ADT686/673Commands 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:filter 0|1，<numeric>[,<numeric>]，0|1 refers to the parameter description specific optional option, <numeric> is the parameter to be input，[,<numeric>] refers to the additional parameter when the parameter is set to 1. if set the pressure filter function by this command，enter pressure:filter 1，50,5

（2）about the parameter

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

(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".

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1.1 IEEE 488.2 common commands

No	Commands	Description	Parameter	Returned value
1	*cls	Clear the following registers: Standard event register; Query event register; Operation event register; Status byte register; Error queue.	-	-
2	*idn?	Instrument identification query, return 2 parts of data: A. Product serial number; B. Sofware version;	-	Product serial number,sofware version
3	*rst	Program reset	-	-

1.2 Pressure commands

No	Commands	Description	Parameter	Returned value
1.	Pressure? [all]	Read current pressure value	Option all: reading barometric pressure	Pressure value, pressure unit, pressure type[,barometric pressure, barometric unit, barometric pressure type]
2.	Pressure:unit?	Read current pressure unit	None	Unit name
3.	Pressure:unit<numeric>|<unquostr>	Set current pressure unit	Unit id or unquoted unit name	None
4.	Pressure:ptype?	Read current pressure type	None	G: gauge pressure A: absolute pressure D: differential pressure

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5.	Pressure:ptypeg|a|d	Set current pressure type	G：gauge pressure A：absolute pressure D：differential pressure	None
6.	Pressure:online?	Whether the pressure module is online?	None	0：offline 1：online
7.	Pressure:range? [<unquostr>]	Read pressure module's range	None, 0 or 1	None or 0: lower limit, upper limit, unit id, pressure type(g/a/d); 1: lower limit, upper limit, unit name, pressure type(g/a/d)
8.	Pressure:zero	Pressure module zero	None	None
9.	Pressure:resolution?	Read pressure resolution	None	4|5|6
10.	Pressure:resolution<numeric>	Set pressure resolution	4|5|6	None
11.	Pressure:filter:enable?	Read filter status	None	0：disable 1：enable
12.	Pressure:filter:enable0|1	Set filter type	0：disable 1：enable	None
13.	Pressure:filter?	Read filter parameter	None	Two returns format: First-order filter: 0, first-order filter coefficient Average filter: 1, de-extreme value pairs, filter window size.
14.	pressure:filter 0|1,<numeric>[,<numeric>]	Set filter type	Two returns format: First-order filter: 0, first-order filter coefficient Average filter: 1, de-extreme value pairs, filter window size.	None

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15.	Pressure:stable?	Read pressure stable status	None	0：not stable 1：stable
16.	Pressure:stable:enable?	Read the status of the stable time	None	0：disable 1：enable
17.	Pressure:stable:enable0|1	Set the status of the stable time	0：disable 1：enable	None
18.	Pressure:stable:configure?	Read pressure stable status parameter	None	Separated by comma: Stability, stable time
19.	Pressure:stable:configure<numeric>,<numeric>	Set pressure stable status parameter	Stability(0.005-1)，stable time(1-60 s)	None
20.	Pressure:peak:enable?	Read pressure peak status	None	0：disable 1：enable
21.	Pressure:peak:enable0|1	Set pressure peak status	0：disable 1：enable	None
22.	Pressure:tare:enable?	Read pressure tare function status	None	0：disable 1：enable
23.	Pressure:tare:enable0|1	Set pressure tare function status	0：disable 1：enable	None
24.	Pressure:tare:configure?	Read pressure tare value	None	Pressure tare value
25.	Pressure:tare:configure<numeric>	Set pressure tare value	Tare value	None
26.	Pressure:clrdangp	Clear overpressure record	None	None
27.	Pressure:dangp?	Read overpressure record	None	Overpressure record
28.	Atm? [all]	Read barometric pressure value all and read process treatment value	None	Final barometric value All with the original value, linear value, tare value,

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				filter value and final value. (with pressure type when switch pressure is supported)
29.	Measure?	Read the measure data	None	Type 1+ pressure value+ pressure unit id+ pressure type+ type 2+ barometric pressure+ barometric unit id+ type 3+ temperature+ temperature unit id+ type 4+ electric measurement+ electric measurement id

1.3 Electric measure commands

No	Commands	Description	Parameter	Returned value
1.	Electricity:measure? [cal]	Read current measured value	None or cal	1. none Item no,measuredvalue,unit name 2. cal Item no,final measured value,unitname,single-point fixed value,multi-point fixed value,linar fixed value,origin value Note: Item no: 1. current 2. voltage 3. switch 4. hart
2.	Electricity:function?	Read current measured item	None	Item no[, item description] Item no: 1. current 2. voltage 3. switch 4. hart Switch: 0.mechanical switch 1.npn switch 2.pnp switch
3.	Electricity:function<numeric>[,<numeric>]	Set current measured item	Item no: 1. current 2. voltage 3. switch 4.	None

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			hart Switch: 0.mechanical switch 1.npn switch 2.pnp switch	
4.	Electricity:24venable?	Read 24v status	None	0：disable 1：enable
5.	Electricity:24venable 0|1	Set 24v status	0：disable 1：enable	None
6.	Electricity:zero	Electric measure zero	None	None
7.	Electricity:czero	Electric measure cancel zero	None	None
8.	Electricity:switch:actions?	Read switch test act value	None	Separated by space： Act valueunit name
9.	Electricity:filter:enable?	Read filter status	None	0：disable 1：enable
10.	Electricity:filter:enable 0|1	Set filter status	0：disable 1：enable	None
11.	Electricity:filter?	Read filter parameter	None	First-order filter: 0, first-order filter coefficient Average filter: 1, de-extreme value pairs, filter window size.
12.	Electricity:filter 0|1,<numeric>[,<numeric>]	Set filter parameter	First-order filter: 0, first-order filter coefficient Average filter: 1, de-extreme value pairs, filter window size.	None
13.	Electricity:scale:enable?	Read scaling status	None	0：disable 1：enable

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14.	Electricity:scale:enable 0|1	Set scaling status	0：disable 1：enable	None
15.	Electricity:scale?	Read scaling configuration	None	Transfer function：0linar 1 square root Input range Output range Decimal digits of output range
16.	Electricity:scale 0|1|2,<numeric>,<numeric>,<numeric>,<numeric>,<unquostr>,<numeric>	Set scaling configuration	Transfer function, input lower limit, input upper limit, output lower limit, output upper limit, output units, decimal digits of output range	None
17.	Electricity:minmax:enable?	Read min/max function status	None	0：disable 1：enable
18.	Electricity:minmax:enable 0|1	Set min/max function status	0：disable 1：enable	None

1.4System 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 1= lock
3.	System:lock0|1|on|off	Set the screen lock status	0= unlock 1= lock	None
4.	System:version? [\"application\"|\"os:firmware\"|\"os:hardware\"|\"wifi:firmware\"|\"bt:firmware\"|\"hart:dd\"]	Read the device version	"application" = host version， "os:firmware" system firmware version， "os:hardware" system hardware	Default: No parameter= return host version With parameter= return corresponding version

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			version, "wifi:firmware" wifi version "bt:firmware" bluetooth version "hart:dd" hartdd file version	
5.	System:date?	Read system date	None	Date (yyyy,mm,dd)
6.	System:date<numeric>,<numeric>,<numeric>	Set system date	Year, month, day	None
7.	System:time?	Read system time	None	Time (hh,mm,ss)
8.	System:time<numeric>,<numeric>,<numeric>	Set system time	Hour, minute, second	None
9.	System:time:format?	Read system time format	None	Two values, separated by comma, 24/12 hours Current time zone
10.	System:time:format<boolean>,<numeric>	Set system time format	Two parameters, separated by comma, 24/12 hours Current utc time zone	None
11.	System:tbeep?	Read the touch beep status	None	0 disable 1 enable
12.	System:tbeep<boolean>|on|off	Set the touch beep status	0|off disable 1|on enable	None
13.	System:pbeep?	Read the prompt beep status	None	0 disable 1 enable
14.	System:pbeep<boolean>|on|off	Set the prompt beep status	0|off disable 1|on enable	None
15.	System:orbeep?	Read the over range beep status	None	0 disable 1 enable

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16.	System:orbeep<boolean>|on|off	Set the over range beep status	0|off disable 1|on enable	None
17.	System:stbeep?	Read the stable beep status	None	0 disable 1 enable
18.	System:stbeep<boolean>|on|off	Set the stable beep status	0|off disable 1|on enable	None
19.	System:shbeep?	Read the snapshot beep status	None	0 disable 1 enable
20.	System: shbeep<boolean>|on|off	Set the snapshot beep status	0|off disable 1|on enable	None
21.	System:volume?	Read system volume percentage	None	Volume percentage
22.	System:volume<numeric>	Set system volume	Volume percentage	None
23.	System:language?	Read current language	None	Current language
24.	System:language<unquostr>[,<boolean>]	Set current language	Parameter: language zh-cn Optional: restart or not, restart by default	None
25.	System:language:config?	Read the list of supported languages	None	Lamguage list
26.	System:language:config<quotestr>	Set the list of supported languages	Language list, separated by comma	None
27.	System:brightness? Percentage|value	Read the screen brightness	Percentage or value	Screen brightness
28.	System:brightnesspercentage|value,<numeric>	Set the screen brightness Range: Value 200-4096	1: percentage or value 2: brightness	None

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		Percentage 0-100 When the set value is greater than 4096 or 100%, it will be set to the greatest brightness, when the set value is lower than 200 or 0%, it will be set to the lowest brightness.		
29.	System:battery:online?	Read the battery online status	None	1 : battery online 0 : battery offline
30.	System:battery:status?	Read the battery status	None	0：battery communication abnormal 1：battery communication ok
31.	System:battery:infomation?	Read the current battery level, voltage, current	None	Current battery level, total level (mah), voltage (v), current (>0 indicates charging, <0 indicates discharging)
32.	Display:acloud:captcha 0|1,<unquostr>,<numeric>	Show or close acloud service verify code	1： 0-close the verify code, 1-show the verify code 2：string, verify code text 3：number, time-out time	None
33.	System:ble<boolean>|on|off	Bluetooth on/off	1 or on：on 0 or off：off	No return
34.	System:ble:status?	Read bluetooth status	None	0：unkown； 1：booted； 2：initialized 3：sleep 4：broadcasting

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				5：connected
35.	System:ble:info? <unquostr>	Read bluetooth information	Name: return bluetooth version information Mac：return bluetooth mac address Version：return bluetooth firmware version	See the parameter

1.5Data management commands

No	Commands	Description	Parameter	Returned value
1.	Datamanager:count? Leaktest|snapshot|datalogger|psvtest	Read data amount	Leaktest：leak test Snapshot：snapshot Datalogger：data log Psvtest:psv test	Data amount
2.	Datamanager:info? Leaktest|snapshot|datalogger|psvtest,<numeric>,<numeric>	Read data related information	1：leaktest：leak test Snapshot：snapshot Datalogger：data log Psvtest: psv test 2：start，start point 3：count ，length	Information
3.	Datamanager:delleaktest|snapshot|datalogger|psvtest,<unquostr>	Delete test result	1：leaktest：leak test Snapshot：snapshot Datalogger：data log Psvtest: psv test 2：the file path that perform the deletion (without quote mark)	None
4.	Datamanager:length? Leaktest|snapshot|datalogger|psvtest,data|im	Read data length	1：leaktest：leak test Snapshot：snapshot	Data length

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	age,<unquostr>		Datalogger：data log Psvtest: psv test 2：read data file or image File name (without quote mark)	
5.	Datamanager:data? Leaktest|snapshot|datalogger|psvtest,data|image,<unquostr>,<numeric>,<numeric>	Read data in designated location	File name (without quote mark), start point, read data length	String format

1.6 calibration commands

No	Commands	Description	Parameter	Returned value
1.	Calibration:electricity:data 123456,<numeric>,<numeric>,<quotestr>,<quotestr>,<numeric>,<numeric>,<numeric>	Write electric calibration data	1：0-linar 1-multi-point 2： 0-ma measure 1-30v measure Calibration point（quoted string，separated by comma) Stardard point（quoted string，separated by comma) Year, month, day	None
2.	Calibration:electricity:data? 123456,<numeric>,<numeric>	Write electric calibration value	1：0-linar 1-multi-point 2： 0-ma measure 1-30v measure	Multi-point: calibration point list, actual value list, year, month, day Single point: offset value, year, month, day
3.	Calibration:electricity:ereset 123456,<numeric>,<numeric>	Reset electric multi-point calibration data	1：0-linar 1-multi-point 2： 0-ma measure	None

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			1-30v measure	
4.	Calibration:barosensor:data? 123456,<numeric>	Read barometric sensor calibration data	0-two points 1-offset 2-demarcate	With calibration data：standard value 1，measure value 1，standard value 2，measure value 2，year, month, day Without calibration data：no data!
5.	Calibration:barosensor:data 123456,<numeric>,<quotestr>,<quotestr>,<numeric>,<numeric>,<numeric>	Write barometric sensor calibration data	1: 0-two points 1-offset 2-demarcate 2：standard value(quoted string，separated by comma) 3：measure value(quoted string，separated by comma) Year, month, day	None
6.	Calibration:barosensor:preset 123456,<numeric>	Reset barometric sensor calibration data	0- Multi-point (reset both two-point and single-point calibration data) 1- Single-point (reset both two-point and single-point calibration data)	None

1.7 HART

No	Commands	Description	Parameter	Returned value
1.	Hart:supplymode?	Read the power supply mode		0-ipir internal power and internal resistance； 1-eper external power and external resistance;

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				2-epir external power and internal resistance; 3-iper internal power and external resistance
2.	Hart:supplymode ipir|eper|epir|iper|0|1|2|3	Set the power supply mode	0-ipir internal power and internal resistance; 1-eper external power and external resistance; 2-epir external power and internal resistance; 3-iper internal power and external resistance	-
3.	Hart:searchstart|stop|zero[,<numeric>][,<numeric>]	Hart search;	Start: start searching; Stop: stop searching; Zero: search only zero Note: the start and stop can be added later in the address range parameter, such as",0,15"	-
4.	Hart:devices?	Search device	-	List of devices searched (address and device type)
5.	Hart:connect<address>	Connect to searched device	Address	-
6.	Hart:onldevice:process?	Get process option	-	Pv: process variable; Ao: analog current; %: scale percentage; Sv: second viriable; Tv: third viriable; Fv: fourth viriable; Loopcurrent: loop current

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7.	Hart:onldevice:process:value? [pv|ao|%|sv|tv|fv|loopcurrent]	Get process value	Pv：process variable; Ao：analog current; %：scale percentage; Sv：second viriable; Tv：third viriable; Fv：fourth viriable; Loopcurrent：loop current	Null: current variable Or designated value
8.	Hart:onldevice:processpv|ao|%|sv|tv|fv|loopcurrent	Switch process value	Pv：process variable; Ao：analog current; %：scale percentage; Sv：second viriable; Tv：third viriable; Fv：fourth viriable; Loopcurrent：loop current	-
9.	Hart:onldevice:parameter? <name>	Read the parameter	Name: parameter name（quoted string）	Corresponding value
10.	Hart:onldevice:parameter<name>,<“value”>	Set the parameter	Name: parameter name（quoted string） Value: value（quoted string）	-
11.	Hart:onldevice:info?	Read hart device information	None or <parameter name> Name list: Tag Manufacturer Devicetype Deviceid Writeprotect Date	Return all parameter values of the device when there are no parameters; Return the corresponding parameter value for designated parameter name

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			Message Descriptor Finalassemble Preambles Universalrev Hardwarerev Softwarerev Devicerev	
12.	Hart:onldevice:sensor?	Return all parameter values for the sensor or return the corresponding values based on the name of the designated parameters	None or <parameter name> Name list: Sn Unit Lrl Url Minspan	Return all parameter values of the sensor when there are no parameters; Return the corresponding parameter value for designated parameter name
13.	Hart:onldevice:output?	Return all parameter values of hart output or return the corresponding values based on the name of the designated parameters	None or <parameter name> Name list: Unit Lrv Urv Damping Transferfunction	Return all parameter values of the hart output when there are no parameters; Return the corresponding parameter value for designated parameter name
14.	Hart:onldevice:connected?	Get the hart device connect condition	None	1 value 1=connected，0=unconnected

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Appendix 1:scpiunit id list

Unit id	Unit
2000	Text unit
32767	Blank unit
1211	Ma
1212	Ma
1209	A
1240	V
1241	Mv
1281	Ω
1284	Kω
1283	Mω
1000	K
1001	℃
1002	℉
1003	°r

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999	°re
1005	°
1342	%
1133	Kpa
1130	Pa
1131	Gpa
1132	Mpa
1134	Mpa
1135	Mpa
1136	Hpa
1137	Bar
1138	Mbar
1139	Torr
1140	Atm
1141	Psi

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1142	Psia
1143	Psig
1144	Gf/cm^2
1145	Kgf/cm^2
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/ft^2
2003	Tsi
2004	Psf

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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/m^2

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Appendix 2: error definition

No	Error code	Error description	Definition
	0	No error	No error
Command error			
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
Execution error			
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	-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

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No	Error code	Error description	Definition
20	221	Failed to set meaure function	Failed to set meaure function
21	222	Failed to read measure value	Failed to read measure value
22	223		
23	224		
24	240	Control error	Control error
25	241		
26	242		
27	243		
28	260	Calibration error	Calibration error
29	261	Calibration secured	Calibration secured, can not perform calibration
30	262	Invalid calibration secure code	Invalid calibration secure code
31	263	Missing calibration value	During current/voltage calibration, this error will occur if the calibration value is set without setting the calibration point
32	264	Missing calibration data	This error occurs when the calibration point is set continuously, but the calibration value is not set
33	265	Failed to set calibration function	Failed to set calibration function
34	266	Calibration data is not enough	When saving the calibration data, if the calibration data does not reach 3 points, this error will occur
35	271	Setion_name_not_found	Setion name not found
36	272	Key_name_not_found	Key name not found
37	291	Update secured	Update secured
38	292	Invalid update secure code	Invalid update secure code
39	293	Not found the service pack	Not found the service pack
40	294	The service pack unavailable	The service pack unavailable

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No	Error code	Error description	Definition
41	295	Appupdate not found	Appupdate.exe not found
Device related error			
42	-310	System error	System error
43	-311	Memory error	Memory error
44	-350	Queue overflow	Queue overflow
45	-360	Communication error	Communication error
46	301	Internal module is not connected	Internal module is not connected
47	302	External module is not connected	External module is not connected
48	303	Supply module is not connected	Supply module is not connected
49	304	Vacuum module is not connected	Vacuum module is not connected
50	361	Open wlan failed	Open wlan failed
51	362	Set wlan address mode failed	Set wlan address mode failed
52	363	Set wlan address failed	Set wlan address failed
53	364	Communication port to wifi module is not open	Communication port to wifi module is not open
54	365	Wlanisnotconnected	Wlan is not connected

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