

# DIGITAL PRESSURE METERS



**DPM-2001**



**DPM-2001 PLUS**



**DPM-2100**

## USER MANUAL



**BC BIOMEDICAL  
DPM-2000 SERIES  
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### **WARNING - USERS**

The DPM-2000 Series is for use by skilled technical personnel only.

### **WARNING - USE**

The DPM-2000 Series is intended for testing only and should never be used in diagnostics, treatment or any other capacity where it would come in contact with a patient.

### **WARNING - CONNECTIONS**

All connections to patients must be removed before connecting the DUT to the DPM-2000 Series. A serious hazard may occur if the patient is connected when testing with the DPM-2000 Series. Do not connect anything from the patient directly to the DPM-2000 Series or DUT.

### **WARNING - MODIFICATIONS**

The DPM-2000 Series is intended for use within the published specifications. Any application beyond these specifications or any unauthorized user modifications may result in hazards or improper operation.

### **CAUTION - INSPECTION**

The DPM-2000 Series should be inspected before each use for wear and should be serviced if any parts are in question.

### **CAUTION – MEDIA COMPATIBILITY**

The DPM-2000 Series is intended to be used with only non-corrosive, non-ionic, or otherwise pure fluids and/or gases that are compatible with sensor materials including glass, silicon, ceramic, epoxy, RTV, gold, aluminum and nickel.

### **CAUTION - SERVICE**

The DPM-2000 Series is intended to be serviced only by authorized service personnel. Troubleshooting and service procedures should only be performed by qualified technical personnel.

### **CAUTION - ENVIRONMENT**

Exposure to environmental conditions outside the specifications can adversely affect the performance of the DPM-2000 Series. Allow the DPM-2000 Series to acclimate to specified conditions for at least 30 minutes before attempting to operate it.

### **CAUTION - CLEANING**

Do not immerse. The DPM-2000 Series should be cleaned by wiping gently with a damp, lint-free cloth. A mild detergent can be used if desired.

## NOTICE – SYMBOLS

Symbol    Description

 Center Negative

## NOTICE – ABBREVIATIONS

|                    |  |
|--------------------|--|
| ANSI               | American National Standards Institute        |
| BCD                | Binary Coded Decimal                         |
| C                  | Celsius                                      |
| cmH <sub>2</sub> O | Centimeter(s) water                          |
| °                  | Degree(s)                                    |
| DUT                | Device Under Test                            |
| DC                 | Direct Current                               |
| Euro               | European                                     |
| F                  | Fahrenheit                                   |
| FS                 | Full Scale                                   |
| inH <sub>2</sub> O | Inche(s) of water                            |
| kg                 | kilogram(s)                                  |
| μA                 | microampere(s)                               |
| mA                 | milliampere(s)                               |
| mBar               | milliBar(s)                                  |
| mm                 | millimeter(s)                                |
| mmHg               | millimeter(s) of Mercury                     |
| NEDA               | National Electronic Distributors Association |
| Lbs                | pounds                                       |
| PSI                | pounds per square inch                       |
| USA                | United States of America                     |
| VDC                | Volts Direct Current                         |

## **NOTICE – DISCLAIMER**

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## **NOTICE – CONTACT INFORMATION**

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|---|
| <p style="text-align: center;"><b>BC BIOMEDICAL<br/>DPM-2000 SERIES<br/>DIGITAL PRESSURE METERS</b></p> |
|---|

The Model DPM-2000 Series is a Microprocessor based Digital Pressure Meter family. They measure both gas and liquid pressures and provide multiple engineering unit displays for the results. The following are highlights of some of the main features.

DPM-2001:

- -13.50 TO 100.00 PSI RANGE
- PRESSURE SCALES INCLUDE PSI, inH<sub>2</sub>O, cmH<sub>2</sub>O, AND mmHg
- DIGITAL CALIBRATION – NO POTS TO TURN
- 5 DIGIT LCD PLUS SCALE INDICATION
- BATTERY LIFE DISPLAY (0 to 100%)
- PROGRAMMABLE DIGITAL FILTER
- LCD CONTRAST IS SOFTWARE ADJUSTABLE
- 16 BIT PRESSURE MEASUREMENT
- DIGITAL ZERO ADJUST

DPM-2001PLUS:

Includes all the features of the DPM-2001 and:

- MAX and MIN PRESSURE VALUE STORAGE
- RS232 SERIAL COMMUNICATIONS

DPM-2100:

Includes all the features of the DPM-2001PLUS and:

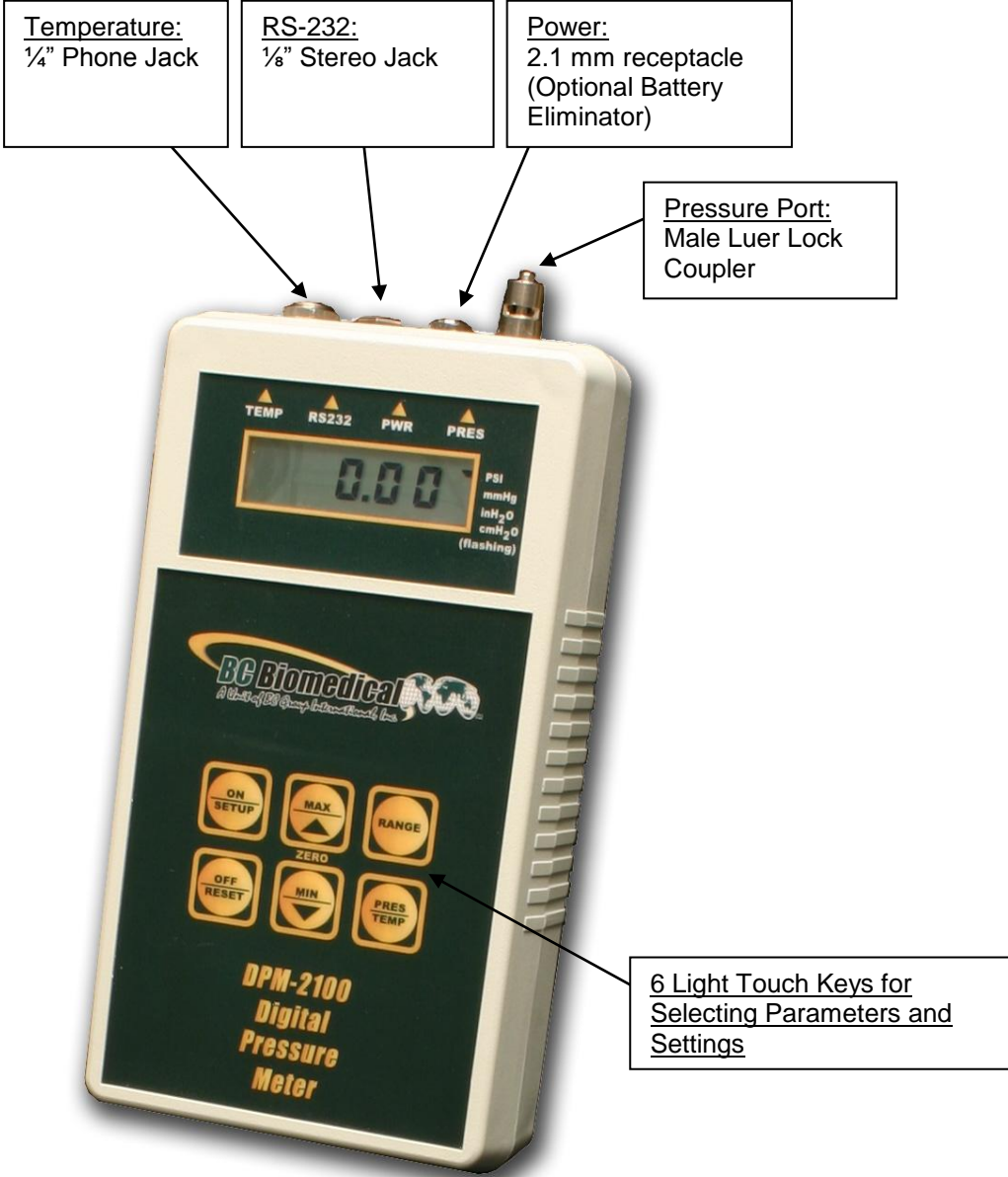
- YSI 700 TEMPERATURE PROBE INTERFACE
- 0.0 TO 100.0 °C (32.0 TO 212.0 °F) TEMPERATURE RANGE
- MAX and MIN TEMPERATURE VALUE STORAGE

OPTIONAL ACCESSORIES:

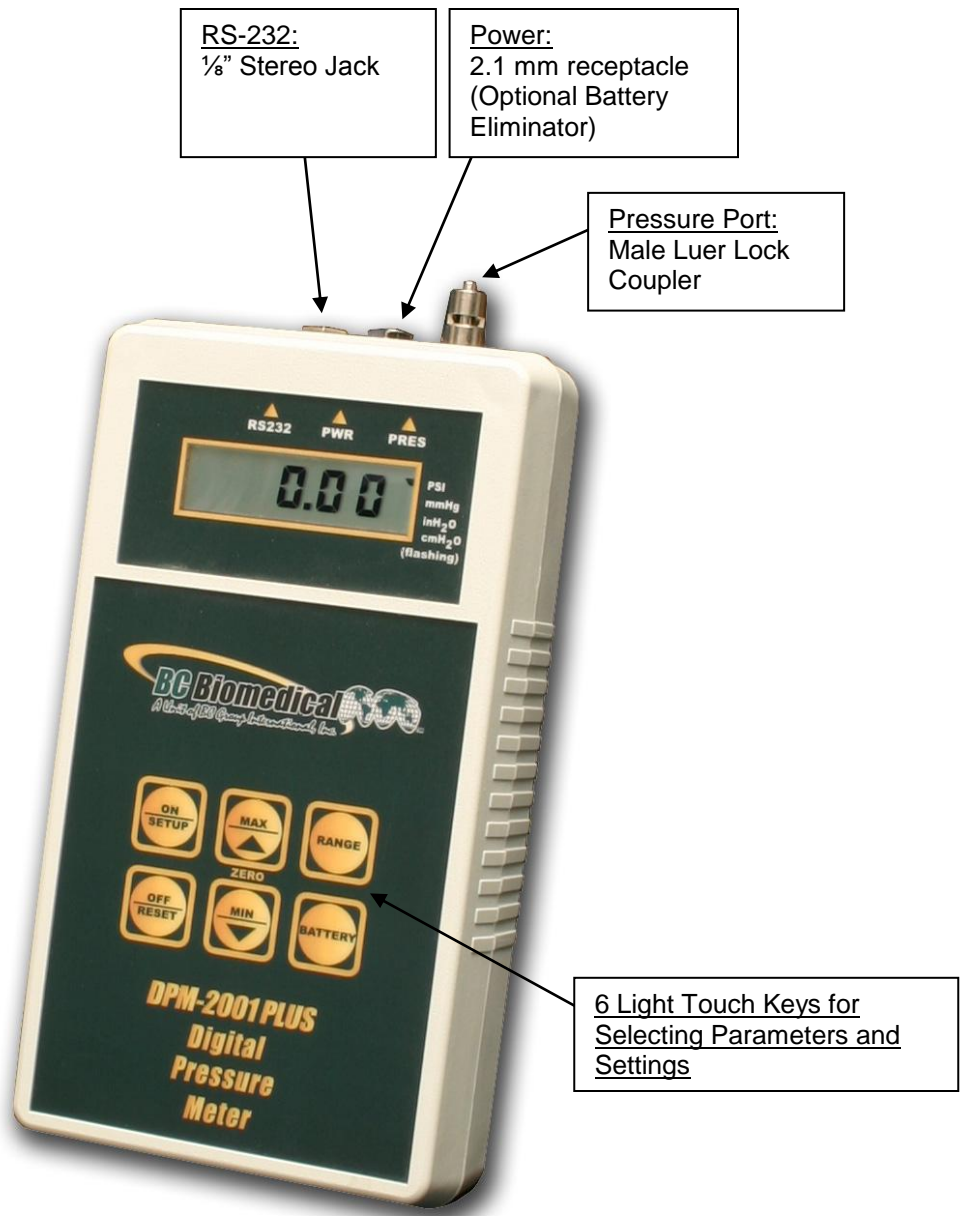
- BC20-21100 BATTERY ELIMINATOR (USA VERSION)
- BC20-21101 BATTERY ELIMINATOR (EURO VERSION)
- BC20-21102 RS-232 COMMUNICATIONS CABLE (1/8 STEREO PLUG TO DB-9F)
- BC20-41339 USB COMMUNICATIONS ADAPTER (DB-9M to USB-A)
- BC20-30106 SOFT-SIDED CARRYING CASE
- BC20-01005 UNIVERSAL PRESSURE ADAPTER KIT
- BC20-01006 YSI 700 TEMPERATURE PROBE

# LAYOUT

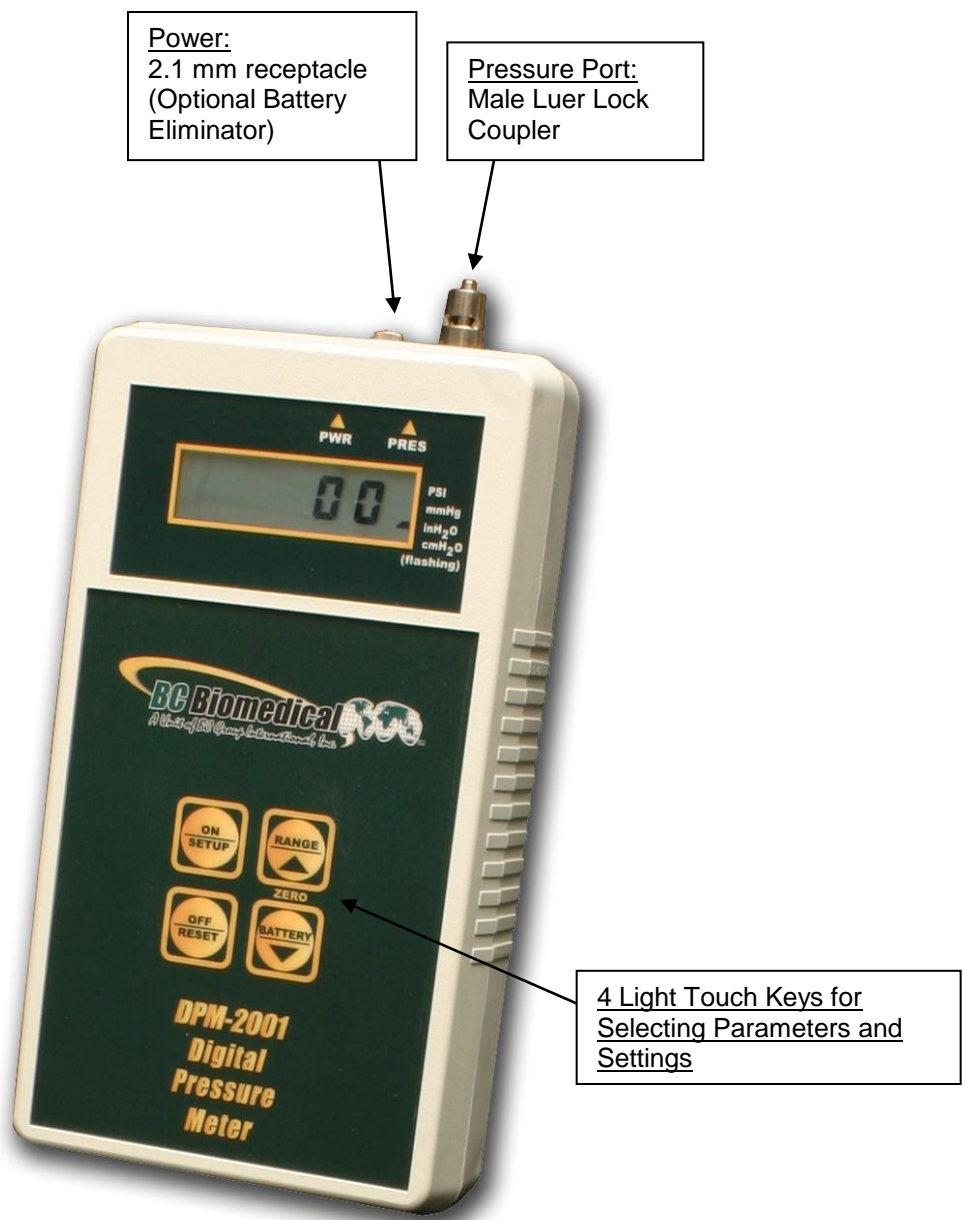
This section looks at the layout of the DPM-2000 series and gives descriptions of the elements that are present.



**DPM-2100 Layout**



**DPM-2001PLUS LAYOUT**









**DPM-2001 LAYOUT**

## DISPLAY INDICATORS

Several indicators are provided to identify the current mode and/or status.

**PRESSURE UNITS** – Pressure units are indicated by an identifier bar. The RANGE key will toggle the pressure units among PSI, mmHG, inH<sub>2</sub>O and cmH<sub>2</sub>O. The following is a breakdown of the available pressure units and the measurement range for each:

| <u>Identifier Bar</u>  | <u>Pressure Units</u>    | <u>Range</u>     |
|--|--------------------------|------------------|
|             | PSIG                     | -13.50 to 100.00 |
|             | mmHg @ 20 °C             | -701 to 5190     |
|             | inH <sub>2</sub> O 20 °C | -374 to 2773     |
|  (flashing) | cmH <sub>2</sub> O 20 °C | -951 to 7043     |

 bar  
 no bar

**NOTE:** If the measured pressure is outside of the range of the instrument, the display will display -HI- or -Lo-.

**TEMPERATURE UNITS (MODEL DPM-2100 ONLY)** – The temperature can be displayed in either degrees Celsius or Fahrenheit. When temperature is displayed, the RANGE key will toggle the temperature units between Fahrenheit and Celsius.

| <u>Temperature Units</u> | <u>Temperature Range</u> |
|--------------------------|--------------------------|
| C (Celsius)              | 0.0 to 100.0 °C          |
| F (Fahrenheit)           | 32.0 to 212.0 °F         |

**NOTE:** If the measured temperature is outside of the range of the instrument, the display will display -HI- or -Lo-. If a probe is not connected, the display will show “no probe”.

**LOW BATTERY** – When the battery life reaches 10 percent, the display will show the message “lo bat” for two seconds once every minute until the battery is replaced.

**LINE POWER** – The display will show “Line” instead of batter life remaining when the meter is powered from the optional Battery.

**DEF CAL** – This status screen displays on Power Up if the unit is out of Calibration. The unit will load default values, however the unit should be returned to BC Group for Calibration.

## KEYS

Several tactile-touch keys are provided for system operation.



– The function of this key is dependant on the Current Operating Mode as follows:

**POWER OFF** – If this key is pressed while the power is turned OFF, the power will be turned ON

**PRESSURE MEASUREMENT** – If this key is pressed while the pressure is being displayed, the Setup Mode will be entered.

**TEMPERATURE MEASUREMENT (DPM-2100)** – If this key is pressed while the temperature is being displayed, the Setup Mode will be entered.

**SETUP MODE** – Pressing this key while in the Setup Mode will sequence the display through the available parameters.



– The function of this key is dependent on the Current Operating Mode as follows:


**PRESSURE MEASUREMENT** – If this key is pressed while the pressure is being displayed, the power will be turned OFF

**TEMPERATURE MEASUREMENT (DPM-2100)** – If this key is pressed while the temperature is being displayed, the power will be turned OFF

**SETUP MODE** – Pressing this key while in the Setup Mode will exit the Setup Mode and automatically save all settings.

**MIN/MAX MODE (DPM-2001PLUS & DPM-2100)** – Pressing this key when a MIN or MAX Value is being displayed (MIN or MAX key is held down) will cause that value in that capture register to be reset to the current reading.



**(DPM-2001) or**  **(DPM-2001PLUS & DPM-2100)** – The function of this key is dependant on the Current Operating Mode as follows:


**PRESSURE MEASUREMENT (DPM-2001)** – If this key is pressed while the pressure is being displayed, the unit will step through the available pressure ranges (PSI, inH<sub>2</sub>O, cmH<sub>2</sub>O and mmHg).

**PRESSURE MEASUREMENT (DPM-2001PLUS & DPM-2100)** – If this key is pressed while the pressure is being displayed, the unit will display the maximum pressure detected since the capture register was last reset.

**TEMPERATURE MEASUREMENT (DPM-2100)** – If this key is pressed while the temperature is being displayed, the unit will display the maximum temperature detected since the capture register was last reset.

**SETUP MODE** – If this key is pressed in the Setup Mode, the value of the displayed setting will increment. Pressing and holding this key will cause the rapid automatic incrementing of the displayed setting.



**(DPM-2001) or**  **(DPM-2001PLUS & DPM-2100)** – The function of this key is dependant on the Current Operating Mode as follows:

**PRESSURE MEASUREMENT (DPM-2001)** – If this key is pressed while the pressure is being displayed, the unit will display the percent (0 to 100) of battery life remaining.

**PRESSURE MEASUREMENT (DPM-2001PLUS & DPM-2100)** – If this key is pressed while the pressure is being displayed, the unit will display the minimum pressure detected since the capture register was last reset.

**TEMPERATURE MEASUREMENT (DPM-2100)** – If this key is pressed while the temperature is being displayed, the unit will display the minimum temperature detected since the capture register was last reset.

**SETUP MODE** – If this key is pressed in the Setup Mode, the value of the displayed setting will decrement. Pressing and holding this key will cause the rapid automatic decrementing of the displayed setting.

**ZERO** – This function is a combination of two keys:  
DPM-2001:



DPM-2001PLUS & DPM-2100:



If both keys are depressed and held for 5 seconds, the pressure display will be zeroed.



**(DPM-2001PLUS & DPM-2100)** – The function of this key is to select the desired display engineering units. When viewing pressure it will sequence through the four pressure ranges (PSI, inH<sub>2</sub>O, cmH<sub>2</sub>O and mmHg). When viewing temperature (DPM-2100), it will toggle between Celsius and Fahrenheit.



**(DPM-2001PLUS)** - If this key is pressed while the pressure is being displayed, the unit will display the percent (0 to 100) of battery life remaining.



**(DPM-2100)** – The function of this key is to toggle between pressure and temperature displays.



## SETUP MODE

The Setup Mode allows the user to adjust the configuration of the meter. The Setup Mode is entered by pressing The ON/SETUP key when the unit is on. The parameter and the current value will alternately flash in the display. The following table indicates the Parameters that are available, their meaning and available setting range:

| <u>PARAMETER</u> | <u>DESCRIPTION</u>      | <u>RANGE</u>          |
|------------------|-------------------------|-----------------------|
| BAT              | REMAINING BATTERY LIFE  | 0 - 100 % (READ ONLY) |
| CONT             | CONTRAST                | 0 - 15                |
| AOFF             | AUTO OFF TIMER          | 0 - 30 MINUTES        |
| BEEP             | KEY BEEP LENGTH         | 0 - 15                |
| FCON             | DIGITAL FILTER CONSTANT | 1 - 255               |

**BAT – (DPM-2100 ONLY)** This parameter gives an estimated indication of the remaining battery life displayed as a percentile.

**CONT** – This parameter controls the contrast of the LCD display. A Higher setting will cause the display to darken. A lower setting will cause the display to lighten.

**AOFF** – This parameter determines the period of user inactivity before the meter is automatically turned OFF. A timer is started when the meter is turned ON and is reset each time a key is pressed. When the timer reaches the value set in this parameter, the meter is automatically turned OFF.

NOTE: Setting this parameter to 0 disables the Auto Off feature.

NOTE: The meter will not automatically turn off when powered by the Battery Eliminator, regardless of AOFF setting.

**BEEP** – This parameter controls the length of the audio feedback beep (click) that occurs when a key is depressed. A Higher setting will cause a longer (louder) beep. If the value is set to 0, the beep is eliminated.

**FCON** – This parameter controls the Filter Constant. The software has a Digital Filter that averages the pressure readings to produce a stable display. This setting determines the number of samples that are averaged in the digital filter. Increasing this setting will cause a more stable display. However, it will also cause a slower response to small changes in pressure. The best setting is the smallest number that provides a stable display.

## COMMUNICATIONS

Since the meter does not handle a great deal of data, the RS-232 communications link has been optimized to allow the user, through very simple instructions, to control and request data from the meter. Refer to Specifications section for RS-232 Settings (Baud, etc).

Data transmitted/received is in standard ASCII format, and all numerical values are in BCD format. All commands sent to the unit should be terminated with a “Carriage Return” character (<CR> or in hexadecimal, 0x0D). All commands and responses are echoed by the unit for confirmation of communication, and are terminated with “Carriage Return” and “Line Feed” characters (<CR><LF> or in hexadecimal, 0x0D0A). If an invalid command is received, the unit will respond with the characters “??”.

The following section describes the protocol used by the meter in detail:

| <b>R - <u>READ</u></b>  | <p>The READ command allows the user to read system settings and data.</p> <p><u>Usage:</u></p> <p style="text-align: center;">R(Location)(CR)</p> <p>Where:</p> <p style="padding-left: 20px;">R - READ command<br/>Location - contains two digits indicating the data location to be read<br/>CR - Carriage Return</p> <p><u>Example:</u></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;"><u>Data Sent</u></th> <th style="text-align: left; padding: 2px;"><u>Data Returned</u></th> <th style="text-align: left; padding: 2px;"><u>Meaning</u></th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">R11&lt;CR&gt;</td> <td style="padding: 2px;">R11&lt;CR&gt;&lt;LF&gt;<br/>-0011&lt;CR&gt;&lt;LF&gt;</td> <td style="padding: 2px;">Echo of Command Sent<br/>-0.11 PSI measured</td> </tr> </tbody> </table> | <u>Data Sent</u>                           | <u>Data Returned</u> | <u>Meaning</u> | R11<CR> | R11<CR><LF><br>-0011<CR><LF> | Echo of Command Sent<br>-0.11 PSI measured |
|-------------------------|--|--|----------------------|----------------|---------|------------------------------|--|
| <u>Data Sent</u>        | <u>Data Returned</u>   | <u>Meaning</u>                             |                      |                |         |                              |  |
| R11<CR>                 | R11<CR><LF><br>-0011<CR><LF>   | Echo of Command Sent<br>-0.11 PSI measured |                      |                |         |                              |  |
| <b>W - <u>WRITE</u></b> | <p>The WRITE command allows the user to update the system settings.</p> <p><u>Usage:</u></p> <p style="text-align: center;">W(Location – 2 digits)(Data – 5 digits)(CR)</p> <p>Where:</p> <p style="padding-left: 20px;">W - WRITE command<br/>Location - contains two digits indicating the data location to be written<br/>Data – five-digit field containing the data to be written at the Location set above<br/>CR - Carriage Return</p>  |  |                      |                |         |                              |  |

|                                    | <p><u>Examples:</u></p> <table border="0"> <thead> <tr> <th><u>Data Sent</u></th> <th><u>Data Returned</u></th> <th><u>Meaning</u></th> </tr> </thead> <tbody> <tr> <td>W172&lt;CR&gt;</td> <td>W172&lt;CR&gt;&lt;LF&gt;</td> <td>Echo of Command Sent<br/>(Set Pressure units to "inH<sub>2</sub>O")</td> </tr> <tr> <td>W1700002&lt;CR&gt;</td> <td>W1700002&lt;CR&gt;&lt;LF&gt;</td> <td>Echo of Command Sent<br/>(Set Pressure units to "inH<sub>2</sub>O")</td> </tr> <tr> <td>W01100&lt;CR&gt;</td> <td>W01100&lt;CR&gt;&lt;LF&gt;<br/>??&lt;CR&gt;&lt;LF&gt;</td> <td>Echo of Command Sent<br/>Invalid Command Response<br/>(Location 01 is Read Only)</td> </tr> </tbody> </table> | <u>Data Sent</u>   | <u>Data Returned</u> | <u>Meaning</u> | W172<CR> | W172<CR><LF> | Echo of Command Sent<br>(Set Pressure units to "inH <sub>2</sub> O") | W1700002<CR> | W1700002<CR><LF> | Echo of Command Sent<br>(Set Pressure units to "inH <sub>2</sub> O") | W01100<CR> | W01100<CR><LF><br>??<CR><LF> | Echo of Command Sent<br>Invalid Command Response<br>(Location 01 is Read Only) |
|------------------------------------|--|--|----------------------|----------------|----------|--------------|--|--------------|------------------|--|------------|------------------------------|--|
| <u>Data Sent</u>                   | <u>Data Returned</u>   | <u>Meaning</u>   |                      |                |          |              |  |              |                  |  |            |                              |  |
| W172<CR>                           | W172<CR><LF>   | Echo of Command Sent<br>(Set Pressure units to "inH <sub>2</sub> O")           |                      |                |          |              |  |              |                  |  |            |                              |  |
| W1700002<CR>                       | W1700002<CR><LF>   | Echo of Command Sent<br>(Set Pressure units to "inH <sub>2</sub> O")           |                      |                |          |              |  |              |                  |  |            |                              |  |
| W01100<CR>                         | W01100<CR><LF><br>??<CR><LF>   | Echo of Command Sent<br>Invalid Command Response<br>(Location 01 is Read Only) |                      |                |          |              |  |              |                  |  |            |                              |  |
| <p><b>U - <u>UPLOAD</u></b></p>    | <p>The UPLOAD command allows the user to read all of the selected device data from locations 1 through 16 with a single command. The data returned will be formatted as a single block per location separated by a carriage return, line feed character sequence (CRLF – equivalent to hexadecimal 0x0D0A). See the table below for details on the data structure.</p> <p><u>Usage:</u></p> <p style="text-align: center;">U(CR)</p> <p>Where:<br/> U – UPLOAD command<br/> CR - Carriage Return</p>   |  |                      |                |          |              |  |              |                  |  |            |                              |  |
| <p><b>Q - <u>QUICKSEND</u></b></p> | <p>QUICKSEND is a feature that allows the user to receive an automatic update of all of the meter data without any further user interaction. When the QUICKSEND command is received, the feature is turned ON and the meter will automatically send all of the device data every half second. The Quicksend feature is toggled ON and OFF with the QUICKSEND command. See the table below for details on the data structure.</p> <p><u>Usage:</u></p> <p style="text-align: center;">Q(CR)</p> <p>Where:<br/> Q – QUICKSEND command<br/> CR - Carriage Return</p>  |  |                      |                |          |              |  |              |                  |  |            |                              |  |
| <p><b>V - <u>VERSION</u></b></p>   | <p>The VERSION command allows the user to read the Software Version that the unit is currently running.</p> <p><u>Usage:</u></p> <p style="text-align: center;">V(CR)</p> <p>Where:<br/> V – VERSION command<br/> CR - Carriage Return</p>   |  |                      |                |          |              |  |              |                  |  |            |                              |  |

|                          |   |
|--------------------------|---|
| <b>X - <u>CANCEL</u></b> | <p>The CANCEL command is simply a way to re-establish proper control, should a communications error occur or an incorrect command be transmitted. For the most part, an incorrect command will simply be ignored and the meter will return to listening for future commands. However, a prior command may be cancelled midstream by transmitting the CANCEL command anytime.</p> <p><u>Usage:</u></p> <p style="text-align: center;">X</p> <p>This command does not require a carriage return, nor will it acknowledge with a carriage return. However, it will echo an 'X' character to indicate that the CANCEL command has been received.</p> <p>NOTE: The VERSION or CANCEL commands may also be utilized as an acknowledgement of the meter being on line.</p> |
|--------------------------|---|

| LOCATION | ACCESS | DESCRIPTION              | RANGE   |
|----------|--------|--------------------------|---|
| 01       | R      | % BATTERY LIFE REMAINING | 0-100   |
| 02       | R/W    | CONTRAST                 | 0-15  |
| 03       | R/W    | AUTO POWER OFF           | 0-30  |
| 08       | R/W    | FILTER CONSTANT          | 0-255   |
| 10       | R      | MODEL                    | 0 = DPM-2001<br>1 = DPM-2001+<br>2 = DPM-2100 |
| 11       | R      | PRESSURE                 | See Note 1                                    |
| 12       | R      | MAX PRESSURE             | See Note 1                                    |
| 13       | R      | MIN PRESSURE             | See Note 1                                    |
| 14       | R      | TEMPERATURE              | See Note 1                                    |
| 15       | R      | MAX TEMPERATURE          | See Note 2                                    |
| 16       | R      | MIN TEMPERATURE          | See Note 2                                    |
| 17       | R/W    | PRESSURE UNITS           | 0=PSI<br>1=mmHg<br>2=inH2O<br>3=cmH2O         |
| 18       | R/W    | TEMPERATURE UNITS        | 0=Celsius<br>1=Fahrenheit                     |

Note 1 – The units for the pressure data is determined by the setting in Location 17. This may be set via the Write command or manually using the Range Key. See Specifications Page for Ranges.

Note 2 – The units for the temperature data is determined by the setting in Location 18. This may be set via the Write command or manually using the Range Key. See Specifications Page for Ranges.

## MANUAL REVISIONS

| <u>Revision #</u> | <u>Program #</u> | <u>Revisions Made</u>                               |
|-------------------|------------------|---|
| Rev 01            | DT7325CA         | Preliminary Manual                                  |
| Rev 02            | DT7325CA         | Misc. Edits   |
| Rev 03            | DT7325CA         | Battery Eliminator Updated                          |
| Rev 04            | DT7325CB         | Status Display Graphics Updated                     |
| Rev 05            | DT7325CD         | Accuracy Specifications Updated                     |
| Rev 06            | DT7325CG         | Program Upgrades, Color Overlays Updated            |
| Rev 07            | DT7325CG         | Misc. Edits   |
| Rev 08            | DT7325CI         | Format Updated, Specifications Updated, Misc. Edits |
| Rev 09            | DT7325CI         | Specifications Updated                              |

## LIMITED WARRANTY

**WARRANTY:** BC GROUP INTERNATIONAL, INC. WARRANTS ITS NEW PRODUCTS TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP UNDER THE SERVICE FOR WHICH THEY ARE INTENDED. THIS WARRANTY IS EFFECTIVE FOR TWELVE MONTHS FROM THE DATE OF SHIPMENT.

**EXCLUSIONS:** THIS WARRANTY IS **IN LIEU OF** ANY OTHER WARRANTY EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF **MERCHANTABILITY** OR FITNESS FOR A PARTICULAR PURPOSE.


**BC GROUP INTERNATIONAL, INC.** IS NOT LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

NO PERSON OTHER THAN AN OFFICER IS AUTHORIZED TO GIVE ANY OTHER WARRANTY OR ASSUME ANY LIABILITY.

**REMEDIES:** THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY SHALL BE: (1) THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS OR PRODUCTS, WITHOUT CHARGE. (2) AT THE OPTION OF **BC GROUP INTERNATIONAL, INC.**, THE REFUND OF THE PURCHASE PRICE.

## SPECIFICATIONS

| <b>PRESSURE</b>                    |   |           |                        |           |                     |
|------------------------------------|---|-----------|------------------------|-----------|---------------------|
| RANGE                              | -13.50 to 100.00 PSI<br>-701 to 5190 mmHg @ 20 °C<br>-374 to 2773 inH <sub>2</sub> O @ 20 °C<br>-951 to 7043 cmH <sub>2</sub> O @ 20 °C   |           |                        |           |                     |
| RESOLUTION                         | 0.01 PSI<br>1 mmHg @ 20 °C<br>1 inH <sub>2</sub> O @ 20 °C<br>1 cmH <sub>2</sub> O @ 20 °C  |           |                        |           |                     |
| MAXIMUM OVERPRESSURE               | 200 PSI   |           |                        |           |                     |
| ACCURACY                           | ± 0.1% FS   |           |                        |           |                     |
| DIGITAL FILTER                     | 1 – 255 samples   |           |                        |           |                     |
| COMPATIBLE MEDIA                   | Only non-corrosive, non-ionic, or otherwise pure fluids and/or gases that are compatible with sensor materials including glass, silicon, ceramic, epoxy, RTV, gold, aluminum and nickel.  |           |                        |           |                     |
| CONNECTIONS                        | Male Luer Coupler   |           |                        |           |                     |
| <b>TEMPERATURE (DPM-2100 ONLY)</b> |   |           |                        |           |                     |
| RANGE                              | 0.0 to 100.0 °C (32.0 to 212.0 °F)  |           |                        |           |                     |
| RESOLUTION                         | 0.1 °C (0.1 °F)   |           |                        |           |                     |
| ACCURACY                           | ± 0.5% FS   |           |                        |           |                     |
| CONNECTIONS                        | ¼ inch Phone Jack for ¼ Phone Plug terminated temperature cables or probes  |           |                        |           |                     |
| SENSOR COMPATIBILITY               | YSI Series 700 Temperature Probes or equivalent   |           |                        |           |                     |
| <b>PHYSICAL</b>                    |   |           |                        |           |                     |
| DISPLAY                            | 5 Digit, 7-Segment Non-Backlit LCD  |           |                        |           |                     |
| CONSTRUCTION                       | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 30%;">ENCLOSURE</td> <td style="text-align: center;">ABS Plastic</td> </tr> <tr> <td style="text-align: center;">OVERLAY</td> <td style="text-align: center;">Lexan, Back Printed</td> </tr> </table>         | ENCLOSURE | ABS Plastic            | OVERLAY   | Lexan, Back Printed |
| ENCLOSURE                          | ABS Plastic   |           |                        |           |                     |
| OVERLAY                            | Lexan, Back Printed   |           |                        |           |                     |
| MEMORY                             | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 30%;">SETUP</td> <td style="text-align: center;">EEPROM, All Parameters</td> </tr> <tr> <td style="text-align: center;">RETENTION</td> <td style="text-align: center;">10 Years w/o Power</td> </tr> </table> | SETUP     | EEPROM, All Parameters | RETENTION | 10 Years w/o Power  |
| SETUP                              | EEPROM, All Parameters  |           |                        |           |                     |
| RETENTION                          | 10 Years w/o Power  |           |                        |           |                     |
| SIZE                               | 7.69 x 3.97 x 1.82 Inches (195.3 x 100.8 x 46.2 mm)   |           |                        |           |                     |
| WEIGHT                             | ≤ 1 Lbs (0.45 kg)   |           |                        |           |                     |

| <b>ENVIRONMENTAL</b>  |  |  |
|-----------------------|--|--|
| OPERATING RANGE       | 0 to 50 °C (32 to 122 °F)  |  |
| STORAGE RANGE         | -40 to 60 °C (-40 to 140 °F)   |  |
| <b>ELECTRICAL</b>     |  |  |
| BATTERY               | 9V Alkaline<br>(ANSI/NEDA 1604A or equivalent)   |  |
| BATTERY ELIMINATOR    | 9 V, 50 mA DC<br><br>BC20-21100 (USA Version)<br>BC20-21101 (Euro Version) |  |
| POWER CONSUMPTION     | ON   | < 15 mA  |
|                       | OFF  | < 40 µA  |
| BATTERY LIFE          | CONTINUOUS   | 80 hours   |
|                       | OFF  | 1 year   |
| RS-232 COMMUNICATIONS | BAUD   | 115200   |
|                       | DATA BITS  | 8  |
|                       | START BITS   | 1  |
|                       | STOP BITS  | 1  |
|                       | PARITY   | none   |
|                       | HANDSHAKING  | none   |
|                       | CONNECTIONS  | 1/8 Stereo Receptacle for use with BC20-21102 RS-232 Cable |

**NOTES**



**NOTES**

**NOTES**





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**DPM-2000 Series User Manual  
08/12 – Rev 09**

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