

# PRESYS®

Dry Block  
Temperature  
Calibrators

Universal  
Process  
Calibrators

## Dry Block Temperature Calibrators

New Advanced  
TA Series

Automatic  
Pressure  
Calibrators

# SMART CALIBRATORS

CMMS - ERP

Starting a new age of  
temperature calibrators

Ready for Industry 4.0

**HART**  
COMMUNICATION PROTOCOL



[www.presys.com.br](http://www.presys.com.br)

# TA Temperature Calibrators

The New TA Advanced Temperature Calibrators are the result of our 20 years experience in dry block calibrators manufacturing.

The calibration of your sensors has never been so easy with the TA user-friendly interface on its large touch screen. You can get now a calibration test report at your finger tip without installing any specific software.

The TA makes it all! It has an internal temperature standard, a calibrator for your DUT (Device Under test) measurements and an internal powerful processor to control the automatic cycling and generates the calibration reports.

The TA dry block will also connect easily to your metrology or CMMS (Computerized Maintenance Management System) applications as it has an open and documented protocol as well as different modern way to communicate through an Ethernet, Wi-Fi or USB interface.

TA series are available for a wide temperature range from -60 °C to 1200 °C covering most of your industrial temperature calibration needs and they are conform to EURAMET/cg-13/V03, EA Guidelines.



## Common features of our TA Advanced Series

- ▶ 5.7" Touch Screen Color Display. Dual Core 1 GHz processor and Flash memory of 16 GB.
- ▶ Electric Power Supply: 115 or 230 Vac, 50/60 Hz.
- ▶ Unit/Temperature Scales: °C, °F and K, IPTS-68 or ITS-90, user selectable.
- ▶ Ethernet, Wi-Fi via USB/Ethernet router adapter, Serial USB with SCPI protocol.
- ▶ Host/Device USB port.
- ▶ Optional HART® Communication, HART® Digital Calibration.
- ▶ Input Thermocouple: J, K, T, N, L:  $\pm 0.2$  °C @ 660 °C / E:  $\pm 0.1$  °C @ 660 °C / R, S, C:  $\pm 0.7$  °C @ 660 °C.
- ▶ CJC Accuracy:  $\pm 0.2$  °C.
- ▶ Input RTD: 2, 3, 4 Wires / Pt-100, Pt-1000 /  $\pm 0.1$  °C.
- ▶ Thermostats Automatic Test and Reporting.
- ▶ Input Current: -1 to 24.5 mA,  $\pm 0.01\%$  FS.
- ▶ Transmitter Power Supply: 24 Vdc regulated.
- ▶ External Reference Sensor Input (TC for TA-1200P).
- ▶ Automatic self-calibration using external reference probe.
- ▶ Temperature Ramp Setting.

# User-friendly Interface

With an easy, clear and intuitive interface, available in different languages, you will be ready to do your first calibration after a few minutes.

The main interface shows the following elements:

- Logged User:** USER#Admin
- Setpoint:** SET= 40.00 °C
- Reference Selection:** REFERENCE
- Stabilizator Indicator:** A small icon indicating the stabilizer status.
- Stirrer Activation and Velocity:** STIRRER OFF, with a velocity scale from -100% to 100%.
- Display of Reference Temperature:** 38.40 °C
- Selected Input:** RTD Pt-100 (IEC) 4 WIRES
- DUT Value in Degrees:** 40.53 °C
- Electrical Signal Value (Ohms, mV, mA):** 115.744 Ω

# Inputs

The TA dry block has an internal high-performance calibrator able to read inputs for mA, Thermocouples, RTDs, Thermostats as well (optional) digital signals such as Hart® or Profibus®.

**RTD SETTINGS**

- NUMBER OF WIRES:** 2 WIRES, 3 WIRES, 4 WIRES
- TEMPERATURE SCALE:** ITS-90, IPTS-68, CVD
- STANDARD TABLES:** Pt-100 (IEC), Pt-100 (JIS), Pt-1000, Cu-10, Ni-100
- SENSORS:** STD

RTD can be connected with 2, 3 or 4 wires and you can select various tables such as the IEC 60751, JIS, Callendar Van Dusen or ITS-90.

**THERMOCOUPLE SETTING**

- THERMOCOUPLE TYPE:** TC-J, TC-K, TC-T, TC-B, TC-R, TC-S, TC-E, TC-N, TC-U, TC-L, TC-C
- TEMPERATURE SCALE:** ITS-90, IPTS-68
- CJC:** INTERNAL, MANUAL
- VALUE:** 0.00 °C

Standard thermocouple types can be selected and more tables can be added on request. The Cold Junction Compensation can be internal or external.

**THERMOSWITCH AUTO TEST**

- DRY-BLOCK SETPOINT:** 25.00 °C
- INTERNAL REFERENCE:** 48.03 °C
- START / STOP buttons**
- STATUS:** STOPPED
- PARTIAL RESULTS:** TRIP POINT(T2): = 0, RESET POINT(T1): = 0, DEADBAND(ΔT): = 0

Test of your thermostats can be performed automatically.

**SCALE**

- INPUT LOW:** 4.0000 mA
- SCALE LOW:** 0.00 °C
- INPUT HIGH:** 20.0000 mA
- SCALE HIGH:** 100.00 °C

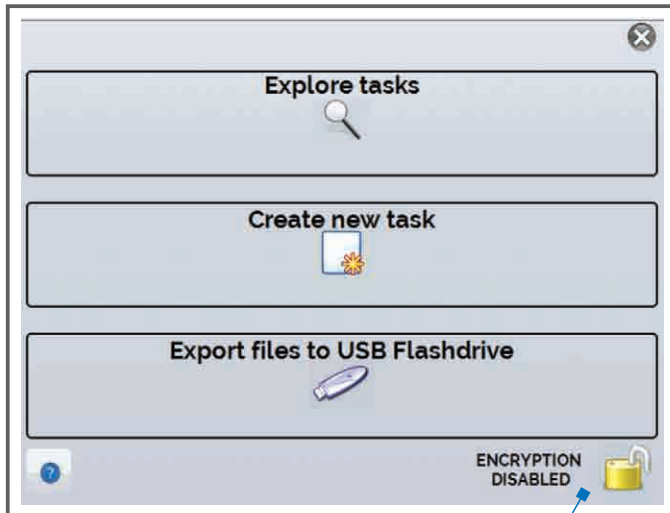
For DUT equipped with a 4-20 mA transmitter, the scaled value of the temperature jointly with the current value can be displayed.

# Automatic Temperature Cycling (Tasks)

Automatic tasks can be easily created and executed to issue a final calibration report with our Advanced TA Calibrator.

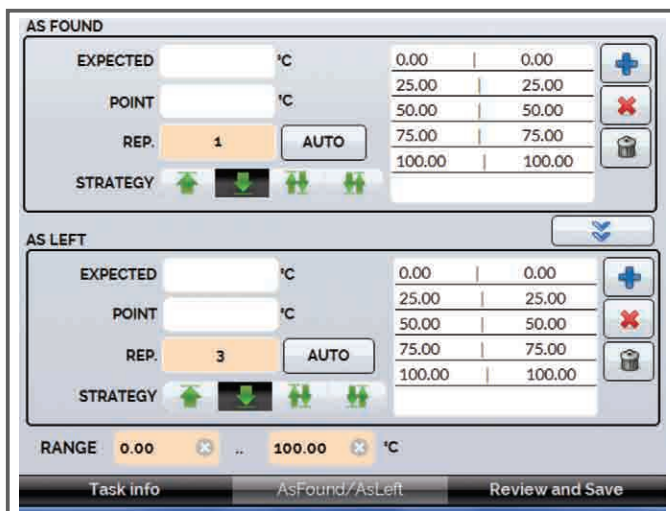
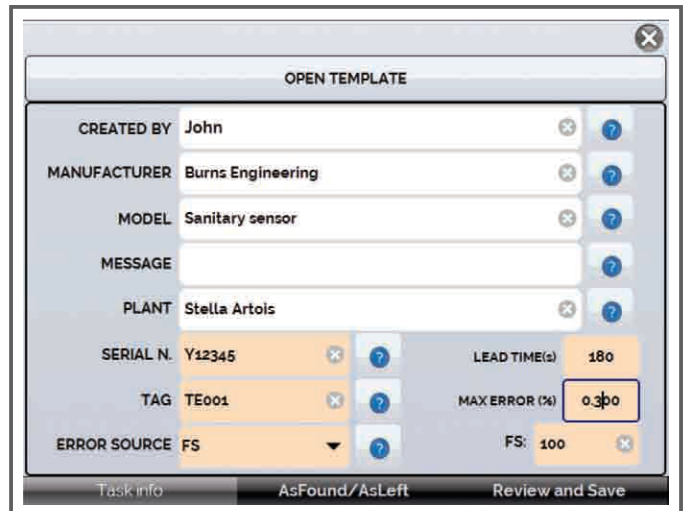
**See for yourself how easy and fast can be an automatic calibration !**

First step is to create a task by entering the relevant data of the calibration you will perform.



You can create tasks using the touch screen display or by connecting remotely from your computer to the TA. Other methods are also possible such as sending task from your application using our XML description or from an existing Excel™ application. The TA dry block can also pick-up a task directly on a remote server. All these possibilities are described and documented in our communication manual.

Communication with your calibration software applications such as ISOPLAN® are encrypted to assure the integrity of your calibration data in accordance with 21 CFR Part 11. When activated by the administrator, the XML data file with calibration information will be encrypted.

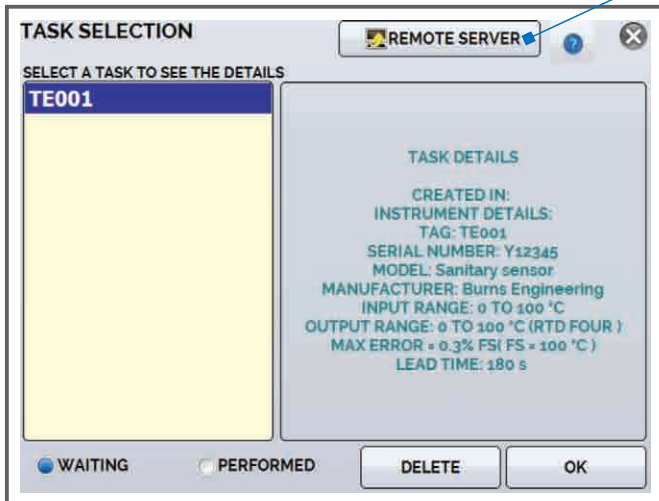


Information about your DUT can be entered such as the model, location, serial number, TAG name and the accepted tolerance.

You can define the temperature setpoints and expected results, different type of cycles, up, down, up and down, down and up and the number of cycles that you want the dry block to perform.



## Access the Remote Server



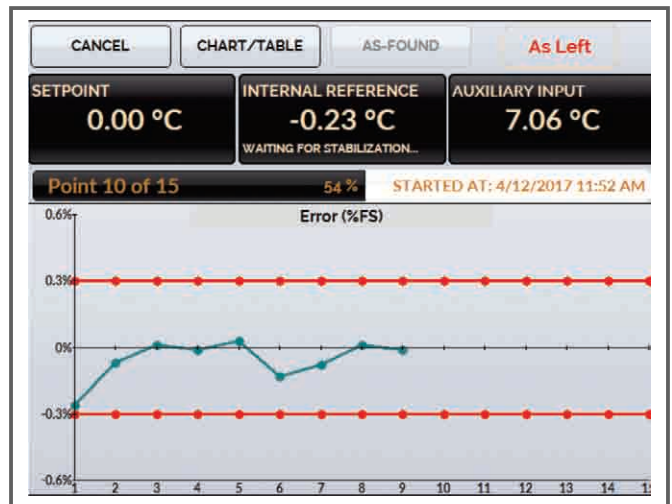
When your task has been created, you can go to the task list to be performed and choose the task you need to execute.

During the execution of the tasks, the TA will display the status of the execution showing the setpoint, the value of the reference and the auxiliary input.

When the dry block is reaching the setpoint, it will wait the defined stabilization time before registering the auxiliary input value.

Graphic is showing the values and the defined error limits.

You can switch easily during the execution from the graphic display to the values.



When the task is finished, several actions can be taken. You can print the report directly to the connected printer.

The calibration report will contain all the sensor information, the calibration information of your dry block and the calibration results.

| POINT     | EXPECTED  | OBTAINED | ABS. ERR. | F SCALE ERR. |
|-----------|-----------|----------|-----------|--------------|
| 100.00 °C | 100.00 °C | 99.74 °C | -0.26 °C  | -0.260%      |
| 75.00 °C  | 75.00 °C  | 74.93 °C | -0.07 °C  | -0.070%      |
| 50.00 °C  | 50.00 °C  | 50.01 °C | 0.01 °C   | 0.010%       |
| 25.00 °C  | 25.00 °C  | 24.99 °C | -0.01 °C  | -0.010%      |
| 0.00 °C   | 0.00 °C   | 0.03 °C  | 0.03 °C   | 0.030%       |
| 100.00 °C | 100.00 °C | 99.87 °C | -0.13 °C  | -0.130%      |
| 75.00 °C  | 75.00 °C  | 74.92 °C | -0.08 °C  | -0.080%      |
| 50.00 °C  | 50.00 °C  | 50.01 °C | 0.01 °C   | 0.010%       |
| 25.00 °C  | 25.00 °C  | 24.99 °C | -0.01 °C  | -0.010%      |
| 0.00 °C   | 0.00 °C   | 0.01 °C  | 0.01 °C   | 0.010%       |
| 100.00 °C | 100.00 °C | 99.89 °C | -0.11 °C  | -0.110%      |
| 75.00 °C  | 75.00 °C  | 74.94 °C | -0.06 °C  | -0.060%      |

It can be complemented with your company logo and your signature that are stored in the TA.

Other possibilities are offered:

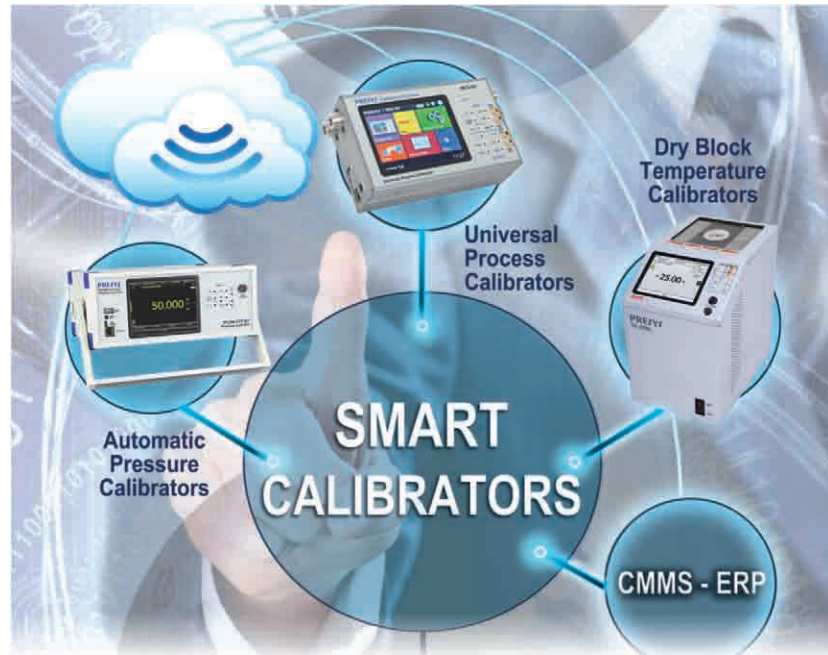
- Sending the results to a USB pendrive (PDF, XML and CSV).
- Accessing with our Web Server application.
- Sending back the results to a Remote Server.

| CALIBRATION REPORT                   |               |                                 |          |                    | PRESYS                      |  |
|--------------------------------------|---------------|---------------------------------|----------|--------------------|-----------------------------|--|
| TAG: TE001                           |               | MODEL: Sanitary sensor          |          |                    |                             |  |
| SERIAL NUMBER: Y12345                |               | MANUFACTURER: Burns Engineering |          |                    |                             |  |
| OUTPUT RANGE: 0 TO 100 °C (RTD FOUR) |               |                                 |          |                    |                             |  |
| INPUT RANGE: 0 TO 100 °C             |               |                                 |          |                    |                             |  |
| STANDARD:                            |               |                                 |          |                    |                             |  |
| MANUFACTURER                         | SERIAL NUMBER | MODEL                           | NEXT CAL | CERTIFICATE NUMBER |                             |  |
| PRESYS                               | 350.07.16     | TA-25NL                         | —        | —                  |                             |  |
| As-found performed by: John Doe      |               |                                 |          |                    |                             |  |
| POINT                                | EXPECTED      | OBTAINED                        | ERROR    | FSCALE ERR.        | PASS/FAIL                   |  |
| 100.00 °C                            | 100.00 °C     | 99.90 °C                        | -0.10 °C | -0.100%            | Pass                        |  |
| 75.00 °C                             | 75.00 °C      | 74.95 °C                        | -0.05 °C | -0.050%            | Pass                        |  |
| 50.00 °C                             | 50.00 °C      | 50.02 °C                        | 0.02 °C  | 0.020%             | Pass                        |  |
| 25.00 °C                             | 25.00 °C      | 25.00 °C                        | 0.00 °C  | 0.000%             | Pass                        |  |
| 0.00 °C                              | 0.00 °C       | 0.04 °C                         | 0.04 °C  | 0.040%             | Pass                        |  |
| DOCUMENT CREATED : 12/04/17          |               | RESPONSIBLE                     |          |                    | Document created : 12/04/17 |  |

# Communication

Various ways to communicate for the user and from applications are available on the TA Series. By connecting your PC on the USB port, the TA will behave as a Mass Storage Device allowing you to retrieve tasks in XML, PDF or CSV (Comma-separated values) format. Connecting the TA on your IP network, several ways are available to get access to the TA system.

- You can access the task folder using the standard network Windows® File System.
- Sending and retrieving tasks file can be done through the HTTP protocol using a WebApi programming interface.
- You can have a remote access from your computer using VNC Software.
- You can access the TA Calibrator using a standard browser through the integrated Web Server.



Ready for the Industry 4.0

The TA Calibrators can communicate with our other calibrators such as the MCS-XV Universal Process Calibrator to share resources. These extended connectivity features make the TA dry block a calibrator ready for the Industry 4.0 able to communicate with any CMMS application.

All these functions can be activated or deactivated in the configuration menu and also protected by a password.

Communication USB/SERIAL  
SCPI Protocol

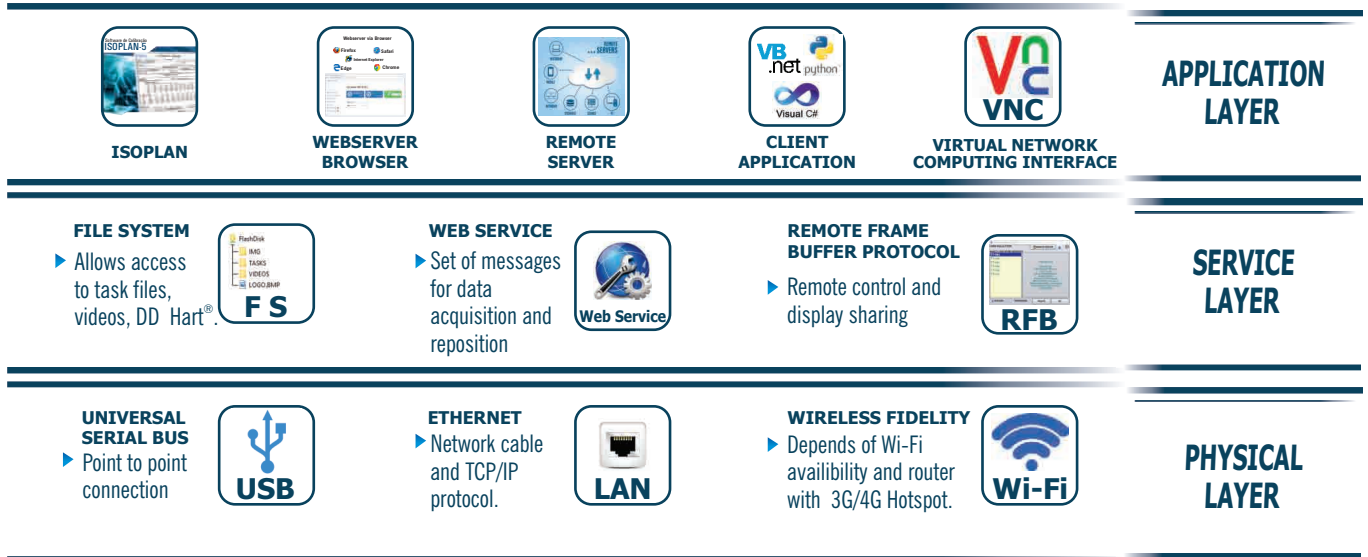
Remote Server Access Path

A screenshot of a configuration menu titled "REMOTE ACCESS" with a close button (X) in the top right corner. The menu is divided into several sections:

- REMOTE ACCESS:** Contains "WEB SERVER" (ON) and "VNC" (ON) toggle switches. The "PORT" is set to "5000".
- SERIAL COMM:** Contains "BAUD RATE" (9600), "STOP BITS" (1), and "EXEC" (OFF) settings.
- FILE SHARING AND USB HOST CONTROL:** Contains "USB STORAGE" (ON), "FILE SHARE(CIFS)" (ON), and "FTP SERVER" (ON) toggle switches. A "SECURITY" button is also present.
- REMOTE SERVER:** Contains a text field with the URL "http://connector.isoplansoftware.com/ItasksCalibrator" and an "OK" button. Below it is a checkbox for "AUTOMATIC UPDATE" and a field for "UPDATE TIME(MINUTES)" set to "1".

At the bottom of the menu, there are four tabs: "DATE AND TIME", "NETWORK", "SERVICES", and "SYSTEM".

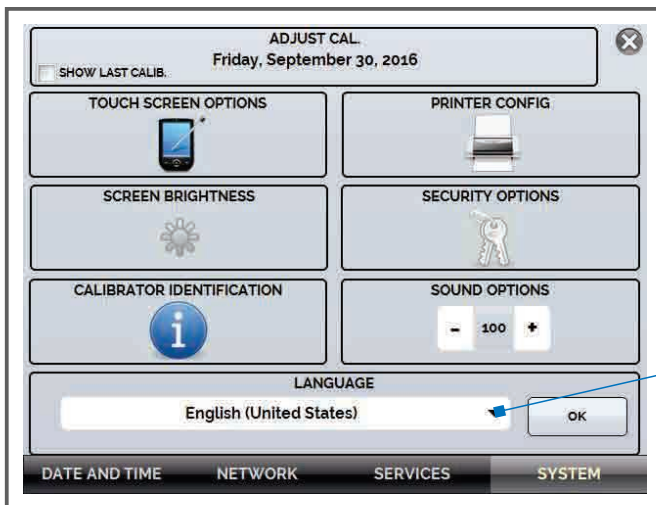
# Connectivity and Communication



## DATA LAYOUT



# Configuration



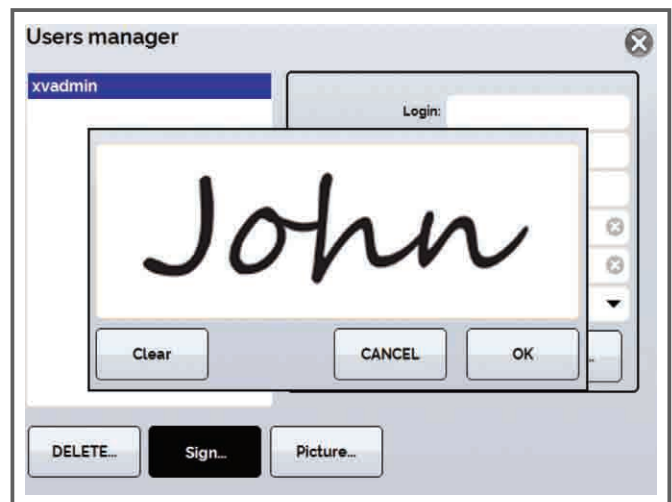
We provide a protected access to the calibration menu of the TA, so that you can send it to any good calibration laboratory in case an adjustment is needed.

Several languages available:  
English, Spanish, French, Portuguese,  
Italian, Russian, Simplified Chinese,  
Ukrainian.

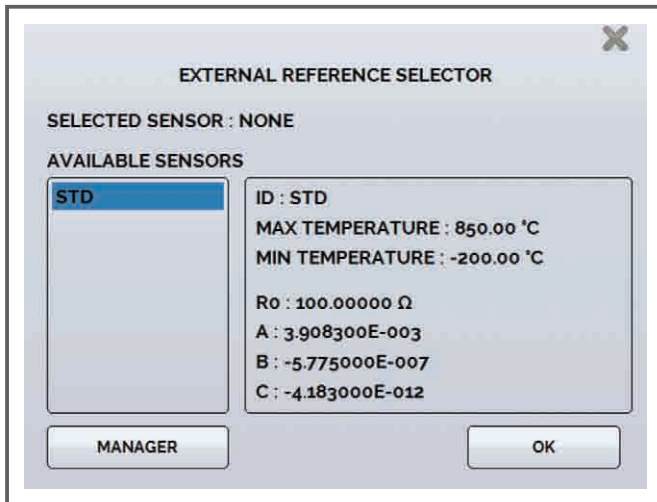
User access can be defined with different types of rights such as operator, technician or administrator.

Their signature that appears on the reports can be entered directly on the touch screen.

The user with operator right will have a limited access to some functions such as the creation of calibration tasks.



# External Reference Sensor



TA dry blocks are provided with an input for an external reference sensor that can be used to improve the accuracy, eliminate the offset and loading effect or work with the specific liquid stirred bath insert, black body insert or sanitary insert.

When selected, the external sensor will be used to control the block temperature.

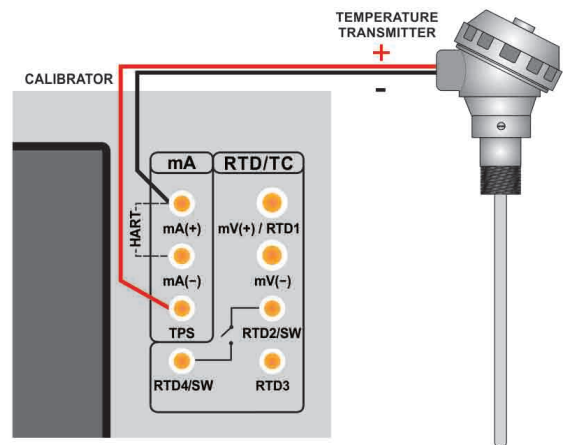
You can easily enter the calibration curve parameters of your sensor (*Callendar-Van Dusen* or *ITS-90*) as well as a temperature protection.

By using this external sensor, you can perform an automatic verification and recalibration of the internal sensor without the need to send your dry block to a laboratory. Consult Presys to advise you for the selection of your sensor.

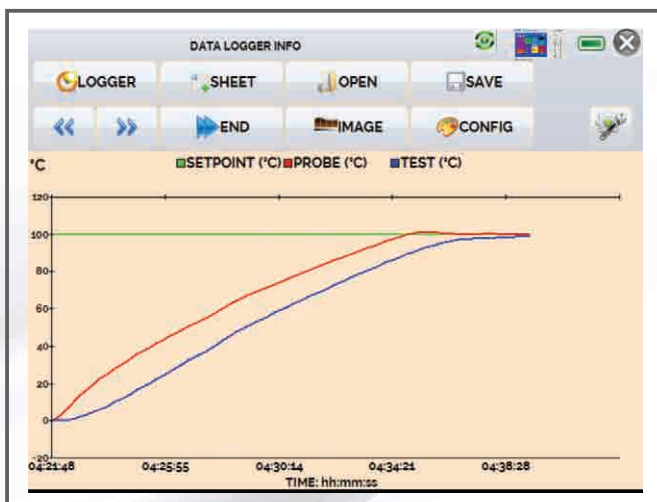
# Hart® / Communication (Optional)

The TA Series Calibrators can be used to read and adjust the parameters of DUT equipped with a Hart® modem interface.

An automatic calibration reading directly the Hart® digital Process Variable value can be performed eliminating the need of another Communicator.



# Data Logger



The TA Series Calibrators allow you to record series of measurements overtime to display data in chart or table format.



# Technical Specifications

## TA-25N / TA-35N / TA-50N

-50 to 155 °C



Models

|  | TA-25N                   | TA-35N                   | TA-50N                   |
|--|--------------------------|--------------------------|--------------------------|
| <b>Operating Range</b><br>ambient temperature: 23 °C | -25 °C to +155 °C        | -35 °C to +155 °C        | -50 °C to +155 °C        |
| <b>Display Accuracy:</b>                             | ± 0.1 °C Full range      | ± 0.1 °C Full range      | ± 0.1 °C Full range      |
| <b>Resolution:</b>                                   | 0.01 °C                  | 0.01 °C                  | 0.01 °C                  |
| <b>Stability:</b>                                    | ± 0.02 °C                | ± 0.02 °C                | ± 0.02 °C                |
| <b>Axial Uniformity (40 mm) Dry Block:</b>           | ± 0.05 °C Full range     | ± 0.06 °C Full range     | ± 0.07 °C Full range     |
| <b>Radial Uniformity Dry Block:</b>                  | ± 0.01 °C Full range     | ± 0.01 °C Full range     | ± 0.02 °C Full range     |
| <b>Heating Time:</b>                                 | 10 min (25 °C to 140 °C) | 16 min (25 °C to 140 °C) | 11 min (25 °C to 140 °C) |
| <b>Cooling Time:</b>                                 | 11 min (25 °C to -25 °C) | 16 min (25 °C to -35 °C) | 25 min (25 °C to -50 °C) |
| <b>Electric Power:</b>                               | 200 W                    | 300 W                    | 400 W                    |
| <b>Well Diameter x Depth:</b>                        | Ø 25.4 mm (1") x 124 mm  | Ø 25.4 mm (1") x 124 mm  | Ø 25.4 mm (1") x 124 mm  |
| <b>Weight:</b>                                       | 10.5 kg                  | 10.5 kg                  | 12.5 kg                  |
| <b>Dimension (HxWxD):</b>                            | 260 x 200 x 305 mm       | 315 x 200 x 305 mm       | 315 x 200 x 305 mm       |

## Order Code

TA-25N / TA-35N / TA-50N -  - IN   -

**Power Supply**

1 - 115 Vac    2 - 230 Vac

**Included Insert**

Choose from those listed below

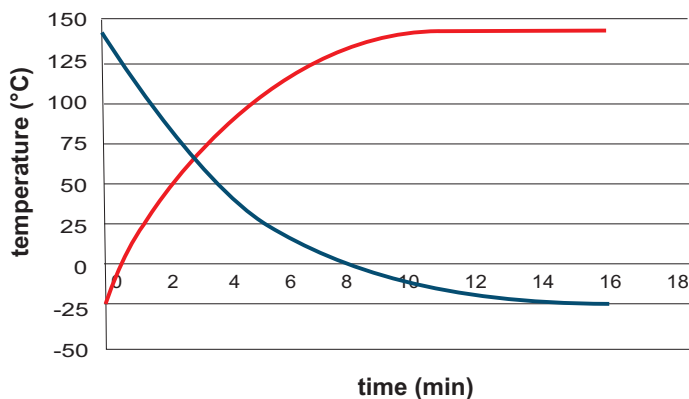
**Hart® Communication**

NH - No Hart® Communication

CH - Hart® Calibrator (basic commands: zero, span, trim mA)

FH - Full-Hart® Configurator, with DD library from *FieldComm Group*.

**TA-25N Dry Block is fast, really fast!**



# Technical Specifications

## TA-25NL / TA-35NL / TA-45NL / TA-60NL

### Multifunctional Large Calibration Volume



Models

|  | TA-25NL                  | TA-35NL                  | TA-45NL                  | TA-60NL                  |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Operating Range</b><br>ambient temperature: 23 °C | -25 °C to +155 °C        | -35 °C to +155 °C        | -45 °C to +155 °C        | -60 °C to +155 °C        |
| <b>Display Accuracy:</b>                             | ± 0.1 °C Full range      | ± 0.1 °C Full range      | ± 0.1 °C Full range      | ± 0.10 °C Full range     |
| <b>Resolution:</b>                                   | 0.01 °C                  | 0.01 °C                  | 0.01 °C                  | 0.01 °C                  |
| <b>Stability:</b>                                    | ± 0.02 °C                | ± 0.02 °C                | ± 0.02 °C                | ± 0.025 °C               |
| <b>Axial Uniformity (40 mm) Dry Block:</b>           | ± 0.06 °C Full range     | ± 0.06 °C Full range     | ± 0.08 °C Full range     | ± 0.04 °C Full range     |
| <b>Radial Uniformity Dry Block:</b>                  | ± 0.02 °C Full range     | ± 0.02 °C Full range     | ± 0.025 °C Full range    | ± 0.02 °C Full range     |
| <b>Axial Uniformity (40 mm) Stirred Liquid:</b>      | ± 0.025 °C Full range    | ± 0.025 °C Full range    | ± 0.025 °C Full range    | ± 0.025 °C Full range    |
| <b>Radial Uniformity Stirred Liquid:</b>             | ± 0.02 °C Full range     | ± 0.02 °C Full range     | ± 0.02 °C Full range     | ± 0.02 °C Full range     |
| <b>Heating Time:</b>                                 | 25 min (25 °C to 140 °C) | 25 min (25 °C to 140 °C) | 20 min (25 °C to 140 °C) | 30 min (25 °C to 140 °C) |
| <b>Cooling Time:</b>                                 | 20 min (25 °C to -25 °C) | 30 min (25 °C to -35 °C) | 40 min (25 °C to -45 °C) | 60 min (25 °C to -60 °C) |
| <b>Electric Power:</b>                               | 300 W                    | 400 W                    | 450 W                    | 870 W                    |
| <b>Well Diameter x Depth:</b>                        | ∅ 35 mm x 160 mm         | ∅ 35 mm x 160 mm         | ∅ 35 mm x 160 mm         | ∅ 35 mm x 160 mm         |
| <b>Weight:</b>                                       | 12.0 kg                  | 11.3 kg                  | 12.0 kg                  | 17.0 kg                  |
| <b>Dimension (HxWxD):</b>                            | 200 x 290 x 310 mm       | 200 x 290 x 310 mm       | 200 x 290 x 310 mm       | 370 x 306 x 450 mm       |

## Order Code

TA-25NL / TA-35NL / TA-45NL / TA-60NL -  - IN   -   -   -

### Power Supply

1 - 115 Vac    2 - 230 Vac

### Included Insert

Choose from those listed below

### Optional

AG - Stirred Liquid Insert

### Optional

BB - Black Body Insert

### Hart® Communication

NH - No Hart® Communication

CH - Hart® Calibrator (basic commands: zero, span, trim mA)

FH - Full-Hart® Configurator, with DD library from *FieldComm Group*.



# Technical Specifications

## TA-35NLL / TA-45NLL / TA-300PLL

### Multifunctional Large Calibration Volume

-45 to 300 °C



Models

|  | TA-35NLL                    | TA-45NLL                    | TA-300PLL                             |
|--|-----------------------------|-----------------------------|---------------------------------------|
| <b>Operating Range</b><br>ambient temperature: 23 °C | - 35 °C to 140 °C           | - 45 °C to 140 °C           | from ambient temperature to 300 °C    |
| <b>Display Accuracy:</b>                             | ± 0.1 °C                    | ± 0.1 °C                    | ± (0.1 °C + 0.1% of reading)          |
| <b>Resolution:</b>                                   | 0.01 °C                     | 0.01 °C                     | 0.01 °C                               |
| <b>Stability:</b>                                    | better than ± 0.01 °C       | ± 0.01 °C                   | better than ± 0.01 °C                 |
| <b>Radial Uniformity (homogeneity):</b>              | < 0.007 °C (Stirred Liquid) | < 0.007 °C (Stirred Liquid) | < 0.008 °C (Stirred Liquid at 180 °C) |
| <b>Axial Uniformity (homogeneity):</b>               | < 0.008 °C (Stirred Liquid) | < 0.008 °C (Stirred Liquid) | < 0.01 °C (Stirred Liquid at 180 °C)  |
| <b>Heating Time:</b>                                 | 60 min (25 °C to 140 °C)    | 50 min (25 °C to 140 °C)    | 25 min (25 °C to 300 °C)              |
| <b>Cooling Time:</b>                                 | 70 min (25 °C to -35 °C)    | 60 min (25 °C to -45 °C)    | 100 min (300 °C to 100 °C)            |
| <b>Electric Power:</b>                               | 450 W                       | 870 W                       | 1000 W                                |
| <b>Well Diameter x Depth:</b>                        | ∅ 59 mm x 170 mm            | ∅ 59 mm x 170 mm            | ∅ 59 mm x 200 mm                      |
| <b>Weight:</b>                                       | 14.8 kg                     | 17 kg                       | 11.0 kg                               |
| <b>Dimension (HxWxD):</b>                            | 399 x 199 x 353 mm          | 370 x 306 x 450 mm          | 380 x 200 x 305 mm                    |

## Order Code

TA-35NLL / TA-45NLL / TA-300PLL -  -    IN   -

### Power Supply

1 - 115 Vac    2 - 230 Vac

### Included Insert

AG - Stirred Liquid Kit

### Optional

Choose from those listed below.

### Hart® Communication

NH - No Hart® Communication

CH - Hart® Calibrator (basic commands: zero, span, trim mA)

FH - Full-Hart® Configurator, with DD library from *FieldComm Group*.



| Inserts | Holes                                   | TA-35NLL      | TA-45NLL | TA-300PLL     |
|---------|---|---------------|----------|---------------|
| IN01    | 7 x 6mm and 1 x 1/4"                    | 06.04.0189-00 |          | 06.04.0137-00 |
| IN02    | 8 x 1/4"                                | 06.04.0190-00 |          | 06.04.0138-00 |
| IN03    | 2 x 3mm, 2 x 6mm, 2 x 1/4" and 2 x 8mm  | 06.04.0191-00 |          | 06.04.0098-00 |
| IN04    | 2 x 6mm, 2 x 8mm, 2 x 3/8" and 1 x 1/4" | 06.04.0192-00 |          | 06.04.0139-00 |
| IN10    | Other, under ordering                   |               |          | 06.04.0140-00 |

# Technical Specifications

## TA-350PL / TA-700PL

up to 700 °C



Models

|  | TA-350PL   | TA-700PL   |
|--|--|--|
| <b>Operating Range</b><br>ambient temperature: 23 °C | from ambient temperature to 350 °C   | from ambient temperature to 700 °C   |
| <b>Display Accuracy:</b>                             | $\pm(0.1\text{ °C} + 0.1\% \text{ of reading})$  | $\pm(0.1\text{ °C} + 0.1\% \text{ of reading})$  |
| <b>Resolution:</b>                                   | 0.01 °C  | 0.01 °C  |
| <b>Stability:</b>                                    | $\pm 0.05\text{ °C}$   | $\pm 0.05\text{ °C}$   |
| <b>Radial Uniformity (homogeneity)</b>               | $\pm 0.04\text{ °C @ } 50\text{ °C}$<br>$\pm 0.04\text{ °C @ } 150\text{ °C}$<br>$\pm 0.12\text{ °C @ } 350\text{ °C}$ | $\pm 0.05\text{ °C @ } 50\text{ °C}$<br>$\pm 0.10\text{ °C @ } 300\text{ °C}$<br>$\pm 0.20\text{ °C @ } 660\text{ °C}$ |
| <b>Axial Uniformity (homogeneity) (40 mm)</b>        | $\pm 0.05\text{ °C @ } 50\text{ °C}$<br>$\pm 0.10\text{ °C @ } 150\text{ °C}$<br>$\pm 0.35\text{ °C @ } 350\text{ °C}$ | $\pm 0.10\text{ °C @ } 50\text{ °C}$<br>$\pm 0.20\text{ °C @ } 300\text{ °C}$<br>$\pm 0.40\text{ °C @ } 700\text{ °C}$ |
| <b>Heating Time:</b>                                 | 13 min (50 °C to 350 °C)   | 30 min (50 °C to 700 °C)   |
| <b>Cooling Time:</b>                                 | 12 min (350 °C to 100 °C)  | 140 min (660 °C to 100 °C)   |
| <b>Electric Power:</b>                               | 500 W  | 1000 W   |
| <b>Well Diameter x Depth:</b>                        | Ø 34.4 mm x 174 mm   | Ø 36 mm x 155 mm   |
| <b>Weight:</b>                                       | 8.2 kg   | 10.5 kg  |
| <b>Dimension (HxWxD):</b>                            | 315 x 200 x 305 mm   | 315 x 200 x 305 mm   |

## Order Code

TA-350PL / TA-700PL -  - IN   -   -

### Power Supply

1 - 115 Vac    2 - 230 Vac

### Included Insert

Choose from those listed below

### Optional

BB - Black Body Insert

### Hart® Communication

NH - No Hart® Communication

CH - Hart® Calibrator (basic commands: zero, span, trim mA)

FH - Full-Hart® Configurator, with DD library from FieldComm Group.





# Technical Specifications

## TA-350P / TA-650P / TA-1200P

up to 1200 °C



Models

|   | TA-350P   | TA-650P   | TA-1200P   |
|---|---|---|--|
| <b>Operating Range</b><br>ambient temperature: 23 °C                                    | from ambient temperature to 350 °C                            | from ambient temperature to 650 °C                            | 50 °C to +1200 °C  |
| <b>Display Accuracy:</b>  | ± (0.1 °C + 0.1% of reading)                                  | ± (0.1 °C + 0.1% of reading)                                  | ± 2.20 °C  |
| <b>Resolution:</b>  | 0.01 °C   | 0.01 °C   | 0.1 °C   |
| <b>Stability:</b>   | ± 0.05 °C   | ± 0.05 °C   | ± 0.1 °C   |
| <b>Radial Uniformity (homogeneity):</b>   | ± 0.02 °C @ 50 °C<br>± 0.03 °C @ 150 °C<br>± 0.04 °C @ 350 °C | ± 0.05 °C @ 50 °C<br>± 0.10 °C @ 300 °C<br>± 0.20 °C @ 650 °C | ± 0.05 °C @ 50 °C<br>± 0.15 °C @ 650 °C<br>± 0.20 °C @ 1100 °C |
| <b>Axial Uniformity (homogeneity)</b><br>TA-350P / TA-650P (40 mm)<br>TA-1200P (20 mm): | ± 0.05 °C @ 50 °C<br>± 0.10 °C @ 150 °C<br>± 0.15 °C @ 350 °C | ± 0.10 °C @ 50 °C<br>± 0.20 °C @ 300 °C<br>± 0.40 °C @ 650 °C | ± 0.15 °C @ 50 °C<br>± 0.25 °C @ 650 °C<br>± 0.25 °C @ 1100 °C |
| <b>Heating Time:</b>  | 13 min (50 °C to 350 °C)                                      | 18 min (50 °C to 650 °C)                                      | 100 min (100 °C to 1200 °C)                                    |
| <b>Cooling Time:</b>  | 12 min (350 °C to 100 °C)                                     | 22 min (650 °C to 100 °C)                                     | 5 h (1200 °C to 200 °C)  |
| <b>Electric Power:</b>  | 500 W   | 1000 W  | 800 W  |
| <b>Well Diameter x Depth:</b>   | Ø 32 mm x 124 mm  | Ø 32 mm x 124 mm  | Ø 34 mm x 130 mm   |
| <b>Weight:</b>  | 8.0 kg  | 10.0 kg   | 12.6 kg  |
| <b>Dimension (HxWxD):</b>   | 260 x 200 x 305 mm  | 260 x 200 x 305 mm  | 350 x 205 x 325 mm   |

## Order Code

TA-350P / TA-650P / TA-1200P -  - IN   -

Power Supply

1 - 115 Vac 2 - 230 Vac

Included Insert

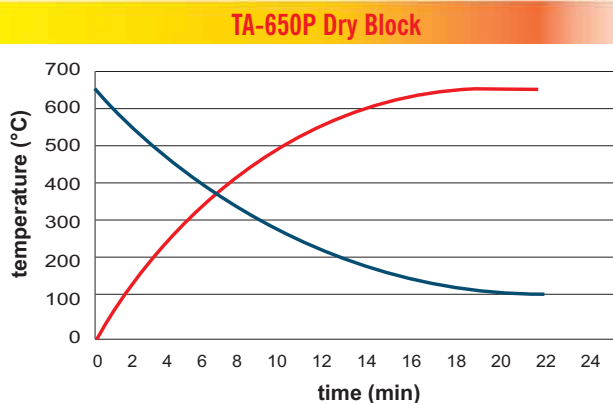
Choose from those listed below

Hart® Communication

NH - No Hart® Communication

CH - Hart® Calibrator (basic commands: zero, span, trim mA)

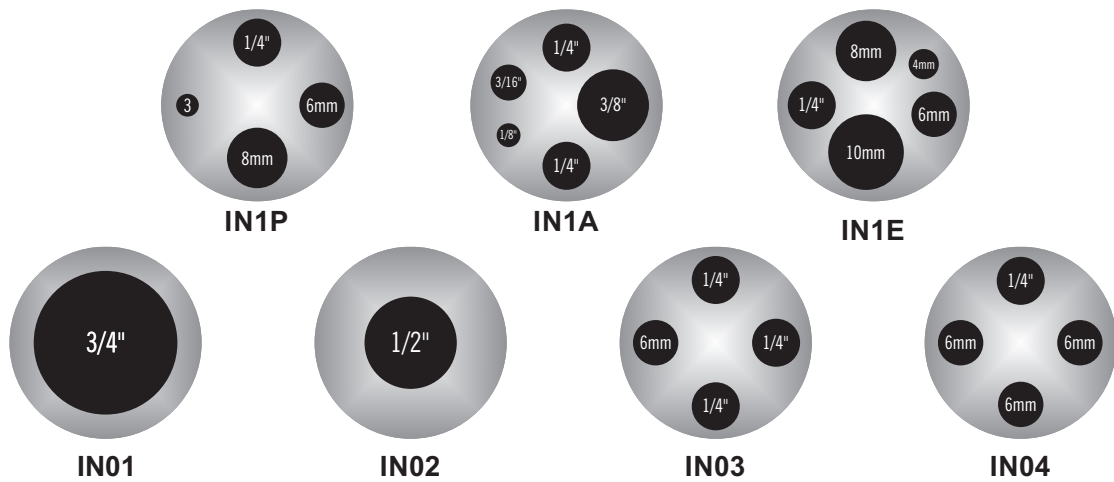
FH - Full-Hart® Configurator, with DD library from FieldComm Group.



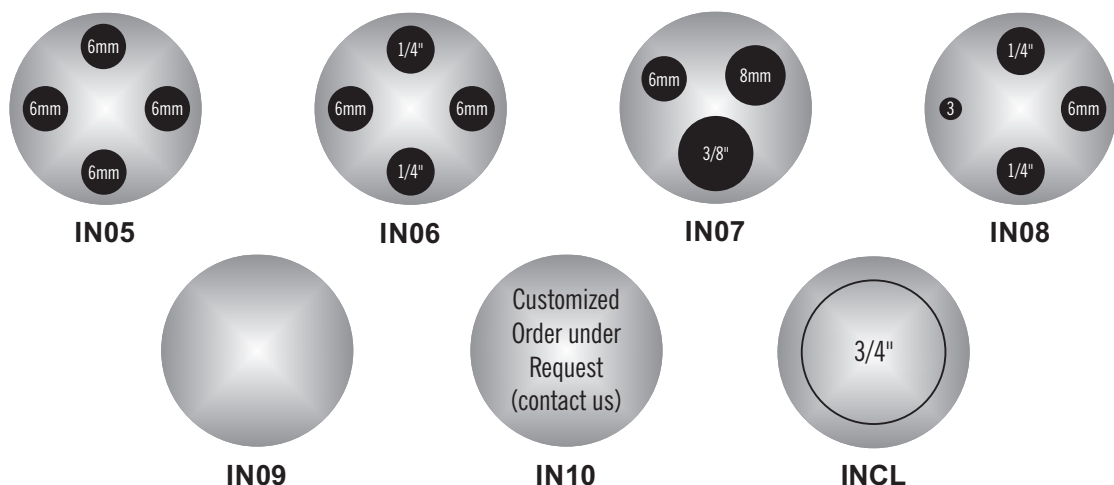
# Inserts

One insert is always included in the standard delivery of the TA dry block, you can choose one insert out of these lists. Our inserts are manufactured with tolerance to guarantee a trouble free operation and get the best performance out of your calibrations.

| Inserts     | Holes   | TA-25N / TA-35N / TA-50N | TA-25NL / TA-45NL / TA-60NL |
|-------------|---|--------------------------|-----------------------------|
| <b>IN1P</b> | 1 x 3mm, 1 x 6mm, 1 x 1/4", 1 x 8mm           | 06.04.0121-00            | 06.04.0125-00               |
| <b>IN1A</b> | 1 x 1/8", 1 x 3/16", 2 x 1/4", 1 x 3/8"       | 06.04.0122-00            | 06.04.0126-00               |
| <b>IN1E</b> | 1 x 4mm, 1 x 6mm, 1 x 1/4", 1 x 8mm, 1 x 10mm | 06.04.0123-00            | 06.04.0127-00               |
| <b>IN01</b> | 1 x 3/4"                                      | 06.04.0011-00            | 06.04.0041-00               |
| <b>IN02</b> | 1 x 1/2"                                      | 06.04.0012-00            | 06.04.0042-00               |
| <b>IN03</b> | 1 x 6.0mm and 3 x 1/4"                        | 06.04.0013-00            | 06.04.0043-00               |
| <b>IN04</b> | 3 x 6.0mm and 1 x 1/4"                        | 06.04.0014-00            | 06.04.0044-00               |



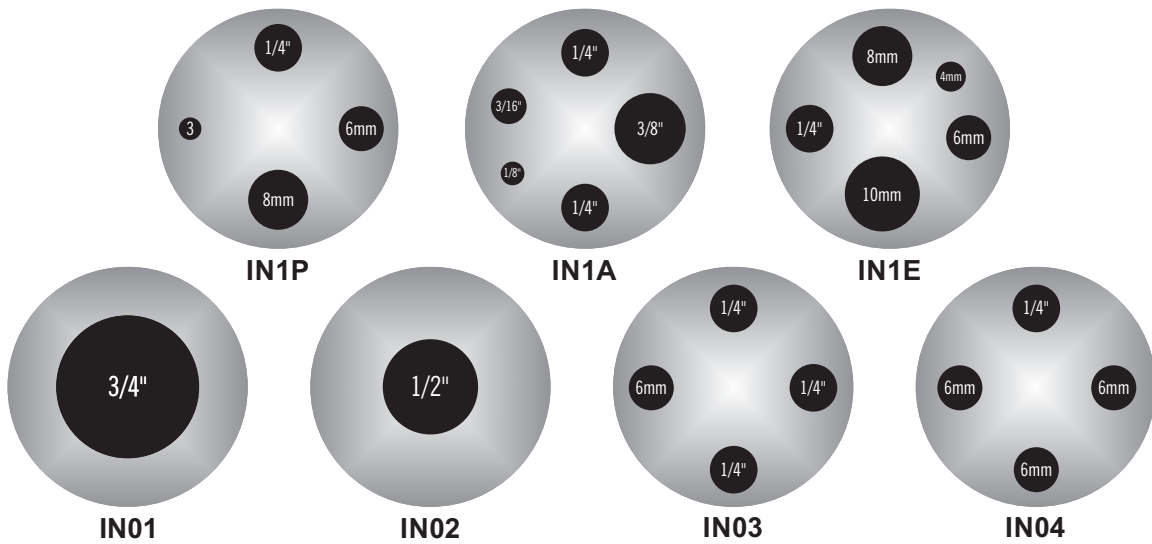
| Inserts     | Holes   | TA-25N / TA-35N / TA-50N | TA-25NL / TA-45NL / TA-60NL |
|-------------|---|--------------------------|-----------------------------|
| <b>IN05</b> | 4 x 6.0mm                                       | 06.04.0015-00            | 06.04.0045-00               |
| <b>IN06</b> | 2 x 6.0mm and 2 x 1/4"                          | 06.04.0016-00            | 06.04.0046-00               |
| <b>IN07</b> | 1 x 6.0mm, 1 x 8.0mm and 1 x 3/8"               | 06.04.0017-00            | 06.04.0047-00               |
| <b>IN08</b> | 1 x 6.0mm, 1 x 3.0mm and 2 x 1/4"               | 06.04.0018-00            | 06.04.0048-00               |
| <b>IN09</b> | Without hole, to be drilled by the client       | 06.04.0019-00            | 06.04.0049-00               |
| <b>IN10</b> | Others, under ordering                          | 06.04.0020-00            | 06.04.0050-00               |
| <b>INCL</b> | Cup-like insert (for use with tiny steel balls) | 06.04.0086-00            | —————                       |



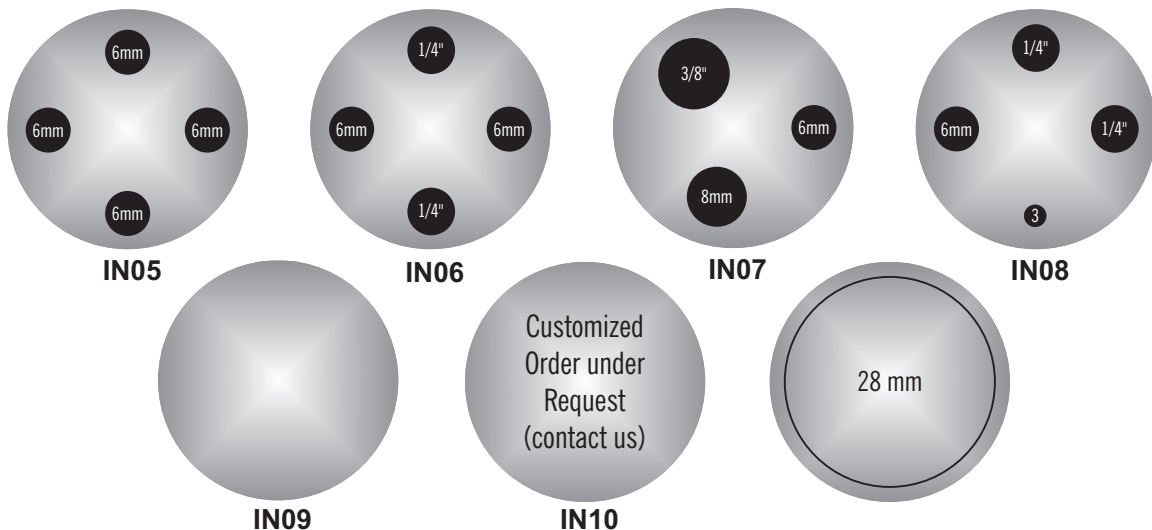
# Inserts

One insert is always included in the standard delivery of the TA dry block, you can choose one insert out of these lists. Our inserts are manufactured with tolerance to guarantee a trouble free operation and get the best performance out of your calibrations.

| Inserts | Holes   | TA-350PL      | TA-700PL      |
|---------|---|---------------|---------------|
| IN1P    | 1 x 3mm, 1 x 6mm, 1 x 1/4", 1 x 8mm           | 06.04.0163-00 | 06.04.0159-00 |
| IN1A    | 1 x 1/8", 1 x 3/16", 2 x 1/4", 1 x 3/8"       | 06.04.0164-00 | 06.04.0160-00 |
| IN1E    | 1 x 4mm, 1 x 6mm, 1 x 1/4", 1 x 8mm, 1 x 10mm | 06.04.0165-00 | 06.04.0161-00 |
| IN01    | 1 x 3/4"                                      | 06.04.0166-00 | 06.04.0062-00 |
| IN02    | 1 x 1/2"                                      | 06.04.0167-00 | 06.04.0063-00 |
| IN03    | 1 x 6.0mm and 3 x 1/4"                        | 06.04.0168-00 | 06.04.0064-00 |
| IN04    | 3 x 6.0mm and 1 x 1/4"                        | 06.04.0169-00 | 06.04.0065-00 |

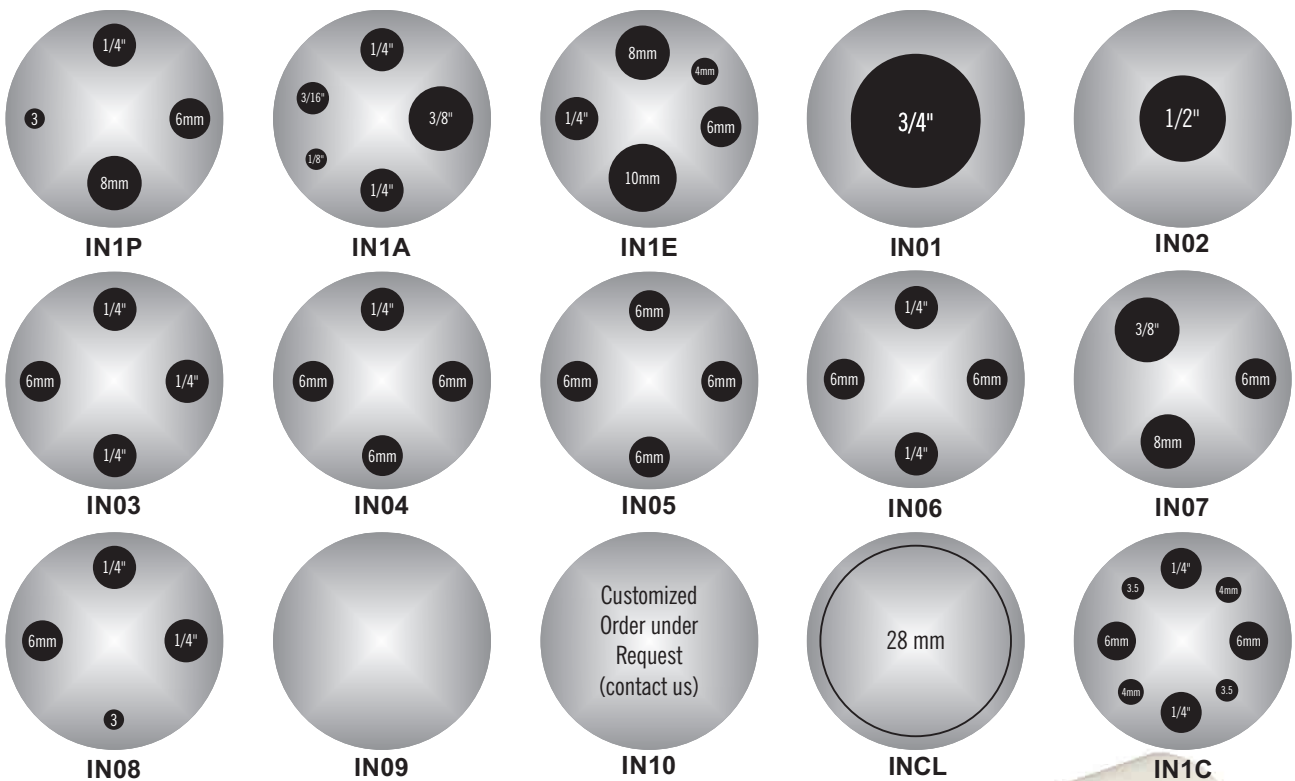


| Inserts | Holes   | TA-350PL      | TA-700PL      |
|---------|---|---------------|---------------|
| IN05    | 4 x 6.0mm                                       | 06.04.0170-00 | 06.04.0066-00 |
| IN06    | 2 x 6.0mm and 2 x 1/4"                          | 06.04.0171-00 | 06.04.0067-00 |
| IN07    | 1 x 6.0mm, 1 x 8.0mm and 1 x 3/8"               | 06.04.0172-00 | 06.04.0068-00 |
| IN08    | 1 x 6.0mm, 1 x 3.0mm and 2 x 1/4"               | 06.04.0173-00 | 06.04.0069-00 |
| IN09    | Without hole, to be drilled by the client       | 06.04.0174-00 | 06.04.0070-00 |
| IN10    | Others, under ordering                          | 06.04.0175-00 | 06.04.0071-00 |
| INCL    | Cup-like insert (for use with tiny steel balls) | 06.04.0176-00 | 06.04.0162-00 |



# Inserts

| Inserts | Holes   | TA-350P       | TA-650P       | TA-1200P      |
|---------|---|---------------|---------------|---------------|
| IN1P    | 1 x 3mm, 1 x 6mm, 1 x 1/4", 1 x 8mm             | 06.04.0128-00 | 06.04.0131-00 | 06.04.0156-00 |
| IN1A    | 1 x 1/8", 1 x 3/16", 2 x 1/4", 1 x 3/8"         | 06.04.0129-00 | 06.04.0132-00 | 06.04.0157-00 |
| IN1E    | 1 x 4mm, 1 x 6mm, 1 x 1/4", 1 x 8mm, 1 x 10mm   | 06.04.0130-00 | 06.04.0133-00 | 06.04.0158-00 |
| IN01    | 1 x 3/4"  | 06.04.0101-00 | 06.04.0111-00 | 06.04.0031-00 |
| IN02    | 1 x 1/2"  | 06.04.0102-00 | 06.04.0112-00 | 06.04.0032-00 |
| IN03    | 1 x 6.0mm and 3 x 1/4"                          | 06.04.0103-00 | 06.04.0113-00 | 06.04.0033-00 |
| IN04    | 3 x 6.0mm and 1 x 1/4"                          | 06.04.0104-00 | 06.04.0114-00 | 06.04.0034-00 |
| IN05    | 4 x 6.0mm                                       | 06.04.0105-00 | 06.04.0115-00 | 06.04.0035-00 |
| IN06    | 2 x 6.0mm and 2 x 1/4"                          | 06.04.0106-00 | 06.04.0116-00 | 06.04.0036-00 |
| IN07    | 1 x 6.0mm, 1 x 8.0mm and 1 x 3/8"               | 06.04.0107-00 | 06.04.0117-00 | 06.04.0037-00 |
| IN08    | 1 x 6.0mm, 1 x 3.0mm and 2 x 1/4"               | 06.04.0108-00 | 06.04.0118-00 | 06.04.0038-00 |
| IN09    | Without hole, to be drilled by the client       | 06.04.0109-00 | 06.04.0119-00 | 06.04.0039-00 |
| IN10    | Others, under ordering                          | 06.04.0110-00 | 06.04.0120-00 | 06.04.0040-00 |
| INCL    | Cup-like insert (for use with tiny steel balls) | 06.04.0099-00 | 06.04.0100-00 | _____         |



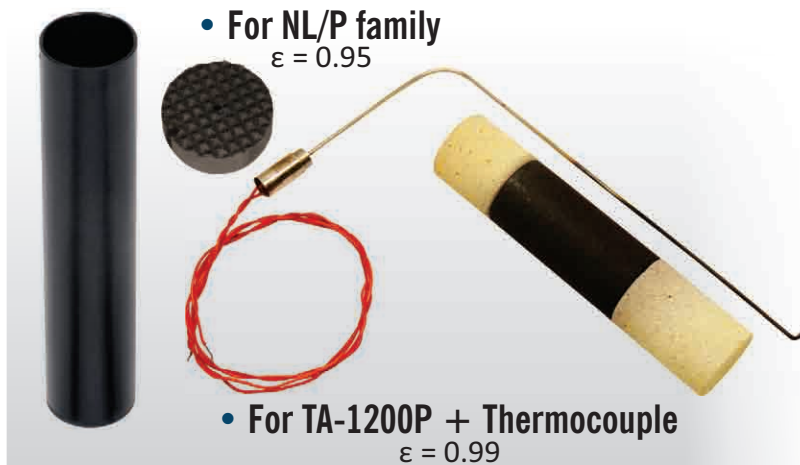
The use of unappropriated inserts and wrong material can provide unexpected results or cause damages to your unit. In case you need a customized insert, consult your distributor or the factory. Presys can provide custom inserts with minimum 3 mm separation between holes.



| Insert | Holes                                    | Alumina<br>TA-1200P |
|--------|--|---------------------|
| IN1C   | 2x 3.5mm, 2x 4.0mm, 2x 6.0mm and 2x 1/4" | 06.04.0177-00       |



## Black Body Kit



The Black Body Cavity insert transforms your TA dry block calibrator in an infrared thermometer calibrator.

The insert must be associated with an external sensor (probe or thermocouple) in order to read the exact temperature of the surface.

Remember that the area targeted by the infrared thermometer to be calibrated must be less than or equal to the effective target spot size of the black body.

## Stirred Liquid Kit - "NL" family

With the Stirred Liquid Kit, you can turn the TA-25NL/45NL in a homogeneous liquid bath to calibrate your glass thermometers or specific sensors.

The removable liquid container with a sealing cap allows the storage and rapid change of the liquid.

The Magnetic Stirrer assures the homogeneity of the liquid in the container and its rotation velocity is controlled directly on the touch screen of the TA that is standard equipped with a robust brushless motor.

The probe and thermometer guide allows the insertion of various thermometers at the same time.

It is recommended to use an external reference sensor to compensate the offset between the controller and the temperature in the liquid bath.



## Validation Inserts

- Insert for thermal validation applications that allows the calibration of multiple sensors.



The thermal validation process requires the use of many temperature sensors and the calibration of these sensors must be performed prior to the temperature measurements of each equipment.

With this in mind Presys has developed this custom insert that facilitates and streamlines the calibration.

## Custom Sanitary Insert



- Specific designed Insert for calibration of sanitary and short temperature sensors with build-in reference sensor.

Presys develops custom inserts for sanitary clamp sensors or with irregular format, when doing this the calibration will be faster, easier and accurate.

Temperature control is achieved through the use of an external reference sensor with a curve correction in the same immersion.

You can dispense the use of liquid baths and adding speed and convenience to your calibrations.

The suitable format is important to provide the necessary energy to the sanitary clamp sensor.

The surface of the sanitary sensor and the custom insert are in physical contact with each other, so that the resulting error of the heat dissipation is minimized.

Furthermore with the customized insert, the sensor is calibrated in similar conditions as in the process in which it is used on daily basis.

## Surface Sensor Insert



A specific insert, with a reference sensor allowing the temperature control and measure just below the surface, has been developed to calibrate your surface sensors.



## ITS-90 Fixed Point Maintainer

Our TA dry block can be used as well as an ITS-90 fixed-point cell maintainer to realize your ITS-90 calibration.



## Standard Delivery

All our TA dry blocks are delivered complete with the following accessories:

- 01 x Soft Carrying Case \*\*
- 01 x Insert Extractor
- 01 x Insert Choosen
- 01 x Cup-like Insert \*
- 01 x Tiny Steel Balls Flask \*
- 01 x Power Cable
- 01 x Lead Cable Kit
- 01 x Technical Manual
- 01 x Traceable Calibration Certificate.



\* It is not included in TA-25NL / TA-45NL / TA-45NLL / TA-60NL / TA-300PLL and TA-1200P.

\*\* It is not included for TA-60NL, TA-45NLL and TA-300PLL.

Optional calibration certificate done by our accredited laboratory can be requested as well as a full dry block characterisation certificate that will include all parameters requested by Euramet/cg-13/V3.0 such as axial and radial uniformities as well as loading effect.

## Cup-like Insert and Tiny Steel Balls

Presys dry block calibrators are offered with an exclusive accessory consisting of a cup-like insert that is an insert drilled with the maximum allowed diameter (3/4"), proper for being filled with tiny steel balls (furnished in a plastic container).

With both the cup-like insert and the tiny balls, it is possible to calibrate temperature sensors with irregular shape or whose dimensions do not match the available insert holes. One should place the sensor to be calibrated in the insert and fulfill the remaining volume with the tiny balls.

To achieve accurate measurements it is necessary to read from an external reference sensor tied together with the sensor to be calibrated both plunged in the tiny balls.



## Accessories Code

| Description  | Order Code    |
|--|---------------|
| Soft Carrying Case for TA-25N / TA-35N / TA-350P / TA-650P                         | 06.01.1031-00 |
| Soft Carrying Case for TA-50N / TA-25NL / TA-45NL / TA-1200P / TA-350PL / TA-660PL | 06.01.1032-00 |
| Insert Extractor for TA-1200P  | 02.06.0087-00 |
| Insert Extractor (other models)  | 02.06.0085-00 |
| Tiny Steel Balls Flask   | 03.03.0144-00 |
| Lead Cable Kit   | 06.07.0025-00 |
| Power Cable Type B – US  | 01.14.0100-10 |
| Power Cable Type F – Europe Universal  | 01.14.0089-10 |

# **PRESYS** Instruments

Is a leading manufacturer and developer of calibrators for temperature, pressure and process signals as well as calibration software offering a complete solution for process calibration needs. Presys has an ISO/IEC 17025 accredited laboratory issuing accredited certificates in accordance with international standards.

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