ADT715 SCPI Commands Set

1. SCPI Commands Introduction

SCPI commands are short for Standard Commands for Programmable Instruments, which actually defines a set of standard syntax and commands for controlling programmable measuring instruments. SCPI commands interact with instruments in the form of ASCII character strings. Commands are generally composed of a series of keywords, and some also need to include parameters. In the protocol, commands are specified in the following format: *IDN?. In use, you can write the full name or just an abbreviation containing only uppercase letters. Usually, instrument commands can be divided into control commands and query commands. Control commands have no return value, and the command SYSTem:ERRor? can be used to query whether the execution result is correct. Query commands have a return value, and the returned content is also an ASCII string.

1.1 Command (instruction) format

A command consists of keywords and parameters. Keywords are separated by a colon (:), followed by optional parameter settings. A "?" after the command line indicates a query function. The keyword and the first parameter must be separated by a space.

For example:

The control command CHANnel1:BWLimit 20M has the first-level keyword "CHANnel" and the second-level keyword "BWLimit." Each level of keyword is also separated by a colon (:). 20M is the parameter, separated from the keyword by a space.

The query command CHANnel1:BWLimit? uses a question mark (?") to indicate a query.

1.2 Symbol Explanation

The following symbols are not sent with commands.

1. Vertical bar |

The vertical bar is used to separate multiple parameter options. When using a command, you must select one parameter.

2. Square brackets []

The contents within the square brackets are optional.

3. Triangle brackets <>

The parameters within the triangle brackets must be replaced with a valid value.

1.3 Command Abbreviations

All commands are case-insensitive; you can use all uppercase or lowercase letters. However, if you want to abbreviate the command, you must enter all uppercase letters.

For example, CHANnel:VALUe? can be abbreviated to CHAN:VALU?

1.4 Ending Symbol

SCPI commands must be accompanied by a command terminator. This terminator can be one of the following (excluding double quotes): "\r\n", "\r", "\n", or "\0". Some serial communication tools offer a "Send Newline Character" option. Selecting this option automatically sends the terminator.

2. Commands Instruction

2.1 Channel Commands：CHANnel

To read the state of channel ：CHANnel:ONLIne?

- **Command format**

CHANnel:ONLIne? <ch>

- **Parameter**

<ch>: Channel number, range 0-5:

0: Reads all channels;

1-5: Reads the channel corresponding to <ch>.

- **Return Value**

When reading a single channel, the returned content is in the format: <channel number>, <online status>.

When reading all channels, the returned content is in the format of a list of all channel return values, separated by &.

<online status>: The online status is represented by 0 or 1:

0: The channel is offline;

1: The channel is online.

- **Explanation**

Read the online status of a single channel or all channels.

- **Example:**

Read the online status of channel 1, e.g., channel 1 is online.

Send: CHANnel:ONLINE? 1

Return: 1,1

Read the online status of all channels, e.g., channels 1, 2, and 3 are online, but channels 4 and 5 are offline.

Send: CHANnel:ONLINE? 0

Return: 1,1&2,1&3,1&4,0&5,0

To read channel primary variable：CHANnel?

- **Command Format:**

CHANnel? <ch>

- **Parameter**

<ch>: Channel number, range 0-5:

0: reads all online channels;

1-5: reads the channel corresponding to <ch>.

- **Return Value**

When reading a single channel, if the channel is online, the return format is: <channel number>, <primary variable value>, <primary variable unit ID>. If the channel is offline, no data is returned, and a module offline error message is generated in the error queue.

When reading all online channels, if any channels are online, the return format is: a list of online channel return values separated by &. If all channels are offline, no data is returned, and a module offline error message is generated in the error queue.

<unit ID>: The unit name corresponding to the unit ID is shown in the appendix.

- **Explanation:**

Read the primary variable of a single channel or all online channels.

- **Example:**

Read the primary variable of channel 1. If channel 1 is online, the primary variable is 101.325 kPa.

Send: CHANnel? 1

Return: 1,101.325,1133

Read the primary variables of all online channels. If channels 1, 2, and 3 are online, and channels 4 and 5 are offline, the primary variables of channels 1, 2, and 3 are 101.325 kPa, 2.0000 MPa, and 25.2°C, respectively.

Send: CHANnel? 0

Return: 1,101.325,1133&2,2.0000,1132&3,25.2,1001

To read all process quantities of a channel：CHANnel:ALL?

- **Command Format**

CHANnel:ALL? <ch>

- **Parameter**

<ch>: Channel number, range 0-5:

0: reads all online channels;

1-5: reads the channel corresponding to <ch>.

- **Return Value**

When reading a single channel, if the channel is online, the return format is: <channel number>, <primary variable value>, <primary variable unit ID>, <number of auxiliary variables>[, <auxiliary variable 1 identifier>, <auxiliary variable 1 value>, <auxiliary variable 1 unit ID>, <auxiliary variable 2 identifier>, <auxiliary variable 2 value>, <auxiliary variable 2 unit ID>,...]. If the channel is offline, no return is given, and a module offline error message is generated in the error queue.

When reading all online channels, if any channels are online, the return format is: a list of online channel return information, separated by &. If all channels are offline, no return is given, and a module offline error message is generated in the error queue.

<number of auxiliary variables>: The number of auxiliary variables (range: 0-4). <Auxiliary variable identifier>: The auxiliary variable identifier is represented by a value from 0 to 6:

0: Maximum value;

1: Minimum value;

2: Average value;

3: Rate of change;

4: Tare value;

5: Temperature. This item is present when humidity is selected as the primary variable in the temperature and humidity module;

6: Humidity. This item is present when temperature is selected as the primary variable in the temperature and humidity module.

<Unit ID>: The unit name corresponding to the unit ID is shown in the appendix.

- **Explanation**

Read all process variables of a single channel or all online channels. The process variables include primary variables and auxiliary variables.

- **Example:**

Read all process variables for channel 1. For example, if channel 1 is online, three auxiliary variables are configured in the auxiliary information: maximum, minimum, and average. The primary variable and the auxiliary variables are 101.325 kPa, 102.869 kPa, 100.009 kPa, and 101.005 kPa, respectively.

Send: CHANnel:ALL? 1

Return: 1,101.325,1133,3,0,102.869,1133,1,100.009,1133,2,101.005,1133

Read all process variables for all online channels. For example, if channels 1, 2, and 3 are online, but channels 4 and 5 are offline.

Channel 1's auxiliary information has three auxiliary variables configured: maximum, minimum, and average. The primary variable and each auxiliary variable are 101.325 kPa, 102.869 kPa, 100.009 kPa, and 101.005 kPa, respectively.

Channel 2's auxiliary information contains two auxiliary variables: maximum and minimum. The primary variable and each auxiliary variable are 2.0000 MPa, 2.008 MPa, and 1.995 MPa, respectively.

Channel 3's auxiliary information contains one auxiliary variable: average. The primary variable and each auxiliary variable are 25.2°C and 25.1°C, respectively. Send: CHANnel: ALL? 0

Return:

1,101.325,1133,3,0,102.869,1133,1,100.009,1133,2,101.005,1133&2,2.0000,1132,2,0,2.0008,1132,1,1.9995,1132&3,25.2,1001,1,2,25.1,1001

To read channel resolution：CHANnel:RESOlution?

- **Command Format**

CHANnel:RESOlution? <ch>

- **Parameter**

<ch>: Channel number, range 0-5:

0: reads all online channels;

1-5: reads the channel corresponding to <ch>.

- **Return Value**

When reading a single channel, if the channel is online, the return format is: <channel number>, <resolution>. If the channel is offline, no return is given, and a module offline error message is displayed in the error queue.

When reading all online channels, if any channels are online, the return format is: a list of online channels separated by &. If all channels are offline, no return is given, and a module offline error message is displayed in the error queue.

<resolution>: Different module resolution options:

Pressure: 4, 5, 6;

High-precision pressure: 5, 6, 7;

Humidity, temperature: 3, 4, 5.

- **Explanation**

Read the resolution of a single channel or all online channels.

- **Example**

Read the resolution of channel 1. If channel 1 is online, the resolution is 6.

Send: CHANnel:RESOlution? 1

Return: 1, 6

Read the resolution of all online channels. For example, if channels 1, 2, and 3 are online, and channels 4 and 5 are offline, the resolutions of channels 1, 2, and 3 are 6, 5, and 4, respectively.

Send: CHANnel:RESOlution? 0

Return: 1, 6 & 2, 5 & 3, 4

To set channel resolution：CHANnel:RESOlution

- **Command Format**

CHANnel:RESOlution <ch>,<resolution>

- **Parameter**

<ch>: Channel number, range 1-5, indicating the channel corresponding to <ch>.

<resolution>: Resolution options for different modules:

Pressure: 4, 5, 6;

High-precision pressure: 5, 6, 7;

Humidity, temperature: 3, 4, 5.

- **Return Value**

None.

- **Explanation**

Set the resolution of the channel.

- **Example**

Set the resolution of channel 1 to 6.

Send: CHANnel:RESOlution 1,6

Return: No response

To read channel unit：CHANnel:UNIT?

- **Command Format**

CHANnel:UNIT? <ch>

- **Parameter**

<ch>: Channel number, range 0-5:

0: reads all online channels;

1-5: reads the channel corresponding to <ch>.

- **Return Value**

When reading a single channel, if the channel is online, the return format is: <channel number>, <unit ID>. If the channel is offline, no data is returned, and a module offline error message is generated in the error queue.

When reading all online channels, if any channels are online, the return format is: a list of online channel return data separated by &. If all channels are offline, no data is returned, and a module offline error message is generated in the error queue.

<unit ID>: The unit name corresponding to the unit ID is shown in the appendix.

- **Explanation**

Read the unit of a single channel or all online channels.

- **Example:**

Read the unit of channel 1. For example, if channel 1 is online, the unit is kPa.

Send: CHANnel:UNIT? 1

Return: 1,1133

Read the units of all online channels. For example, if channels 1, 2, and 3 are online, and channels 4 and 5 are offline, the units of channels 1, 2, and 3 are kPa, MPa, and °C, respectively.

Send: CHANnel:UNIT? 0

Return: 1,1133&2,1132&3,1001

To set channel unit：CHANnel:UNIT

- **Command Format**

CHANnel:UNIT <ch>,<单位 Id>

- **Parameter**

<ch>: Channel number, range 1-5, indicating the channel corresponding to <ch>.

<unitId>: The unit name corresponding to the unit ID is shown in the appendix.

- **Return Value**

None.

- **Explanation**

To set the channel unit.

- **Example**

Set the unit for channel 1 to kPa.

Send: CHANnel:UNIT 1,1133

Return: No response

To read channel filtering function：CHANnel:FILTer?

- **Command Format**

CHANnel:FILTer? <ch>

- **Parameter**

<ch>: Channel number, range 0-5:

0: reads all online channels;

1-5: reads the channel corresponding to <ch>.

- **Return Value**

When reading a single channel, if the channel is online, the return format is: <channel number>, <enable>, <filter type>, <first-order filter coefficient>, <average filter sampling time>. If the channel is offline, no return is given, and a module offline error message is generated in the error queue.

When reading all online channels, if any channels are online, the return format is: a list of online channel return information separated by &. If all channels are offline, no return is given, and a module offline error message is generated in the error queue.

<enable>: Enable status indicated by 0 or 1:

0: Disabled;

1: Enabled.

<filter type>: Filter type indicated by 0 or 1:

0: First-order filter;

1: Average filter.

<first-order filter coefficient>: First-order filter coefficient range (0.01-1). This option is used when the filter type is first-order. <Average filter sampling time>: Average filter sampling time range (1-20)s. This item is used when the filter type is average filter.

- **Explanation**

Read the filtering function of a single channel or all online channels.

- **Example**

Read the filter function for channel 1. If channel 1 is online, the filter function is enabled, the filter type is first-order, the filter coefficient is 0.8, and the filter sampling time is 10s.

Send: CHANnel:FILTer? 1

Return: 1,1,0,0.8,10

Read the filter function for all online channels. If channels 1, 2, and 3 are online, and channels 4 and 5 are offline, the filter function for channel 1 is enabled. The filter type is first-order, the filter coefficient is 0.8, and the average filter sampling time is 10s.

The filter function for channel 2 is disabled, the filter type is first-order, the filter coefficient is 0.6, and the average filter sampling time is 20s.

The filter function for channel 3 is enabled, the filter type is average, the filter coefficient is 1, and the average filter sampling time is 10s. Send:

CHANnel: FILTer? 0

Return: 1,1,0,0.8,10&2,0,0,0.6,20&3,1,1,1,10

To set the channel filtering function.：CHANnel:FILTer

- **Command Format**

CHANnel:FILTer <ch>,<Enable>,<Filter type>,<First-order filter coefficient>,<Average filter sampling time>

- **Parameter**

<ch>: Channel number, range 1-5, indicates the channel corresponding to <ch>.

<enable>: Enable status, represented by 0 or 1:

0: Disabled;

1: Enabled.

<filter type>: Filter type, represented by 0 or 1:

0: First-order filter;

1: Average filter.

<first-order filter coefficient>: First-order filter coefficient range (0.01-1). Use this option when the filter type is first-order.

<average filter sampling time>: Average filter sampling time range (1-20) seconds. Use this option when the filter type is average.

- **Return Value**

None.

- **Explanation**

Set the filtering function of the channel.

- **Example:**

Set the filter function for channel 1. Enable the filter function, set the filter type to first-order, the first-order filter coefficient to 0.8, and the average filter sampling time to 10 seconds.

Send: CHANnel: FILTer 1,1,0,0.8,10

Return: No response

Read channel stability judgment function：CHANnel:STABility?

- **Command Format**

CHANnel:STABility? <ch>

- **Parameter**

<ch>: Channel number, range 0-5:

0: reads all online channels;

1-5: reads the channel corresponding to <ch>.

- **Return Value**

When reading a single channel, if the channel is online, the return format is: <channel number>, <enable>, <stability type>, <full scale percentage>, <fixed value>, <stable time>. If the channel is offline, no return is given, and a module offline error message is generated in the error queue.

When reading all online channels, if any channel is online, the return format is: a list of online channel return information separated by &. If all channels are offline, no return is given, and a module offline error message is generated in the error queue.

<enable>: Enable status indicated by 0 or 1:

0: Disabled;

1: Enabled.

<stability type>: Stability type indicated by 0 or 1:

0: Fixed value;

1: Percent of full scale.

<Percent of full scale>: Percent of full scale range (0.005-1) %FS. This option is used when the stability type is percentage of full scale. <Fixed Value>: Fixed value range (0.005-1)%FS*span, in the primary variable unit. Use this option when the stability type is fixed value.

<Stabilization Time>: Stabilization time range (1-60) seconds.

- **Explanation**

Function for determining stability of a single channel or all online channels.

- **Example**

Read the stability check function for channel 1. If channel 1 is online, the stability check function is enabled, the stability type is percentage of full scale, the full scale percentage is 0.05% FS, the fixed value is 0.1 kPa, and the stabilization time is 30 seconds.

Send: CHANnel:STABility? 1

Return: 1,1,1,0.05,0.1,30

Read the stability check function for all online channels. If channels 1, 2, and 3 are online, and channels 4 and 5 are offline, the stability check function for channel 1 is enabled. The stability type is percentage of full scale, the full scale percentage is 0.05% FS, the fixed value is 0.1 kPa, and the stabilization time is 30 seconds.

If the stability check function for channel 2 is not enabled, the stability type is fixed value, the full scale percentage is 0.05% FS, the fixed value is 0.004 MPa, and the stabilization time is 20 seconds. Enable the stability check function for channel 3. Set the stability type to percentage of full scale, the full scale percentage to 0.5% FS, the fixed value to 0.2°C, and the stabilization time to 60 seconds.

Send: CHANnel:STABility? 0

Return: 1,1,1,0.05,0.1,30&2,0,0,0.05,0.004,20&3,1,1,0.5,0.2,60

Set the stability judgment function.：CHANnel:STABility

- **Command Format**

CHANnel:STABility <ch>,<enable>,<stability type>,<full scale percentage>,<fixed value>,<stabilization time>

- **Parameter**

<ch>: Channel number, range 1-5, indicates the channel corresponding to <ch>.

<enable>: Enable status, represented by 0 or 1:

0: Disabled;

1: Enabled.

<stability type>: Stability type, represented by 0 or 1:

0: Fixed value;

1: Percent of full scale.

<Percent of full scale>: Full scale percentage range (0.005-1)%FS. This option is used when the stability type is percentage of full scale.

<fixed value>: Fixed value range (0.005-1)%FS*span. Units are the primary variable units. This option is used when the stability type is fixed value.

<stabilization time>: Stabilization time range (1-60) seconds.

- **Return Value**

None.

- **Explanation**

Set the channel stability judgment function.

- **Example**

Set the stability check function for channel 1. Enable the stability check function, set the stability type to percentage of full scale, set the full scale percentage to 0.05% FS, set the fixed value to 0.1 kPa, and set the stabilization time to 30 seconds.

Send: CHANnel:STABility 1,1,1,0.05,0.1,30

Return: No response

To read Tare function：CHANnel:TARE?

- **Command Format**

CHANnel:TARE? <ch>

- **Parameter**

<ch>: Channel number, range 0-5:

0: reads all online channels;

1-5: reads the channel corresponding to <ch>.

- **Return Value**

When reading a single channel, if the channel is online, the return format is: <channel number>, <enable>, <tare value>, <tare unit ID>. If the channel is offline, no return is given, and a module offline error message is generated in the error queue.

When reading all online channels, if any channels are online, the return format is: a list of online channel return values separated by &. If all channels are offline, no return is given, and a module offline error message is generated in the error queue.

<enable>: Enable status is represented by 0 or 1:

0: Disabled;

1: Enabled.

<unit ID>: The unit name corresponding to the unit ID is shown in the appendix.

- **Explanation**

Read the tare function of a single channel or all channels online.

- **Example**

Read the tare function for channel 1. If channel 1 is online, the tare function is enabled, and the tare value is 0.5 kPa.

Send: CHANnel:TARE? 1

Return: 1,1,0.5,1133

Read the tare function for all online channels. If channels 1, 2, and 3 are online, but channels 4 and 5 are offline.

Channel 1 has the tare function enabled, and the tare value is 0.5 kPa.

Channel 2 has the tare function disabled, and the tare value is 0.05 MPa.

Channel 3 has the tare function enabled, and the tare value is 0.1°C.

Send: CHANnel:TARE? 0

Return: 1,1,0.5,1133&2,0,0.05,1132&3,1,0.1,1001

To setting the Tare Function：CHANnel:TARE

- **Command Format**

CHANnel:TARE <ch>,<Enable>,<Tare value>,<Tare unit ID>

- **Parameter**

<ch>: Channel number, range 1-5, indicating the channel corresponding to <ch>.

<enable>: Enable status represented by 0 or 1:

0: Disabled;

1: Enabled.

<tare value>: Tare value has no range restriction.

<tare unit ID>: The unit name corresponding to the unit ID is shown in the appendix.

- **Return Value**

None.

- **Explanation**

Set the tare function for the channel.

- **Example**

Set the tare function for channel 1, enabling it and setting the tare value to 0.5 kPa.

Send: CHANnel:TARE 1,1,0.5,1133

Return: No response

To reading pressure altitude difference correction function：CHANnel:PRESsure:HCORrection?

- **Command Format**

CHANnel:PRESsure:HCORrection? <ch>

- **Parameter**

<ch>: Channel number, range 0-5:

0: reads all online channels;

1-5: reads the channel corresponding to <ch>.

- **Return Value**

When reading a single channel, if the channel is online and is a pressure channel, the returned content format is: <channel number>, <enable>, <unit system>, <altitude difference>, <medium standard density>, <gravitational acceleration>, <temperature>. If the channel is online but not a pressure channel, no return is given, and a module category mismatch error message is generated in the error queue. If the channel is offline, no return is given, and a module offline error message is generated in the error queue.

When reading all online channels, if there are online pressure channels, the returned content format is: a list of online pressure channels separated by &. If all pressure channels are offline, no return is given, and a module offline error message is generated in the error queue.

<enable>: Enable status represented by 0 or 1:

0: Disabled;

1: Enabled.

<unit system>: Unit system represented by 0 or 1:

0: Imperial;

1: Metric. <Altitude Differential>: Altitude differential range: Metric (-1000-1000) cm; Imperial (-394-394) in.

<Medium Standard Density>: Medium standard density range: Metric (0.01-2000) kg/m³; Imperial (0.001-124.844) lb/ft³.

<Gravity Acceleration>: Gravity acceleration range: Metric (9-10) m/s²; Imperial (29-33) ft/s².

<Temperature>: Temperature range: (0-50)°C.

- **Explanation**

Read the pressure altitude correction function for a single channel or all online channels.

- **Example**

Read the pressure altitude correction function for channel 1. For example, if channel 1 is online and a pressure channel, altitude correction is enabled, the unit system is metric, the altitude difference is 10 cm, the standard density of the medium is 1.293 kg/m³, the acceleration due to gravity is 9.8 m/s², and the temperature is 25°C.

Send: CHANnel:PRESsure:HCORrection? 1

Return: 1,1,1,10,1.293,9.8,25

Read the pressure altitude correction function for all online channels. For example, if channels 1, 2, and 3 are online and channels 4 and 5 are offline. Channels 1 and 2 are pressure channels, and channel 3 is a temperature channel.

Channel 1 has altitude correction enabled. The unit system is metric, the altitude difference is 10 cm, the standard density of the medium is 1.293 kg/m³, the acceleration due to gravity is 9.8 m/s², and the temperature is 25°C. Channel 2 altitude correction is disabled. The unit system is Imperial. The altitude difference is 3.937 inches. The standard density of the medium is 0.081 lb/ft³. The acceleration due to gravity is 32.15 ft/s². The temperature is 25°C.

Sent: CHANnel:PRESsure:HCORrection? 0

Return: 1,1,1,10,1.293,9.8,25&2,0,0,3.937,0.081,32.15,25

To Set the pressure altitude correction function：CHANnel:PRESsure:HCORrection

- **Command Format**

CHANnel:PRESsure:HCORrection <ch>,<Enable>, <Unit System>, <Height Difference>, <Medium Standard Density>, <Gravity Acceleration>, <Temperature>

- **Parameter**

<ch>: Channel number, range 1-5, indicates the channel corresponding to <ch>.

<enable>: Enable status represented by 0 or 1:

0: Disabled;

1: Enabled.

<unit system>: Unit system represented by 0 or 1:

0: Imperial;

1: Metric.

<height difference>: Height difference range: Metric (-1000-1000) cm; Imperial (-394-394) in.

<medium standard density>: Medium standard density range: Metric (0.01-2000) kg/m³; Imperial (0.001-124.844) lb/ft³.

<gravity acceleration>: Gravity acceleration range: Metric (9-10) m/s²; Imperial (29-33) ft/s².

<temperature>: Temperature range: (0-50)°C.

- **Return Value**

None.

- **Explanation**

Set the pressure altitude difference correction function of the channel.

- **Example**

Set the pressure altitude correction function for channel 1. Enable the altitude correction function. Set the unit system to metric, the altitude difference to 10 cm, the standard density of the medium to 1.293 kg/m³, the acceleration of gravity to 9.8 m/s², and the temperature to 25°C.

Send: CHANnel:PRESsure:HCORrection 1,1,1,10,1.293,9.8,25

Return: None.

To read channel module information： CHANnel:INFO?

- **Command Format**

CHANnel:INFO? <ch>

- **Parameter**

<ch>: Channel number, range 0-5:

0: reads all online channels;

1-5: reads the channel corresponding to <ch>.

- **Return Value**

When reading a single channel, if the channel is online, the return format is: <channel number>, <serial number>, <version>, <number of ranges>, <range 1 lower limit>, <range 1 upper limit>, <range 1 unit ID>, <range 1 accuracy>[, <range 2 lower limit>, <range 2 upper limit>,

<range 2 unit ID>, <range 2 accuracy>]. If the channel is offline, no response is returned, and a module offline error message is generated in the error queue.

When reading all online channels, if any channels are online, the return format is: a list of online channel return information, separated by &. If all channels are offline, no response is returned, and a module offline error message is generated in the error queue.

<number of ranges>: The number of ranges (1-2).

<unit ID>: The unit name corresponding to the unit ID is shown in the appendix.

- **Explanation**

Read module in information of a single channel or all online channel

- **Example**

Read module information for channel 1. For example, if channel 1 is online, the module serial number is 00500100001, the version is DPS-EX V00.00.00.13, the number of ranges is 1, the range is (0-100) kPa, and the accuracy is 0.01% FS.

Send: CHANnel:INFO? 1

Return: 1,00500100001,DPS-EX V00.00.00.13,1,0,100,1133,0.01% FS

Read module information for all online channels. For example, if channels 1, 2, and 3 are online, and channels 4 and 5 are offline.

Channel 1's module serial number is 00500100001, the version is DPS-EX V00.00.00.13, the number of ranges is 1, the range is (0-100) kPa, and the accuracy is 0.01% FS.

The serial number of the channel 2 module is 00500100002, the version is DPS-EX V00.00.00.13, the number of ranges is 1, the range is (0-4) MPa, and the accuracy is 0.05% FS.

The serial number of the channel 3 module is 00200100001, the version is V1.2-1, the number of ranges is 2, range 1 is (0-100)% RH, the accuracy of range 1 is ±0.8% RH, and range 2 is (-50-100)°C, the accuracy of range 2 is ±0.1°C. Send: CHANnel: INFO? 0

Return: 1,00500100001,DPS-EX V00.00.00.13,1,0,100,1133,0.01%FS&2,00500100002,DPS-EX V00.00.00.13,1,0,4,1132,0.05%FS&3,00200100001,V1.2-1,2,0,100,1681,±0.8%RH,-50,100,1001,±0.1°C

To read auxiliary information configuration：CHANnel:SUPPlement:CONFig?

- **Command Format**

CHANnel:SUPPlement:CONFig? <ch>

- **Parameter:**

<ch>: Channel number, range 0-5:

0: reads all online channels;

1-5: reads the channel corresponding to <ch>.

- **Return Value**

When reading a single channel, if the channel is online, the return format is: <channel number>, <number of auxiliary variables>[, <auxiliary variable 1 identifier>, <auxiliary variable 2 identifier>,...]; if the channel is offline, no return is given, and a module offline error message is generated in the error queue.

When reading all online channels, if any channel is online, the return format is: a list of online channel return information, separated by &;; if all channels are offline, no return is given, and a module offline error message is generated in the error queue.

<number of auxiliary variables>: The number of auxiliary variables ranges from 0 to 4.

<auxiliary variable identifier>: The auxiliary variable identifier is represented by a value from 0 to 6:

0: Maximum value;

1: Minimum value;

2: Average value;

3: Rate of change;

4: Tare value;

5: Temperature (available when humidity is selected as the primary variable in the temperature and humidity module);

6: Humidity (available when temperature is selected as the primary variable in the temperature and humidity module).

- **Explanation**

Read auxiliary information configuration of a single channel or all online channels.

- **Example**

Read the auxiliary information configuration for channel 1. If channel 1 is online, the auxiliary information is configured with three auxiliary variables: maximum, minimum, and average.

Send: CHANnel:SUPPlement:CONFig? 1

Return: 1,3,0,1,2

Read the auxiliary information configuration for all online channels. If channels 1, 2, and 3 are online, but channels 4 and 5 are offline.

Channel 1's auxiliary information is configured with three auxiliary variables: maximum, minimum, and average.

Channel 2's auxiliary information is configured with two auxiliary variables: maximum and minimum.

Channel 3's auxiliary information is configured with one auxiliary variable: average.

Send: CHANnel:SUPPlement:CONFig? 0

Return: 1,3,0,1,2&2,2,0,1&3,1,2

To set auxiliary information configuration：CHANnel:SUPPlement:CONFig

- **Command Format**

CHANnel:SUPPlement:CONFig <ch>,<number of auxiliary variables>[,<auxiliary variable 1 identifier>,<auxiliary variable 2 identifier>,...]

- **Parameter**

<ch>: Channel number, range 1-5, indicates the channel corresponding to <ch>.

<number of auxiliary variables>: Number of auxiliary variables, range (0-4).

<auxiliary variable identifier>: Auxiliary variable identifier, range (0-6):

0: Maximum value;

1: Minimum value;

2: Average value;

3: Rate of change;

4: Tare value;

5: Temperature (available when humidity is selected as the primary variable in the temperature and humidity module);

6: Humidity (available when temperature is selected as the primary variable in the temperature and humidity module).

- **Return Value**

None.

- **Explanation**

Set the auxiliary information configuration function of the channel.

- **Example:**

Set the auxiliary information configuration for channel 1. Configure three auxiliary variables in the auxiliary information: maximum, minimum, and average.

Send: CHANnel:SUPPlement:CONFig 1,3,0,1,2

Return: No response

2.2 Command of System SYSTem

Read Error Queue：SYSTem:ERRor?

- **Command Format**

SYSTem:ERRor?

- **Parameter**

None

- **Return Value**

Returns an error code and error message in the format: <error code>,"<error text>"

For detailed error information, see the "Error List" appendix.

- **Explanation**

Read the next error message from the error queue.

- **Example**

Read error information from the queue. If the error queue is empty:

Send: SYSTem:ERRor?

Return: 0, "No Error"

To search the lock screen status ： SYSTem:LOCK?

- **Command Format**

SYSTem:LOCK?

- **Parameter**

None

- **Return Value**

Returns a value of 0 or 1:

0 indicates the screen is unlocked;

1 indicates the screen is locked

- **Explanation**

Read the system lock screen status.

- **Example**

Read the system lock screen status. If the system is currently unlocked:

Send: SYSTem:LOCK?

Returns: 0

To set lock screen status：SYSTem:LOCK

- **Command Format**

SYSTem:LOCK <lockstate>

- **Parameter**

<lockstate>: 0|1|ON|OFF

0 or ON: unlocks the screen.

1 or OFF: locks the screen.

- **Return Value**

None. Can query the lock screen status or read the error queue

- **Explanation**

Set the system to enter or unlock the screen.

- **Example**

Set the system to lock screen mode:

Send: SYSTem:LOCK 1

Return: No return

To read system component versions：SYSTem:VERSion?

- **Command Format**

SYSTem:VERSion? <module>

- **Parameter**

This parameter is optional. If omitted, it defaults to reading the main program version.

<module>: APP | OS | CH<ch>

APP: Reads the main program version (firmware version);

OS: Reads the system version;

CH<ch>: Reads the module version.

<ch>: Channel number, range 0-5:

0: Reads all online channels;

1-5: Reads the channel corresponding to <ch>.

- **Return Value**

Returns the corresponding component version. If there are multiple versions, they will be returned together, separated by commas.

- **Explanation**

Reads the version information of each system component. If no parameters are given, the default return is the firmware version of the main program. If you want to read the version information of other components, you must specify the component type in the parameter.

- **Example**

Read the main program version:

Send: SYSTem:VERSion? APP

Returns: PPI V1.0.0.0

Read the channel version:

The parameter CH0 reads all channel versions.

The return value is comma-separated; an empty string indicates the module is offline.

The first channel version is CDP V08.09.

The second channel version is DPS V0.1.5.

The fifth channel version is CDP V08.08.

Channels 2 and 3 are offline.

Send: SYSTem:VERSion? CH0

Returns: CDP V08.09, DPS V0.1.5, CDP V08.08

Read the System date：SYSTem:DATE?

- **Command Format**

SYSTem:DATE?

- **Parameter**

None

- **Return Value**

Returns the value of year, month, and day, separated by commas, in the format: <year>, <month>,<day>.

- **Explanation**

Read the system date information.

- **Example:**

Read the system date:

Send: SYSTem:DATE?

Return: 2022, 12, 30

To set system date：SYSTem:DATE

- **Command Format**

SYSTem:DATE <year>,<month>,<day>

- **Parameter**

<year>: Year, range 1970-2300;

<month>: Month, range 1-12;

<day>: Day, range 1-31;

- **Return Value**

None.

- **Explanation**

Set the date of system.

- **Example**

Set the system date to October 1, 2022:

Send: SYSTem:DATE 2002,10,1

Return: No result

To read system time：SYSTem:TIME?

- **Command Format**

SYSTem:TIME?

- **Parameter**

None.

- **Return Value**

Current system time, return content: <hour>, <minute>, <second>

- **Explanantion**

Read the system time.

- **Example**

Read the current system time, assuming the system is set to 24-hour format:

Send: SYSTem:TIME?

Return: 20, 30, 15

To set system time：SYSTem:TIME

- **Command Format**

SYSTem:TIME<hour>,<minute>,<second>

- **Parameter**

<hour>: hour, range 0-23;

<minute>: minute, range 0-59;

<second>: second, range 0-59;

- **Return Value**

None

- **Explanantion**

Set the system time

- **Example**

Set the system time to 12:10:50:

Send: SYSTem:TIME 12,10,50

Return: No response

To read the format of system date：SYSTem:DATE:FORMat?

- **Command Format**

SYSTem:DATE:FORMat?

- **Parameter**

None

- **Return Value**

Current date display format, returned content: <year-month-day display sequence code>, <separator>

<year-month-day display sequence code>:

0: Display in year-month-day order;

1: Display in month-day-year order;

2: Display in standard day-month-year order;

<separator>:

-: A hyphen separator, which displays the date like 2020-10-01

/: A clockwise slash separator, which displays the date like 2020/10/01BATTery

- **Explanation**

Reads the system date display format and returns the date display format and the separator between year, month and day.

- **Example**

Read the current system date format:

Send: SYSTem:DATE:FORMat?

Return: 0, -

Set the system date format: SYSTem:DATE:FORMat

- **Command Format**

SYSTem:DATE:FORMat <formatCode>,<separator>

- **Parameter**

<formatCode>:

0: Display in year-month-day order;

1: Display in month-day-year order;

2: Display in standard day-month-year order;

<separator>:

-: A hyphen separator, which displays the date like 2020-10-01

/: A clockwise slash separator, which displays the date like 2020/10/01

- **Return Value**

None.

- **Explanation**

Set the system date display format (year, month, and day display order and separators).

- **Example**

For example, if the system date format is set to year, month, and day, with a separator of -:

Send: SYSTem:DATE:FORMat 0,-

Return: No result

To read the format of system time：SYSTem:TIME:FORMat?

- **Command Format**

SYSTem:TIME:FORMat?

- **Parameter**

None

- **Return Value**

Current time display format, returned: <24-hour format>, <current time zone>

<24-hour format>:

0, 12-hour format;

1, 24-hour format;

<current time zone>: UTC value of the time zone, e.g., (UTC+08:00)

- **Explanation**

Read the system time display format, returning the 12-hour or 24-hour format and the currently set time zone.

- **Example**

Read the current system time format:

Send: SYSTem:TIME:FORMat?

Return: 1, (UTC+08:00)

To set format of system time：SYSTem:TIME:FORMat

- **Command Format**

SYSTem:TIME:FORMat <hourFormat>,<utcOffset>

- **Parameter**

<hourFormat>: 12-hour or 24-hour format.

0: 12-hour format;

1: 24-hour format.

<utcOffset>: Time difference from UTC, range: -12 to 12

- **Return Value**

None

- **Explanation**

Set the system time display format: 12-hour or 24-hour format and the time zone.

- **Example**

To set the system time format to 12-hour format and the time zone to UTC-4:00, Send: SYSTem:TIME:FORMat 0,-4.

Return: No response.

To read system volume：SYSTem:VOLume?

- **Command Format**

SYSTem:VOLume?

- **Parameter**

None

- **Return Value**

Volume level (0-100)

- **Explanation**

Read the system volume percentage setting value.

- **Example**

Read the current system volume:

Send: SYSTem:VOLume?

Return: 60

To set the system volume：SYSTem:VOLume

- **Command Format**

SYSTem:VOLume <vol>

- **Parameter**

<vol>: volume, value range 0-100.

- **Return Value**

None.

- **Explanation**

Set the system volume.

- **Example**

For example, to set the system volume to 80.

Send: SYSTem:VOLume 80.

Return: None.

To read system language：SYSTem:LANGuage?

- **Command Format**

SYSTem:LANGuage?

- **Parameter**

None.

- **Return Value**

The name of the language currently used by the system.

- **Explanation**

Read the name of the language currently used by the system.

- **Example**

If the current system is in English:

Send: SYSTem:LANGuage?

Return: en-US

To set system language：SYSTem:LANGuage

- **Command Format**

SYSTem:LANGuage <lang>

- **Parameter**

<lang>: Language name

en-US, for English;

zh-CN, for Chinese;

- **Return Value**

None

- **Explanation**

Set system language

- **Example**

To set the system language to English:

Send: SYSTem:LANGuage en-US

Return: No response

To read the system language list：SYSTem:LANGuage:CONFig?

- **Command Format**

SYSTem:LANGuage:CONFig?

- **Parameter**

None

- **Return Value**

Language list, comma separated, content format: <en-US>,<zh-CN>

- **Explanation**

Read system language list.

- **Example**

If the current system language list includes English and Chinese, send: SYSTem:LANGuage:CONFig?

Returns: en-US, zh-CN

To set the system language list：SYSTem:LANGuage:CONFig

- **Command Format**

SYSTem:LANGuage:CONFig <UnquoStr>

- **Parameter**

<UnquoStr>: A list of language names, separated by commas.

en-US, for English;

zh-CN, for Simplified Chinese;

zh-TW, for Traditional Chinese;

ja-JP, for Japanese

...

- **Return Value**

None

- **Explanation**

Set the system language list, each language is separated by commas

- **Example**

To set the system language list to English or Chinese:

Send: SYSTem:LANGuage en-US,zh-CN,zh-TW,ja-JP

Return: No response

Read the system screen brightness：SYSTem:BRIGhtness?

- **Command Format**

SYSTem:BRIGhtness?

- **Parameter**

None.

- **Return Value**

Screen brightness value, ranging from 0-100.

- **Explanation**

Read the system screen brightness value.

- **Example**

If the current system screen brightness is 85:

Send: SYSTem:BRIGhtness?

Return: 85

To set the system screen brightness：SYSTem:BRIGhtness

- **Command Format**

SYSTem:BRIGhtness <brightness>

- **Parameter**

<brightness>: Screen brightness value, ranging from 0-100, 100 is the brightest.

- **Return Value**

None

- **Explanation**

Set the system screen display brightness.

- **Example**

For example, to set the system screen brightness to 90:

Send: SYSTem:BRIGhtness 90

Return: None.

To read battery online status：SYSTem:BATTery:ONLIne?

- **Command Format**

SYSTem:BATTery:ONLIne?

- **Parameter**

None.

- **Return Value**

Battery online status:

0: Battery offline;

1: Battery online;

- **Explanation**

Read whether the battery is online.

- **Example**

Send: SYSTem:BATTery:ONLINE?

Return: 1

To read the information of battery：SYSTem:BATTery:INFOmation?

- **Command Format**

SYSTem:BATTery:INFOmation?

- **Parameter**

None.

- **Return Value**

Returns multiple items, separated by commas, in the following format: <battery remaining capacity>, <battery voltage>, <charge/discharge current>

Battery capacity, in mAh;

Voltage, in V;

Charge/discharge current, in mA. Charging current is positive, discharging current is negative.

- **Explanation**

Battery Online Read battery information.

- **Example**

Send：SYSTem:BATTery:INFOmation?

Return：6025,24.78,-376

To read adapter insertion status：SYSTem:ADAPter:ONLIne?

- **Command Format**

SYSTem:ADAPter:ONLIne?

- **Parameter**

None.

- **Return Value**

0: Adapter is offline

1: Adapter is online

- **Explanation**

Read the online status of the adapter.

- **Example**

Send：SYSTem:ADAPter:ONLIne?

Return：1

- **Command Format**

DIAGnostic:SYSTem:BATTery?

- **Parameter**

None.

- **Return Value**

This command returns three battery information separated by commas: battery voltage, battery current, and battery charge percentage.

- **Explanation**

- **Example**

Send：DIAGnostic:SYSTem:BATTery?

Return：23.87V,-603mA,81

2.3 Communication

To read the current status of WLAN： SYSTem:WLAN:STATe?

- **Parameter**

None.

- **Return**

Returns the current Wi-Fi status.

0: Off

1: On

- **Explanation**

- **Example**

Send：SYSTem:WLAN:STATe?

Return: 1

To set the current WLAN status： SYSTem:WLAN:STATe <State>

- **Parameter**

<State> The WLAN state to set.

0: Off

1: On

- **Return Value**

None

- **Explanation**

Set the current status of WALN

- **Example**

Set the current WLAN status to off

Send: SYSTem:WLAN:STATe 0

Return: None.

To read the current IP address of WLAN：SYSTem:WLAN:ADDRess?

- **Parameter**

  None.

- **Return Value**

  Returns the current WLAN IP address. If there are multiple IP addresses, separate them with semicolons.

- Explanation

- **Example：**

  Send：SYSTem:WLAN:ADDRess?

  Return: 192.168.61.127

To set the current IP address of WLAN：SYSTem:WLAN:ADDRess <IP>

- **Parameter**

  <IP> The IP address to be set

- **Return Value**

None

- **Explanation**

Set the current WLAN IP address. This will only take effect when DHCP is disabled.

- **Example**

Set the current WLAN IP address to 192.168.1.23

Send: SYSTem:WLAN:ADDRess 192.168.1.23

Return: None

To read the current subnet mask of WLAN： SYSTem:WLAN:MASK?

- **Parameter**

None

- **Return Value**

Return the current WLAN subnet mask

- **Explanation**
- **Example**

Send：SYSTem:WLAN:MASK?

Return: 255.255.254.0

To set the current subnet mask of WLAN： SYSTem:WLAN:MASK <Mask>

- **Parameter**

<Mask> WLAN subnet mask to be set

- **Return Value**

None

- **Explanation**

Set the current WLAN subnet mask, which takes effect only when DHCP is disabled

- **Example**

  Set the current WLAN subnet mask

  Send：SYSTem:WLAN:MASK 255.255.254.0

  Return: None

Read the current WLAN gateway：SYSTem:WLAN:GATeway?

- **Parameter**

  None

- **Return Value**

  Return the current WLAN gateway

- **Explanation**

- **Example**

  Send：SYSTem:WLAN:GATeway?

Return: 192.168.60.1

To set the current gateway of WLAN ：SYSTem:WLAN:GATeway <Gateway>

- **Parameter**

<Gateway>

The WLAN gateway needs to set.

- **Return Value**

None

- **Explanation**

Set the current WLAN gateway.

- **Example:** Set the current WLAN gateway.

Send: SYSTem:WLAN:GATeway 192.168.60.1

Return: None

To read the current DHCP status of WLAN ： SYSTem:WLAN:DHCP?

- **Parameter**

  None

- **Return Value**

  Returns the current WLAN DHCP status.

  0: Off

  1: On

- **Explanation**

- **Example**

  Send：SYSTem:WLAN:DHCP?

  Return: 1

To set the current DHCP status of the WLAN ： SYSTem:WLAN:DHCP <DHCP>

- **Parameter**

  <DHCP>

  WLAN DHCP status to set

  0: Off

  1: On

- **Return Value**

  None

- **Explanation**

  Set the current WLAN DHCP status

- **Example**

Set the current WLAN DHCP state to off.

Send: SYSTem:WLAN:DHCP 0

Return: None

To read the current MAC address of WLAN： SYSTem:WLAN:MAC?

- **Parameter**

None

- **Return Value**

Return the current WLAN MAC address

- **Explanation**

- Example

Send：SYSTem:WLAN:MAC?

Return:00:C1:40:76:10:99

To read the current SSID of WLAN： SYSTem:WLAN:SSID? [<ALL>]

- **Parameter**

<ALL> is optional. If the parameter ALL is included, it means obtaining the names of all connectable hotspots. If this parameter is not included, it means obtaining the name of the currently connected hotspot. If there is no connection, no value is returned.

- Return Value

Returns the currently connected WLAN SSID hotspot or the names of all connectable SSID hotspots

- Explanation
- Example

Send: SYSTem:WLAN:SSID?

Return: ConST

If the Wi-Fi connection is currently disconnected, adding the 'ALL' parameter will return a list of Wi-Fi hotspots, separated by ','. If the Wi-Fi connection is currently connected, the parameter will be ignored and the current Wi-Fi hotspot name will be returned directly.

Send: SYSTem:WLAN:SSID? ALL

Return: ConST,ESP_844851,CONSTRD,RDTEST,ESP_627851

Connect to hotspot： SYSTem:WLAN:CONNect <Name>,[<Pswd>]

- **Parameter**

  <Name>

  Hotspot Name

  <Pswd>

  Hotspot password, optional. If the hotspot does not require a password, or the hotspot has been connected before, this parameter can be omitted.

- **Return Value**

  None

- **Explanation**

- **Example**

  Send: SYSTem:WLAN:CONNect ConST,123456789

  Return:

  If a password is not required or the hotspot has already been connected, then

Send: SYSTem:WLAN:CONNect ConST

Return: None

Disconnect from the hotspot： SYSTem:WLAN:DISConnect <Name>

- Parameter

<Name>

Hotspot Name

- Return Value

None

- Explanation

Disconnect the currently connected hotspot ConSTRD

- Example

Send： SYSTem:WLAN:DISConnect ConSTRD

To read the current Ethernet IP address： SYSTem:ETHernet:ADDRess?

- **Parameter**

  None

- **Return Value**

Returns the current Ethernet IP address. If the device has multiple IP addresses, separate them with semicolons.

- **Explanation**

- **Example**

  Send：SYSTem:ETHernet:ADDRess?

  Return: 192.168.1.23

  Send：SYSTem:ETHernet:ADDRess?

  Return: 192.168.1.23;192.168.1.28

To set the current Ethernet IP address： SYSTem:ETHernet:ADDRess <index>,<IP>

- **Parameter**

  <index> The Ethernet index to be set, starting from 0.

  <IP> The IP address to be set

- **Return Value**

  None

- **Explanation**

  Set the Ethernet IP address. Note that if the IP address you set is the IP address of the network where the current SCPI is connected, it will cause SCPI to be disconnected. You need to configure a new IP address to connect again.

- **Example**

Set the IP address of Ethernet index 0 to 192.168.1.23.

Send: SYSTem:ETHernet:ADDRess 0,192.168.1.23

Return: None

To read the current subnet mask of Ethernet： SYSTem:ETHernet:MASK?

- **Parameter**

None

- **Return Value**

Returns the current Ethernet subnet mask

- **Explanation**

- **Example**

Send：SYSTem:ETHernet:MASK?

Return: 255.255.254.0;255.255.254.0

To set the current subnet mask of Ethernet： SYSTem:ETHernet:MASK <index>,<Mask>

- **Parameter**

<index> The Ethernet index to be set, starting from 0.

<Mask> The Ethernet subnet mask to be set

- **Return Value**

None

- **Explanation**

Set the current Ethernet subnet mask

- **Example**

Set the subnet mask for Ethernet at index 0.

Send: SYSTem:ETHernet:MASK 0,255.255.254.0

Return: None

To read the current Ethernet gateway： SYSTem:ETHernet:GATeway?

- **Parameter**

None

- **Return Value**

Returns the current Ethernet gateway

- Explanation
- **Example**

Send：SYSTem:ETHernet:GATeway?

Return: 192.168.40.1

To set current Etherent gateway： SYSTem:ETHernet:GATeway <index>,<Gateway>

- **Parameter**

<index> The Ethernet index to be set, starting from 0.

<Gateway> The Ethernet gateway to be set

- **Return Value**

None

- **Explanation**

Set the current Ethernet gateway

- **Example**

Set the Ethernet gateway to index 0.

Send: SYSTem:ETHernet:GATeway 0,192.168.40.1

Return: None

To read the current DHCP status of Ethernet： SYSTem:ETHernet:DHCP?

- **Parameter**

None

- **Return Value**

Returns the current Ethernet DPCH status.

0: Off

1: On

- **Explanantion**
- **Example**

Send：SYSTem:ETHernet:DHCP?

Return: 0

To set the current DHCP status of Ethernet： SYSTem:ETHernet:DHCP <index>,<DHCP>

- **Parameter**

<index> The Ethernet index to be set, starting at 0.

<DHCP> The Ethernet DHCP status to be set.

0: Disabled

1: Enabled

- **Return Value**

None

- **Explanation**
- **Example**

Set the DHCP state of Ethernet index 0 to off.

Send: SYSTem:ETHernet:DHCP 0

Return: None

To read current Ethernet MAC address：SYSTem:ETHernet:MAC?

- **Parameter**

  None

- **Return Value**

  Return the current Ethernet MAC address

- **Explanation**

If the device has multiple available network cards, multiple network MAC addresses will be returned, separated by semicolons.

- **Example**

Send：SYSTem:ETHernet:MAC?

Return: 00:07:32:86:00:A5;00:07:32:86:00:A6

3.Commands Appendix

Appendix 1, SCPI Id list

UNIT Id	UNIT
2000	Text Unit
32767	Empty unit
1211	mA
1212	μA
1209	A
1240	V
1241	mV
1281	Ω
1284	kΩ
1283	MΩ

1000	K
1001	℃
1002	℉
1003	°R
999	°Re
1005	°
1342	%
1133	kPa
1130	Pa
1131	GPa
1132	MPa
1134	mPa
1135	µPa
1136	hPa
1137	bar
1138	mbar
1139	torr
1140	atm
1141	psi
1142	psia
1143	psig
1144	gf/cm2
1145	kgf/cm2
1147	inH2O@4°C
1148	inH2O@68°F
1150	mmH2O@4°C

1151	mmH2O@20°C
1153	ftH2O@4°C
1154	ftH2O@68°F
1156	inHg@0°C
1158	mmHg@0°C
2001	mtorr
2002	lb/ft2
2003	tsi
2004	psf
2005	inH2O@60°F
2006	ftH2O@60°F
2007	cmH2O@4°C
2008	mH2O@4°C
2009	cmHg@0°C
2010	mHg@0°C
2011	kgf/m2

Appendix 2: Error Definition

No	Error code	Description of error	Explanation
1	0	No error	No error
Command Error			
2	120	Commandparameter error	Commandparameter error
3	-108	Parameter not allowed	Too muchParameters or the command which is not allowed to have parameters with parameters
4	-109	Missing parameter	Missing parameter
5	-110	Command header error	Command header error
6	-114	Header suffix out of range	Header suffix out of range
7	-123	Numeric overflow	Numeric overflow, The absolute value of the exponent of the number is greater than 43
8	-151	Invalid string data	Invalid string data, such as unmatched quote mark
9	-171	Invalid expression	Invalid expression, such as unmatched brackets
Execution Error			
10	-200	Execution error	Execution error
11	-221	Settings conflict	Settings conflict

12	-222	Data out of range	Data out of range
13	-223	Too much data	The data is too much to be processed
14	-224	Illegal parameter value	Illegal parameter value
15	-230	Data corrupt or stale	Invalid data, or the data is being read and no valid data has been obtained
16	-240	Hardware error	Hardware error
17	-256	File name not found	File name not found
18	-282	Illegal program name	Illegal program name
19	220	Measure error	Measure error
20	221	Failed to set measure function	Failed to set measure function
21	222	Failed to read measure value	Failed to read measure value
22	240	Control error	Control error
23	260	Calibration error	Calibration error
24	261	Calibration secured	Calibration secured, cannot perform calibration

25	262	Invalid calibration secure code	Invalid calibration secure code
26	263	Missing calibration value	This error occurs when current/voltage calibration, and the calibration value is set without setting the calibration point
27	264	Missing calibration data	This error occurs when calibration points are set continuously without setting calibration values
28	265	Failed to set calibration function	Failed to set calibration function
29	266	Calibration data is not enough	This error occurs when saving calibration data if the calibration data does not reach 3 points
30	271	Setion_name_not_found	Setion_name_not_found
31	272	Key_name_not_found	Key_name_not_found
32	291	Update secured	Update secured, cannot update
33	292	Invalid update secure code	Invalid update secure code
34	293	Not found the service pack	Not found the service pack
35	294	The service pack unavailable	The service pack unavailable

36	295	AppUpdate not found	AppUpdate.exe not found
Device related error			
37	-310	System error	System error
38	-311	Memory error	Memory error
39	-350	Queue overflow	Queue overflow
40	-360	Communication error	Communication error
41	301	Internal module is not connected	Internal module is not connected
42	302	External module is not connected	External module is not connected
43	303	Supply module is not connected	Supply module is not connected
44	304	Vacuum module is not connected	Vacuum module is not connected
45	361	Open WLAN Failed	Open WLAN Failed
46	362	Set WLAN address mode failed	Set WLAN address mode failed
47	363	Set WLAN address failed	Set WLAN address failed
48	364	Communication port to WIFI module is not	Communication port to WIFI module is not open

		open	
49	365	WLANisnotconnected	WLANisnotconnected