

# Tisch Environmental TE-PRO-CAL Low-Volume Calibrator





## TE-PRO-CAL Operations Manual Table of Contents

<b>1.0 Introduction .....</b>	<b>3</b>
1.1 TE-PRO-CAL Overview .....	3
1.2 Copyrights and Trademarks .....	3
1.3 Warranty .....	3
1.4 Symbols Used in This Document.....	4
1.5 Recertification.....	4
Part Numbers for Recertification.....	4
1.6 Ratings and Specifications .....	5
1.7 TE-PRO-CAL Ordering Information.....	6
<b>2.0 Menu Navigation .....</b>	<b>7</b>
2.1 Button Configuration .....	7
2.2 Powering ON/OFF the Unit / Button Configuration .....	7
Powering ON the unit .....	7
Powering OFF the unit .....	7
Button Configuration .....	7
2.3 Menu Structure.....	8
<b>3.0 Operation.....</b>	<b>10</b>
3.1 Connecting the Handheld to the Head Unit .....	10
.....	10
3.2 Replacing the Batteries.....	11
<b>Appendix A: Revision History .....</b>	<b>11</b>



# 1.0 Introduction

## 1.1 TE-PRO-CAL Overview

The TE-PRO-CAL is an advanced low-volume calibrator that can be used to calibrate low-volume air sampling equipment such as the TE-Wilbur low-volume sampler, the BGI PQ200, Thermo Partisol and other low-volume instruments that operate at 16.67 lpm. The system utilizes a precision-machined venturi to generate a differential pressure proportional to the flow rate that is not affected by temperature variations or humidity. The calibrator is mounted directly to the sampler's inlet downtube for ease of use and quick calibration of field instrumentation. The calibrator is powered by 4 AA batteries. The system is shipped with the calibrator, a NIST traceable calibration certificate, 4 batteries, a filter temperature probe and rugged carrying case. With four generations of experience, leadership, and know-how, the Tisch family would like to welcome you to our company and thank you for choosing Tisch Environmental products.

## 1.2 Copyrights and Trademarks

The 'TE-PRO-CAL' trade name and Tisch logos are copyrights of Tisch Environmental, Inc. The software and hardware design used in this instrument is proprietary intellectual property of Tisch Environmental and is not to be reproduced or replicated in any way.

## 1.3 Warranty

Instruments manufactured by Tisch Environmental, Inc. are guaranteed by warranty to be free of defects in materials and workmanship for one year after shipment from Tisch Environmental factories. The liability of Tisch Environmental, Inc. is limited to servicing or replacing any defective part of any instrument returned to the factory by the original purchaser. All service traceable to defects in original material or workmanship is considered warranty service and is performed free of charge. The expense of warranty shipping charges to and from our factory will be borne by Tisch Environmental. Service performed to rectify an instrument malfunction caused by abuse, acts of God or neglect, and service performed after the one-year warranty period will be charged to the customer at the current prices for labor, parts, and transportation. The right is reserved to make changes in construction, design specifications, and prices without prior notice.



## 1.4 Symbols Used in This Document

The following symbols are used in this document.



General Attention – this symbol is used to make the operator aware of an important directive.

## 1.5 Recertification

Per USEPA requirements, this instrument should be recertified on an annual basis. Recertification can be performed at our laboratory in Cleves, OH. Simply send the unit to us at:

Tisch Environmental  
Attn: Recertification  
145 South Miami Ave.  
Cleves, OH 45002

Or call us at 1-877-TSP-PM10 or email us at [sales@tischenv.com](mailto:sales@tischenv.com) to setup a recertification of your calibrator. Once received, our highly trained technicians will evaluate your unit, perform a multi-stage calibration, and issue a calibration certificate for your calibrator.

### Part Numbers for Recertification

TE-PRO-CAL-059      Recertification to NIST primary standards



## 1.6 Ratings and Specifications

<b>Power</b>	4AA Batteries
<b>Display</b>	2.8" Diagonal 240x320 Color
<b>Operating Temperature</b>	-20°C to 55°C
<b>Weight</b>	9lbs. (3.63kg) Complete with case 10lbs 17x14x8" shipping weight and dimensions 2.0 lbs. (0.91kg) hand-held and head unit
<b>Flow System</b>	Range 5 to 20 SLPM with an accuracy of $\pm 0.75\%$
<b>Ambient Temperature</b>	Range -40°C to 55°C with an accuracy of $\pm 0.1^\circ\text{C}$
<b>Filter Temperature</b>	Range -40°C to 55°C with an accuracy of $\pm 0.1^\circ\text{C}$
<b>Barometric Pressure</b>	Range 400 to 800 mmHg with an accuracy of 3 mmHg
<b>Relative Humidity</b>	Range 0-100% +/- 1.5%

## 1.7 TE-PRO-CAL Ordering Information

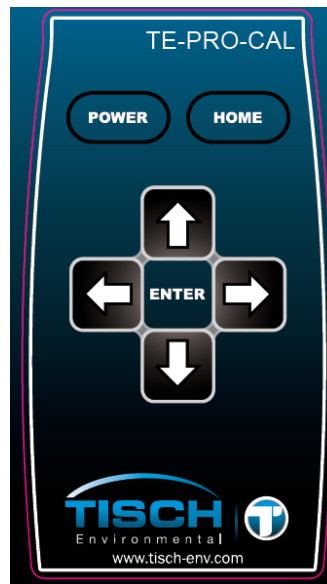


<b>TE-PRO-CAL</b>	<p>TE-FRM-CAL ranged 5-20 SLPM  Rugged Carrying Case  Hand-held unit  Calibration head with connection cable  4AA Batteries included  Filter temperature probe  NIST traceable calibration certificate</p>
<b>TE-PRO-CAL-059</b>	<p>Recertification of TE-PRO-CAL calibrator</p>

## 2.0 Menu Navigation

### 2.1 Button Configuration

The TE-PRO-CAL has (4) arrows for navigating up, down, left and right along with a enter button in the center, a power button and home button.



### 2.2 Powering ON/OFF the Unit / Button Configuration

#### Powering ON the unit

Press the POWER button

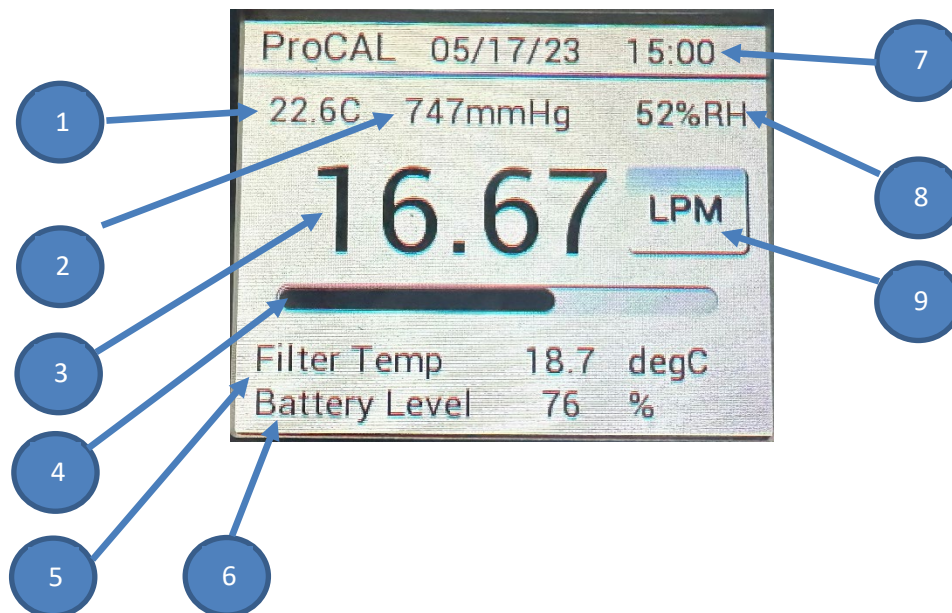
#### Powering OFF the unit

Press and hold the POWER button for longer than 4 seconds

#### Button Configuration

Left Arrow	Navigates to the left
Right Arrow	Navigates to the right
Up Arrow	Navigates up
Down Arrow	Navigates down
Home	Goes to the previous menu

## 2.3 Menu Structure



ITEM	DESCRIPTION
1	Ambient Temperature in Degrees Celsius
2	Ambient Barometric Pressure Reading in mmHg
3	Flow Rate in LPM
4	Venturi Pressure bar graph
5	Filter temperature in Degrees Celsius (reads N/A when not connected)
6	Battery level indication
7	Date and Time – configured in settings menu
8	Relative Humidity in %
9	Reading Type: LPM for Liters per Minute, SLPM for Standard Liters per Minute based on 760mmHg and 20°C by pressing the right arrow key in the display screen





Pressing the ENTER button will enter the setup menu.

Pressing the HOME button will go back to the previous screen.

Pressing the RIGHT and LEFT ARROW keys will navigate between items.

**SETUP MENU**
**DESCRIPTION**

SYSTEM

Enters the system setup menu.

DATE / TIME

Changes the date and time of the calibrator.

**SYSTEM MENU**
**DESCRIPTION**

BACKLIGHT

 Changes the backlight setting from 1-25.  
 Increased backlight decreases battery life.

OFF DELAY

 Changes the time the unit powers down when  
 not in use.

AVERAGING

 Changes the averaging of the flow rate for  
 instruments that have increased pump  
 oscillation.

ZERO FLOW

 Zeros the flow rate. Ensure the unit is not  
 connected to a flow source prior to zeroing the  
 flow rate.

## 3.0 Operation

### 3.1 Connecting the Handheld to the Head Unit



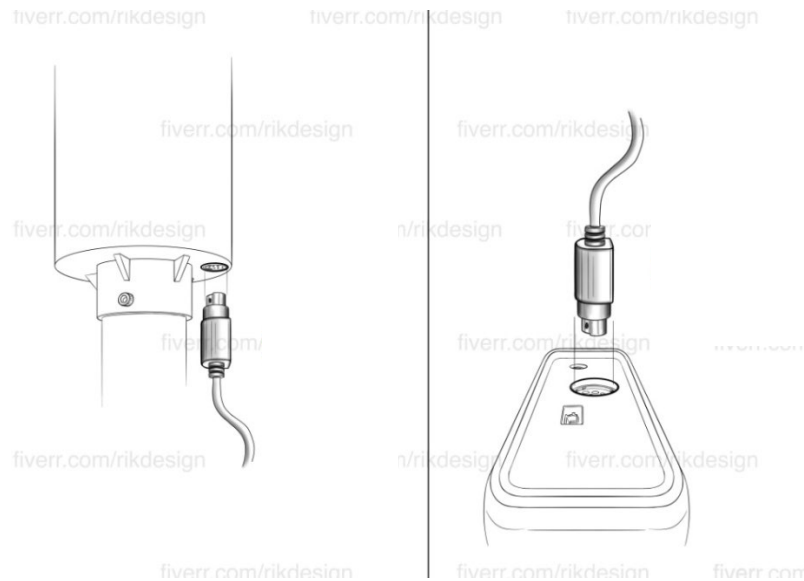
**NOTE:** The hand-held unit should be powered down before connecting the calibration head unit.

With the hand-held unit powered OFF connect the cable from the calibration head unit into the port of the hand-held

The cable that connects the hand-held to the top head is part number:  
TE-PRO-CAL-014

The flat part of the cable faces the outside of the calibrator head.

The flat part of the cable on the handheld faces the back of the handheld.





## 3.2 Replacing the Batteries

The TE-PRO-CAL requires (4) AA batteries.

To replace the batteries:

Remove the rear battery cover by pushing down and sliding off the cover.  
Replace the batteries noting the direction of the batteries by the sticker located in the bottom of the battery compartment.

Insert the (-) side of the battery in to slot first, then push down the (+) side to lock it into place.

Replace the battery cover.

## Appendix A: Revision History

Revision No.	Date	Description
REV001.0	8-9-23	Manual created