



665

Differential Input Logging Manometer Instruction Manual



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A. INTRODUCTION

1. Congratulations!!

Thank you for purchasing TPI products. The 665 is easy to use and is built to last. It is backed by a 3 year limited warranty. Please remember to complete and return your product warranty registration card.

2. Product Description

The slim design 665 is a hand-held, differential input manometer with data logging capability. Digital filter, min/max, one touch zero, and backlight display are just a few of the features of the 665.

The 665 comes complete with the following accessories:

Instruction Manual
Battery

B. SAFETY CONSIDERATIONS



WARNING: Please follow manufacturers test procedures whenever possible. Do not attempt to measure unknown pressures. Damage to the instrument may result.

GENERAL GUIDELINES

ALWAYS

- Ensure connections are secure prior to applying pressure.
- Inspect hoses and fittings for cracks or bends prior to a pressure test.
- Make sure the instrument battery is in good condition and there is no low battery indication in the display.
- Have someone check on you periodically if working alone.

NEVER

- Attempt to measure unknown high pressures.

C. TECHNICAL DATA

1. Features and Benefits

Display	5 digit dual line with backlight
Units of Measure	Seven units of measure (bar, kPa, PSI, mmHg, inHg, mmH2O, inH2O).
Logging	Record test data with time stamp and display with optional software.
Data Store	Save up to 16 readings.
MAX/MIN	Records Min/Max readings
Auto Off	Conserve batteries.

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Auto Off	Conserve batteries.

2. SPECIFICATIONS

Measurement Range: ± 101.5 psi (± 7 bar)

Display: 5 Digit Dual line LCD with backlight

Input Type: Differential

Resolution (max): 0.01 psi (0.001 bar) (0.1 inH2O)

Accuracy: 0.2% Full scale

Repeatability: 0.1% Full scale

Mean Temperature Coefficient: 0.1% of reading per $^{\circ}\text{C}$

Functions: One Touch Zero, Data Hold, Back-light, Unit Selection, Data Logging, Auto power Off, Min / Max Record, Resolution Selection

Units of Measure: 7Units (bar, kPa, PSI, mmHg, inHg, mmH2O, inH2O)

Data logging: 5000 Data, 1sec ~ 24 hour.

Data Storage: 16 data points

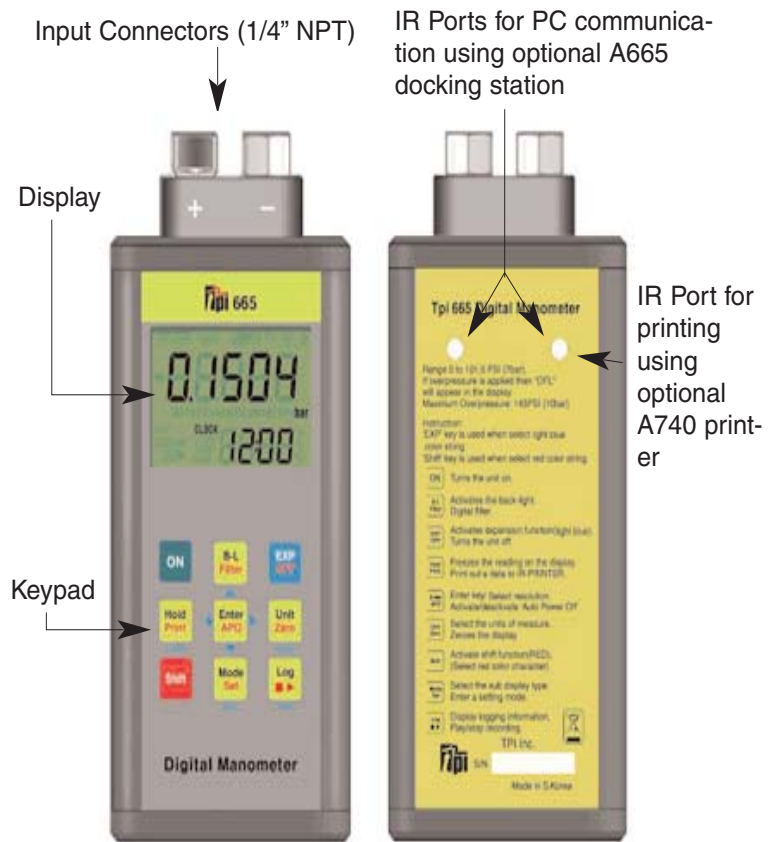
Communication: IR to USB Interface and PC Application software (optional p/n A665)

Battery Type: AA(1.5V)*2 alkaline (MN1500, LR6)

Battery Life: 600hour (Typical)

Auto Power Off: 20 minutes (can be disabled)

D. CONTROLS & FUNCTIONS



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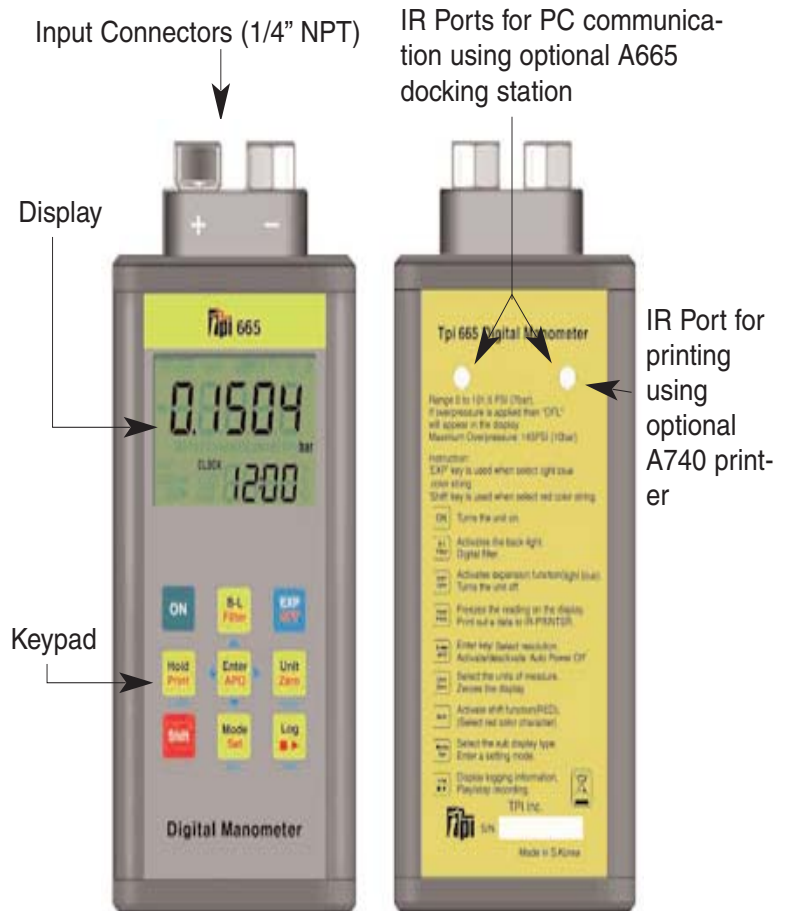
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D. CONTROLS & FUNCTIONS



D. CONTROLS & FUNCTIONS (Continued)



Press to turn the 665 on.



Press to activate the display backlight. Backlight powers off after 15 seconds.

Press the SHIFT key first then this key to activate the digital filter. Use to smooth fast changing measurements.



Press to activate “blue” functions (Load, Save, Min, Max). “EXP” will display when active.

Press the SHIFT key first, then this key to turn the 665 off.



Press to activate/deactivate the display hold. Press the SHIFT key first, then this key to print readings to the optional A740 printer.



Press to select resolution and confirm menu selections.

Press the SHIFT key first, then this key to turn deactivate/activate auto power off.



Press to change the unit of measure.

Press the SHIFT key first, then this key to zero the 665 prior to making a measurement.



Press to activate shift mode (red key functions).



Press to cycle through bottom display modes (percent of fullscale, current time, number of logged readings).

Press the SHIFT key first, then this key to activate EDIT mode.



Press to display number of logs made.

Press the SHIFT key first, then this key to activate/deactivate log mode.

E. Making a Measurement

1. Turn the 665 by pressing the key.

2. Zero the 665 by pressing .

3. Connect the device under test to the “+” port of the 665. If a differential measurement is being made, connect the other pressure source to the “-” port.

Note: Any pressure connected to the “-” port will be subtracted from the “+” port and the result will be displayed.

4. Read the measurement in the display.

5. Remove pressure prior to disconnecting the lines from the inputs.

During a measurement the following functions can be used.



Activates the display backlight. Backlight powers off after 15 seconds.



Press to change the unit of measure.



Press to activate/deactivate the display hold.



Press to select resolution.



Press to cycle the bottom display through current time, ration in percent of reading compared to full scale, and number of logged data (NUM)



Press the SHIFT key first then this key to activate the digital filter. Use to smooth fast changing measurements.

There are many other features such as data storage and logging that can be used. Please see next sections.

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Press the SHIFT key first, then this key to turn the 665 off.



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Press to select resolution and confirm menu selections.

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Press the SHIFT key first then this key to activate the digital filter. Use to smooth fast changing measurements.

There are many other features such as data storage and logging that can be used. Please see next sections.

F. Saving Data

During a measurement data can be saved for retrieval later. Follow these steps.





Press to save displayed readings. Data automatically saved in one of 16 locations.

G. Loading Saved Data



Press to display saved data. The stored data will be shown in the main display and the storage location will be displayed on the bottom display.

While “EXP” is displayed pressing the  key will cycle the storage location up and pressing the  key will cycle the storage location down. This data can be printed also. Please see section I.

H. MIN / MAX



Press to display the minimum reading measured.



Press to display the maximum reading measured.
















I. Printing Data (requires A740 printer)



Press to print readings to the optional A740 printer.

The 665 will display a 10 second countdown giving you time to align the back holes approximately 4” away from the printer window. “Out” will display and a 9 second countdown will proceed while printing takes place. Saved data can be printed also after loading data as outlined in section H.

J. Changing the Date & Time

1. Activate “EDIT” mode by pressing  
2. Press  and “date” is displayed.
3. Press  and  to cycle through month, day, and year.
4. Press  and  to change the month, day or year.
5. Once the date has been changed press  and “date” is displayed.
6. Press  and “rtc” will be displayed. Press .
7. The lower left display indicates hours, the lower right indicates minutes and the main display indicates seconds.
8. Press  and  to cycle through hours, minutes and seconds.
9. Press  and  to change the hours, minutes and seconds.
10. Exit “EDIT” mode by pressing  

F. Saving Data

During a measurement data can be saved for retrieval later. Follow these steps.





Press to save displayed readings. Data automatically saved in one of 16 locations.

G. Loading Saved Data



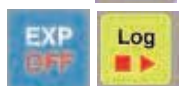
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H. MIN / MAX

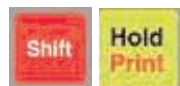


Press to display the minimum reading measured.



Press to display the maximum reading measured.

















I. Printing Data (requires A740 printer)



Press to print readings to the optional A740 printer.

The 665 will display a 10 second countdown giving you time to align the back holes approximately 4” away from the printer window. “Out” will display and a 9 second countdown will proceed while printing takes place. Saved data can be printed also after loading data as outlined in section H.












J. Changing the Date & Time

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2. Press  and “date” is displayed.
3. Press  and  to cycle through month, day, and year.
4. Press  and  to change the month, day or year.
5. Once the date has been changed press  and “date” is displayed.
6. Press  and “rtc” will be displayed. Press .
7. The lower left display indicates hours, the lower right indicates minutes and the main display indicates seconds.
8. Press  and  to cycle through hours, minutes and seconds.
9. Press  and  to change the hours, minutes and seconds.
10. Exit “EDIT” mode by pressing  



K. Logging Data



Setting Up Data Logging Interval

This mode sets up the interval or time between each logged data point. The interval can be set from 1 second to 24 hours. The 665 can log a total of 5000 data points. **NOTE:** *The optional A665 docking station and software is required to view logged information.*

1. Activate "EDIT" mode by pressing  
2. Press   and "rtc" is displayed.
3. Press  and "L-Int" is displayed. Press 
4. The lower left display indicates hours, the lower right indicates minutes and the main display indicates seconds.
5. Press  and  to cycle through hours, minutes and seconds.
6. Press  and  to change the hours, minutes and seconds.
7. Exit logging interval mode by pressing 

Logging can now be started and stopped manually or set to automatically start and stop. For automatic logging skip the steps below and see next page.

To log manually exit edit mode by pressing  








Start and stop logging by pressing  

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K. Logging Data (continued)

Setting Up Logging Start Time

This mode sets up start time for automatic logging. Logging can also be activated manually (See page 12).

1. The logging interval should already be set and the 665 should be displaying "L-Int". If not, follow steps 1 through 7 on page 12 before proceeding.
2. Press  and "L-St" is displayed. Press 
3. The lower left display indicates hours, the lower right indicates minutes and the main display indicates seconds.
4. Press  and  to cycle through hours, minutes and seconds.
5. Press  and  to change the hours, minutes and seconds.
6. Exit logging interval mode by pressing 












The logging stop time must now be set. Please see page 14.

13

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3. Press  and "L-Int" is displayed. Press .
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5. Press  and  to cycle through hours, minutes and seconds.
6. Press  and  to change the hours, minutes and seconds.
7. Exit logging interval mode by pressing .

Logging can now be started and stopped manually or set to automatically start and stop. For automatic logging skip the steps below and see next page.

To log manually exit edit mode by pressing



Start and stop login by pressing










12

K. Logging Data (continued)

Setting Up Logging Start Time

This mode sets up start time for automatic logging. Logging can also be activated manually (See page 12).

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2. Press  and "L-St" is displayed. Press .
3. The lower left display indicates hours, the lower right indicates minutes and the main display indicates seconds.
4. Press  and  to cycle through hours, minutes and seconds.
5. Press  and  to change the hours, minutes and seconds.
6. Exit logging interval mode by pressing .










The logging stop time must now be set. Please see page 14.

13

K. Logging Data (continued)

Setting Up Logging Start Time










This mode sets up stop time for automatic logging. Logging can also be activated manually (See page 12).

1. The logging interval and start time should already be set and the 665 should be displaying "L-St". If not, follow steps 1 through 7 on page 12 and steps 1 through 6 on page 13 before proceeding.
2. Press  and "L-Et" is displayed. Press .
3. The lower left display indicates hours, the lower right indicates minutes and the main display indicates seconds.
4. Press  and  to cycle through hours, minutes and seconds.
5. Press  and  to change the hours, minutes and seconds.
6. Exit logging interval mode by pressing .
7. To exit edit mode and return to normal operation press  . The LCD will display "REC" to remind you automatic logging is activated. "REC" will blink when logging is taking place.
8. Automatic logging can be deactivated. Please see page 15.

K. Logging Data (continued)

Deactivating Automatic Logging










This mode turns off automatic logging.

1. Activate "EDIT" mode by pressing  .
2. Press  six times until "L-res" is displayed.
3. Press  and "L-rES" and "YES" is displayed.
4. Press  or  to cycle between NO (Cancel) and YES (Activate).
6. Once YES or NO is set press  .
7. Exit logging interval mode by pressing  to exit edit mode.

K. Logging Data (continued)

Setting Up Logging Start Time










This mode sets up stop time for automatic logging. Logging can also be activated manually (See page 12).

1. The logging interval and start time should already be set and the 665 should be displaying "L-St". If not, follow steps 1 through 7 on page 12 and steps 1 through 6 on page 13 before proceeding.
2. Press  and "L-Et" is displayed. Press .
3. The lower left display indicates hours, the lower right indicates minutes and the main display indicates seconds.
4. Press  and  to cycle through hours, minutes and seconds.
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7. Exit logging interval mode by pressing  to exit edit mode.

L. PC Communication

To communicate to a PC and view logged data the optional A665 docking station and software is required.

Please refer to the instructions that come with the A665 for operating instructions.

M. Maintenance

Battery Replacement

- 1. Remove the protective rubber boot beginning at the bottom,
- 2. Using a screwdriver loosen the two screws located at the bottom of the 665.
- 3. Pull on the screws to remove the bottom cover/battery holder.
- 4. Remove the batteries and observing polarity replace them with fresh batteries.
- 5. Re-install the battery holder and tighten the screws.

Cleaning

Use a mild detergent and slightly damp cloth to clean the surfaces of the 665.

N. Trouble Shooting & Service

<u>Problem</u>	<u>Probable Causes</u>
<i>Does not power up</i>	<ul style="list-style-type: none">• Dead or defective battery
<i>“batt%” flashes in the lower display</i>	<ul style="list-style-type: none">• Low battery indicator. Replace batteries
<i>Readings are high</i>	<ul style="list-style-type: none">• Very weak battery that will not turn on the low battery indicator on the LCD
<i>OFL reads in the display</i>	<ul style="list-style-type: none">• Indication of over pressure. Remove pressure source• If pressure source is removed and the 665 still displays “OL” the sensor is no longer working and the 665 needs service.

To obtain service for your 665 please return it to:

TPI / Attn: Service
9615 SW Allen Blvd Suite 104
Beaverton, OR 97005



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