probe, the ungrounded probe offers better resistance to electrical noise and ground loops.
- Exposed Junction** = where elements being welded together and directly exposed out from sheath and directly inserted into the process/products. It allows a very good respond time due to the direct measurement however these thermocouples are more prone to corrosion and degradation.
- Dual Junction** = double elements for dual ungrounded junction thermocouple but each of the elements is insulated from one another.
- Multi-Points Junction** = one probe thermocouple that contains of more than single elements and able to put in the different level for each element.



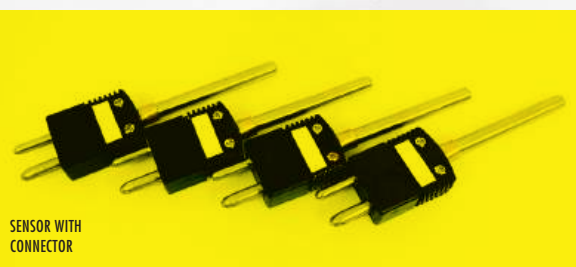
SENSOR WITH BUILD-IN CONNECTOR



SENSOR WITH ADJUSTABLE FITTING



MULTI SENSOR



SENSOR WITH CONNECTOR



SENSOR WITH ADJUSTABLE SOCKET

# RTD (RESISTANCE TEMPERATURE DETECTOR)

## RTD (Resistance Temperature Detector):

It is another model of Temperature Sensor where the measurement using Resistance ( $\text{ohm}/\Omega$ ). RTD element and material designed to give superior temperature measurement and exceptional stability. RTD materials used are Platinum Thin Film Element, Ceramic Bulb and Wire Wound Element.

RTD temperature probes are available in 2, 3 & 4 wire configurations with different accuracy:

- Class A  $\Rightarrow \pm 0.15^\circ\text{C} @ 0^\circ\text{C}$
- Class B  $\Rightarrow \pm 0.30^\circ\text{C} @ 0^\circ\text{C}$
- 1/3Din  $\Rightarrow \pm 0.10^\circ\text{C} @ 0^\circ\text{C}$
- 1/10Din  $\Rightarrow \pm 0.03^\circ\text{C} @ 0^\circ\text{C}$

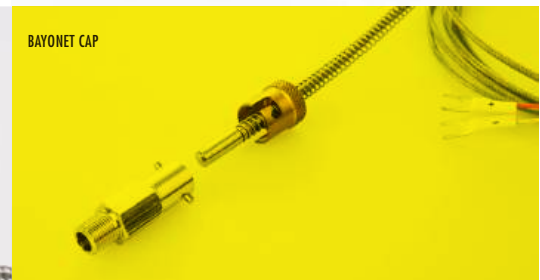
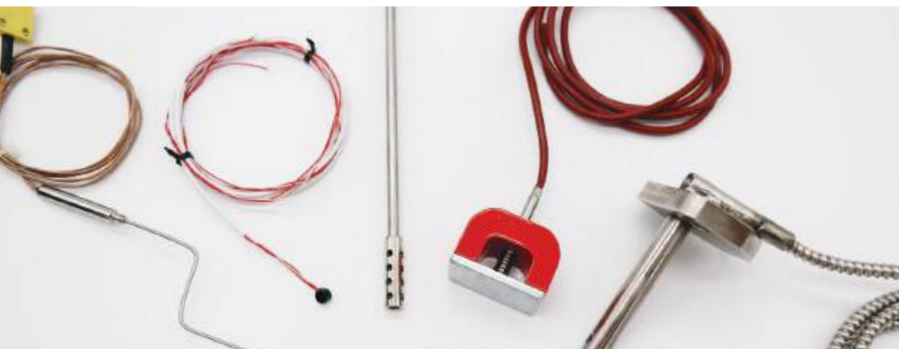
Types Of RTD: 50ohm, 100ohm, 500ohm & 1000ohm.

## Thermistor:

It is electronic devices which detect thermal environmental changes for use in temperature measurement, control and compensation circuitry. Basics of thermistor sensors: NTC (Negative Temperature Coefficient) and PTC (Positive Temperature Coefficient)



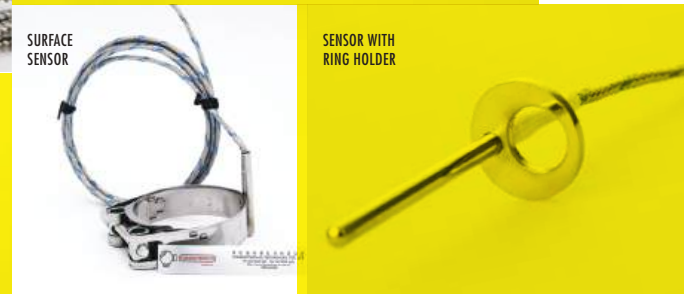
SURFACE SENSOR



BAYONET CAP



FITTING WIRE SENSOR



SURFACE SENSOR

SENSOR WITH RING HOLDER



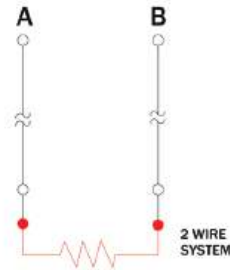
TEFLON COATING SENSOR PROBE

# RTD - LEAD WIRE CONFIGURATION

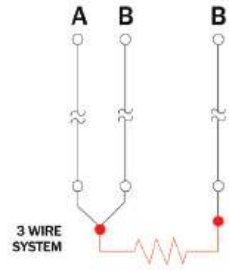
Because an RTD is a resistance type sensor, resistance introduced by connecting extension wire between the RTD and Control Instrument will add to readings. Furthermore, this additional resistance is not constant but increases with ambient temperature.

- **2 Wire** = It is suitable where the resistance of the run of the lead wire may be considered as an additive constant in the circuit and particularly where the changes in lead resistance due to ambient temperature changes may be ignored.
- **3 Wire** = Three wire compensation is achieved for lead resistance and temperature change in lead resistance. This is the most commonly used configuration.
- **4 Wire** = This construction is used for measurement of the highest precision.

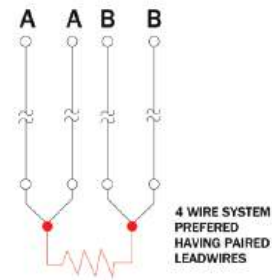
RTD - 2 WIRE SYSTEM



RTD - 3 WIRE SYSTEM



RTD - 4 WIRE SYSTEM



SENSOR PROBE



SURFACE SENSOR



TAPERED SENSOR PROBE

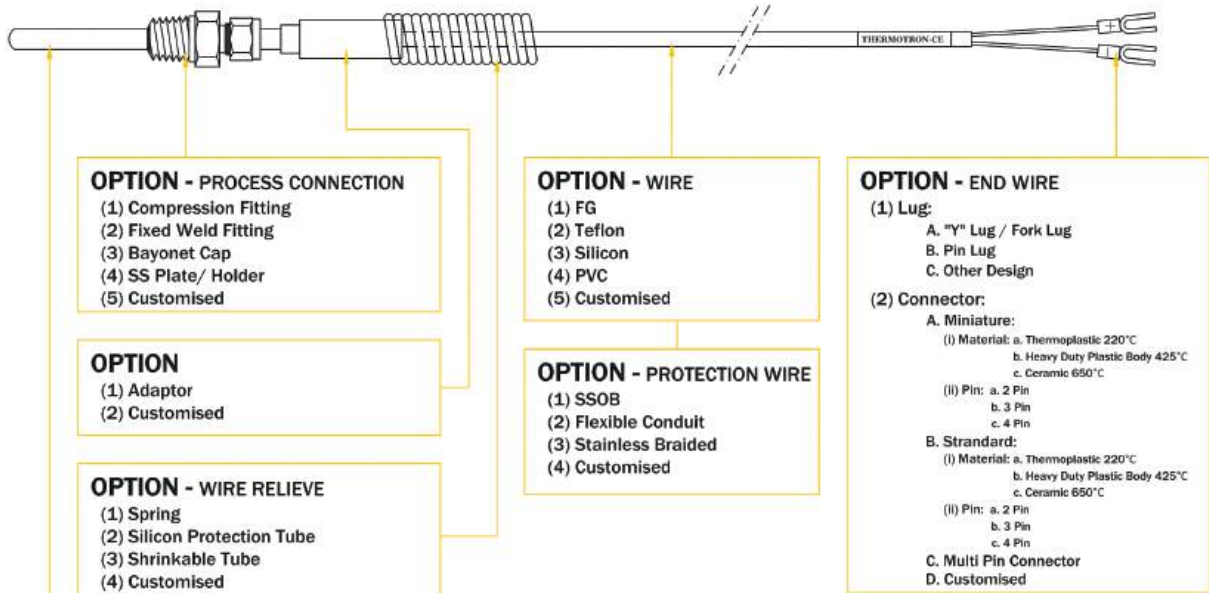


SENSOR WIRE



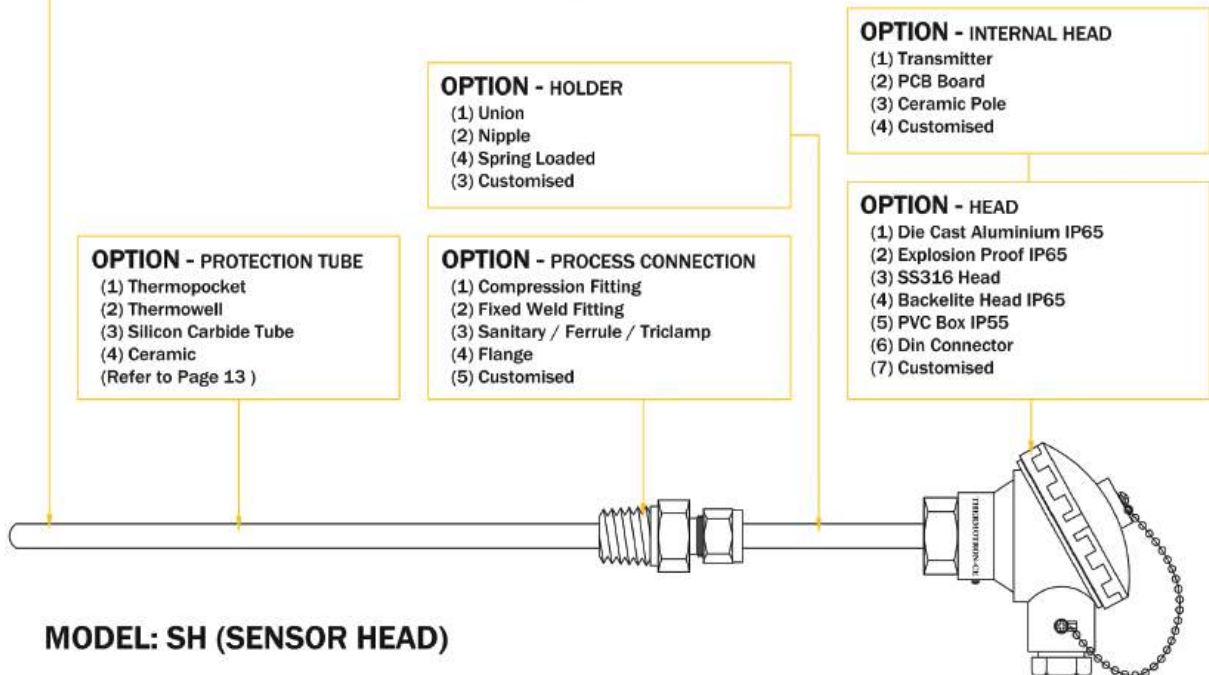
# SENSOR DIMENSION

## MODEL: SW (SENSOR WIRE)



### SHEATH/ PROBE SPECIFICATION

- (1) Size:
- A. Diameter : 1.0 - 12.7mm
  - B. Length : Customised
- (2) Sensor Type :
- A. Thermocouple (Refer Page 33 )
  - B. PT100/ PT50/ PT1000 (Refer Page 6 )
  - C. Thermistor (Refer Page 6 )
  - D. Customised
- (3) Material:
- A. Tubing: (i) SS304  
(ii) SS310  
(iii) SS316  
(iv) Inconel 600
  - B. MI: (i) SS304  
(ii) SS310  
(iii) SS316  
(iv) Inconel 600
  - C. Ceramic: (i) C799  
(ii) C610
  - D. Teflon Coating
  - E. Exposed element



## MODEL: SH (SENSOR HEAD)

# GREEN MARK SENSOR PROVIDER

Thermotron-CE as a Green Mark Temperature Sensor Provider, we follow the Singapore Standard SS591.

The Temperature Sensor we deliver to our customer is high in accuracy and designed according to HVAC requirement.

- ✓ RTD Sensor Pt100 1/10 DIN with accuracy  $\pm 0.03^{\circ}\text{C}$  at  $0^{\circ}\text{C}$  in according to IEC751 standard.
- ✓ 10K NTC Thermistor with accuracy  $\pm 0.05^{\circ}\text{C}$  from  $0^{\circ}\text{C}$  to  $50^{\circ}\text{C}$ .
- ✓ The Thermowell we supply with material from solid bar stock SS316L is designed following Green Mark requirement of vibration proof and open-end it so that to get the fast and accurate reading.
- ✓ Thermotron-CE Lab SAC-SINGLAS Accredited Laboratory, we can do accredited calibration service for these Green Mark sensors with Green Mark specification measurement uncertainty less than  $0.01^{\circ}\text{C}$ .



THERMOTRON-CE  
GREENMARK



## OEM PRODUCTS

We specialize in customized OEM temperature control solutions for clients with large and consistent order volumes. Our designs are tailored to meet specific application needs, delivered quickly and efficiently at highly competitive prices without compromising on quality or quantity. With strong after-sales support, prompt delivery, and cost-effective performance, we are your trusted partner in reliable and affordable thermal solutions.



SPRING LOADED SENSOR



# FLOAT LEVEL SWITCH

Float Level Sensor is a device used to detect the level of liquid within a tank. The switched is worked through contact of a float magnet with a switch inside the probe.

Level Switch with contact output or Level Sensor with current 4-20mA is one of our core and popular products. We have custom-designed the sensor to perform at varying pressure and liquid levels. The product is also available in a comprehensive variety of materials, including PP or Teflon, which allows for application in acidi environments. Moreover, we also offer a range of fittin to ensure the solution is best suited to meet your needs.

The types model we have:

- **Float Level Switch** – With Ball
- **Float Level Sensor** – With Ball and Current Output 4-20mA
- **Level Switch** – No Ball
- **Ball Wire Switch** – No Stem

Sizes of floats we have in our common stock:

- 1"
- 2"
- 3"

Material of floats:

- SS304
- SS316
- Teflon
- Foam
- Buna-N
- PP



PP FLOAT SENSOR



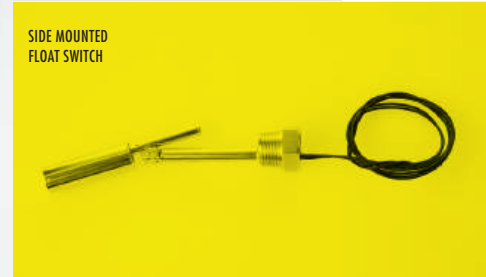
FLOW SWITCH



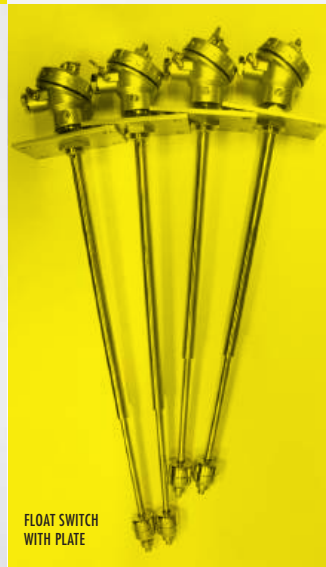
FLOAT SWITCH



FITTING FLOAT SWITCH WITH HEAD



SIDE MOUNTED FLOAT SWITCH



FLOAT SWITCH WITH PLATE



STRAIGHT FLOAT SWITCH



LEVEL SWITCH



TEFLON FLOAT SWITCH



PP FLOAT SWITCH

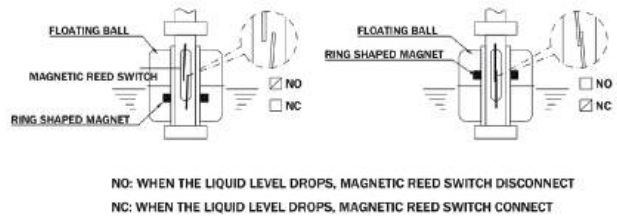
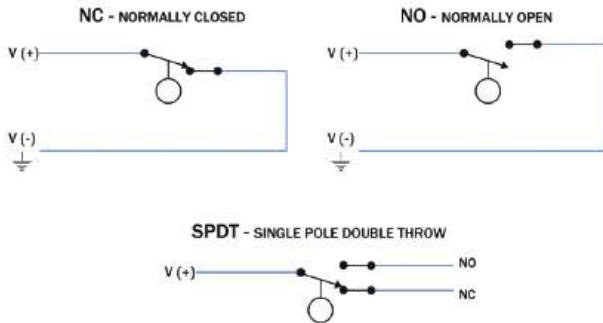
# FLOAT LEVEL SWITCH

## General Specification for Float Level Switch

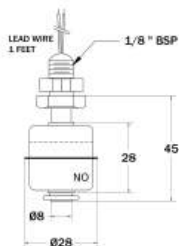
DESCRIPTION	
Switching Capacity Max	50W
Switching Voltage	140VAC / 240VAC / 150VDC
Switching Current Max (A)	0.5A
Carry Current Max (A)	1.0A
Lead Wire	Teflon / PVC
Reversible Switch Action	Yes
Operating Temperature	-10 – 120°C (SS316) -20 – 80°C (PP)

Thermotron-Ce will get you the float level switch to suit your application, be it custom liquid level sensor or an off-shelf float switch.

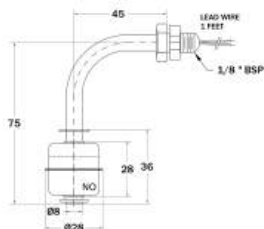
## TYPE OF SWITCH



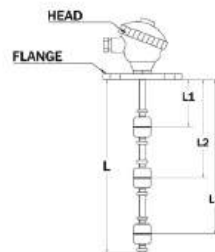
**FSW-2**



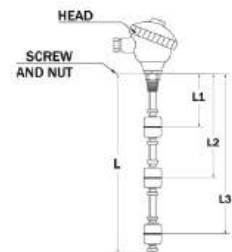
**FSW-3**



**FSW-4**



**FSW-5**



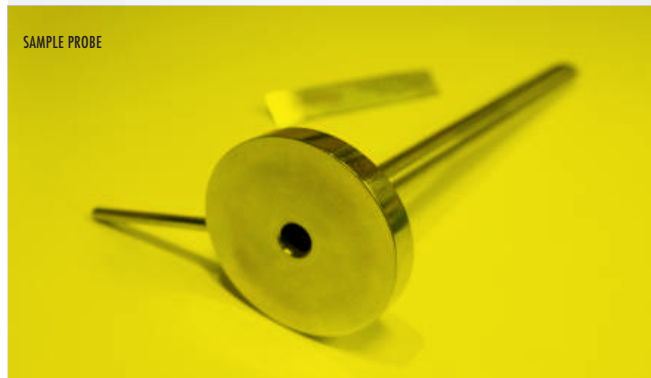
# THERMOWELL - PROTECTION TUBE

A wide variety of steel and nickel-based alloys are used to make thermowells. This is because there is no one material which will stand up to all of the many service conditions which can be found across the industry. It is important that the proper metal be used in the fabrication of a thermowell.

Common materials as follow:

1. **Carbon Steel**
2. **Brass**
3. **Copper**
4. **Titanium**
5. **Monel**
6. **Hastelloy**
7. **Inconel**
  - Inconel 600
  - Inconel 800
8. **Stainless Steel**
  - SS304/SS304L
  - SS316/SS316L
  - SS310/SS310L
  - SS446
9. **Ceramic/Composite material**
  - Ceramic Mullite/Phytagoras C610
  - Ceramic Rubalit/Alumina C799
  - Silicon Carbide
  - Silicon Nitride
10. **Teflon**
11. **PP (Polypropylene)**

\*\* If you require other material, please do consult our sales team

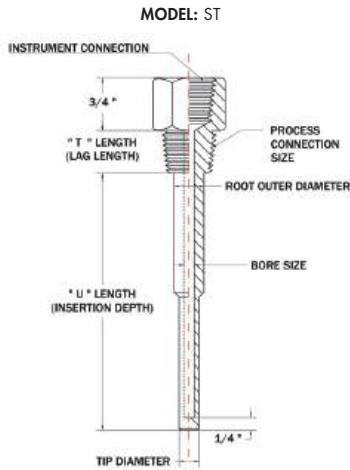


# THERMOWELL DIMENSION

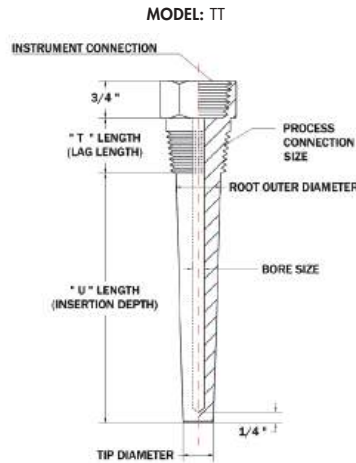
Here at Thermotron-Ce, we carry an extensive range of bespoke design protection tube to suit our clients specific need. We are pleased to offer a line-up of varying designs, which can be made in a range material.

Common model as follow:

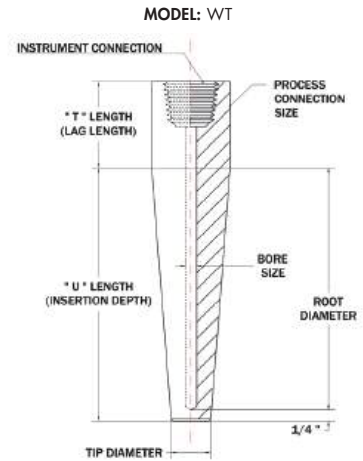
## STEP-DOWN THERMOWELL



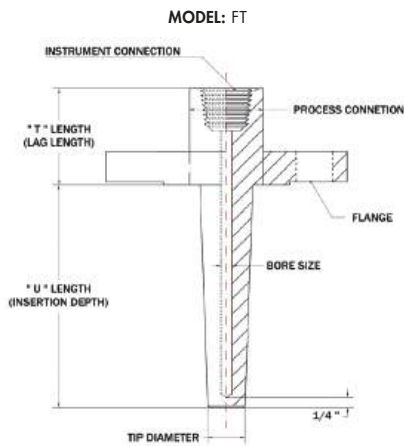
## THREADED THERMOWELL



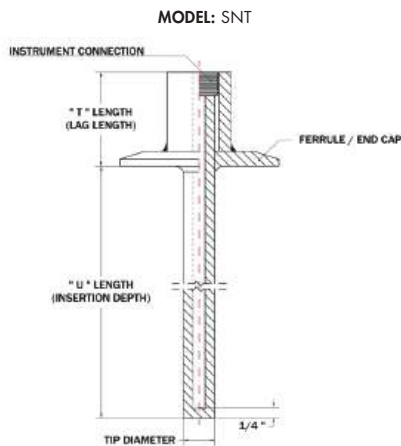
## WELD-IN THERMOWELL



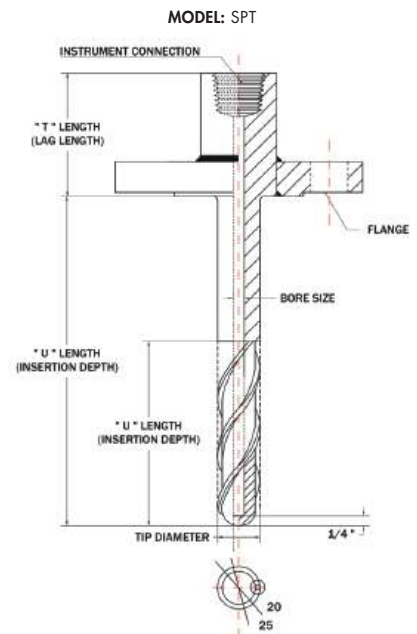
## FLANGE THERMOWELL



## SANITARY THERMOWELL

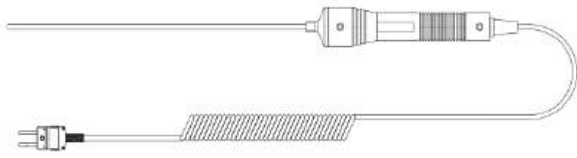


## SPIRAL THERMOWELL



\*\* Please contact our sales team for uncommon design customizations

# HANDHELD PROBE

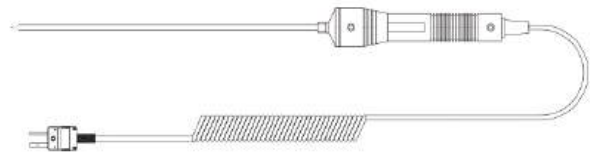


## Hand Held General Purpose Probe

A general purpose probe for air and liquid temperature measurement. Fitted with handle, curly cable and mini-plug.

<b>Maximum Operating Temperature</b>	800°C
<b>Overall Length</b>	200mm
<b>Probe Diameter</b>	3.0mm

Ordering Code: CE100

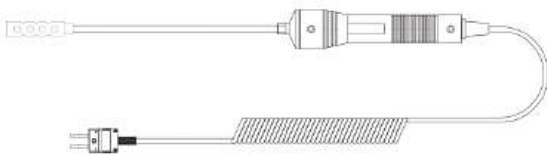


## General Purpose Spear Point Probe

A general purpose probe for air, liquid and soft solids (e.g. fruit) measurement. Fitted with handle, curly cable and mini-plug.

<b>Maximum Operating Temperature</b>	800°C
<b>Overall Length</b>	180mm
<b>Probe Diameter</b>	3.0mm

Ordering Code: CE101

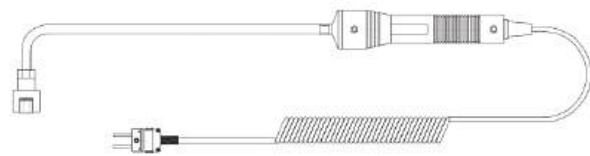


## Air Temperature Probe

A general purpose probe for air and gas temperature measurement. Fitted with handle, curly cable and mini-plug.

<b>Maximum Operating Temperature</b>	500°C
<b>Overall Length</b>	230mm

Ordering Code: CE102

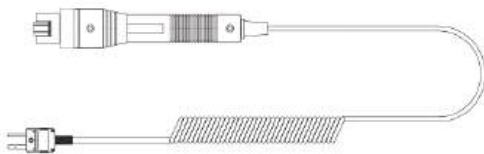


## Rt. Angle Surface Temperature Probe

Similar to the standard surface temperature probe, but with a 90°C bend for hard to reach locations. Fitted with handle, curly cable and mini-plug.

<b>Maximum Operating Temperature</b>	500°C
<b>Overall Length</b>	155mm + 55mm
<b>Probe Diameter (at tip)</b>	15.0mm

Ordering Code: CE103

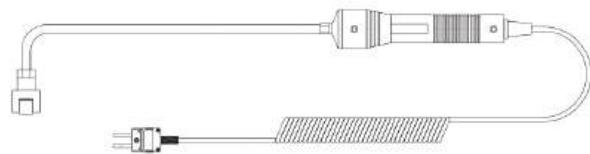


## Stubby Surface Temperature Probe

A quick response probe for surface temperature measurement, including bearing housings, motorings, etc. Fitted with handle, curly cable and mini-plug.

<b>Maximum Operating Temperature</b>	500°C
<b>Overall Length</b>	110mm
<b>Probe Diameter</b>	15.0mm

Ordering Code: CE104



## Rt. Angle High Temperature Surface Probe

A surface temperature probe with a higher temperature rating than our standard probes. Applications include refractory measurements (please note that response time will be slower than the standard probes).

<b>Maximum Operating Temperature</b>	800°C
<b>Overall Length</b>	180mm
<b>Probe Diameter (at tip)</b>	8.8mm

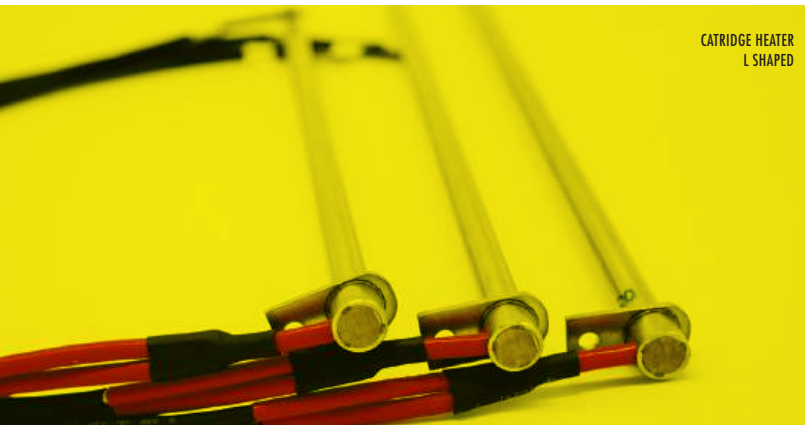
Ordering Code: CE105

# HEATER

## INDUSTRIAL HEATER

We are still continuing to supply other types of Industrial Heater from low to high temperature with different models and design for different application in any industries.

- ✓ Immersion Heater
- ✓ Finned Heater
- ✓ Band Heater
- ✓ Cartridge Heater
- ✓ Bobbin Heater
- ✓ Teflon Heater
- ✓ Coil Heater
- ✓ ETC



CATRIDGE HEATER  
L SHAPED



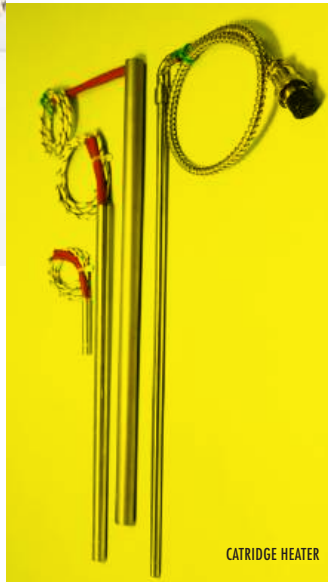
KAPTON TAPE  
HEATER



FINNED HEATER



BAND HEATER



CATRIDGE HEATER



SILICON  
RUBBER  
HEATER

# SILICON RUBBER HEATER

## SILICON RUBBER HEATER | SILICON RUBBER HEATER with INSULATION JACKET

Silicone rubber heaters are flexible and efficient heating elements used for various applications. They are designed to provide consistent and controlled heat to surfaces, objects, or materials.

Silicone rubber heaters are used in various industries, including manufacturing, electronics, aerospace, medical devices, and food processing. They can be applied to heat pipes, tanks, surfaces, and more.

INSULATION HEATER JACKET WITH CONTROLLER



### • Feature

- ✓ Fast and even heating
- ✓ Temperature up to 240°C
- ✓ Flexible and customizable shapes and size
- ✓ Excellent temperature uniformity
- ✓ Resistance to moisture, chemicals, and environmental factors

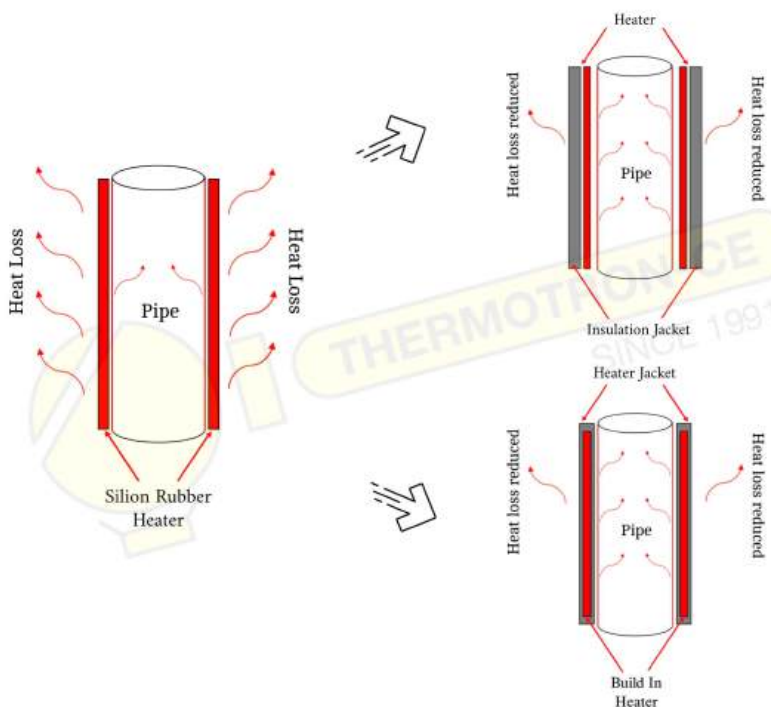
### • Silicon rubber Heater with insulation Jacket

- ✓ Improved energy efficiency by reducing heat loss
- ✓ Protection for the silicon rubber heater from mechanical damage, moisture and contaminants
- ✓ Easy installation and removal for maintenance
- ✓ Customized to fit the shape and size of the silicon rubber heater

SILICON RUBBER HEATER



SILICON RUBBER HEATER



# FABRIC INSULATION JACKET

## INSULATION JACKET | FABRIC INSULATION JACKET with BUILT-IN HEATER

Insulation jackets are primarily designed to help maintain the temperature of the substance flowing through the pipes, preventing heat loss in cold environments or heat gain in hot environments.

They contribute to energy savings, safety and process efficiency, making them valuable assets in a variety of industries where temperature control and equipment protection are essential.

### Feature

- ✓ Improved energy efficiency
- ✓ Easy Installation and removal for maintenance
- ✓ Customized to fit the shape and size
- ✓ Resistance to moisture, chemicals and environmental factors

Insulation jackets are utilized in a wide range of industrial applications, including covering pipes, valves, tanks, boilers, pumps, and other equipment that required thermal insulation or protection.

INSULATION JACKET

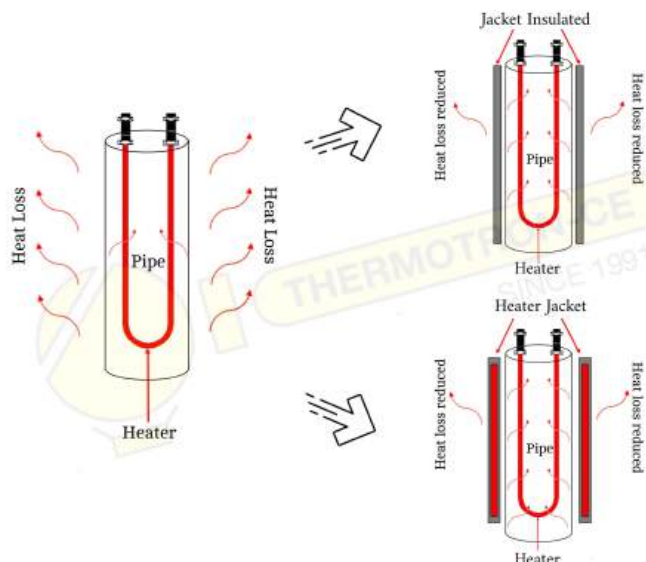


INSULATION HEATER JACKET



### Type of Jacket and Insulation based on materials Jacket materials:

	MATERIALS	TEMPERATURE UP TO °C
1	Silicone coated Fiberglass fabric	250
2	Teflon coated fiberglass fabric	250
3	Fiberglass fabric	550
4	Silica fabric	980
5	Ceramic fiber fabric	1200



# CALIBRATION & MEASUREMENT SERVICES, METROLOGY SAC-SINGLAS 17025

TEMPERATURE | HUMIDITY | PRESSURE | MASS/WEIGHT | AUTOCLAVE

Our mission is to be a one-stop solution provider for our customers. This includes providing a calibration and measuring laboratory that is continually updated to meet the most demanding requirements of customers. Our customers can be assured of the high quality of our products and services offer because our calibration laboratory that is SAC-Singlas accredited. We are also able to provide in-house and on-site pressure and Temperature, Mass instrument calibration services to match our customers' special requirements.

We provide contact temperature calibration services from -80°C to 1000°C

## Temperature (In-Lab):

- Digital Thermometer
- RTD Sensor
- RTD Sensor with Indicator
- Thermocouple
- Thermocouple with Indicator
- Temperature Gauge
- Capillary Thermometer
- Bi-Metal Thermometer
- Indicator with Sensor
- Chart Recorder
- Temperature Dry Bath
- RTD Simulator
- RTD Meter
- Thermocouple Calibrator
- Temperature Controller
- Temperature Indicator
- Data Logger
- Thermistor
- RTD sensor with Transmitter
- Thermocouple with Transmitter

## Temperature (On-Site):

- Digital Thermometer
- RTD Sensor with Indicator
- Thermocouple with Indicator
- Temperature Gauge
- Capillary Thermometer
- Bi-Metal Thermometer
- Indicator with Sensor
- Temperature Chart Recorder
- RTD Simulator
- RTD Meter
- Thermocouple Calibrator
- Temperature Controller
- Temperature Indicator

## Humidity | Mapping:

- Temperature / Humidity Measuring Instruments
- Thermo-hygrograph
- Thermo-hygrometer
- Data Logger
- Controlled Temperature Enclosure (Oven, Furnace, Freezer, Incubator)
- Humidity Chamber



TEMPERATURE



HUMIDITY

# CALIBRATION & MEASUREMENT SERVICES, METROLOGY SAC-SINGLAS 17025

TEMPERATURE | HUMIDITY | PRESSURE | MASS/WEIGHT | AUTOCLAVE

## Pressure (In-Lab/On-Site):

- Pressure Gauge (Analog / Digital)
- Vacuum Gauge (Analog / Digital)
- Capsule Gauge
- Pressure Chart Recorder
- Gas Regulator Pressure Gauge
- Digital Pressure Calibrator
- Digital Pressure Indicator
- Pressure Transmitter
- Vacuum Transmitter
- Pressure Transducer
- Vacuum Transducer
- Pressure Switch (Analog/Digital)
- Pressure Recorder (Analog/Digital)

## Mass/Weight:

- Precision balance
- Analytical balance
- Industrial balance
- Platform balance
- Digital Weighing balance
- Moisture balance

## AutoClave:

- Vertical Autoclave
- Horizontal Autoclave
- Laboratory Autoclave
- Pressurized Vessel Autoclave

## Miscellaneous Calibration (Non-Singlas):

- ✓ Conductivity Meter
- ✓ pH meter



Please click [here](#) to find out more about our SCOPE Calibration.

# ENGINEERING WORKS

## Engineer Products

In addition to our core temperature control solutions, we provide a comprehensive range of engineered products to support specialized process requirements. This includes the design and fabrication of compact control panels integrated with our temperature sensors for precise monitoring and regulation.

We also supply custom-engineered fittings and components that are not commonly available in the market. Additionally, we offer high-pressure air piping and customized manifolds, built for robustness and reliability in demanding industrial environments.

These value-added solutions enhance process integration, operational efficiency, and system flexibility across various industries.



# TESTING SERVICES

Our advanced facility is equipped with the latest technology to provide testing services for Internal & External Hydrostatic Testing; Hydraulic Testing; Dye-Penetration Testing; Ultrasonic testing; PMI Testing and Wake Frequency Calculation.



# TCE+ CUSTOMISED OVEN

## Custom Mini/Drying Ovens – Purpose-Built for Your Process

Our custom mini and drying ovens are designed for businesses that need efficient, reliable heating or drying solutions without the bulk or complexity of traditional industrial ovens. Whether you're working with limited space, have unique heating requirements, or simply want a better fit for your product line, our ovens offer the ideal solution.

### Why Choose Our Custom Ovens?

#### ✓ Compact & Space-Saving Design

Compact design fits tight spaces—ideal for labs and production lines without sacrificing performance.

#### ✓ Tailored to Your Application

Each oven is custom-made to match your product size, temperature needs, and process requirements.

#### ✓ Efficient, Cost-Effective Operation

No unnecessary features—just reliable, energy-efficient performance that saves on costs.

#### ✓ Reliable Heating Performance

Even temperature distribution and precise controls for drying, curing, and heat treating.

#### ✓ Flexible Features & Options

Choose your temp range, control type, safety sensors, shelving, insulation, and more.



### Ideal For:

- ✓ Electronics & PCB Drying
- ✓ Food & Ingredient Preparation
- ✓ Pharmaceutical & Lab Applications
- ✓ Rubber & Plastic Component Curing
- ✓ Light Industrial Manufacturing
- ✓ R&D & Testing Labs



# TOHO – JAPAN TEMPERATURE CONTROLLER



## PRODUCTS



### Digital Controller TTM-210 Series

- ✓ With universal input function
- ✓ Compact in size with the depth from 59.7mm
- ✓ Loader communication function that can reduce complicated parameter setting work is equipped as standard (Exclusive cable is available with a charge)
- ✓ External standards "UL", "CUL" and "CE" approved
- ✓ Compliant with "IP66" or equivalent. Also, six substances regulated by the RoHS Directive are not used



### Digital Controller TTM000W Series

- ✓ A versatile Digital Temperature Controller which features a variety of functions and is easy to operate
- ✓ It is compact in size, depth from 77mm
- ✓ Up to 31 controller units can be connected with a single computer at the same time, allowing centralized supervision within a max. distance of 500m



### Digital Controller TTM-i4N

- ✓ Easy operation with economical price
- ✓ UL, CE and KC approved, and compliant with the RoHS directive
- ✓ Standard fixed function with 3 contacts (1 output plus 2 alarm)



### Dual Channel Controller TTM-509

- ✓ Capable of controlling 2 channel input
- ✓ This device offers versatile features, high accuracy  $\pm 0.1\%$  and a high speed sampling cycle 50msec
- ✓ Enabling support for a wide range of applications



### Dual Channel Controller TTX-800

- ✓ DIN rail mounting type 2ch controller with display and key switch mounted on the main unit
- ✓ By connecting the main unit with a connector, the power supply and RS-485 communication can be connected without the need for crossover wiring of the terminal block (Up to 10 units can be connected)
- ✓ If the analog is selected for input / output, it can be used as a signal converter. "CE" mark as an external standard has been acquired

# TOHO – JAPAN TEMPERATURE CONTROLLER



## PRODUCTS



### Program Controller TTM-339

- ✓ LCD Program Controller with maximum of 15 patterns & 99 steps
- ✓ The Full Multi-Function Input support various types of input requirements within a single unit
- ✓ Depth of only 65mm
- ✓ A loader communication function is provided as its standard feature to ease complicated work with setting parameters that is common for program controllers, (the cable is sold separately)



### Program Controller TTM-P4W

- ✓ Economical Program Controller
- ✓ Dimension: 48mm x 48mm
- ✓ Programmable up to "Steps x Patterns = 64"
- ✓ Standard Features include:
  1. Event Output 1 or Time Signal
  2. Control Output 2, Event Output 2 or Run Signal Output 2
  3. DI (Run Signal Input)



### Paperless Recorder TRM-00J

- ✓ 6-Channel Paperless Recorder
- ✓ Touch panel
- ✓ Data can be saved to USB memory or SD card
- ✓ Universal Input but DC current need shunt resistance required
- ✓ Communication function "RS-485 (Modbus) / USB 2.0 (Modbus)" is equipped as standard



### Paperless Recorder TRM20A

- ✓ 6, 9 and 12 channels are available
- ✓ Touch panel
- ✓ Data can be saved in a SD card
- ✓ Universal input
- ✓ A New Addition of Modbus Master Writing Function
- ✓ The recorder (TRM-20A) can be used as the master, and up to 24 compatible devices can be connected under it



### Hybrid Recorder TRM10C

- ✓ A Hybrid recorder with a chart width of 100mm
- ✓ IP65 compliant
- ✓ 6-Point, 1 pen and 2 pen types are available as number of measurement channels



### Thermometer With Electronic Paper Display TRA-700

- ✓ TRA-700 is a thermometer with an electronic paper display that can replace the mercury thermometer
- ✓ Used for various industrial applications such as ship engine exhaust gas measurement

# TE WIRE & CABLE LLC - USA

## THERMOCOUPLE WIRE

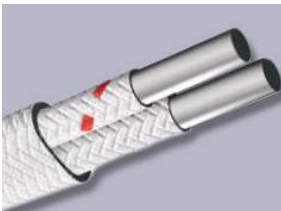


### PRODUCTS

#### A. Thermocouple Wire | Limits of Error: Conforms to ASTM E230, IEC 584 and ANSI MC 96.1



- 1. **CEFIR® Series** | Ceramic Fiber up to 2400°F (1316°C)
  - ✓ Conductors: Solid or stranded thermocouple wire per ASTM E230 & ANSI MC96.1
  - ✓ Insulation: Braided ceramic fiber
  - ✓ Construction: Parallel conductors
  - ✓ Jacket: Braided ceramic fiber
- **CEFIR®2400 Heavy Build Ceramic Fiber**
  - ✓ Operating Temperature: +1204°C (+2200°F) continuous +1316°C (+2400°F) single exposure
- **CEFIR®2200 Standard Build**
  - ✓ Operating Temperature: +1204°C (+2200°F) continuous +1316°C (+2400°F) single exposure



- 2. **Vitreous Silica Fiber** | Up to 2000°F (1100°C)
  - ✓ Conductors: Solid or stranded thermocouple wire per ASTM E230 & ANSI MC96.1
  - ✓ Insulation: Braided vitreous silica fiber
  - ✓ Construction: Parallel conductors
  - ✓ Jacket: Braided vitreous silica fiber
  - ✓ Color Code: Supplied white without saturants and with red tracer in negative leg
- **HG/HG Vitreous Silica Heavy Build Fiber**
  - ✓ Operating Temperature: +1800°F (+982°C) continuous +2000°F (+1093°C) single exposure
- **HG/HG Vitreous Silica Standard Build Fiber**
  - ✓ Operating Temperature: +1800°F (+982°C) continuous +2000°F (+1093°C) single exposure



- 3. **Q-Glass Fiberglass Ceramic Fiber** | Up to 1600°F (870°C)
  - ✓ Flexible with good moisture, chemical and abrasion resistance
  - ✓ Conductors: Solid or stranded thermocouple wire per ASTM E230 & ANSI MC96.1
  - ✓ Insulation: Braided fiberglass with high temperature impregnation\*
  - ✓ Construction: Parallel conductors
  - ✓ Jacket: Braided fiberglass with high temperature impregnation\*
  - ✓ Color Code: Conforms to ASTM E230 and ANSI MC96.1 (International Color Codes Available)
  - ✓ \*Impregnation maintained to +400°F (+200°C)
- **Q-Glass Fiberglass Duplex**
  - ✓ Operating Temperature: +1300°F (+704°C) continuous +1600°F (+871°C) single exposure
- **Q-Glass TW Fiberglass Twisted**
  - ✓ Construction: Twisted conductors
  - ✓ Lay Length: 1-1/2" (38mm) to 3" (76mm)
  - ✓ Operating Temperature: +1300°F (+704°C) continuous +1600°F (+871°C) single exposure



# TE WIRE & CABLE LLC - USA

## THERMOCOUPLE WIRE

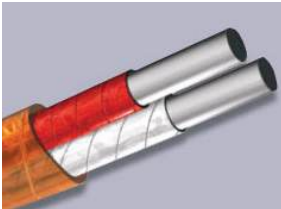


### PRODUCTS



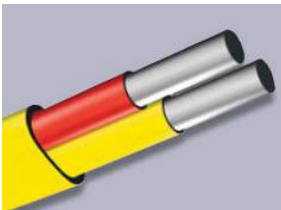
#### 4. G-Glass Fiberglass Duplex | Up to 650°C (1200°F)

- ✓ Conductors: Solid or stranded thermocouple wire per ASTM E230 & ANSI MC96.1
- ✓ Insulation: Braided fiberglass with high temperature impregnation\* (24 to 30 AWG Served Glass)
- ✓ Construction: Parallel conductors
- ✓ Jacket: Braided fiberglass with high temperature impregnation\*
- ✓ Operating Temperature: +950°F (+510°C) continuous +1200°F (+650°C) single exposure
- ✓ Color Code: Conforms to ASTM E230 and ANSI MC96.1 (International Color Codes Available)
- ✓ \*Impregnation maintained to +400°F (+200°C)



#### 5. Polyimide Tape | Up to 500°F (260°C)

- ✓ Conductors: Solid or stranded thermocouple wire per ASTM E230 & ANSI MC96.1
- ✓ Insulation: Two layers of fused polyimide tape, color coded with a polyimide coating
- ✓ Construction: Parallel conductors
- ✓ Jacket: Two layers of fused polyimide tape
- ✓ Operating Temperature: -400°F (-240°C) to +500°F (+260°C) continuous
- ✓ Color Code: Conforms to ASTM E230 and ANSI MC96.1 (International Color Codes Available) \*
- ✓ \*Note – Polyimide jackets are not color coded



#### 6. FEP Fluoropolymers | Up to 500°F (260°C)

- ✓ Conductors: Solid or stranded thermocouple wire per ASTM E230 & ANSI MC96.1
- ✓ Limits of Error: Conforms to ASTM E230, IEC 584 and ANSI MC 96.1
- ✓ Color Code: Conforms to ASTM E230 and ANSI MC96.1 (International Color Codes Available)

##### • TFE Tape Duplex

- ✓ Insulation: Two layers of fused fluoropolymer PTFE tape
- ✓ Construction: Parallel conductors
- ✓ Jacket: Two layers of fused fluoropolymer PTFE tape
- ✓ Operating Temperature: -328°F (-200°C) to +500°F (+260°C) continuous

##### • TEX FEP Duplex

- ✓ Insulation: Flame retardant extruded fluoropolymer FEP
- ✓ Construction: Parallel conductors
- ✓ Jacket: Flame retardant extruded fluoropolymer FEP
- ✓ Operating Temperature: -328°F (-200°C) to +400°F (+200°C) continuous



##### • PFA Duplex

- ✓ Insulation: Flame retardant extruded fluoropolymer PFA
- ✓ Construction: Parallel conductors
- ✓ Jacket: Flame retardant extruded fluoropolymer PFA
- ✓ Operating Temperature: -328°F (-200°C) to +500°F (+260°C) continuous



##### • TEX/TW FEP Twisted

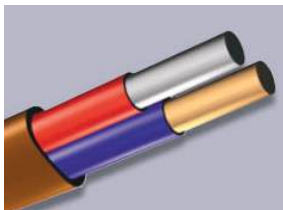
- ✓ Insulation: Flame retardant extruded fluoropolymer FEP
- ✓ Construction: Twisted conductors
- ✓ Lay Length: 1-1/2" (38mm) to 2-1/2" (63mm)
- ✓ Operating Temperature: -328°F (-200°C) to +400°F (+200°C) continuous

# TE WIRE & CABLE LLC - USA

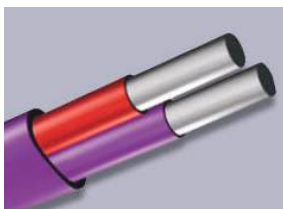
## THERMOCOUPLE WIRE



### PRODUCTS



- 7. **Nylon** | Up to 250°F (121°C)
  - ✓ Conductors: Solid or stranded thermocouple wire per ASTM E230 & ANSI MC96.1
  - ✓ Insulation: Nylon polyamide resin
  - ✓ Construction: Parallel conductors
  - ✓ Jacket: Nylon polyamide resin
  - ✓ Operating Temperature: -85°F (-65°C) to +250°F (+121°C) continuous
  - ✓ Color Code: Conforms to ASTM E230 and ANSI MC96.1 (International Color Codes Available)



- 8. **PVC Polyvinyl Chloride** | Up to 221°F (105°C)
  - ✓ Conductors: Solid or stranded thermocouple wire per ASTM E230 & ANSI MC96.1
  - ✓ Insulation: Flame retardant extruded PVC
  - ✓ Operating Temperature: -15°F (-26°C) to +221°F (+105°C) continuous
  - ✓ Limits of Error: Conforms to ASTM E230, IEC 584 and ANSI MC 96.1
  - ✓ Color Code: Conforms to ASTM E230 and ANSI MC96.1 (International Color Codes Available)

- **PVC Duplex**

- ✓ Construction: Parallel conductors
- ✓ Jacket: Flame retardant extruded PVC

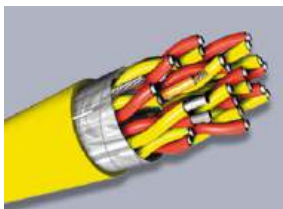
- **PVC Extruded Rip Cord**

- ✓ Construction: Parallel conductors bonded together

- **PVC Twisted Shielded 1 Pair**

- ✓ Construction: Single twisted pair
- ✓ Pair Shield: .002" (.05mm) aluminum/polyester tape, 25% overlap
- ✓ Pair Drain Wire: 7-strand tinned copper, 2 AWG sizes smaller than conductor
- ✓ Jacket: Flame retardant extruded PVC with nylon ripcord under jacket

### B. Thermocouple Extension Cable | Overall Shield



- ✓ Conductors: Solid or stranded thermocouple wire per ASTM E230 & ANSI MC96.1
- ✓ Construction: Twisted pairs
- ✓ Communication Wire (Optional): 22 AWG (.61mm) 7-strand copper insulated with nominal .015" (.38mm) orange PVC (used in constructions 4 pair and larger)
- ✓ Cable Shield: .002" (.05mm) aluminum/polyester tape, 25% overlap
- ✓ Cable Drain Wire: 7-strand tinned copper, 2 AWG sizes smaller than conductor
- ✓ Color Code: Conforms to ASTM E230 and ANSI MC96.1 (International Color Codes Available)

- **PVC Thermocouple Extension Cable**

- ✓ Insulation: Nominal .016" (.40mm) flame retardant PVC
- ✓ Outer Jacket: Flame retardant extruded PVC with nylon ripcord under jacket
- ✓ Operating Temperature: -15°F (-26°C) to +221°F (+105°C) continuous

- **FEP Fluoropolymer Thermocouple Extension Cable**

- ✓ Insulation: Nominal .010" (.25mm) flame retardant extruded fluoropolymer FEP
- ✓ Pair Identification: Numbered polyester tapes
- ✓ Outer Jacket: Flame retardant extruded fluoropolymer FEP with nylon ripcord under jacket
- ✓ Operating Temperature: -328°F (-200°C) to +400°F (+200°C) continuous

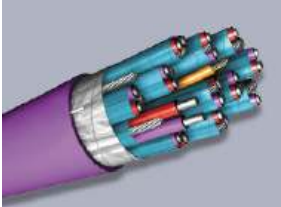
# TE WIRE & CABLE LLC - USA

## THERMOCOUPLE WIRE



### PRODUCTS

#### C. PVC Thermocouple Extension Cable | Individual and Overall Shield



- ✓ Conductors: Solid or stranded thermocouple wire per ASTM E230 & ANSI MC96.1
- ✓ Construction: Twisted pairs
- ✓ Individual Shield: .00135" (.03mm) aluminium/polyester tape, 25% overlap
- ✓ Individual Drain Wire: 22 AWG (.61MM) 7-strand tinned copper
- ✓ Communication Wire (Optional): 22 AWG (.61mm) 7-strand copper insulated with nominal .015" (.38mm) orange PVC (used in constructions 4 pair and larger)
- ✓ Cable Shield: .002" (.05mm) aluminium/polyester tape, 25% overlap
- ✓ Cable Drain Wire: 7-strand tinned copper, 2 AWG sizes smaller than conductor
- ✓ Color Code: Conforms to ASTM E230 and ANSI MC96.1 (International Color Codes Available)

##### • PVC Thermocouple Extension Cable

- ✓ Insulation: Nominal .016" (.40mm) flame retardant PVC
- ✓ Outer Jacket: Flame retardant extruded PVC with nylon ripcord under jacket
- ✓ Operating Temperature: -15°F (-26°C) to +221°F (+105°C) continuous

##### • FEP Fluoropolymer Thermocouple Extension Cable

- ✓ Insulation: Nominal .010" (.25mm) flame retardant extruded fluoropolymer FEP
- ✓ Pair Identification: Numbered polyester tapes
- ✓ Outer Jacket: Flame retardant extruded fluoropolymer FEP with nylon ripcord under jacket
- ✓ Operating Temperature: -328°F (-200°C) to +400°F (+200°C) continuous

#### D. AccuClave® Autoclave Thermocouple Assembly | Aircraft



- ✓ The AccuClave Series thermocouple assemblies are designed to save you time and money, while at the same time providing accuracy, dependability, reliability, compliance and traceability
- ✓ Used extensively in autoclaves for the aircraft composite industry, the ready-to-use AccuClave series is BAC 5621 compliant and provides easy traceability for NADCAP audits via the TRAC system
- ✓ Rated for temperatures up to 500°F (260°C)
- ✓ Ready to use assemblies save setup time, reduce downtime
- ✓ TRAC – Easiest traceability in the industry!
- ✓ Applications: Aerospace composites, autoclaves

Options: J type thermocouple or K type thermocouple calibration, Class 1 special limits, custom construction.

#### E. AccuClave® X Autoclave Thermocouple Cable Extensions | Aircraft



- ✓ The reusable AccuClave-X Extension Cable is BAC 5621 compliant and can be reused 100 times or more. When used in combination with disposable, shorter length AccuClave Thermocouples, you can realize significant savings in your autoclave applications
- ✓ Bridge the long runs between thermocouples and instrumentation or jack panels
- ✓ Ready to use assemblies save setup time, reduce downtime
- ✓ TRAC – Easiest traceability in the industry!
- ✓ Conforms to the following standards: BAC 5621, ASTM E230, IEC 584, ANSI MC 96.1
- ✓ Available in lengths of 10, 20 and 30 feet

Options: J type thermocouple or K type thermocouple calibration, Class 1 special limits, custom construction.

# AOIP – FRANCE CALIBRATOR INSTRUMENTS

TEMPERATURE | RESISTANCE | CURRENT | VOLTAGE | FREQUENCY | PRESSURE



## PRODUCTS

### A. Bench Top Calibrator Instrument



- **#CALYS1000**  
Table documented basic multifunction calibrator
- **#CALYS1200**  
Precision multifunction calibrator instrument
- **#CALYS1500**  
Advanced and Accurate Laboratory electrical calibrator / Dual input thermometer

### B. Field Calibrator Instrument



- **#CALYS50**  
Field multifunction calibrator for basic use
- **#CALYS75**  
Field documenting multifunction calibrator
- **#CALYS100**  
Field precision documenting multifunction calibrator
- **#CALYS150**  
Advance documenting multifunction calibrator thermometer
- **#THERMYS150**  
Advanced Field Reference thermometer / temperature calibrator

### C. Handheld Thermometer / Calibrator Instrument



- **#CP6632**  
Handheld process signal calibrator
- **#TC6621 | #TC6622**  
Handheld temperature calibrator for thermocouple or resistive probe with memory
- **#TM6602 | #TM6612 | #TM6630**  
Handheld Thermometer for thermocouple and/or resistive probe with memory

### D. Pressure Process Calibrator



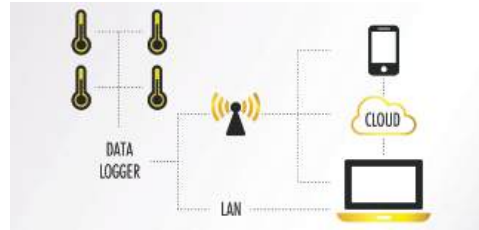
- **#P200 PRO**  
Field Pressure Process Calibrator with removable generation pump

# WIFI SENSORS

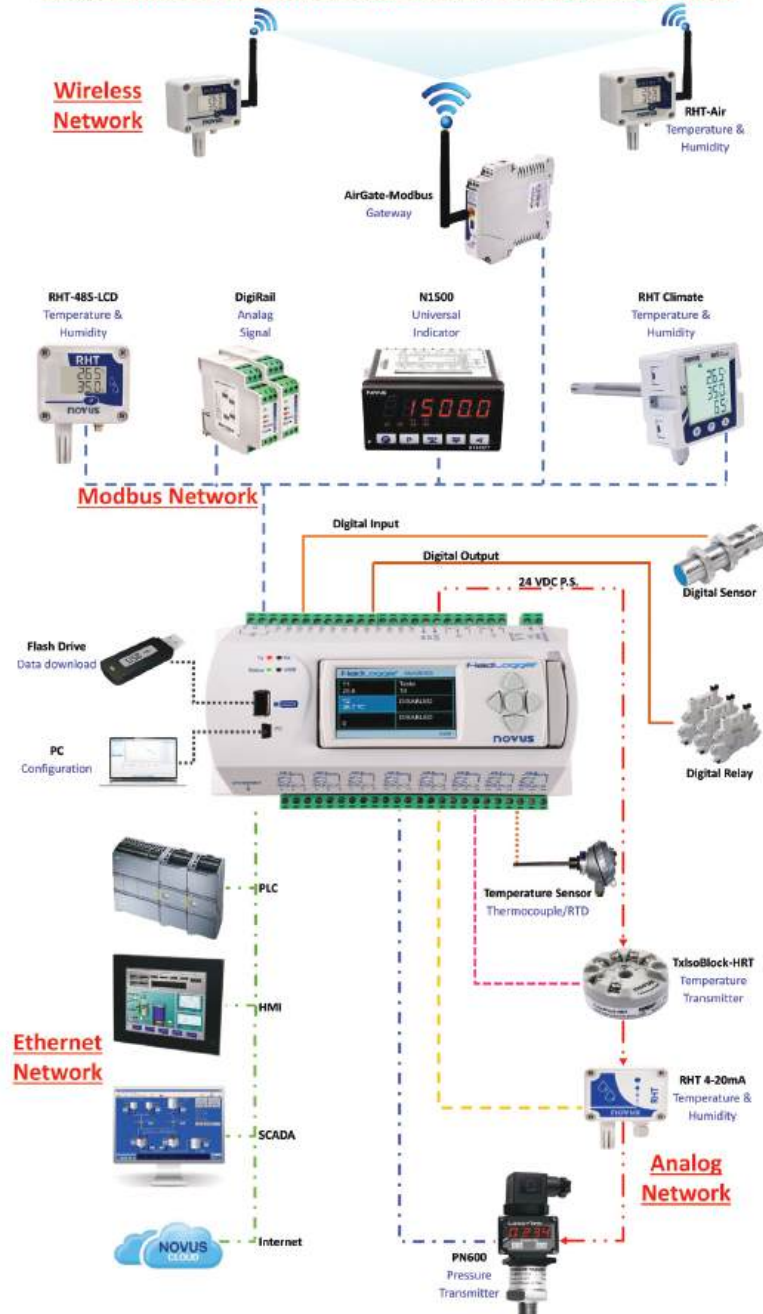


## Temperature and Temperature & Humidity Data Logger

The newest products we would like to introduce to the market is our Temperature and Temperature & Humidity Data Logger that it can help is saving our time, material cost and workman power. There is no longer required extension cable in order to transfer the data to control room or PLC or other main system. We are able to monitor the temperature while we are on the go.



### Modbus Network / Ethernet Network / Wireless Network / Analog Network



# NOVUS – BRAZIL INSTRUMENTS

MEASURE WITH ACCURACY | CONTROL WITH EXCELLENCY |  
RECORD WITH RELIABILITY



Excellence in Automation for a wide range of Market Segments and Application

## PRODUCTS

### A. Datalogger

#LogBox Connect – Wireless Multichannel Data Loggers

**A1.** LogBox BLE – Bluetooth Data Logger

**A2.** LogBox Wi-Fi – Wi-Fi Data Logger

**A3.** LogBox 3G – 3G/2G Data Logger

**A4.** FieldLogger

#Portable Data Loggers

**A5.** TagTemp USB

**A6.** TagTemp Stick

**A7.** TagTemp NFC LCD

**A8.** TagTemp NFC

#Rugged Data Loggers

**A9.** LogBox AA

**A10.** LogBox DA

**A11.** LogBox RHT

### B. Communication

#I/O MODULE

**B1.** DigiRail 2A – 2 Universal Analog Inputs

**B2.** DigiRail 4C – 4 Digital I/O

**B3.** DigiRail 2R – 2 Relay Outputs

**B4.** DigiRail Connect – Ethernet I/O Module

**B5.** DigiRail NXprog – Programmable I/O Module

**B6.** DigiRail VA – Electrical Parameters Transmitter

**B7.** USB i485 – USB to RS485 Converter

#Airgate

**B1.** AirGate Modbus – Wireless Modbus Gateway

**B2.** AirGate 4G – VPN Router for GSM Networks

**B3.** DigiGate Profibus – Profibus to Modbus Gateway



# NOVUS – BRAZIL INSTRUMENTS

MEASURE WITH ACCURACY | CONTROL WITH EXCELLENCY |  
RECORD WITH RELIABILITY



## PRODUCTS

### C. Relative Humidity & Temperature Transmitter

#Wireless Relative Humidity & Temperature Transmitter

- C1.** RHT WM
- C2.** RHT WM 485 LCD
- C3.** RHT XS
- C4.** RHT P10
- C5.** RHT Air

#RHT Climate – High Accuracy Relative Humidity & Temperature Transmitter

- C1.** RHT Climate WM
- C2.** RHT Climate WM LCD
- C3.** RHT DM
- C4.** RHT DM 485 LCD
- C5.** RHT Climate DM
- C6.** RHT Climate DM LCD



# NOVUS – BRAZIL INSTRUMENTS

MEASURE WITH ACCURACY | CONTROL WITH EXCELLENCY |  
RECORD WITH RELIABILITY



## PRODUCTS

### D. Indicators

#### #Universal Process Indicators

- D1.** N1040i – Universal (TC/PT100/V/Current)
- D2.** N1540 – Universal (TC/PT100/V/Current)
- D3.** N1500G – Universal (TC/PT100/V/Current)
- D4.** N1500 – Universal (TC/PT100/V/Current)
- D5.** N1500FT – Flow Rate
- D6.** N1500LC – Load Cell

#### #Panel PC, Glass Capacity Touch Panel

### D7. NXview

#### #Refrigeration Thermostat with Defrost

- D8.** N321 – 1 output
- D9.** N323R – 3 outputs
- D10.** N323TR – 3 outputs + real time clock for schedule

#### #Solar Heating Controllers

- D11.** N321S – 1 output
- D12.** N322S – 2 outputs

#### #Cooling / Heating Controller

- D13.** N321 – 1 relay output
- D14.** N322 – 2 outputs
- D15.** N323 – 3 outputs

#### #Controller with Times

- D16.** N322T – 2 outputs

#### #Electronic Humidistat

- D17.** N322RHT – 2 relay outputs
- D18.** N323RHT – 3 relay outputs

#### #Egg Incubator Controller

- D19.** N323RHT (EI) – 3 outputs



# NOVUS – BRAZIL INSTRUMENTS

MEASURE WITH ACCURACY | CONTROL WITH EXCELLENCY |  
RECORD WITH RELIABILITY



## PRODUCTS

### E. Temperature Transmitter

#### #Built-In Temperature Transmitter

- E1.** TxMini M12 – PT100/PT1000 Programmable Range
- E2.** TxMini M12 485 – PT100 Programmable Range
- E3.** TxMini Din3650 – PT100/PT1000 Programmable Range
- E4.** Temp WM 4-20mA – Wall Mounting
- E5.** Temp Dm 150 4-20mA – Duct Mounting
- E6.** Temp DM 150mm 0-10V – Duct Mounting
- E7.** Temp DM250mm 4-20mA – Duct Mounting
- E8.** Temp DM250 0-10V – Duct Mounting

#### #Pressure Transmitter

- E9.** NP785 – Ultra Low Differential Pressure Transmitter (+5mbar & +20mbar)
- E10.** NP400 – Pressure Sensor Ceramic (Piezoresistive)
- E11.** NP620 – Pressure Sensor Oil filled (Polysilicon Piezoresistive)
- E12.** NP640 – Pressure Sensor Oil filled (Polysilicon Piezoresistive) and All SS316
- E13.** LoopView – Current Loop Indicator



# DELTATRAK – USA DATALOGGER

INNOVATIVE COLD CHAIN SOLUTIONS – FOOD | LIFE SCIENCE |  
FOOD SAFETY | AEROSPACE & INDUSTRIAL | IN-TRANSIT & DISTRIBUTION



## PRODUCTS

**A. Digital & Min/Max Thermometers** | Application: Food Establishments, Distribution Centers, Cold Storage, Processing Facilities

- #11036 – FlashCheck Waterproof Min/Max Lollipop Thermometer
- #11040 – FlashCheck Lollipop Waterproof Auto-Cal Digital Min/Max Thermometer with Reduced Tip Probe
- #11047 – FlashCheck Digital Lollipop, Min/Max 200mm (~8") Probe Thermometer
- #11050 – FlashCheck Waterproof Lollipop, Auto-Cal, Min/Max Probe Thermometer
- #11061 – FlashCheck Auto-Cal Waterproof Industrial Digital Probe Thermometer
- #11069 – FlashCheck Needle Probe Thermometer
- #11082 – FlashCheck Jumbo Display Digital Probe Lab Thermometer
- #11083 – FlashCheck Jumbo Display Auto-Cal Anti-Microbial Thermometer with Needle Tip Probe
- #15051 – FlashCheck Waterproof Min/Max Folding Probe Thermometer
- #12217 – FlashCheck Min/Max Alarm Digital Thermometer, Blunt Probe, 9.8ft (3m) cable
- #12214 – FlashCheck Waterproof Dishwasher Thermometer. Kit with Auto-Cal



# DELTATRAK – USA DATALOGGER



INNOVATIVE COLD CHAIN SOLUTIONS – FOOD | LIFE SCIENCE |  
FOOD SAFETY | AEROSPACE & INDUSTRIAL | IN-TRANSIT & DISTRIBUTION

## PRODUCTS

**B. Thermo-Hygrometers** | Food Distribution, Storage Areas, Hospitals, Pharmacies, Blood Banks, Greenhouses, Broiler Houses, Hatcheries, Clean Rooms, Walk-in Coolers



#13308 – Pocket Type Thermo-Hygrometer

#13309 – Jumbo Display Wall Mount Thermo-Hygrometer

**B.1 Infrared Non-Contact Thermometers** | Food Establishments, Distribution Centers, Cold Storage, Processing Facilities, Moving Products, Hard to Reach Areas



#15006 – ThermoTrace Waterproof Infrared, with Laser, 15:1 (0°C–500°C)

#15006-40 – ThermoTrace Waterproof Infrared, with Laser, 15:1 (-30°C–200°C)

#15039 – ThermoTrace® Infrared/Thermocouple Probe Combo Thermometer, 8:1

#15041 – Infrared Gun Thermometer -76°F to 932°F (-60°C to 500°C)

#15201/#15202 – On Line IR, with LCD Display (BA-06TA/TV) 0°C–500°C

#15203/#15204 – On Line IR, with LCD Display (BA-30TA/TV)

**B.2 Heat/Cool Thermometers** | Application: Count down or count up timer for cooking and cooling



#26003 – Automated Cooking/Cool Down Thermometer

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## PRODUCTS

### C. Chart Recorder

**C.1 In-Transit Chart Recorder** | Application: Food Establishments,  
Distribution Centers, Cold Storage, Processing

Temperature range: -20°F to 100°F (-29°C to 38°C); 32°F to 150°F (0°C to 65°C)  
and -40°F to 80° (F40°C to 27°C)

#16000 – In-Transit 5-Day Temperature Recorder

#16100 – In-Transit 10-Day Temperature Recorder

#16200 – In-Transit 20-Day Temperature Recorder

#16300 – In-Transit 30-Day Temperature Recorder

#16350 – In-Transit 40-Day Temperature Recorder

#16400 – In-Transit 60-Day Temperature Recorder

#16500 – In-Transit 90-Day Temperature Recorder



### C.2 Electronic Circular Temperature Chart Recorder |

Applications: Measure Temperature of Air, Gas, Liquids, Powders, Semi-solids

#14010

#14011

#14012



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## PRODUCTS

### D. Loggers

**D.1 High Temperature Stainless Steel Data Logger** | Application:  
Wet Environments, Autoclave Validation, Food Processing (Pasteurization,  
Flash Freezing, Chill Blast Operations), Bottles, Vials, Hard-to-Reach or  
Harsh Environments

#20629 – High Temp Stainless Steel Data Logger (1 inch), temperature -40°F  
to 284°F (-40°C to 140°C)

#20630 – High Temp Stainless Steel Data Logger with external flex probe,  
measure up to 662°F (350°C)

#20633 – High Temperature Stainless Steel Data Logger with External Probe  
(5 inches) measure -328°F to 500°F (-200°C to 260°C)



**D.2 In Transit Loggers** | Wireless Monitoring | Single Use

**D.2.1 FlashLink® Mini In-Transit Logger** | Applications: Produce,  
Prepared Foods, Pharmaceuticals, Chemicals, Storage Units, Refrigerators

#30014-02 – 15 Day

#30016-02 – 75 Day



**D.2.2 FlashLink® VU In-Transit Logger** | Applications: Transport,  
Cold Storage, Processing Facilities

Print data using Graphics Printer, FlashLink Data Manager software or download  
to PC as secure PDF report

#20741 – 5-Day, -40°F to 150°F | #20745 – °C models

#20742 – 15-Day, -40°F to 150°F | #20746 – °C models

#20743 – 45-Day, -40°F to 150°F | #20747 – °C models

#20744 – 75-Day, -40°F to 150°F | #20748 – °C models

#20879 – 15-Day, Pre-set Alarms: High 41°F; Low 33°F; Delay start 30min;  
Alarm Delay 30min

#20862 – 15-Day, Pre-set Alarms: High 36°F; Low 28°F; Delay start 30min;  
Alarm Delay 30min



**D.2.3 FlashLink® BLE (Blue Tooth) In-Transit Logger** | Applications:  
Refrigerated vans, trucks, containers, rail and air shipments

Access data on mobile device up to ~65 feet/20 meters away through app |  
Access PDF reports from USB connection or through the app

#40909 – Temperature

#40910 – Temperature, Humidity Logger and Location



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## PRODUCTS

**D.2.4 FlashLink® USB PDF In-Transit Logger** | Applications:  
Export shipments, Vaccines, clinical trial drugs, insulin, biologics,  
and other pharmaceuticals

Onboard software automatically creates a PDF report and CSV file

#31010 – °F/°C (GMT 0; Delay start 30min)

#31011 – °F/°C (GMT 0; Pre-set Alarms: Low 2°C; High 8°C; Delay start 30min)

#31012 – °F/°C (GMT 0; Pre-set Alarms: Low 15°C; High 25°C; Delay  
start 30min)



**D.2.5 FlashLink® Dry Ice USB PDF In-Transit Logger** | Applications:  
Monitoring and recording of vaccines, biological materials, chemicals, or dry  
ice shipments, Meets IATA Dangerous Goods Regulations

#40701 – Monitor in a -115.6°F/-82°C environment up to 85 consecutive days

**D.2.6 FlashLink® PDF VU In-Transit Logger** | Applications: Transport of  
Produce, Prepared Foods, Pharmaceuticals, Chemicals, Storage Units, Refrigerators

#40457 – 15-day, °F, 30 min delay start

#40458 – °F, 30 min delay start

#40443 – °C, 30 min delay start



**D.2.7 FlashLink® RTL (Real Time) Prime 3G In-Transit Logger** |  
Applications: Monitor location, temperature, humidity, light and shock during  
transport and storage

#22362-01 – RTL Prime 2G In-Transit Logger, 15-day

#22362-02 – RTL Prime 2G In-Transit Logger, 60-day

#22366-01 – RTL Prime 3G In-Transit Logger, 60-day

#22367 – RTL Prime 3G-2T In-Transit Logger, 60-day, External Sharp Tip Probe,  
50ft/15m cable

#22368 – RTL Prime 3G Cryo, 60-day, External Blunt Tip Probe, 3ft/1m cable  
Monitor ultra low temperature during storage and transport using dry  
ice or cryo (icy cold) or liquid nitrogen

#22369 – RTL Prime 3G In-Transit Logger, 90-Day, Temp, Light, RH, Shock



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## PRODUCTS

### E. Temperature Labels – Food Safety Products

**E.1 Thermal Labels** | Application: Manufacturing, Processing, Storage, Shipping, Sensitive Products, Dishwashers, Heat Sanitizing, Ovens, Dryers, Retort, Curing Operations

#### E.1.1 Single Temperature Labels

- #50109\* – 140°F (60.0°C)
- #50110\* – 150°F (65.6°C)
- #50111 – 160°F (71.0°C)
- #50112 – 170°F (77.0°C)
- #50113 – 180°F (82.0°C)
- #50114 – 190°F (88.0°C)
- #50120 – 250°F (121.0°C)

#### E.1.2 Three Level Temperature Labels

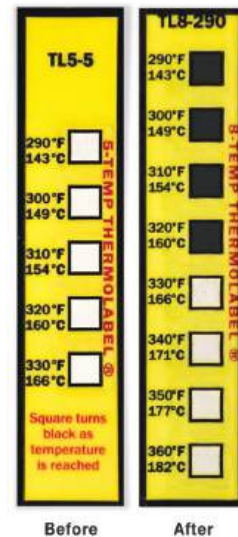
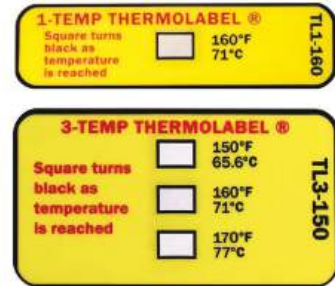
- #50301\* – 150°F to 170°F (65.6° to 76.7°C)
- #50302 – 160°F to 180°F (71° to 82°C)

#### E.1.3 Five Level Temperature Labels

- #50501\* – 100°F to 130°F (37.8° to 54.4°C)
- #50502\* – 140°F to 180°F (60° to 82.0°C)
- #50503 – 190°F to 230°F (88° to 110.0°C)
- #50504 – 240°F to 280°F (116° to 138.0°C)
- #50505 – 290°F to 330°F (143° to 166.0°C)
- #50506 – 340°F to 380°F (171° to 193.0°C)
- #50507 – 390°F to 435°F (199° to 224.0°C)
- #50508 – 450°F to 500°F (232° to 260.0°C)
- #50510\* – 90°F to 130°F (32.2° to 54.4°C)

#### E.1.4 Eight Level Temperature Labels

- #50801\* – 100° to 160°F (37.8° to 71.0°C)
- #50802\* – 130° to 200°F (54.4° to 93.0°C)
- #50803 – 170° to 240°F (77° to 116.0°C)
- #50804 – 210° to 280°F (99° to 138.0°C)



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## PRODUCTS

#50805 – 250° to 320°F (121° to 160.0°C)

#50806 – 290° to 360°F (143° to 182.0°C)

#50807 – 330° to 400°F (166° to 204.0°C)

#50808 – 370° to 450°F (188° to 232.0°C)

#50809 – 410° to 500°F (210° to 260.0°C)

**E.2 TempDot High Temperature** | Applications: Dishwasher & Pot Washers

Complies with FDA Food Code 4-703.11 (B) for sanitization

#54125/#54126 – TempDot Thermal Label, 160°F/71°C

**E.3 ColdMark® Temperature Indicator** | Applications: Tamperproof method of verifying when freeze damage has occurred during shipping, storage, or handling

#51001 – ColdMark, 32°F (0°C)

#51002 – ColdMark, 26°F (-3°C)

**E.4 TempDot Freeze Indicator** | Applications: Pharmaceuticals, Biologics and Specimens

#54001 – TempDot Freeze Indicator Label, 32°F (0°C)

**E.5 TempDot® Plus Blood Temp 10** | Applications: Transport/Distribution of Blood Products

#51064 – TempDot Plus Blood Temp 10, 10°C (50°F)

#51066 – TempDot Plus Blood Temp 6, 6°C (43°F)

**E.5 pH Plastic Indicator** | Applications: Liquid, Semi-Solid, Solid Food

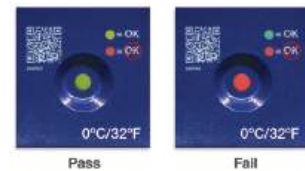
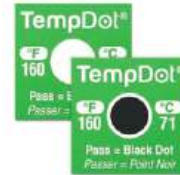
#50012

**E.6 Quaternary Ammonium Test Papers** | Application : Food Utensils

#50013

**E.7 Chlorine Test Papers** | Applications: Food Utensils

#50014



# PRESSURE GAUGE

## PRODUCTS



### Bourdon Tube Pressure Gauges

- ✓ Bourdon tube gauges are used for the measurement of high pressure up to 1000 bar and vacuum to -1 bar of gases, steam and fluids
- ✓ The case size ranges from 40mm to 100mm
- ✓ Manodamp® axle damping movement is available for cases with 100mm and 160mm
- ✓ The accuracy is between  $\pm 0,1\%$  and  $\pm 2,5\%$  of full scale deflection
- ✓ The bourdon tube can be made of brass, stainless steel or monel in case of aggressive medium
- ✓ The ambient temperature shall be  $-40\dots+60^{\circ}\text{C}$ ; the medium temperature not higher than  $+60^{\circ}\text{C}$  using brass connection and  $+200^{\circ}\text{C}$  using "UNI" type gauges made of stainless steel



### Diaphragm Pressure Gauges

- ✓ A thin, concentrically corrugated diaphragm will be fixed between two flanges
- ✓ Diaphragm pressure gauges are used for the measurement of pressure up to 40 bar and vacuum to -1 bar of gases, steam and fluids
- ✓ Accuracy is  $\pm 1,6\%$  of full scale deflection
- ✓ The diaphragm can be protected against aggressive medium using foils made of Tantalum, Hastelloy C etc. or PTFE-coating
- ✓ The connecting part can be made or protected with suitable material, i.e. SS 316L, PP, PVC, PVDF etc.
- ✓ Diaphragm pressure gauges with open measuring flange are perfectly suited for high viscous, crystallizing and solid matter containing medium in Industries like Palm Oil or Cooking Oil
- ✓ The ambient temperature shall be  $-20\dots+60^{\circ}\text{C}$ ; the medium temperature not higher than  $+100^{\circ}\text{C}$



### Capsule Pressure Gauges

- ✓ Capsule pressure gauges are used for the measurement of low positive or negative values up to 600 mbar
- ✓ Accuracy is  $\pm 1,6\%$  of full scale deflection
- ✓ The capsule is made of brass or SS316 and used for measuring gases only
- ✓ The ambient temperature shall be  $-20\dots+60^{\circ}\text{C}$ ; the medium temperature not to be higher than  $+100^{\circ}\text{C}$



### Differential Pressure Gauges

- ✓ DP Gauges are available from 0-1 bar to 0-25 bar with cases in 100mm and 160mm
- ✓ They are made of stainless steel with standard connections of  $\frac{1}{2}$ " BSP
- ✓ Differential pressure gauges are used for the measurement of gases and fluids; these can also be aggressive
- ✓ Accuracy is  $\pm 1,6\%$  of full scale deflection
- ✓ The ambient temperature shall be  $-20\dots+60^{\circ}\text{C}$ ; the medium temperature not higher than  $+100^{\circ}\text{C}$

# ACCESSORIES

Our storehouse boasts a massive variety of temperature accessories, items such as:

## 1. Wire Cables

Our Thermocouple and Resistance wire from well-established manufacturing principles based in the EU, Korea, Taiwan, India and China, and who have a long-standing arrangement with our company.

These solution are applicable to various industries including the Oil & Gas Industry; Aerospace Industry; Semi-Conductor Industry; Marine Industry, F&B Industry, etc.

## 2. Connectors

We do keep stocks for type K, J, N, T, R & S and RTD.

Models of connectors:

- **Mini Connectors:**
  - o Mini Pin Connector
  - o Mini Round Panel Mount
  - o Mini Square Panel Mount
- **Standard Prong Connectors:**
  - o Standard Prong Connector
  - o Standard Round Panel Connector
  - o Standard Square Panel Mount

Materials of Connectors:

- Glassfilled Thermoplastic 220°C
- Heavyduty Plastic Body 425°C
- Ceramic 650°C

## 3. Junction Box/Head

Different materials and sizes we have in our store:

- **Die-Cast Aluminium Head**
- **Stainless Steel**
- **Explosion Proof (Epoxy or Non-Epoxy Coated)**
  - o ATEX | FM Approved | IECEX

Based on Size:

- Mini Head
- KSE Small Head
- KNE Big Head
- Din Head
- "T" Head
- Etc.

## 4. Others

We carrying various item in our warehouse in order to provide more choices products to our customers

- i. Thermostat
- ii. Thermometer: Single/Dual/Multi channels
- iii. Thermo-Hygrometer
- iv. Etc.



THERMOMETER  
DATALOGGER  
MULTI INPUT &  
MULTI CHANNEL



HYGROMETER



MINI CONNECTOR



HEAD



STANDARD  
CONNECTOR



THERMOSTAT



CONNECTOR DOUBLE  
AND 3 PIN



TRANSMITTER






# TECHNICAL INFO

## THERMOCOUPLE APPLICATION

TYPE	APPLICATION INFORMATION
E	Recommended for continuously oxidizing or inert atmospheres. Sub-zero limits of error not established. Highest thermoelectric output of the common thermocouple types.
J	Suitable for vacuum, reducing or inert atmospheres, oxidizing atmospheres with reduced life. Iron oxidizes rapidly above 1000°F (538°C) so only heavy gauge wire is recommended for high temperature. Bare elements should not be exposed to sulfurous atmospheres above 1000°F (538°C).
K	Recommended for continuous oxidizing or neutral atmospheres. Mostly used above 1000°F (538°C). Subject to failure if exposed to sulfur. Preferential oxidation of chromium in positive leg at certain low oxygen concentrations causes "green rot" and large negative calibration drifts most serious in the 1500 – 1900°F (816 – 1038°C) range. Ventilation or inert sealing of the protection tube can prevent this.
N	Can be used in applications where Type K elements have shorter life and stability problems due to oxidation and the development of "green rot".
T	Usable in oxidizing, reducing, or inert atmospheres as well as vacuum. Not subject to corrosion in moist atmospheres. Limits of error published for sub-zero temperature ranges.
R & S	Recommended for high temperature. Must be protected in a non-metallic protection tube and ceramic insulators. Continued high temperature usage causes grain growth which can lead to mechanical failure. Negative calibration drift caused by rhodium diffusion to the pure leg of platinum as well as from rhodium volatilization. Type R is used in industry, Type S in the laboratory.
B	Same as R & S but has a lower output. Also, has a higher maximum temperature and less susceptible to grain growth.

## INTERNATIONAL COLOR CODES

### Wire Color Codes:

THERMOCOUPLE EXTENSION TYPE							
		ANSI	BS	DIN	NFC	JIS	IEC
JX	Iron +						
	Constantan® -						
KX	Chromel® +						
	Alumel® -						
TX	Copper +						
	Constantan® -						
EX	Chromel® +						
	Constantan® -						
NX	Nicrosil® +						
	Nisil® -						
SX	Copper +						
	Alloy II -						

# TECHNICAL INFO

## MATERIAL PROPERTIES (WIRE)

Material Type	Continuous Operating Temperature	Abrasion Resistance	Chemical Resistance
PE	176°F (80°C)	Good	Excellent
CPE	194°F (90°C)	Very Good	Excellent
PVC	221°F (105°C)	Very Good	Very Good
TPE	257°F (125°C)	Excellent	Poor
Nylon	250°F (121°C)	Excellent	Very Good
ETFE	300°F (150°C)	Excellent	Excellent
FEP	400°F (200°C)	Excellent	Excellent
TE/D	400°F (200°C)	Excellent	Excellent
PFA	500°F (260°C)	Excellent	Excellent
PTFE	500°F (260°C)	Good	Excellent
Polyimide	500°F (260°C)	Excellent	Excellent
B-Fiber*	500°F (260°C)	Good	Good
G-Glass*	950°F (510°C)	Poor	Good
Q-Glass*	1300°F (704°C)	Fair	Good
HG	1800°F (982°C)	Poor	Good
CEFIR™	2200°F (1204°C)	Fair	Good
PE	Excellent	Excellent	Poor
CPE	Excellent	Excellent	Excellent
PVC	Good	Fair	Excellent
TPE	Good	Good	Excellent
Nylon	Fair	Good	Poor
ETFE	Excellent	Excellent	Excellent
FEP	Excellent	Excellent	Excellent
TE/D	Excellent	Excellent	Excellent
PFA	Excellent	Excellent	Excellent
PTFE	Excellent	Excellent	Excellent
Polyimide	Excellent	Good	Good
B-Fiber*	Fair	Good	Good
G-Glass*	Good	Excellent	Excellent
Q-Glass*	Good	Excellent	Excellent
HG	Poor	Excellent	Excellent
CEFIR™	Fair	Excellent	Excellent

\*Performance characteristics of fibrous products are improved with impregnation. Impregnation maintained to 400°F (200°C).

# CERTIFICATES

**CERTIFICATION OF REGISTRATION**  
 The Governing Board of  
 QAI Certification Pte Ltd  
 Hereby grants to:

**THERMOTRON-CE TECHNOLOGY PTE LTD**  
 Registration No. QAI/SG/18423

(Thereby called the registered company) the right to be listed in the Directory of Registered Companies in respect to the services listed below. These services shall be offered by the Registered Companies at or from only the address given below in accordance with the Quality Management System in compliance with

**ISO 9001: 2015**

Address to which this certificate refers:

**No. 10, Bukit Batok Crescent, #05-03, The Spire,  
 Singapore 658079**

Approved Scope to which this certificate refers:

**Manufacture and Sales of Thermocouples and Engineering  
 related Components**

**Manufacture and Sales of Silicon Rubber Heater and Fabric  
 Heater**

Certificate Issue Date: 22<sup>nd</sup> August 2024  
 Date of Initial Registration: 22<sup>nd</sup> August 2018  
 Certificate Valid until: 21<sup>st</sup> August 2027

subject to adherence to the agreement going audit program, successful endorsement of certification following each audit and compliance with QAI/SG regulations. This Certificate of Registration is granted subject to the Regulations approved by the Review Committee.

  
 Certification Manager  
 Mr Iverson Sim



**QAI Certification Pte Ltd**  
 153, Bukit Batok Street 11,  
 #04-300, Singapore 650153  
 T: +65 63422946  
 F: +65 63421483  
 E: [info@qai.com.sg](mailto:info@qai.com.sg)



**Accredited  
 Certification  
 Body  
 SAC**  
 08-2011-18



Date of issue: 22/03/2024



## CERTIFICATE

The Workplace Safety and Health Council  
 is pleased to certify that

**THERMOTRON - CE TECHNOLOGY PTE LTD**  
 has fulfilled the requirements to attain bizSAFE Level 3

This certificate is valid till 21/03/2027

**Christopher Koh**  
 General Manager  
 Workplace Safety and Health Council

Certificate No. E21583

**SINGAPORE LABORATORY  
 ACCREDITATION SCHEME**



Number : **LA-2015-0596-C**

Date of issue : **02 June 2023**

Date of Expiry : **01 June 2027**

## Certificate of Accreditation

This certifies that

**Thermotron-CE Technology Pte Ltd**  
**10 Bukit Batok Crescent**  
**#05-03 The Spire**  
**Singapore 658079**

is accredited by the Singapore Accreditation Council to

**ISO / IEC. 17025 : 2017**

for specific scope within the field of

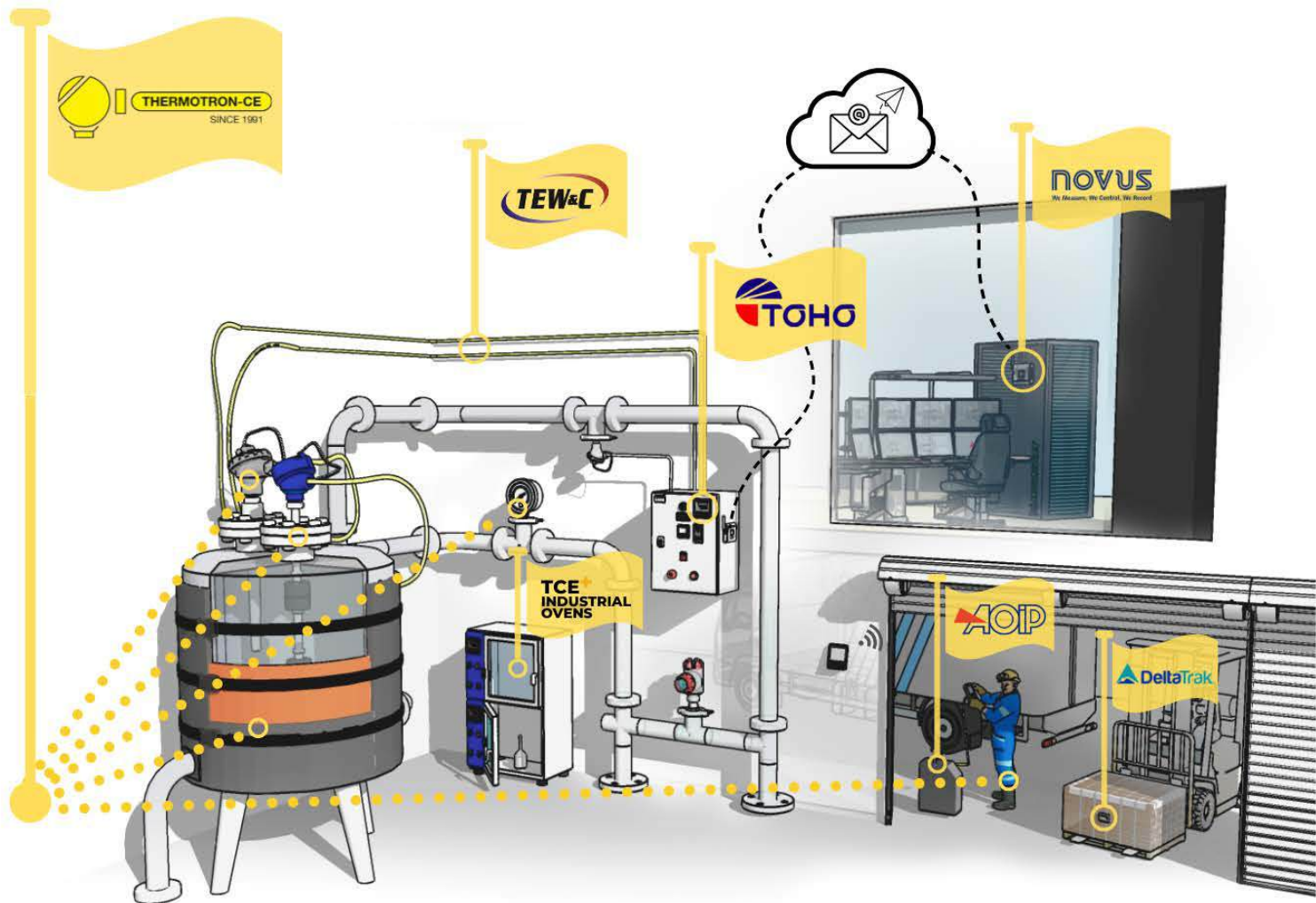
**Calibration & Measurement**

as detailed in the attached schedule.

  
 Chairman

This Certificate is awarded subject to the organization's compliance with the stated criteria and terms and conditions laid down by the Singapore Accreditation Council.  
 This Certificate may not be reproduced except with the written permission of the Chairman.

# ONE-STOP TEMPERATURE SOLUTION



| HEATING | MEASURING | LEVELLING | CONTROLLING | MAINTAINING | SERVICING |

## HEADQUARTERS

### Thermotron-CE Technology Pte Ltd

10 Bukit Batok Crescent #05-03 | The Spire | Singapore 658079

Telephone: (+65) 6896 1586 | Whatsapp: (+65) 9829 4363

Fax: (+65) 6896 2593 | Email: mailbox@thermotron-ce.com.sg



Contact Detail

## FACTORY BRANCH

### PT Merak Karya Makmur

Jln. Kerapu Komplek MCP

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Riau Island - Indonesia



E-Catalogue