

ADT875Commands Set

1 Commands Instruction

1.1 common commands

No.	Command	Explanation	Parameters	Returning values
1	*CLS	This command eliminates the following registers Register of standard event Register of searching event Register of operating event Register of status byte Error queue	-	-
2	*IDN?	To search instrument identifies, the returned data is divided into 2 parts a. product sequence number b. software version number	-	product sequence number and software version number
3	*RST	main program reset	-	-

1.2 Measurement and configuration commands

No.	Command	Explanation	Parameters	Returning values
1	MEASure[:SCALar]:AElectricity?	Reading all electrical signals	none	31 values, comma separated Measures unit of Channel 1 : Id,

No.	Command	Explanation	Parameters	Returning values
				<p>measurement value of channel 1, electrical signal of channel 1: Id, electrical signal value of channel 1, electrical signal original value of channel 1, extra parameter 1, extra parameter 2 of channel 1</p> <p>Measures unit of Channel 2 : Id, measurement value of channel 2, electrical signal of channel 2: Id, electrical signal value of channel 2, electrical signal original value of channel 2, extra parameter 1, extra parameter 2 of channel 2</p> <p>External connection is on-line or not, external sensor types (1=Smart, 2= user defined), measurement unit of external connection : Id, measurement value of external connection, electrical measurement value of external connection (unit is Ohm), electrical measurement original value, clock and abnormal code, of external connection</p> <p>24V voltage values</p> <p>AD temperature values (unit is degree centigrade)</p>

No.	Command	Explanation	Parameters	Returning values
				24V voltage values of CH1 24V voltage values of CH2 Positive 2.5V voltage values Negative 2.5V voltage values Positive 5V voltage values Negative 2.5V voltage values 5.8V voltage values Note: If the electrical measurement project is TC, the extra parameter 1 is cold-junction value(unit is degree centigrade) and the extra parameter 2 is not used. If the electrical measurement project is resistance RTD, the extra parameter 1 is the value of PR measured by three-wire resistance and the extra parameter 2 is the value of Rb and these two values of other wires is meaningless If the electrical measurement project is the switch, the extra parameter 1 is the temperature value of switch in the last shifting conditions and the extra parameter 2 is temperature value of switch in the

No.	Command	Explanation	Parameters	Returning values
				before last shifting conditions. The unit is fixed to centigrade, and the temperature value comes from the temperature control standard.
2	MEASure[:SCALar]:AEInfo?	To acquire the values of all electrical signals	none	<p>21 values, comma separated</p> <p>electrical signal values of channel 1, electrical signal original value of channel 1, electrical signal value of channel 1's cold-junction. electrical signal original value of channel 1's cold-junction.</p> <p>electrical signal values of channel 2, electrical signal original value of channel 2 electrical signal value of channel 2's cold-junction. electrical signal original value of channel 2's cold-junction.</p> <p>The value of the external resistance, the original value of the external resistance, and the time stamp.abnormal code</p> <p>Total 24V AD temperature</p> <p>The chanel 1 is 24V, and the chanel 2 is 24 V. 2.5V, -2.5V, 5V, -5V, 5.8V</p>

No.	Command	Explanation	Parameters	Returning values
3	MEASure[:SCALar]:CH?<value>	To acquire the values of chanel 1and 2	one value value PV SV TV FV: PV SV TV FV Pv=current value(temperature sensor is the temperature value, electrical signal channel is the electrical measurement value, switch 1= switch on , 0=switch off Sv= electrical measurement value TV= electrical measurement original value FV=cold-junction value(only the TC channel)	4 values, comma separated. CH1 unit Id, CH1 value, CH2 unit Id, CH2 value
4	SENSe:ELECTricity:TCCHannel1 2 <"SensorName">,<CJCType>,<FixedValue>	To design the configurations 1 2 of TC channel	3 values, comma separated. SensorName", CJCType, Auto Fixed FixedValue	none
5	SENSe:ELECTricity:TCCHannel1 2?	To acquire the configurations 1 2 of TC channel	none	7 parameters, comma separated. Channel types Unit: id Measurement Low limit Measurement Upper limit SensorName CJCType Cold-junction FixedValue
6	SENSe:ELECTricity:RTDChannel1 2 <"SensorName">,<"SensorSN">,<2 3 4>	To design the configurations 1 2 of RTD channel	3 values, comma separated "SensorName"	none

No.	Command	Explanation	Parameters	Returning values
			And the basic sensor can be zero. Wires 2 3 4	
7	SENSe:ELECtricity:RTDChannel:LRTD#(1,2) <"SensorName">,<r0>,2 3 4	To design quickly the configurations 1 2 of RTD channel	3 values, comma separated basic sensor name New r0 Wiring systems 2 3 4	none
8	SENSe:ELECtricity:RTDChannel1 2?	To acquire the configurations 1 2 of RTD channel	none	6 parameters, comma separated; Channel types Unit id Measurement Low limit Measurement Upper limit SensorName Wiring systems
9	SENSe:ELECtricity:CHITem1 2 <Item>	To design the types 1 2 of electrical measurement channel	one values Types of electrical measurements Item:CURRent SWITCh RTD TC Volt HART None	none
10	SENSe:ELECtricity:CHANsItem <Item>	To design electrical measurement channels AB at the same time	Item: Current Switch RTD TC Volt None	none
11	SENSe:ELECtricity:CHITem?	To acuire the electrical measurement channel	none	2 parameters, comma separated; Type of channel A Type of channel B mA,mV(TC),Switch,R400,R4k,TC,RTD,Non e

No.	Command	Explanation	Parameters	Returning values
12	MEASure[:SCALar]:ELECTricity1 2 3?	To acquire the measurement data 1 2 3 of current electrical measurement	none	<p>7 values, comma separated;</p> <p>The unit id of Measurement value:, measurement value, electrical signal unit id.</p> <p>Measurement electrical value,original electrical value,extra parameter1 and extra parameter 2</p> <p>Note:</p> <p>If the electrical measurement project is TC, the extra parameter 1 is cold-junction value(unit is degree centigrade) and the extra parameter 2 is not used.</p> <p>If the electrical measurement project is resistance RTD, the extra parameter 1 is the value of PR measured by three-wire resistance and the extra parameter 2 is the value of Rb and these two values of other wires is meaningless</p> <p>If the electrical measurement project is the switch, the extra parameter 1 is the temperature value of switch in the last shifting conditions and the extra parameter 2 is temperature value of switch in the before last shifting conditions. The unit is fixed to centigrade, and the temperature</p>

No.	Command	Explanation	Parameters	Returning values
				value comes from the temperature control standard.
13	SENSe:ELECtricity:CHINfo1 2?	To avcquire the brief information 1/2 of current channels	none	4 values, comma separated. channel types unit id Measurement Low limit Measurement upper limit
14	SENSe:ELECtricity:RANGe1 2? <Item>	To acquire the range of one projects'channel	one values Item: Channel types item Current Switch RTD TC Volt HART	3 values, comma separated. Measurement Low limit Measurement upper limit Current unit id
15	SENSe:ELECtricity:VOLTchannel1 2 <VoltType>	To design configuration 1/2 of voltage channel	one value VoltType:Volt12 Volt30 Channel configuration VoltType:Volt12 Volt30	none
16	SENSe:ELECtricity:VOLTchannel1 2?	To read configuration 1/2 of voltage channel	none	one value Volt12 Volt30 Channel configuration: Volt12 Volt30
17	SENSe:ELECtricity:SWITChchannel1 2 <SwitchType>	To design the configuration 1/2 of switch channel	one SwitchType: DryContact WetContact PNP NPN	none
18	SENSe:ELECtricity:SWITChchannel1 2?	To read the configuration 1/2 of switch channel	none	One value, comma separated Switch types

No.	Command	Explanation	Parameters	Returning values
				DryContact WetContact PNP NPN
19	SENSe:ELECtricity:ZERo1 2 <enable>	To design the zero clearing and cancel of zero clearing for channel 1/2	one value 1 0 ON OFF, ON=1=zero OFF=0= cancel zero	none
20	SENSe:ELECtricity:CJC:R0_?	To read the RO value of cold-junction channel	none	4 values, comma separated Channel 1 cold-junction RO manufactor Channel2 cold-junction RO manufacturer Channel 2 cold-junction RO user Channel 2 cold-junction RO user
21	SENSe:ELECtricity:CJC:R0_1 2 Manufactor User,<password>,<r0>	To design RO value of cold-junction channel foe 1/2 channel	three values Manufactor,User password, r0 the password of corresponding manufactor and users.	none
22	SENSe:ELECtricity:CHATtached?	To acquire that the channel 1 and channel is attached or not	none	one value 1=attached 0= not-attached
23	SENSe:ELECtricity:CHATtached <attached>	To acquire that the channale 1 and channel is attached or not	one value attached or not 1= attached 0= not-attached	none

1.3 Output commands

No.	Command	Explanation	Parameters	Returning values
1	MEASure[:SCALar][:TEMPerature]?	To acquire the conditions and data of current control panel	none	<p>18 values, comma separated.(the default values of temperature unit is centigrade)</p> <p>The top 8 is data</p> <p>Current temperature(according to temperature control types, equal to the internal/external temperature)</p> <p>Internal temperature</p> <p>External connection temperature</p> <p>Difference temperature of external connection(used in temperature field calibration ,</p> <p>Original values of internal temperature(before temperature field)</p> <p>Original resistance value(default value of unit is Ohm)</p> <p>Internal difference temperature</p> <p>voltage values of Internal difference (default unit is mV)</p> <p>then the nine is status values</p> <p>the current control state,</p> <p>stable or not</p> <p>reach target value or not</p>

No.	Command	Explanation	Parameters	Returning values
				High level (-1~1) Low level (-1~1) Fan output (0~1) Inlet air temperature(indoor temperature) electric current voltage The last is the abnormal information
2	MEASure[:SCALar]:CONTrol?	Acquire the current control data	none	8 values, comma separated The current temperature unit id the current temperature Difference temperature(used in the temperature field calibration) current control state Heating power (-1~1) Fan power (0~1) Stable or not"1 0" Reach target value or not "1 0"
3	[SOURce:]TEMPerature:STATus:MEASure	To design about entering into measurement state	none	none
4	[SOURce:]TEMPerature:STATus:CONTrol<TargetTemperature>,<unitId>[,<slewType>,<SlewRate>]	To design about entering into control state	4 values TargetTemperature: Temperature UnitId Speed Type: 0 denotes percentage (0~100) , 1 denotes the absolute	none

No.	Command	Explanation	Parameters	Returning values
			value(unit temperature is per minute) SlewRate: the speed rate of temperature control can be eliminated, after elimination, the current designed temperature control speed is as the default value.	
5	[SOURce:]TEMPerature:STATus?	To read the temperature control state	none	one value Measure=0 (automated)Control=1 SemiAutoControl=2 Manual control=2 Maintenance mode=4
6	[SOURce:]TEMPerature:TARGet<target_Temperature>,<unitId>	To target temperature(automated control)	2 values target_Temperature temperature unitId	none
7	[SOURce:]TEMPerature:TARGet?	To read target temperature	none	2 values, comma separated Current target temperature Current temperature unit id
8	[SOURce:]TEMPerature:OPTions?	To read control configuration	none	11 values, comma separated Current temperature unit id fluctuation rate Stable residence time(1-600)minutes Allowable deviation of target value The percentage of temperature control speed ratio

No.	Command	Explanation	Parameters	Returning values
				Absolute value of temperature control speed ratio Whether or not to enable the limit of set point. 1 0 Low limit of set point Upper limit of set point Temperature control configuration Fan mode 1 0 Temperature control configuration Internal temperature control =0 External temperature control=1 External temperature control+external connection difference=2(temperature filed calibration)
9	[SOURce:]TEMPerature:OPTions<unitId>,<stability>,<DwellMinutes>,<TargetTolerance>,<slewType>,<SlewRate>,<IsEnableLimits>,<LimitsLower>,<LimitsUpper>,<ControlConfig>,<AirValueState>	To design Temperature control configuration	11values Temperature unitId fluctuation ratio stable residence Minutes allowable tolerance of target value speed rate Type, 0 denotes percentage (0~100) 1 denotes absolute value (temperature controlunit is per minute)	none

No.	Command	Explanation	Parameters	Returning values
			temperature control speed rate Whether or not to enable Limits of set points Low limit of set Upper limit of set Temperature control types(0=internal temperature control, 1= external temperature control, 2= external temperature control +external connection CH1temperature difference) Air Value state(0= close, 1=open up, only for high temperature stove)	
10	[SOURce:]TEMPerature:STABility<sta>,<unitId>	To design the fluctuation rate of temperature control	2 values fluctuation rate of temperature control temperature unit Id	none
11	[SOURce:]TEMPerature:STABility?	To acquire fluctuation rate of temperature control	none	2 values, comma separated fluctuation rate of temperature control temperature unit id
12	[SOURce:]TEMPerature:STABility:LIMit?	To read fluctuation rate range of temperature control	none	Three values, comma separated. Low limit of fluctuation rate upper limit of fluctuation rate Temperature unit id, unit is centigrade
13	[SOURce:]TEMPerature:TARTolerance?	To read allowable deviation of target value	none	2 values comma separated allowable deviation of target value Temperature unit id

No.	Command	Explanation	Parameters	Returning values
14	[SOURce:]TEMPerature:TARTolerance <ttolerance>,< unitId >	To design allowable deviation of target value	2 values allowable deviation of target value Temperature unit id	none
15	[SOURce:]TEMPerature:TARTolerance:LIMit ?	To read allowable deviation range of target value	none	3values, comma separated Low limits of allowable deviation of target value Upper limits of allowable deviation of target value Temperature unit id, fixed centigrade
16	[SOURce:]TEMPerature:SLEW <slew>,< unitId >	To design speed rate of temperature control	2 values Seepd rate of Temperatute control , temperature per minute UnitId temperature unit id	none
17	[SOURce:]TEMPerature:SLEW?	To read speed rate of temperature control	none	2 values, comma separated Seepd rate of Temperatute control temperature per minute temperature unit id °C
18	[SOURce:]TEMPerature:PERSllew<slew>	To design speed rate of temperature control	one value temperature contro speed rate(percentage 0~100)	none
19	[SOURce:]TEMPerature:PERSllew?	To read speed rate of temperature control	none	one value Temperature control speed rate(percentage

No.	Command	Explanation	Parameters	Returning values
				0~100)
20	[SOURce:]TEMPerature:SLEW:LIMit?	To read the upper and low limits of speed rate of temperature control(absolute value, °C/minute	none	3values, comma separated Low limits of speed rate of temperature control Upper limits of speed rate of temperature control Temperature unit id, fixed centigrade
21	[SOURce:]TEMPerature:SLEW:PERLimit?	To read low and upper limits of Low limits of speed rate percentage of temperature control	none	2 values , comma separated, Low limits of speed rate percentage of temperature control, fixed 0 Upper limits of speed rate percentage of temperature control, fixed 10 0
22	[SOURce:]TEMPerature:SETPoints:LIMit?	To read low and upper limits of temperature control setting	none	3 values, comma separated Low limits of temperature control setting upper limits of temperature control setting current unit id
23	[SOURce:]TEMPerature:CLIMit?	To read low and upper limits of temperature control	none	3 values, comma separated. Low limits of temperature control ability Upper limits of temperature control ability Current unit id
24	[SOURce:]TEMPerature:SLIMit?	To read Low and uppet limits of temperature control setting	none	4 values, comma separated Whether or not to enable low and upper limits control Low limits of temperature control

No.	Command	Explanation	Parameters	Returning values
				Upper limits of temperature control Current unit id
25	[SOURce:]TEMPerature:SLIMit <IsEnable>,<lower>,<upper>	To design Low and upper limits of temperature control setting	3 values, unit is fixed with centigrade Whether or not to enable low and upper limits 0=close 1= open up lower, upper	none
26	[SOURce:]TEMPerature:CONFig?	To acquire operation state of temperature control setting	none	one value 0= internal temperature control 1= external control 2=temperature calibration use double external temperature control
27	[SOURce:]TEMPerature:CONFig <config>	To design operation state of temperature control setting	one value operating state 0= internal temperature control 1= external temperature control 2= temperature calibration use double external temperature control	none
28	[SOURce:]TEMPerature:CONParams?	To read control parameters	none	6 values, comma separated damping ratio time constant KKp KTi KTd

No.	Command	Explanation	Parameters	Returning values
				KTf
29	[SOURce:]TEMPerature:CONParams <damping>,<timeConst>,<kkp>,<kti>,<ktD>,<ktf>,	To design control parameters	6 values, comma separated damping ratio timeConstant KKp KTi KTd KTf	none
30	OUTPut:24V[:STATe] <enable>	To design 24V state	one value off and on 0=OFF 1=ON	none
31	OUTPut:24V[:STATe]?	To read 24V state	none	one value 0= close 1=open up

1.4 Calibration commands

No.	Command	Explanation	Parameters	Returning values
1	CALibration:EIECTricity:DATA Manufactor[User,<password>,<item>,<unitID>,<count>,<"points">,<"values">,<year>,<month>,<day>	Write in calibration data of electrical logging	10values 1. Manufactor calibration : User calibration The password of corresponding manufactor and users measurement items 0-A channel ,mA measurements	none

No.	Command	Explanation	Parameters	Returning values
			1-B channel mA measurements 2-A channel TC mV measurements 3-B channel TC mV measurement 4-A channel, TC cold-junction measurement 5-B channel, TC cold-junction measurement 6-A channel 400Ω two- wire resistance measurement 7-B channel 400Ω two- wire resistance measurement 8-A channel 400Ω three- wire resistance measurement 9-B channel 400Ω three- wire resistance measurement 10-A channel 400Ω four- wire resistance measurement 11-B channel 400Ω four- wire resistance measurement 12-A channel 4kΩ two- wire resistance measurement 13-B channel 4kΩ two- wire resistance measurement 14-A channel 4kΩ three- wire resistance measurement 15-B channel 4kΩ three- wire resistance	

No.	Command	Explanation	Parameters	Returning values
			measurement 16-A channel 4k Ω four- wire resistance measurement 17-B channel 4k Ω four- wire resistance measurement 18-standard resistance measurement channel 19-A channel dry contact switch 20-Bchannel dry switch 21-Achannel HART 22-Bchannel HART 23-Achannel -12V~12Vmeasurement 24-B channel 12V~12V measurement 25-Achannel -30V~30V measurement 26-Bchannel30V~30V measurement 27-Achannel NPN switch 28-Bchannel NPNswitch 29-Achannel PNP switch 30-Bchannel PNP switch 31-Achannel wet connection switch 32-Bchannel wet connection switch 4 unit id 5 count: 6. calibrated points (character string with	

No.	Command	Explanation	Parameters	Returning values
			quotation mark, comma separated) 7 standard value (character string with quotation mark, comma separated) 8.year: 9.month 10.day	
2	CALibration:ELECTricity:DATA?Manufactor User,<password>,<ItemID>	To acquire electricial logging calibration data	3 values 1.Manufactor calibration :; User calibration; Password of corresponding manufactor and users 2. Program ID, ditto	N*2+5 values, comma separated Unit id The number of calibrated points List of standard value List of calibrated points year month day
3	CALibration:ELECTricity:PRESet <Item>	Reset factory setting of electricial logging panel's calibrated data	one value ItemID	none
4	CALibration:CONTroller:DATA:INDication? Manufactor User,<password>	To acquire revised data of temperature indicating values	2 values, comma separated 1. Manufactor calibration User calibration 2.Password of corresponding manufactor and users	N*2+5values, comma separated Unit id The number of calibrated points List of indicating values after N correction List of resistance values of N internal sensors year month

No.	Command	Explanation	Parameters	Returning values
				day
5	CALibration:CONTroller:DATA:INDication:INCRement User,<password>.<unitid>,<calCount>,<"ExtValue">,<"IntValue">,<year>,<month>,<day>	To design the revised data's increment of temperature indicating values	9 values, comma separated User calibration user password unitid the number of calibrated points List of revised indicating values, comma separated List of indicating values before correction, comma separated year month, day,	none
6	CALibration:CONTroller:DATA:INDication:ABSolute Manufacturer User,<password>.<unitid>,<calCount>,<"ExtValue">,<"IntValue">,<year>,<month>,<day>	To design absolute type of temperature indicating values's revised data	9 values, comma separated Manufacturer calibration User calibration Password of corresponding manufacturer and users unitid, the number of calibrated points List of revised indicating values, comma separated List of indicating values before correction, comma separated	none

No.	Command	Explanation	Parameters	Returning values
			year month day	
7	CALibration:CONTroller:DATA:FACTorsecon dcommands:INDication:ABSolute <password>.<unitid>,<calCount>,<"ExtValue" >,<"IntResistance">,<year>,<month>,<day>	Write in revised data of maunfactor indicating values based on the correction of indicating values on manufactor dry well self -calibration	Eight values, comma separated Password of corresponding manufactor and users unitid The number of calibrated points List of revised indicating values, comma separated List of indicating values before correction, comma separated year, month day	none
8	CALibration:CONTroller:DATA:FIELD?Manuf actor User,<password>	To acquire calibration data of temperature field	2 values, comma separated Manufactor calibration User calibration data of corresponding manufactor and users	N*4+7 values, comma separated unit id optimize height environment temperature The number of calibrated points N List of N temperature points List of N internal control temperature difference List of N temperature difference factor Kh

No.	Command	Explanation	Parameters	Returning values
				List of N temperature difference factor KI year month day
9	CALibration:CONTRoller:DATA:FIELD:INCRement User,<password>,<unitid>,<environmentTemp>,<calCount>,<"setpoints">,<"difftemps">,<year>,<month>,<day>	Write in calibration data and increment of temperature	10 values, comma separated User calibration password of corresponding users unitid environmentTemperature The number of calibrated points List of setting points, comma separated List of temperatureTmH-Tml, comma separated year month day	none
10	CALibration:CONTRoller:DATA:FIELD:ABSolute Manufacturer User,<password>,<unitid>,<optHeight>,<environmentTemp>,<calCount>,<"setpoints">,<"dts">,<"khs">,<"kls">,<year>,<month>,<day>	Write in calibration data of temperature, absolute type	13 values, comma separated Manufacturer calibration User calibration Password of corresponding manufacturer and users unitid, optimize height temporarily fix with 62.5mm	none

No.	Command	Explanation	Parameters	Returning values
			environmentTemperature the number of calibrated points Lsit of setting points, comma separated List of internal control temperature difference, comma separated List of temperature difference factor Kh comma separated List of temperature difference factor KI year month day	
11	CALibration:CONTroller:FRESet 1 2 3	Reset factory settings of control panel's calibration data	1 parameters, denotes restoration project 2=indicating value correction 3=vertical temperature field 1=AC voltage calibration	none
12	CALibration:CONTroller:PERiod:COUNT?	To acquire the total number of temperature calibration data	none	One value The total number of data
13	CALibration:CONTroller:PERiod:HEADER?	To acquire data head information of temperature calibration	none	N terms of calibration data, semicolon separated. Every item of caillibration has 6 values, comma separated. Id name calibrated date

No.	Command	Explanation	Parameters	Returning values
				operator remark Data source 0=axial temperature field, 1 =indicating values calibration, 2=dry well self-calibration
14	CALibration:CONTroller:PERiod:INFo? <id>	To acquire detailed data of temperature calibration	one value Id	Two sets of calibration data, Semicolon separated Revised data of temperature indicating values, N*2+5 parameters, comma separated unit id N the number of calibrated points N calibrated points N actual values year month day Calibration data of Axial temperature field. , N*4+7 values, comma separated. unit id optimize height (mm) environment temperature M, the number of calibrated points M calibrated points

No.	Command	Explanation	Parameters	Returning values
				M control temperature difference M pieces of kh M pieces of KI year month day

1.5System commands

No.	Command	Explanation	Parameters	Returning values
1	SYSTem:VERSion? [<module>]	According to parameters, to search version NO. of different modules, to overlook this parameter,returning back to SCIP version NO followed by system	“APPLication”: host version “CONTroller:FIRMware”: controller version NO. “CONTroller:HARDware”:Version NO. of contoller’s hardware “EIElectricity:FIRMware”: Version NO. of electrical logging panel’s firmware “EIElectricity:HARDware”: electrical logging panel’s hardware	version NO.
2	SYSTem:ERRor[:NEXT]?	Search the next error entry in the error queue and delete the entry from the queue. The error queue can store 50 error messages. If there are more than 50 errors, the last one will be replaced with -350, "Queue overflow".	none	wrong infromation

No.	Command	Explanation	Parameters	Returning values
		System power down or the *CLS instruction can clear the error queue.		
3	SYSTem:DATE<year>,<month>,<day>	To design the date of system	year: month: day :	none
4	SYSTem:DATE?	To search the date of system	-	Year ,month day
5	SYSTem:TIME<hour>,<minute>,<second>	To design the date of system	hour: minute: second:	none
6	SYSTem:TIME?	To acquire system time	none	3 values , comma separated hour minute second
7	SYSTem:KLOCK<Boolean> ON OFF	To design local lock-out state of system, only to lock out the functional operation of pannel	1 ON: system is locked –out 0 OFF: syatem is unlock	none
8	SYSTem:KLOCK?	To search local lock-out state of system,	none	1: lock-out 0: unlock
9	SYSTem:BEEPer:ALARm<Boolean> ON OFF	To design warning tone state	open or not	none
10	SYSTem:BEEPer:TOUCH<Boolean> ON OFF	To design keypad tone state	open or not	none
11	SYSTem:COMMunicate:SOCKet:WLAN[:STA Te] <Boolean> ON OFF	To set WIFI state Attention: if the wifi is opened, the serial	1, ONWIFI; 0, OFFWIFI	none

No.	Command	Explanation	Parameters	Returning values
		port of controller will be closed. During the time of opening wifi and connecting wifi, the communication with controller is only done through ethernet		
12	SYSTem:COMMunicate:SOCKet:WLAN:STaTej?	To search wifi state	none	1: WIFI open 0: WIFI close
13	SYSTem:COMMunicate:SOCKet:WLAN:ADDRes<IP address>	To set the IP address of WIFI Before designing the DHCP, IP subset mask and gateway of WIFI, please confirm that the wifi module has been opened and doesn't connect with any hot spots.	IP address: character string without quotation, format is <NR1>.<NR1>.<NR1>.<NR1>	none
14	SYSTem:COMMunicate:SOCKet:WLAN:ADDRes?	To search the IP address of WIFI	none	IP address
15	SYSTem:COMMunicate:SOCKet:WLAN:MASK <IP address>	To set subnet mask of wifi Before designing the DHCP, IP subset mask and gateway of WIFI, please confirm that the wifi module has been opened and doesn't connect with any hot spots.	IP address: character string without quotation, format is <NR1>.<NR1>.<NR1>.<NR1>	none
16	SYSTem:COMMunicate:SOCKet:WLAN:MASK?	To search subnet mask of WIFI	none	IP address
17	SYSTem:COMMunicate:SOCKet:WLAN:GATeway <IPaddress>	To design gateway of wifi Before designing the DHCP, IP subset mask and gateway of WIFI, please confirm that the wifi module has been opened and	IP address: character string without quotation, format is <NR1>.<NR1>.<NR1>.<NR1>	none

No.	Command	Explanation	Parameters	Returning values
		doesn't connect with any hot spots.		
18	SYSTem:COMMunicate:SOCKet:WLAN:GAT eway?	To search gateway of wifi	none	IP address
19	SYSTem:COMMunicate:SOCKet:WLAN:MAC ?	To search physical address of wifi	none	Physical address
20	SYSTem:COMMunicate:SOCKet:WLAN:DHC P[:STATe] <Boolean> OFF ON	To set WIFIDHCP state Before designing the DHCP, IP subset mask and gateway of WIFI, please confirm that the wifi module has been opened and doesn't connect with any hot spots.	1=ON: open DHCP; 0=OFF: close DHCP	none
21	SYSTem:COMMunicate:SOCKet:WLAN:DHC P[:STATe]?	To search WIFIDHCP state	none	1: DHCP open; 0: DHCP closed
22	SYSTem:COMMunicate:SOCKet:WLAN:SSI D? [ALL]	If the parameter is all, the search will be done and all the searched SSID names and the ways of encryption will be returned. If the parameter is overlooked, the result will return back to the current connected SSID name and the ways of encryption, if there is no connections or no searched hot spots, please return	none	{["ssid: way of encryption"]}
23	SYSTem:COMMunicate:SOCKet:WLAN:CON Nect <"ssid">,<"encryptionMode">[,<"password">]	To make the wifi connect with the appointed hot spot	1) "ssid" hot spot name, the character string with quotation 2) "encryptionMode" WEP_OFF, WEP_ON, WEP_AUTO,	none

No.	Command	Explanation	Parameters	Returning values
			WPA_PSK, WPA_TKIP, WPA2_PSK, WPA2_AES, CCKM_TKIP, WEP_CKIP, WEP_AUTO_CKIP, CCKM_AES, WPA_PSK_AES, WPA_AES, WPA2_PSK_TKIP, WPA2_TKIP, WAPI_PSK, WAPI_CERT; 3) password"the character string with quotation	
24	SYSTem:COMMunicate:SOCKet:WLAN:CON Nect?	To serch the connection state of wifi	none	Successfully, Initialization, SSIDNotFound SSIDNotConfigured, JoinFaile ScaningConfiguredSSID WaitingIPConfiguration ModuleJoinedListeningSockets
25	SYSTem:COMMunicate:SOCKet:WLAN:DIS Connect	To Break the wifi connection	none	none
26	SYSTem:COMMunicate:SOCKet:WLAN:DBM ?	To search signal strength and dBm value of WIFI	none	DBM Value unit is dBm
27	SYSTem:COMMunicate:SOCKet:ETHernet:D HCP?	To acquire DHCP state of ethernet	none	1=DHCP, 0= static
28	SYSTem:COMMunicate:SOCKet:ETHernet:D HCP <enable>	To design DHCP state of ethernet	1=ON, 0=OFF	none
29	SYSTem:COMMunicate:SOCKet:ETHernet:A	To acquire IP address of ethernet	none	IP address

No.	Command	Explanation	Parameters	Returning values
	DDRes?			
30	SYSTem:COMMunicate:SOCKet:ETHernet:ADDRes <ip>	To design the IP address of Ethernet under the static state	IP address	none
31	SYSTem:COMMunicate:SOCKet:ETHernet:MASK?	To acquire subnet mask of Ethernet	none	mask
32	SYSTem:COMMunicate:SOCKet:ETHernet:MASK <mask>	To design subnet mask of Ethernet under the static state	mask	none
33	SYSTem:COMMunicate:SOCKet:ETHernet:GATEway?	To acquire gateway of Ethernet	none	gateway
34	SYSTem:COMMunicate:SOCKet:ETHernet:GATEway <gateway>	To design gateway of Ethernet under the static state	gateway	none
35	SYSTem:COMMunicate:SOCKet:ETHernet:PHYSicaladdress?	To read physical Address of Ethernet	none	physical Address
36	SYSTem:PASSword:EDIT <oldPassword>,<newPassword>,<newPasswordRepeat>	To editor the user password	3 values, comma separated, password is only consist of figures. Old Password/super administrative password New Password New and old Passwords Repeat	none
37	SYSTem:PASSword:ENABLE:TASK?	To search that the protection of tasks password is opened or not	none	1=ON , 0=OFF
38	SYSTem:PASSword:ENABLE:TASK <enable>	To design the protection of tasks password	one value enable,0= close 1= open	none
39	SYSTem:PASSword:ENABLE:SENSOR?	To search that the protection of sensor	none	one value

No.	Command	Explanation	Parameters	Returning values
		bank password is opened or not		Open or not 1=open 0=close
40	SYSTem:PASSword:ENABLE:SENSor <enable>	To design the protection of sensor bank password	one value enable 0=close 1= open	none
41	SYSTem:VOLume?	To read system volume	none	one value The percentage of system volume (0~100)
42	SYSTem:VOLume <per>	To set system volume	one volume per The percentage of system volume (0~100)	none

1.6 Display commands

No.	Command	Explanation	Parameters	Returning values
1.	DISPlay:BRIGhtness<type>,<level>	To design brightness	2 values, comma separated type,Percentage=percentage value=concrete value Level: brightness	
2.	DISPlay:BRIGhtness?<type>	To search brightness	type,Percentage, Value	brightness
3.	DISPlay:DECimals:CONTrol?	To acquire indicating decimal digits of control temperature	none	one value decimal digits
4.	DISPlay:DECimals:CONTrol <decimal>	To design indicating decimal digits of control temperature	one value decimal (0,3) decimal digits	none
5.	DISPlay:DECimals:REF?	To acquire indicating decimal digits of	none	one value

No.	Command	Explanation	Parameters	Returning values
		external temperature		decimal digits
6.	DISPlay:DECimals:REF <decimal>	To design indicating decimal digits of external temperature	one value decimal (0,3) decimal digits	none
7.	DISPlay:DECimals:CHTemp?	To read indicating decimal digits of temperature measurement	none	one value decimal digits
8.	DISPlay:DECimals:CHTemp <decimal>	To design indicating decimal digits of temperature measurement	one value decimal (0,3)	none
9.	DISPlay:DECimals:ELECTric?	To read indicating decimal digits of measuring current,voltage,resistance	none	one value Decimal digits
10.	DISPlay:DECimals:ELECTric <decimal>	To design indicating decimal digits of measuring current,voltage,resistance	one value decimal digits (0,4)	none
11.	DISPlay:HOME?	To search on the main interface or not	none	0 not on the main interface 1 on the main interface
12.	DISPlay:HOME	To return back to the main interface from current interface (temporarily only support the return of system designing interface)	none	none
13.	DISPlay:THEMe?	To acquire current theme mode	none	one value topic name
14.	DISPlay:THEMe:ALLNames?	To acquite names of all current supporting themes	none	Numerical Values, comma separated Theme name 1, theme name 2
15.	DISPlay:THEMe <themeName>[,<isReboot>]	To design system theme(after reset, it will work)	2 values. Comma separated Supporting Theme Name	none

No.	Command	Explanation	Parameters	Returning values
			Reset or not, can be omitted, if omitted, the default value is reset.	
16.	DISPlay:LANGuage?	To search current system language	none	one value Standard character string of current language For example: zh-CN
17.	DISPlay:LANGuage languageName[,isReboot]	To design current system language	LanguageName: Character string without quotation, for example: zh-CN isReboot: Optional parameters, Boolean value, after finish, to restart instruments or not , default value is to restart instruments.	none

1.7Unit commands

No.	Command	Explanation	Parameters	Returning values
1	UNIT:TEMPerature<unit_ID> <"unit_name">	To design temperature unit of current system	one value Unit: unit name or unit ID unit_name is the character string with quotation unit_ID is figure	none
2	UNIT:TEMPerature?	To acquire temperature unit of current system	none	2values, comma separated. Name of temperature unit, temperature unit

No.	Command	Explanation	Parameters	Returning values
				id

1.8Taskscommands

No.	Command	Explanation	Parameters	Returning values
1	TASK:INSTrument:COUNT?	To search the number of instrumentss		The number of instrumentss
2	TASK:INSTrument:RESult:COUNT? <Guid>	To search the result number under instrumentss	Instrumentss's Guid	the result number under instrumentss
3	TASK:INSTrument:CATalog? < index >,< count >	To read information of instruments's list	Index:initial position Count: quantity (0-10)	ClassName, character data of Base64, CRC16 check code
4	TASK:INSTrument:RESult:CATalog? <Guid>,< index >,< count >	To read result information list under instruments	Guid:instruments ID Index:initial position Count: quantity (0-10)	ClassName, Base64 CRC16 check code
5	TASK:INSTrument:INFo? <Guid>	To read detailed information of instruments	Guid:instruments ID	ClassName, character data of Base64, CRC16 check code
6	TASK:INSTrument:RESult:CLEAr <Guid>	To delete all results under instrumentss	Guid:instruments ID	
7	TASK:INSTrument:SEARch:COUNT? <"condition">	According to searching conditions, to find the number of instruments	Search conditions" condition": JSon character string , JSon character string can not have line break	The number of Instrumentss
8	TASK:INSTrument:SEARch:CATalog? <"condition">,< index >,< count >	According to searching conditions, to read information of instruments list	Search conditions" condition": JSon character string , JSon character string can not have line break Index:initial position Count: quantity (0-10)	ClassName, character data of Base64, CRC16 check code
9	TASK:TEST:COUNT?	To search the number of tasks		the number of tasks

No.	Command	Explanation	Parameters	Returning values
10	TASK:TEST:RESult:COUNT? <Guid>	To search result umnber under instruments	Guid:tasks Guid	result umnber under tasks
11	TASK:TEST:CATalog? < index >,< count >	To read information of tasks list	Index:initial position Count: quantity (0-10)	ClassName, character data of Base64, CRC16 check code
12	TASK:TEST:RESult:CATalog? < Guid >,< index >,< count >	To read information of result list under instruments	Guid:tasks ID Index:initial position Count: quantity (0-10)	ClassName, character data of Base64, CRC16 check code
13	TASK:TEST:INFo? <Guid>	To read the detailed information of tasks	Guid:tasks ID	ClassName, character data of Base64, CRC16 check code
14	TASK:TEST:RESult:CLEAr <Guid>	To delete all results under tasks	Guid:tasks ID	
15	TASK:TEST:SEARch:COUNT? <"condition">	According to conditions, to find the number of tasks	Search conditions" condition": JSon character string , JSon character string can not have line break	The number of tasks matching conditions
16	TASK:TEST:SEARch:CATalog? <"condition">,< index >,< count >	According to conditions, to read the information of tasks list	Search conditions" condition": JSon character string , JSon character string can not have line break Index:initial position Count: quantity (0-10)	ClassName, character data of Base64, CRC16 check code
17	TASK:RESult:COUNT?	To search result number		The result number
18	TASK:RESult:CATalog? <index>,<count>	To read information of result list	Index:initial position Count: quantity (0-10)	ClassName, character data of Base64, CRC16 check code
19	TASK:RESult:INFo? <Guid>	To read detailed information of result I	Guid: result ID	ClassName, character data of Base64, CRC16 check code
20	TASK:RESult:SEARch:COUNT? <"condition">	According to conditions, to search result number	Search conditions" condition": JSon character string , JSon character string can	The result number with matching conditions

No.	Command	Explanation	Parameters	Returning values
			not have line break	
21	TASK:RESult:SEARch:CATalog? <"condition">,<index>,<count>	According to conditions, to read the information of result list	Search conditions" condition": JSon character string , JSon character string can not have line break Index:initial position Count: quantity (0-10)	ClassName, character data of Base64, CRC16 check code
22	TASK:DELeTe TASK RESult INSTrument, <Operation>	To delete tasks\results\instrument	TASK To operate the task data RESult To operate the result data INSTrument To operate the instrument data Operation: ALL: To operate the all data Guid: According to ID, directly write in Guide "Guids": The character string is consist of Guid, comma separated.	
23	TASK:ADD:TEST <data>	To add tasks	date(base64 encoding characters)	
24	TASK:ADD:INSTrument <calssname>,<data>	To add instruments	Classname:Instrument class data:data(Base encoding characters)	
25	TASK:ADD:RESult < data >	To add results	data:data(Base64 character string)	

1.9 Sensor commands

No.	Command	Explanation	Parameters	Returning values
1	SENSor:COUNT? <SenorType>	To acquire the number of sensor	one value sensor type SenorType:RTD SPRT CVD NTC NTC_SH2 SMART UUT RTD=10, SPRT=3, CVD=2, NTC=1, NTC_SH2=12	one value To custom the number of sensor
2	SENSor:CATalog? <SensorType>,<offset>,<count>	To acquire the information of sensor head	3 values sensor type SensorType:UUT SPRT RTD CVD NTC NTC_SH2 SMART, RTD=10, SPRT=3, CVD=2, NTC=1, NTC_SH2=12 offset, Initial position offset, count Number count UUT denotes all sensors	3values, comma separated ClassName,List<SensorHeader> ClassName,the real thing is List<SensorHeader> Base64 character data CRC16 check code
3	SENSor:INFormations? <id>	To acquire the information of single sensor	one value sensor id	3values, comma separated ClassName,TemperatureSensorInfo ClassName,the real thing is TemperatureSensorInfo Base64 character data CRC16 check code

No.	Command	Explanation	Parameters	Returning values
4	SENSor:SETSensorinfo:ADD<SensorType >,<"Info">	new constructed sensor	2values sensor type SensorType:RTD SPRT CVD NTC NTC_S H2, RTD=10, SPRT=3, CVD=2, NTC=1, NTC_SH2=12 "Info" is the character data of Base64	none
5	SENSor:SETSensorinfo:UPDate<SensorType >,<"Info">	To modify sensor	2 values, sensor types SensorType:RTD SPRT CVD NTC NTC_S H2, RTD=10, SPRT=3, CVD=2, NTC=1, NTC_SH2=12 "Info" is the character data of Base64	none
6	SENSor:Delete <"ids">	To delete sensor	one value Sensor ids, comma separated in the quotation mark.	none
7	SENSor:SEARCh? <"condition">	To search sensor	One value, comma separated Searching condition of sensor, Base64 character data	3 values, comma separated ClassName, List< SensorHeader > ClassName, the real things is List< SensorHeader > Base64 character data CRC16 check code
8	SENSor:REF:AVailable?	To acquire online state of external connected sensor	none	3 values, comma separated. External connected sensor is online or not, 1=online 0=offline External connected sensor is smart or not,

No.	Command	Explanation	Parameters	Returning values
				1=smart 0=not smart Availability, 1=available 0= not available
9	SENSor:REF[:SENSorinfo]?	To acquire information of external connected sensor	none	7 values,comma separated. Class name of sensor data Id, sensor id sensor name sensor SN smart or not Character data of Base64 CRC16 check code
10	SENSor:REF[:SENSorinfo]:ORDinary<SensorType >,<"Info">	To design information of ORDinary external connected sensor, write in sensor bank and the external connected sensor works, the not-smart external connected sensor must be online	two values SensorType:SPRT CVD Sensor type SensorType:SPRT CVD Info"is the character data of Base64	none
11	SENSor:REF[:SENSorinfo]:SMART<SensorType >,<"Info">	To design information of Smart external connected sensor,the smart external connected sensor must be online	2 values SensorType:SPRT CVD Sensor type SensorType:SPRT CVD Info"is the character data of Base64	none

1.10 Applicable commands

No.	Command	Explanation	Parameters	Returning values
1	APPLication:DATas:COUNT? <App>	To acquire information of applicable data	One value, applicable type POWEr= power grid quality STEP=phase step test SWITCh=switch test SNAPshot=sanpshoot CONTrolcurve=control curve	one value the number of data
2	APPLication:DATas:DATA? <App>,<Index>	To acquire the configuration of applicable data and specific data (except control curve)	2 values, comma separated Applicable type App Serial NO. of data index	1 value Character string of data json Snapshot is the character data of Base64, control curve only control configuration, and has no data)
3	APPLication:DATas:DELeTe <App>,<Index>	To delete applicable data	2 values, comma separated Applicable type App Data serial NO. index	none
4	APPLication:DATas:DIAGnosis:RESult:LENGth? <"path">	To read applicable data length of control curve	One value file path	1 value the length of data
5	APPLication:DATas:DIAGnosis:RESult:DATA? <"path">,<Index>,<Count>	To read applicable data of control curve	3 values, comma separated file path Offset Address of initiation Length count	2 values, comma separated Real data, Base64 character data CRC16 check code

1.11 HART command

No.	Command	Explanation	Parameters	Returning values
1.	HART:SEARCHStart Stop Zero[,<Numeric>][,<Numeric>]	HARTsearch	Start: Start searching Stop: Stop searching Zero: only searching 0 address Notes: to add address to the parameters of start and stop Range parameters, for example ,0,15"	
2.	HART:DEVICES?	To return back to the searched instrument list(Address and instrument type)		
3.	HART:CONnect<address>	To connect with the researched instruments	Address	
4.	HART:ONLDEVice:PROcEss?		-	PV: process variable AO: simulated current value %: range percentage SV: second master variable TV: third master variable FV: fourth master variable LoopCurrent:
5.	HART:ONLDEVice:PROcEss PV AO % SV TV FV LoopCurrent	Hand off process quantity	PV: process variable AO: simulated current value %: range percentage SV: second master variable TV: third master variable FV: fourth master variable	-

No.	Command	Explanation	Parameters	Returning values
			LoopCurrent :	
6.	HART:ONLDEVice:PROCEss:VALue?	To read the value of process quantity		the value of process quantity
7.	HART:ONLDEVice:PARAmeter? <"name">	To search parameters	"name"Parameters' names	
8.	HART:ONLDEVice:PARAmeter[:ECHO] <"name">,<"value"> <value>	To design parameters	"name"Parameters' names value"value(with character string or figure of quotation mark)	
9.	HART:ONLDEVice:INFO?	To search HART instruments' information	None or <parameters. Names> Name list of parameters is as follows : Tag Manufacturer Devicetype Deviceid writeprotect date message descriptor finalassemble preambles universalrev hardwarerev softwarerev	If no parameters, to return back to information values of all instruments If designing paramters'name, to return back to corresponding parameters' value

No.	Command	Explanation	Parameters	Returning values
			devicerev	
10.	HART:ONLDEVice:SENSor?	To return back to all parameters' values of sensor Or according to designing parameters's name, to return back to corresponding values	No parameters or <parameters' name> Name list of parameters is as follows sn unit lrl url minspan	If no parameters, to return back to all parameters' values of sensor If designing parameters' name, to return back to corresponding parameters' value
11.	HART:ONLDEVice:OUTput?	to return back to all numerical values output by HART Or according to designing parameters' name, to return back to corresponding parameters' value	No parameters or <parameters' name> Name list of parameters is as follows unit lrv urv damping transferFunction	If no parameters, to return back to all numerical values output by HART If designing parameters' name, to return back to corresponding parameters' value
12.	HART:ONLDEVice:CONNected?	To acquire HART instrument device is connected or not.	none	one value 1=connected 0=disconnected

Appendix 1, SCPI Id list

UNIT Id	UNIT
2000	text unit

32767	the empty unit
1211	mA
1212	μ A
1209	A
1240	V
1241	mV
1281	Ω
1284	k Ω
1283	M Ω
1000	K
1001	$^{\circ}$ C
1002	$^{\circ}$ F
1003	$^{\circ}$ R
999	$^{\circ}$ Re
1005	$^{\circ}$
1342	%

1133	kPa
1130	Pa
1131	GPa
1132	MPa
1134	mPa
1135	μ Pa
1136	hPa
1137	bar
1138	mbar
1139	torr
1140	atm
1141	psi
1142	psia
1143	psig
1144	gf/cm ²
1145	kgf/cm ²

1147	inH ₂ O@4°C
1148	inH ₂ O@68°F
1150	mmH ₂ O@4°C
1151	mmH ₂ O@20°C
1153	ftH ₂ O@4°C
1154	ftH ₂ O@68°F
1156	inHg@0°C
1158	mmHg@0°C
2001	mtorr
2002	lb/ft ²
2003	tsi
2004	psf
2005	inH ₂ O@60°F
2006	ftH ₂ O@60°F
2007	cmH ₂ O@4°C
2008	mH ₂ O@4°C

2009	cmHg@0°C
2010	mHg@0°C
2011	kgf/m ²

Appendix 2: default industrial sensor

Sensor types	Sensor name(used in command)
R400	400Ω/R400
R4k	4kΩ/R4k
Pt100-385	Pt100(385)
Pt10-385	Pt10(385)
Pt50-385	Pt50(385)
Pt200-385	Pt200(385)
Pt400-385	Pt400(385)
Pt1000-385	Pt1000(385)
Pt25-385	Pt25(385)
Pt100-3916	Pt100(3916)

Pt100-3926	Pt100(3926)
Pt100-391	Pt100(391)
Cu100-428	Cu100(428)
Cu50-428	Cu50(428)
Cu10-427	Cu10(427)
Ni100-617	Ni100(617)
Ni100-617	Ni100(618)
Ni120-672	Ni120(672)
Ni1000	Ni1000
TC-S	S
TC-R	R
TC-B	B
TC-K	K
TC-N	N
TC-E	E
TC-J	J

TC-T	T
TC-C	C
TC-D	D
TC-G	G
TC-L	L
TC-U	U
TC-LR	LR
TC-A	A
mV	mV

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	Too muchParameters or the command which is not allowed to have parameters with parameters	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	Too much data
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

No.	Error code	Description of error	Explanation
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 not found
Device related error			
37	-310	System error	System error
38	-311	Memory error	Memory error

No.	Error code	Description of error	Explanation
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 open	Communication port to WIFI module is not open
49	365	WLANisnotconnected	WLANisnotconnected

3 State report

3.1 Register of state byes

Register of state byes shows the information of other states' registers. Its value is unlocked, so if a event register is done with zero cleaning, the corresponding places of Register of state byes will also be done with zero cleaning.

Bit	Decimalism value	Definition	Explanation
0	1	unused	always 0
1	2	unused	always 0
2	4	Error queue	noe-empty error queue
3	8	Question data	Many Bits set 1 or one of question data register(corresponding places of

			enabling register must work)
4	16	unused	always 0
5	32	Standard event	Many Bits set 1 or one of Standard event register(corresponding places of enabling register must work)
6	64	Service request	Many Bits set 1 or 1 bit except this bit (corresponding places of enabling register must work)
7	128	Operation state	Many Bits set 1 or one of Standard event register(corresponding places of enabling register must work)

Table3-1 defination of register places of state byte

3.2Standard event register

Standard event register shows the following events:power on, grammatical error of command, the error of self-testing or calibration,or a *OPC command have been executed. The places are defined as follows:

Bit	Decimalism value	Definition	Explanation
0	1	Finished operation	Before *OPC command, the oher command are all executed
1	2	unused	always 0
2	4	unused	always 0
3	8	Instrument error	The error of self-testing , calibration or overloading
4	16	Execution error	To Happen Execution error
5	32	Commands erroe	To Happen commands grammatical error
6	64	unused	
7	128	Power on	To Happen power on and off operation

Table 3-2 the definition of standard event registers

3.3 Question data register

Question data register shows the information of testing results, for example: outrang and so on. The place definition is as follows:

Bit	Decimalism value	Definition	Explanation
0	1	Voltage overload	Voltage overrange
1	2	Current overload	Current overrange
2	4	unused	always 0
3	8	unused	always 0
4	16	unused	always 0
5	32	unused	always 0
6	64	unused	always 0
7	128	unused	always 0
8	256	unused	always 0
9	512	pressure overload	pressure overrange
10	1024	unused	always 0
11	2048	unused	always 0
12	4096	unused	always 0
13	8192	unused	always 0
14	16384	unused	always 0
15	32768	unused	always 0

Table 3-3 Question data

3.4 Operational status register

The operation status register provides information about the general operation of the device. Its bits are defined as follows:

Bit	Decimalism value	Definition	Explanation
0	1	unused	always 0
1	2	unused	always 0
2	4	unused	always 0
3	8	unused	always 0
4	16	In measurement state	Instrument is initiative to make pressure measurement
5	32	unused	always 0
6	64	unused	always 0
7	128	Pressure overload	always 0
8	256	unused	always 0
9	512	unused	always 0
10	1024	unused	always 0
11	2048	unused	always 0
12	4096	unused	always 0
13	8192	unused	always 0
14	16384	unused	always 0
15	32768	unused	always 0

Table 3-4 the register place definition of operation state