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## ADT680A/680P/601Ex Commands Set

### 1. Commands Instruction

(1) Each command includes two parts: **mnemonic** and **parameter**. The **mnemonic** and **parameter** are separated by a space;

For example PRESSure <Numeric>, PRESSure is the mnemonic, <Numeric> is the parameter to be input, and they need to be separated by a space. If the current pressure unit is kPa, enter PRESSure:UNIT 1133

#### (2) About the parameter

Each parameter in the commands set is marked with<> (do not enter angle brackets when converting to actual commands) and separated by commas.

The | in the parameter indicates that one of the left and right parameters can be selected, such as PRESSure:UNIT <Numeric>|<UnquoStr>, which means that you can use either the unit id or the unit name to set the pressure unit, such as: setting the current pressure unit kPa, you can enter PRESSure:UNIT? 1133, or enter PRESSure:UNIT? KPA.

#### (3) Terminator

The SCPI command must include a command terminator, which can be one of the follows (excluding double quotation marks): "\r\n", "\r", "\n" or "\0".

### 1.1 IEEE488.2 common commands

| No | Commands | Description                                                                                                                                                             | Parameter | Returned value                                                                               |
|----|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------|
| 1  | *CLS     | Clear the error queue                                                                                                                                                   | -         | -                                                                                            |
| 2  | *IDN?    | Device identification query, the returned data is divided into 4 parts:<br>1. manufacturer<br>2. model<br>3. product serial number<br>4. device ID and software version | -         | 1. manufacturer<br>2. model<br>3. product serial number<br>4. device ID and software version |
| 3  | *RST     | Program reset                                                                                                                                                           | -         | Return OK and reset                                                                          |

### 1.2 Pressure commands

| No | Commands                           | Description                                                                   | Parameter                                                                                  | Returned value                                                                                                                           |
|----|------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | PRESsure? <Numeric>                | Read current pressure value                                                   | Option: 0, 1, 2.<br>When there is no parameter, it is the same as the parameter being 0.   | 0 or none: pressure value + unit Id,<br>1: pressure value + unit Name<br>2: pressure value + unit Id + temperature + temperature unit ID |
| 2. | PRESsure:UNIT?                     | Read current pressure unit                                                    | Option: 0, 1, 2<br>When there is no parameter, it is the same as the parameter being 0.    | 0 or none: pressure unit Id<br>1: pressure unit name<br>2: pressure unit Id, pressure unit name                                          |
| 3. | PRESsure:UNIT <Numeric> <UnquoStr> | Set current pressure unit                                                     | Option: ID or unquoted unit name                                                           | See Appendix 1                                                                                                                           |
| 4. | PRESsure:UNIT:NEXT                 | Switch the pressure unit upward or downward in the order of the pressure list | Parameter: none or one parameter<br>➤ 1 indicates to switch the pressure unit downward (or | None                                                                                                                                     |

|     |                               |                                             |                                                                                                                                 |                                                                                                                                                                                                                                                                                                   |
|-----|-------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                               |                                             | backward), when there is no parameter, it is the same as this<br>➤ -1 indicates to switch the pressure unit upward (or forward) |                                                                                                                                                                                                                                                                                                   |
| 5.  | PRESsure:PTYPE?               | Read current pressure type                  | None                                                                                                                            | G: Gauge pressure<br>A: Absolute pressure                                                                                                                                                                                                                                                         |
| 7.  | PRESsure:ONLine?              | Read whether the pressure module is online? | None                                                                                                                            | 0: offline<br>1: online                                                                                                                                                                                                                                                                           |
| 8.  | PRESsure:RANGe?               | Read pressure module's range                | None, 0 or 1                                                                                                                    | None or 0: lower limit, upper limit, unit ID, pressure type(G/A);<br>1: lower limit, upper limit, unit name, pressure type(G/A)                                                                                                                                                                   |
| 9.  | PRESsure:ZERO                 | Pressure module zero                        | None                                                                                                                            | None                                                                                                                                                                                                                                                                                              |
| 10. | PRESsure:RESolution?          | Read pressure resolution                    | None                                                                                                                            | 4 5                                                                                                                                                                                                                                                                                               |
| 11. | PRESsure:RESolution <Numeric> | Set pressure resolution                     | 4 or 5                                                                                                                          | None                                                                                                                                                                                                                                                                                              |
| 12. | PRESsure:FILTer?              | Read filter parameter                       | 0 or none: read current filter information;<br>1: read all filter information.                                                  | Three return formats of read current filter information:<br>No filter: 0<br>First-order filter: 1, first-order filter coefficient (0.05~1)<br>Average filter: 2, filter window size (3~10)<br>When reading all filter information, return all of the following information in order, separated by |

|     |                                                 |                                    |                                                                                                                                                                                                                             |                                                                                                                                                                                              |
|-----|-------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                                 |                                    |                                                                                                                                                                                                                             | comma.<br>Filter type: no filter, first-order filter, average value filter<br>first-order filter coefficient;<br>average value filter window;<br>average value filter de-extreme value pairs |
| 13. | PRESsure:FiLTer 0 1 2<br>[,<Numeric>,<Numeric>] | Set filter type                    | No filter: 0<br>first-order filter: 1, coefficient<br>average value filter: 2, window size,<br>de-extreme value pairs                                                                                                       | None                                                                                                                                                                                         |
| 14. | PRESsure:PEAK?                                  | Read pressure peak value           | None                                                                                                                                                                                                                        | Min, max, unit ID                                                                                                                                                                            |
| 15. | PRESsure:PEAK:RESEt                             | Reset pressure peak value          | None                                                                                                                                                                                                                        | None                                                                                                                                                                                         |
| 16. | PRESsure:TARE?                                  | Read pressure tare function status | 1 or no parameter: read tare information                                                                                                                                                                                    | Tare status (0=disable, 1=enable), tare value, unit ID                                                                                                                                       |
| 17. | PRESsure:TARE                                   | Set pressure tare function status  | Parameters are separated by English comma<br>➤ Tare function status (0= disable, 1= enable)<br>➤ Tare value, can be omitted (it means not to reset the tare)<br>➤ Unit ID, can be omitted(it means choose the default unit) | None                                                                                                                                                                                         |
| 21. | PRESsure:RATE?                                  | Read pressure sampling rate        | None                                                                                                                                                                                                                        | Return:<br>➤ mode (measurement type)<br>➤ time/ second                                                                                                                                       |

|     |                  |                                        |                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----|------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                  |                                        |                                                                                                                                                                    | ➤ data number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 22. | PRESsure:RATE    | Set pressure sampling rate             | <ul style="list-style-type: none"> <li>➤ 1: mode (measurement type: 1=normal power, 2=low power)</li> <li>➤ 2: time/ second;</li> <li>➤ 3: data number;</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 23. | PRESsure:UNITs?  | Read pressure unit display list        | <ul style="list-style-type: none"> <li>➤ 0 or none= return unit ID list;</li> <li>➤ 1= return unit name list</li> </ul>                                            | <p>Two formats:</p> <p>1. None or =0, return unit ID list, separated by comma.</p> <p>2. =1, return unit name list, separated by comma</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 24. | PRESsure:CUNITs? | Read custom pressure unit display list | None                                                                                                                                                               | <p>Return: The unit list is separated by comma, and the data in the custom unit are separated by semicolon.</p> <p>data in the custom unit : id;RefId;Coefficients; Name;DisplayName, as below:</p> <ul style="list-style-type: none"> <li>➤ id: custom unit ID, must be negative integer [-32767, 0]; if the unit is in the custom unit list, then it should be the corresponding unit ID</li> <li>➤ RefId: Reference unit for custom unit, generally is 1133, means kPa</li> <li>➤ Coefficients: reference coefficients, Single-precision floating-point format</li> <li>➤ Name: custom unit ID, internal use purpose</li> <li>➤ DisplayName: Custom unit name (reserved)</li> </ul> |
| 25. | PRESsure:CUNITs  | Set custom pressure unit               | Two ways to set custom unit:                                                                                                                                       | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|     |                          |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                        |
|-----|--------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
|     |                          |                                      | <p>1. When the unit coefficient is a negative integer, set it according to the data format returned by reading the custom pressure unit</p> <p>2. Choose one of the custom unit in below list, the parameter behinds the unit is unit ID</p> <p>inH2O_20°C unit id 1148</p> <p>inH2O_60°F unit id 2005</p> <p>mmH2O_20C unit id 1151</p> <p>mmH2O_15C unit id 2015</p> <p>ftH2O_4°C unit id 1153</p> <p>ftH2O_60°F unit id 2006</p> |                                                                                                                        |
| 26. | PRESsure:UNITList?       | Read configurable pressure unit list | <p>0 or none: return unit ID list;</p> <p>1: return unit name ID list</p>                                                                                                                                                                                                                                                                                                                                                           | <p>0 or none: return unit ID list, separated by comma;</p> <p>1: return unit name ID list, separated by comma</p>      |
| 27. | PRESsure:UNITList        | Set configurable pressure unit list  | unit ID list, separated by comma                                                                                                                                                                                                                                                                                                                                                                                                    | None                                                                                                                   |
| 28. | PRESsure:DANGp?          | Read overpressure records            | None                                                                                                                                                                                                                                                                                                                                                                                                                                | Different records are separated by comma, each record has: pressure value date time                                    |
| 29. | PRESsure:ALLConfigUnits? | Read all configurable units          | <p>0 or none: return unit ID list;</p> <p>1: return unit name ID list</p>                                                                                                                                                                                                                                                                                                                                                           | <p>0 or none: return unit ID list, separated by comma;</p> <p>1: return unit name ID list, separated by comma</p>      |
| 30. | PRESsure:CALWarnInfo?    | Read calibration due information     | None                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>1: calibration due reminder status</p> <p>2: days prior to calibration due date</p> <p>3: this calibration date</p> |

|     |                      |                                 |                                                                                                                                     |                          |
|-----|----------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
|     |                      |                                 |                                                                                                                                     | 4: next calibration date |
| 31. | PRESsure:CALWarnInfo | Set calibration due information | 1: calibration due reminder status<br>2: days prior to calibration due date<br>3: this calibration date<br>4: next calibration date | None                     |
| 32. | PRESsure:CALInfo     | Set calibration information     | 1: this calibration date<br>2: next calibration date                                                                                | None                     |

### 1.3 System commands

| No | Commands                                     | Description                        | Parameter                                                                  | Returned value                                                                    |
|----|----------------------------------------------|------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| 1. | SYSTem:ERRor?                                | Read the execute error information | None                                                                       | A message at the stack top of the error                                           |
| 2. | SYSTem:LOCK?                                 | Read the screen lock status        | None                                                                       | 0= unlock<br>1= lock                                                              |
| 3. | SYSTem:LOCK                                  | Set the screen lock status         | 0= unlock<br>1= lock                                                       | None                                                                              |
| 4. | SYSTem:VERsion?                              | Read the device version            | APP or no parameter- host version;<br>PM- pressure module firmware version | No parameter= return host version<br>with parameter= return corresponding version |
| 5. | SYSTem:DATE?                                 | Read system date                   | None                                                                       | Date (yyyy,MM,dd)                                                                 |
| 6. | SYSTem:DATE<br><Numeric>,<Numeric>,<Numeric> | Set system date                    | ➤ 1: year<br>➤ 2: month<br>➤ 3: day                                        | None                                                                              |
| 7. | SYSTem:TIME?                                 | Read system time                   | None                                                                       | Time (HH,mm,ss)                                                                   |

|     |                                              |                                                                |                                                                               |                                                                |
|-----|----------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------|
| 8.  | SYSTem:TIME<br><Numeric>,<Numeric>,<Numeric> | Set system time                                                | ➤ 1: hour<br>➤ 2: minute<br>➤ 3: second                                       | None                                                           |
| 9.  | SYSTem:BACKlight:INFO?                       | Read system backlight information                              | None                                                                          | 1: brightness percentage<br>2: auto backlight off time (s)     |
| 10. | SYSTem:BACKlight:INFO                        | Set system backlight information                               | 1: brightness percentage (reserve)<br>2: auto backlight off(0~600)S, 0= never | None                                                           |
| 11. | SYSTem:BACKlight?                            | Read the backlight status                                      | None                                                                          | 0= off, 1= open                                                |
| 12. | SYSTem:BACKlight                             | Set the backlight on/off                                       | ➤ 0= off, 1= open                                                             | None                                                           |
| 13. | SYSTem:AUTOpoweroff?                         | Read auto power off information                                | None                                                                          | 1: 0=disable, 1= enable<br>2: auto power off time (S)          |
| 14. | SYSTem:AUTOpoweroff                          | Set auto power off information                                 | 1: 0=disable, 1= enable<br>2: auto power off time (0~5*24*60*60)S             | None                                                           |
| 15. | SYSTem:BATTery:CAPacity?                     | Read current battery status                                    | None                                                                          | 1: battery voltage(V)<br>2: battery power (full-4, 3, 2, 1, 0) |
| 16. | SYSTem:HOME?                                 | Read whether the current display interface is the main display | None                                                                          | 0= no<br>1= yes                                                |
| 17. | SYSTem:HOME                                  | Set return to main display                                     | None                                                                          | None                                                           |
| 18. | SYSTem:TEMPerature:UNIT?                     | Read system temperature unit                                   | None                                                                          | 1: temperature unit ID<br>2: temperature unit name             |
| 19. | SYSTem:TEMPerature:UNIT                      | Set system temperature unit                                    | Temperature ID or unit name, will be identified automatically                 | None                                                           |
| 20. | SYSTem:RSCOMm?                               | Read serial communication parameter                            | None                                                                          | 1: address                                                     |



|     |                         |                                         |                                                                                                                                                                                                                                                   |                                                         |
|-----|-------------------------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
|     |                         |                                         |                                                                                                                                                                                                                                                   | 2: baud rate<br>3: data bit<br>4: stop bit<br>5: parity |
| 21. | SYSTem:RSComm           | Set serial communication parameter      | Support set only the first few parameters<br>1: address (1~112)<br>2: baud rate: default 9600<br>3: data bit: default is 8 (7 or 8)<br>4: stop bit: default is 2 (1 or 2)<br>5: parity: default no check. 0: no check, 1: odd check 2: even check | None                                                    |
| 22. | SYSTem:BLUetooth        | Set Bluetooth on/ off                   | 0= off<br>1= open                                                                                                                                                                                                                                 | None                                                    |
| 23. | SYSTem:BLEInfo?         | Read the Bluetooth name and Mac address | None                                                                                                                                                                                                                                              | 1: Bluetooth name<br>2: MAC address                     |
| 24. | SYSTem:BATTery:PERcent? | Read battery capacity percentage        | None                                                                                                                                                                                                                                              | Battery capacity percentage                             |

#### 1.4 Data management commands

| No | Commands                   | Description                  | Parameter                                        | Returned value                                   |
|----|----------------------------|------------------------------|--------------------------------------------------|--------------------------------------------------|
| 1. | DATalogger:TYPE?           | Read data log type           | None                                             | 0: log pressure<br>1: log pressure + temperature |
| 2. | DATalogger:TYPE <item>     | Set data log type            | 0: log pressure<br>1: log pressure + temperature | None                                             |
| 3. | DATalogger:SPACE?          | Read occupied data log space | None                                             | occupied percentage                              |
| 4. | DATalogger:SPACE<UnquoStr> | Clear data log               | Password (Unquoted string)                       | None                                             |

|    |                              |                                      |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----|------------------------------|--------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                              | User password: 1234                  |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 5. | DATalogger:FILE?             | Get log file index                   | None                  | 1: File start index<br>2: File end index<br>3: Maximum files amount                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6. | DATalogger:FILEinfo? <index> | Read designated log file information | Designated file index | 1: version<br>2: date (YYYYMMDD)<br>3: time (HHMMSS)<br>4: total log time 0=no limit<br>5: logging interval, unit: ms<br>6: size of a log item, unit: byte<br>7: pressure unit ID<br>8: string description of stored content information<br>9: starting file in the log folder<br>10: ending file in the log folder (not exist)<br>11: guid<br>12: temperature unit ID (if temperature is not logged, it is 0)<br>13: log file name<br>14: pressure type<br>15: file size<br>16: round-off digits<br>17: data offset address |
| 7. | DATalogger:FILESIZE? <index> | Read designated log file size        | Designated file index | File size                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

|     |                                                |                                                                                                                                                                                   |                                                                                     |                                                                                                                                    |
|-----|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 8.  | DATalogger:RUN                                 | Start or Stop data log                                                                                                                                                            | 0: stop data log<br>1: start data log                                               | None                                                                                                                               |
| 9.  | DATalogger:RUN?                                | Read data log running status                                                                                                                                                      | None                                                                                | 0: stop<br>1: running                                                                                                              |
| 10. | DATalogger:INTERval                            | Set data log recording interval                                                                                                                                                   | Unit: seconds<br>Range (0.1 ~9999 s)<br>< 1 with a decimal.<br>≥ 1 without decimal. | None                                                                                                                               |
| 11. | DATalogger:INTERval?                           | Read data log recording interval                                                                                                                                                  | None                                                                                | Unit: second                                                                                                                       |
| 12. | DATalogger:INFO?                               | Read information                                                                                                                                                                  | None                                                                                | 1: logging interval<br>2: log type<br>3: occupied capacity<br>4: file start index<br>5: file end index<br>6: maximum file quantity |
| 13. | DATalogger:LISTinfo? <startindex>,<endindex>   | Read designated log file list information                                                                                                                                         | 1: file start index<br>2: file end index                                            | File heads information is separated by semicolon                                                                                   |
| 14. | DATalogger:FILEDATA?<index>,<address>,<length> | Read the data of designated length starting from designated position in designated file.<br>It is recommended that the data length of each reading should not exceed 10240 bytes. | 1: designated file index<br>2: position<br>3: length                                | base64 encoded string                                                                                                              |

|     |                                |                                         |                            |                         |
|-----|--------------------------------|-----------------------------------------|----------------------------|-------------------------|
| 15. | DATalogger:FileName <UnquoStr> | Set the filename of current started log | File log (unquoted string) | None                    |
| 16. | DATalogger:OVERride?           | Read overwrite function status          | None                       | 0= disable<br>1= enable |
| 17  | DATalogger:OVERride            | Set overwrite function status           | 0= disable<br>1= enable    | None                    |

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**Appendix 1: SCPI unit ID list**

| Unit ID | Unit                   |
|---------|------------------------|
| 1133    | kPa                    |
| 1130    | Pa                     |
| 1132    | MPa                    |
| 1137    | bar                    |
| 1138    | mbar                   |
| 1141    | psi                    |
| 1145    | kgf/cm <sup>2</sup>    |
| 1147    | inH <sub>2</sub> O@4°C |
| 1150    | mmH <sub>2</sub> O@4°C |
| 1156    | inHg@0°C               |
| 1158    | mmHg@0°C               |
| 1001    | °C                     |
| 1002    | °F                     |

## Appendix 2: Error definition

| No                     | Error code | Error description          | Definition                                                                    |
|------------------------|------------|----------------------------|-------------------------------------------------------------------------------|
| 1                      | 0          | No error                   | No error                                                                      |
| <b>Command error</b>   |            |                            |                                                                               |
| 2                      | 120        | Commandparameter error     | Command parameter error                                                       |
| 3                      | -108       | Parameter not allowed      | Too many parameters, or the command without parameters contains parameters    |
| 4                      | -109       | Missing parameter          | Parameter missed                                                              |
| 5                      | -110       | Command header error       | Command header error                                                          |
| 6                      | -114       | Header suffix out of range | Command header suffix is out of range                                         |
| 7                      | -123       | Numeric overflow           | Number overflow, the absolute value of the number exponent is greater than 43 |
| 8                      | -151       | Invalid string data        | Invalid string, such as mismatched quotes                                     |
| 9                      | -171       | Invalid expression         | Invalid expressions, such as mismatched parentheses                           |
| <b>Execution error</b> |            |                            |                                                                               |
| 10                     | -200       | Execution error            | Execution error                                                               |
| 11                     | -221       | Settings conflict          | Settings conflict                                                             |
| 12                     | -222       | Data out of range          | Parameter out of the command's range                                          |
| 13                     | -223       | Too much data              | Too much data beyond processing capacity                                      |
| 14                     | -224       | Illegal parameter value    | Illegal parameter value                                                       |
| 15                     | -310       | System error               | System error                                                                  |
| 16                     | -311       | Memory error               | Memory error                                                                  |
| 17                     | -350       | Queue overflow             | Queue overflow                                                                |
| 18                     | -360       | Communication error        | Communication error                                                           |