TSI 5825 DP-Calc Micromanometer Instruction Manual

Contents

TSI 5825 DP-Calc Micromanometer

Product Specifications

- **Manufacturer:** TSI Incorporated
- **Model:** 5825
- **Warranty:** Refer to the Operation and Service Manual for warranty details
- **Power Source:** Batteries or Optional AC Adapter
- **Connectivity:** USB for connecting to a computer

Product Usage Instructions

Chapter 1: Unpacking and Parts Identification

Upon receiving your DP-Calc Micromanometer, carefully unpack the contents and identify all parts as outlined in Chapter 1 of the Operation and Service Manual.

Chapter 2: Setting Up

Supplying Power to the Model 5825 DP-Calc Micromanometer
Ensure the device is powered either by installing batteries or using the optional AC adapter. Follow the instructions provided in the manual for the correct power supply.

Installing the Batteries
Insert the specified batteries into the designated battery compartment following the polarity indicated. Make sure to use fresh batteries for optimal performance.

Using the Optional AC Adapter
If using the optional AC adapter, connect it to the appropriate power source and then to the micromanometer. Verify that the power input matches the device's requirements.

Connecting to a Computer
To connect the micromanometer to a computer for data transfer or analysis, use the provided USB cable. Install any required drivers or software as per the manual.

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Fax No.
651-490-3824

- Seller warrants the goods, excluding software, sold hereunder, under normal use and service as described in the operator's manual (version published at the time of sale), to be free from defects in workmanship and material for the longer period of either 24 months or the length of time specified in the operator's manual/warranty statement provided with the goods or made available electronically (version published at the time of sale), from the date of shipment to the customer. This warranty period is inclusive of any statutory warranty. This limited warranty is subject to the following exclusions and exceptions:
    - Hot-wire or hot-film sensors used with research anemometers, and certain other components, when indicated in specifications, are warranted for 90 days from the date of shipment;
    - Pumps are warranted for hours of operation as outlined in the product or operator's manuals (versions published at the time of sale);
    - Parts repaired or replaced as a result of repair services are warranted to be free from defects in workmanship and material, under normal use, for 90 days from the date of shipment;
    - Seller does not provide any warranty on finished goods manufactured by others or on any fuses, batteries, or other consumable materials. Only the original manufacturer's warranty applies.
    - This warranty does not cover calibration requirements, and Seller warrants only that the goods are properly calibrated at the time of their manufacture. Goods returned for calibration are not covered by this warranty.
    - This warranty is VOID if the goods are opened by anyone other than a factory authorized service center, with the one exception where requirements outlined in the operator's manual (version published at the time of sale) allow an operator to replace consumables or perform recommended cleaning.
    - This warranty is VOID if the goods have been misused, neglected, subjected to accidental or intentional damage, or not properly installed, maintained, or cleaned according to the requirements of the operator's manual (version published at the time of sale). Unless specifically authorized in a separate writing by Seller, Seller makes no warranty concerning, and shall have no liability in connection with, goods which are incorporated into other products or equipment, or which are modified by any person other than Seller;
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- Buyer and all users are deemed to have accepted this LIMITATION OF WARRANTY AND LIABILITY, which contains the complete and exclusive limited warranty of Seller. This LIMITATION OF WARRANTY AND LIABILITY may not be amended, modified, or its terms waived, except by writing signed by an Officer of Seller.

Service Policy
Knowing that inoperative or defective instruments are as detrimental to TSI as they are to our customers, our service policy is designed to give prompt attention to any problems. If any malfunction is discovered, please contact your nearest sales office or representative, or call the Customer Service department at **800-680-1220** (USA) or (1) **651-490-2860** (International).

Trademarks
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Unpacking and Parts Identification

Carefully unpack the instrument and accessories from the shipping container. Check the individual parts against the list of components below. If anything is missing or damaged, notify TSI® immediately.

1. Carrying case
2. Instrument
3. Pressure tubing
4. Static pressure tip
5. USB cable

Setting-up

Supplying Power to the Model 5825 DP-Calc™ Micromanometer
The Model 5825 is powered by four size AA batteries.

- **Installing the Batteries**
  Insert four AA batteries as indicated by the diagram located on the inside of the battery compartment. The Model 5825 is designed to operate with either alkaline or NiMH rechargeable batteries, although it will not recharge NiMH batteries. Battery life will be shorter if NiMH batteries are used. Carbon-zinc batteries are not recommended because of the danger of battery acid leakage.
- **Using the Optional AC Adapter**

When using the AC adapter, the batteries (if installed) will be bypassed. Be sure to provide the correct voltage and frequency, which is marked on the back of the AC adapter. The AC adapter will not recharge the batteries.

Connecting to a Computer
Use the Computer Interface USB Cable to connect the instrument to a computer.
CAUTION
This symbol is used to indicate that the data port of the Model 5825 IS NOT intended for connection to a public telecommunications network. Connect the USB data port only to another USB port.

Operation

Keypad Functions

ON/OFF Key	Press to turn the Model 5825 on and off. During the power up sequence the display will show the following: Model Number, Serial Number and Software Revision.
Arrow (▲▼) Keys	Press to scroll through choices while setting a parameter.
↵ (Enter) Key	Press to accept a value or condition.
Arrow (◄ or ►) and **Menu Soft Keys**	Press arrow keys to change choices while setting a parameter. Press the Menu soft key to select the Menu selections, which are Display Setup, Pressure Zero, Settings, Flow Setup, Actual/Std Set up, Data Logging, and Calibration.

Common Terms
In this manual there are several terms that are used in different places. The following is a brief explanation of the meanings of those terms.

Sample	Consists of all of the measurement parameters stored at the same time.
Test ID	A group of samples. The statistics (average, minimum, maximum, and count) are calculated for each test ID. The maximum number of test IDs is 100.
Time Constant	The time constant is an averaging period. It is used to dampen the display. If you are experiencing fluctuating flows, a longer time constant will slow down those fluctuations. The display will update every second, but the displayed reading will be the average over the last time constant period. For example, if the time constant is 10 seconds, the display will update every second, but the displayed reading will be the average from the last 10 seconds. This is also referred to as a “moving average”.

Log Interval	The logging interval is a frequency period that the instrument will log readings. For example, if the logging interval is set to 30 minutes, each sample will be the average of the last 30 minutes.

Menus

DISPLAY SETUP
Display setup menu is where you will setup the desired parameters to be displayed on the running screen. With a parameter highlighted you can then use the ON soft key to have it show up on the running screen or select the OFF soft key to turn off the parameter. Use PRIMARY soft key to have a parameter show up on the running screen in a larger display. Only one parameter can be selected as a primary, and up to 2 secondary parameters can be selected at one time.

PRESSURE ZERO
Turn the instrument on for a minimum of five minutes to let it warm up before zeroing the pressure sensor. To zero the pressure reading, select the Pressure Zero menu. The instrument will indicate if the pressure zero was successful.

SETTINGS
Settings menu is where you can set the general settings. These include Language, Beeper, Select Units, Time Constant, Contrast, Set Time, Set Date, Time Format, Date Format, Number Format, Backlight and Auto Off. Use the ◄ or ► soft keys to scroll through the settings for each option and use the ↵ key to accept settings.

FLOW SET UP

- In Flow Setup mode, there are four types: Round Duct, Rectangle Duct, Duct Area, and K-Factor. Use the ◄ or ► soft keys to scroll through the types and then press the ↵ key to accept the desired type. To change the setting, highlight the Enter Settings option and press the ↵ key.
- Press/Kfact allows for calculating flow rate from diffusers or flow stations with pressure taps using the instrument's pressure ports and Kfactors. The K-factors are obtained from the diffuser or flow station manufacturer. For more information, refer to Application Note TSI-114.
    - Up to 5 K-factors can be pre-programmed for quick use.
    - When Flow is set as the Primary measurement in the Display Setup menu, the K-factor will also be displayed.
- When measuring Flow as the Primary measurement, the parameters can be quickly changed by pressing the ◄ or ► key while on the main measurement screen. Make adjustments with the ◄ or ► arrow keys and press ↵ to accept, or enter the Select Kfactor menu to choose a different pre-programmed flow value.

ACTUAL/STANDARD SETUP
Choose Actual/Standard measurements and parameters in the Act/Std Setup menu. Within this menu, the user can also select Standard Temperature, Standard Pressure, and a source for the actual temperature. The actual barometric pressure must be entered to convert air velocity and volume measurements to actual conditions. The Entered Temp range is from -40 to 1832°F (-40 to 1000°C).

DATA LOGGING

- **Measurements**

  Measurements to be logged are independent of measurements on the display, and must therefore be selected under DATA LOGGING → Measurements.
    - When set to ON, measurement will be logged to memory.
    - When set to DISPLAY, measurement will be logged to memory if it is visible on the main running screen.
    - When set to OFF, measurement will not be logged to memory.
- **Log Mode/Log Settings**

  You can set Log Mode to Manual, Auto-save, or Cont-key.

    - In Cont-key mode, the user starts taking readings and logging by pressing the ↵ key. The instrument will continue taking measurements until the ↵ key is pressed again.
    - Auto-save and Cont-Key modes have the following additional
        - **Auto-save** Log Interval
        - **Cont-key** Log Interval
    - Pressing the ▲▼ keys simultaneously will lock the keypad to prevent unauthorized adjustments to the instruments. To unlock the keypad, press the ▲▼ keys simultaneously.
- **Delete Data**
  Use this to delete all data, delete a test, or delete a sample.
- **% Memory**
  This option displays the memory available. Delete All, under Delete Data, will clear memory and reset the memory available.

LogDat2TM Downloading Software

- LogDat2™ software can be downloaded from the **TSI Software and Firmware Wizard | TSI** page. Once downloaded onto your PC, click the application file to begin installation. Follow the on-screen instructions to install the software.
- To download data from the Model 5825, connect the supplied computer interface USB cable to the Model 5825 and a computer USB port. Then run the LogDat2™ downloading software. Within the LogDat2 software, either select the tests to be downloaded or double-click on a test to open it.

Maintenance

The Model 5825 requires very little maintenance to keep it performing well.

Recalibration

- To maintain a high degree of accuracy in your measurements, we recommend that you return your Model 5825 to TSI® for annual recalibration. Please contact one of TSI®'s offices or your local distributor to make service arrangements and to receive a "Service Request" number. To fill out an online "Service Request" form, visit TSI®'s website at **tsi.com/service**.
    - U.S. & International
    - TSI Incorporated
    - 500 Cardigan Road
    - Shoreview, MN 55126-3996
    - Tel: **800-680-1220**
    - **651-490-2860**
    - Fax: **651-490-3824**
- The Model 5825 can also be recalibrated in the field using the CALIBRATION menu. These field adjustments are intended to make minor changes in calibration to match a user's calibration standards. The field adjustment IS NOT intended as a complete calibration capability. For complete, multiple-point calibration and certification, the instrument must be returned to the factory.

Cases
If the instrument case or storage case needs cleaning, wipe it off with a soft cloth and isopropyl alcohol or a mild detergent. NEVER immerse the Model 5825. If the enclosure of the Model 5825 or the AC adapter becomes broken, it must be replaced immediately to prevent access to hazardous voltage.

Storage
Remove the batteries when storing the unit for more than one month to prevent damage due to battery leakage.

Troubleshooting

Table 5-1 lists the symptoms, possible causes, and recommended solutions for common problems encountered with the Model 5825. If your symptom is not listed, or if none of the solutions solves your problem, please contact TSI® Incorporated.

Symptom	Possible Causes	Corrective Action
No Display	The unit was not turned on	Switch the unit on.
	Low or dead batteries	Replace batteries or plug in the AC ad apter.
	Dirty battery contacts	Clean the battery contacts.
Reading fluctuates/is unstable	Fluctuating flow	Reposition the probe in a less-turbulent flow or use a longer time con stant.
No response to the keypad	Keypad locked out	Unlock the keypad by pressing ▲▼ th e keys simultaneously.
Instrument Error message ap pears	Memory is full	Download data if desired, then DELET E ALL memory.
	Fault in the instrument	Factory service is required on the instr ument.

WARNING!
The pressure sensor is protected from damage up to 7 psi (48 kPa or 360 mmHg). At higher pressure, it can burst!

Specifications

Specifications are subject to change without notice.

- **Static / Differential Pressure:**
  - **Range 1:** -15 to +15 in. H2O (-28.0 to +28.0 mm Hg, -3735 to +3735 Pa)
  - **Accuracy:** ±1% of reading ±0.005 in. H2O (±0.01 mm Hg, ±1 Pa)
  - **Resolution:** 0.001 in. H2O (0.1 Pa, 0.01 mm Hg)
- **Velocity From a Pitot Tube:**
  - **Range 2:** 250 to 15500 ft/min (1.27 to 78.7 m/s)
  - **Accuracy 3:** ±1.5% at 2000 ft/min (10.16 m/s)
  - **Resolution:** 1 ft/min (0.1 m/s)
- **Duct Size:**

  Range: 1 to 500 inches in increments of 0.1 in. (2.5 to 1270 cm in increments of 0.1 cm)

- **Volumetric Flow Rate:**

  Range: Actual range is a function of actual velocity, pressure, duct size, and K factor
- **Instrument Temperature Range:**
  - **Operating** : 40 to 113°F (5 to 45°C)
  - **Storage:** -4 to 140°F (-20 to 60°C)
- **Instrument Operating Conditions:**
  - **Altitude up to** 4000 meters
  - **Relative humidity** up to 80% RH, non-condensing
  - **Pollution degree** 1 by IEC 664
  - **Transient over-voltage category** II
- **Data Storage Capabilities:**

  Range: 12,700+ samples and 100 test IDs
- **Logging Interval:**

  Intervals: 1 second to 1 hour
- **Time Constant:**

  Intervals: User selectable
- **External Meter Dimensions:**

  3.3 in. x 7.0 in. x 1.8 in. (8.4 cm x 17.8 cm x 4.4 cm)
- **Meter Weight:**

  Weight with batteries: 0.6 lbs (0.27 kg)
- **Power Requirements:**

  Four AA-size batteries (included) or AC adapter (optional) 9 VDC, 300 mA, 4-18 watts (input voltage and frequency vary depending on which adapter is used)

  1. Overpressure range = 7 psi (190 in. H_2O, 360 mmHg, 48 kPa).
  2. Pressure velocity measurements are not recommended below 1,000 ft/min (5 m/s) and are best suited to velocities over 2000 ft/min. Range can vary depending on barometric pressure.
  3. Accuracy is a function of converting pressure to velocity. Conversion accuracy improves when actual pressure values increase.

ABOUT COMPANY

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FAQ

- **What is the warranty coverage for the DP-Calc Micromanometer?**

  The warranty details are outlined in the Operation and Service Manual. Different components may have varying

warranty periods.

- **How can I report a malfunction with the micromanometer?**
  In case of any malfunction, please contact your nearest sales office, representative, or reach out to the Customer Service department using the provided contact numbers.
- **Can I use third-party batteries with the micromanometer?**
  It is recommended to use only specified batteries or the optional AC adapter to ensure proper functioning and warranty coverage.

Documents / Resources

	TSI TSI 5825 DP-Calc Micromanometer [pdf] Instruction Manual AXD620, PVM620, TSI 5825 DP-Calc Micromanometer, TSI 5825, DP-Calc Micromanometer, Micromanometer

References

- User Manual