ADT875-1210 CommandsSet

1 CommandsInstruction

(1) Each function command is divided into two parts: mnemonic and parameter, and the mnemonic and parameter are separated byspaces;

Forexample,theMEASure[:SCALar]:CH?<value>command,MEASure[:SCALar]:CH?isamnemonic,and<value> indicatestheparametertobeinput,whichneedstobeseparatedbyspaces.Ifusersusethiscommandtogetthe current measurement value, they can input MEASure:CH?PV

(2) Aboutmnemonic

- [] in mnemonic means optional, not input isok

Forexample,MEASure[:SCALar]:AELectricity?Therearetwokindsofactualinput:MEASure:SCALar:AELectricity? orMEASure:AELectricity?

- (num1:num2)inthemnemonicindicatestherangeofserialnumbers,whichneedtobereplacedwithreal numbers during actualinput

Forexample,SENSe:ELECtricity:TCCHannel(1:4)?Ifusersneedtogettheconfigurationofthefirst TCchannel, need to enterSENSe:ELECtricity:TCCHannel1?

(3) Aboutparameters

Each parameter in the commands set is identified by <> (do not enter angle brackets when converting toactualinstructions), and separated bycommas.

(4) Endcharacter

TheSCPIcommandmustbeaccompaniedbyacommandendcharacter,whichcanbeoneoftheendcharacters (excluding double quotes): "\r\n", "\r", "\n" or"\0".

1.1 IEEE488.2 commoncommands

NO.	Command	Explanation	Parameters	Returningvalues
1	*CLS	This command eliminates the following registers Register of standard event Register of searching event Register of operating event Register of status byte Errorqueue	-	-
2	*IDN?	To search instrument identifies, the returned data is divided into 2parts a. product sequencenumber b. software versionnumber	-	product sequence number and software versionnumber
3	*RST	main programreset	-	-

1.2 Measurement and configurationcommand

The all original values refer to the values beforecalibration.

NO.	Command	Explanation	Parameters	Returningvalues
1	MEASure[:SCALar]:AELectricity?	Reading all electricalsignals	none	6 parts, separated by semicolon; The 1~5 part is the channel EXT.REF and CH1~4 data, each data has 7 values, separated by comma: Measurement unit Id, measured value, electrical signal Id, electrical signal value, electrical signaloriginal value, additional parameter1, additional parameter 2; Among them: if the electrical test item is TC, the additional parameter 1 is the cold junction value (indegrees

NO.	Command	Explanation	Parameters	Returning values
				Celsius), and the additional parameter 2 is not used;if the electrical test item is the switch, the additional parameter 1 is the temperature value at the last switch changing, the additional parameter 2 It is the temperature value at the last switch changing, the unit is fixed in degrees Celsius, and the temperature value comes from the temperature controlstandard. The sixth part is other data, 10 values, separated by commas: Abnormal code, 24V voltage value, AD temperature value (in degrees Celsius), CH1with 24V voltage value, CH2 with 24V voltage value, positive 2.5V voltage value, negative 2.5V voltage value, positive 5V voltage value, negative 5V voltage value, 5.8 V voltage value

NO.	Command	Explanation	Parameters	Returning values
2	MEASure[:SCALar]:AEINfo?	To acquire the values of all electrical signals	none	30 values, separated by commas Channel EXT electrical signal value, channel EXT electrical signal original value, channel EXT cold junction electrical signal value, channel EXTcold junction electrical signal originalvalue, Channel 1 electrical signal value, channel 1 electrical signal original value, channel 1 cold junction electrical signal value, channel 1 cold junction electricalsignal original value,Channel 2 electrical signal value, channel 2 electrical signal original value, channel 2 cold junction electrical signal value, channel 2 cold junction electrical signal original value,Channel 3 electrical signal value, channel 3 electrical signal originalvalue, channel 3 cold junction electrical signal value, channel 3 cold junction electrical signal original value,Channel 4 electrical signal value, channel 4 electrical signal originalvalue, channel 4 cold junction electrical signal value, channel 4 cold junction electrical signal original value Abnormal Total 24V, AD temperature24V for channel 2, 24V for channel 3,2.5V, -2.5V, 5V, -5V,5.8V

NO.	Command	Explanation	Parameters	Returning values
3	MEASure[:SCALar]:CH?<value>	To acquire the values ofchannels	onevalue exact value PV|SV|TV|FV: Specific valuePV|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 measurementvalue TV= electrical measurement original value FV=cold-junction value(only the TC chanel))	10 values, separated by commas: Unit Id of EXT,T he value ofEXT ,Unit Id of CH1, CH1value Unit Id of CH2 CH2 value Unit Id of CH3 CH3 value Unit Id of CH4 CH4value
4	SENSe:ELECtricity:TCCHannel(1:4) <"SensorName">,<CJCType>,<FixedValue>	To set the configurations 1|2|3|4of TC channel	3 values, comma separated. "SensorName"，CJCType， Auto|Fixed FixedValue	None
5	SENSe:ELECtricity:TCCHannel(1:4)?	To acquire the configurations 1|2|3|4of TCchannel	none	7 parameters, comma separated. Channel types Unit：id Measurement Low limit Measurement Upper limit SensorName CJCType Cold-junctionFixedValue

NO.	Command	Explanation	Parameters	Returning values
6	SENSe:ELECtricity:CHITem(1:4)<Item>	To set electrical measurement channel types1|2|3|4	onevalue Electrical measurement channel type Item:CURRent|SWITch|TC|Volt|HART|None	none
7	SENSe:ELECtricity:CHITem?	To acquire electrical measurement channeltypes	none	4 parameters, separated by commas: Channel 1type, Channel 2type: Channel 3type ;Channel 4type; Among them, the type containsV, HART, mA, mV, Switch, TC,None
8	MEASure[:SCALar]:ELECtricity(1:4)?	To acquire the measurement data 1|2|3|4of current electricalmeasurement	none	The unit id of Measurement value:, measurementvalue, electrical signal unit id. Measurement electrical value,original electrical value,extra parameter1 and extra parameter2 Among: 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 notused. If the electrical measurement project is the switch, theextra 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.Theunitisfixedto centigrade, andthe

NO.	Command	Explanation	Parameters	Returning values
				temperature value comes from the temperature control standard.
9	SENSe:ElECtricity:CHINfo(1:4)?	To acquire the brief information 1|2|3|4 of currentchannels	none	4 values, comma separated. channeltypes unit id Measurement Low limit Measurement upperlimit
10	SENSe:ElECtricity:RANGe(1:4)?<Item>	To acquire the range of one projects'channel1|2|3|4	One value ChanneltypeItem: Current|Switch|TC|Volt|HART	3 values, comma separated. Measurement Low limit Measurement upper limit Current unitid
11	SENSe:ELECtricity:VOLTchannel(1:2)<VoltType>	To set configuration 1/2 of voltage channel	One value Channel configuration:VoltType:Volt12|Volt30	None
12	SENSe:ELECtricity:VOLTchannel(1:2)?	To read configuration 1/2 ofvoltage channel	Onevalue	One value Channel configuration:Volt12|Volt30
13	SENSe:ELECtricity:SWITchchannel(1:2) <SwitchType>	To set the configuration 1/2 of switch channel	One value SwitchType: DryContact|WetContact|PNP|NPN	None

NO.	Command	Explanation	Parameters	Returning values
14	SENSe:ELECtricity:SWITchchannel(1:2)?	To read the configuration 1/2 of switch channel	None	One value, comma separated Switch types DryContact|WetContact|PNP|NPN
15	SENSe:ELECtricity:ZERo(1:4)<enable>	To set the zero clearing and cancel of zero clearing for channel1|2|3|4	Onevalue Zero clearing or not, 1|0|ON|OFF, ON=1=zero clearing OFF=0=cannel zeroclearing	None
16	SENSe:ELECtricity:CJC:R0 _? Manufactor|User,<password d>	To set RO value of cold-junctionchannel	Two values Manufactor,User password, r0 the password of corresponding manufactor andusers.	5 values, separated by commas: Channel EXT cold junction R0 Channel 1 cold junction R0 Channel 2 cold end R0 Channel 3 cold end R0 Channel 4 cold junctionR0
17	SENSe:ELECtricity:CJC:R0_(0: 4) Manufactor|User,<password>,<r 0>	To set RO value of cold-junctionchannel for0|1|2|3|4 channel, 0 indicates EXT channel	Three values Manufactor,User password, r0 the password of corresponding manufactor andusers	None
18	SENSe:ELECtricity:CHITems < CH1Item >,< CH2Item >,< CH3Item >,< CH4Item>	To set measuring items for all channels at the sametime	4 values, separated by comma CH1Item, optional CURRent|SWITch|TC|Volt|HART|None CH2Item, optional CURRent|SWITch|TC|Volt |None CH3Item, optional TC|None CH4Item, optionalTC|None	None

1.3 Outputcommand

NO.	Command	Explanation	Parameters	Returning values
1	MEASure[:SCALar][:TEMPerature]?	To acquire the conditions and data of current controlpanel	None	19 values, separated by commas (all temperature units default toCelsius): The first 7 are data: Current temperature (according to temperature control type, equal to internal/external temperature), Internaltemperature, External temperature, External differential temperature 1 (for temperature field calibration) External differential temperature 2 (for temperature fieldcalibration), Original value of internal temperature (before temperature fieldcalibration), Original resistance value, (unit defaultohm) Then 10 are the status values: Current controlstatus ,Is itstable, Whether the target value is reached, High level, (-1~1) Low level, (-1~1) Medium level (-1~1) Fan output,(0~1) inlet air temperature(r oomtemperatu re), Current, Voltage The last is abnormal information.

NO.	Command	Explanation	Parameters	Returning values
2	MEASure[:SCALar]:CONTrol?	Acquire the current controldata	None	" 6 values, separated by commas: Current temperature unit id Current Temperature, Current control status, Heating power(-1~1) Fan power (0~1) is it stable"1|0", Whether the target value "1|0" isreached
3	[SOURce:]TEMPerature:STATus:MEASure	To design about entering into measurementstate	None	None
4	[SOURce:]TEMPerature:STATus:CONTrol <TargetTemperature>,<unitId>[,<slewType >,<Sle wRate>]	To design about entering into control state	4 values TargetTemperature: Temperature UnitId Spped Type：， 0 denotespercentage （0~100） 1 denotes the absolute value(unit temperature is per minute) SlewRate:, thespeedrate oftemperature control can be eliminated, after elimination, the current designed temperature control speed is as the defaultvalue.	None

NO.	Command	Explanation	Parameters	Returning values
5	[SOURce:]TEMPerature:STATus?	To read the temperature controlstate	None	One value Measure=0 (automatic) Control=1 SemiAutoControl=2 Manual=3 Maintenace=4
6	[SOURce:]TEMPerature:TARGet <target_Temperature>,<unitId>	To design target temperature(automatedcontrol)	2 values target_TemperatureT emperatureunitlid	None
7	[SOURce:]TEMPerature:TARGet?	To read targettemperature	None	2 values, comma separated Current target temperature Current temperature unitid
8	[SOURce:]TEMPerature:OPTions?	To read controlconfiguration	None	11 values, separated by commas

NO.	Command	Explanation	Parameters	Returning values
				Current temperature unit Id, Volatility, Stable residence time ((1~600) minutes) Allowable deviation of the targetvalue, Temperature control rate percentage Absolute value of temperature control rate, Whether to enable setpoint limit1|0 Set point limit lower limit, Set point limit upper limit, Temperature control configuration ,Windproof mode (not useful fornow) The temperature control configuration: Internal temperature control=0 External temperature control=1 External dualtemperature control =2 External top dual temperature control = 3 External three temperature control = 4 (temperaturefield calibration)

NO.	Command	Explanation	Parameters	Returning values
9	[SOURce:]TEMPerature:OPTions <unitId>,<stability>,<DwellMinutes>,<TargetTolera nce>,<slewType>,<SlewRate>,<IsEnableLimit s>,<Li mitsLower>,<LimitsUpper>,<ControlConfig>[,< AirV alueState>]	To design Temperature control configuration	10/11 values Temperature unitId stability， DwellMinutes TargetTolerance slewType， 0 denotes percentage (0~100) ， 1denotes absolute value (temperature controlunit is perminiute) SlewRate IsEnableLimits LimitsLower LimitsUpper ControlConfig (internal temperature control=0, external temperature control=1, external dual temperature control=2, external top dual temperature control=3, external triple temperature control=4 (temperature fieldcalibration)), Windproof mode (high temperature furnace only, currently not ineffect)	None

NO.	Command	Explanation	Parameters	Returning values
10	[SOURce:]TEMPerature:STABility<sta>,<unitId>	To design the fluctuation rate of temperaturecontrol	2 values Stability of temperature control Temperature unit Id	None
11	[SOURce:]TEMPerature:STABility?	To acquire fluctuation rate of temperature control	none	2values, separated by commas: Temperature control fluctuation, Temperature unitId
12	[SOURce:]TEMPerature:STABility:LIMit?	To read fluctuation range of temperature control	None	3values, separated by commas Lower volatility limit, Uppervolatility ,Temperature unit Id, unitis fixedCelsius

NO.	Command	Explanation	Parameters	Returning values
13	[SOURce:]TEMPerature:TARTolerance?	To read allowable deviation of target value	None	2values, separated by commas: Allowable deviation of the targetvalue, Temperature unitId
14	[SOURce:]TEMPerature:TARTolerance <ttolerance>,< unitId>	To design allowable deviation of target value	2Value Target value allowable deviation tolerance temperature unitId	None
15	[SOURce:]TEMPerature:TARTolerance:LIMit?	To read allowable deviation range of target value	None	3values, separated by commas: The target value allows the lower limit ofdeviation ,Upperlimit, Temperature unit Id, fixed at Celsius
16	[SOURce:]TEMPerature:SLEW <slew>,< unitId>	To design speed rate of temperature control	2Values slew temperature control rate, temperature per minuteunitId temperature unitId	None

NO.	Command	Explanation	Parameters	Returning values
17	[SOURce:]TEMPerature:SLEW?	To read speed rate of temperature control	None	2values, separated by commas Temperature control rate, temperature per minute Temperature unit Id, fixed at Celsius
18	[SOURce:]TEMPerature:PERSlew<slew>	To design speed rate of temperature control	onevalue slew temperature control speed rate(percentage0~100)	None
19	[SOURce:]TEMPerature:PERSlew?	To read speed rate of temperature control	None	1value Temperature control speed rate(percentage0~100)
20	[SOURce:]TEMPerature:SLEW:LIMit?	To read the upper and low limits of speed rate of temperature control(absolute value,℃/minute	None	3values, comma separated Low limits of speed rate of temperaturecontrol Upper limits of speed rate of temperature control Temperature unit id, fixed centigrade

NO.	Command	Explanation	Parameters	Returning values
21	[SOURce:]TEMPerature:SLEW:PERLimit?	To read low and upper limits of Low limits of speed rate percentage of temperaturecontrol	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 100
22	[SOURce:]TEMPerature:SETPoints:LIMit?	To read low and upper limits of temperature controlsetting	None	3 values, comma separated Low limits of temperature controlsetting upper limits of temperature controlsetting current unitid
23	[SOURce:]TEMPerature:CLIMit?	To read low and upper limits of temperaturecontrol	None	3 values, comma separated. Low limits of temperature controlability Upper limits of temperature controlability Current unitid
24	[SOURce:]TEMPerature:SLIMit?	To read Low and upper limits of temperature controlsetting	None	4 values, comma separated Whether or not to enable low and upper limitscontrol Low limits of temperature control Upper limits of temperature control Current unitid

NO.	Command	Explanation	Parameters	Returning values
25	[SOURce:]TEMPerature:SLIMit <IsEnable>,<lower>,<upper>	Todesign Low and upper limits of temperature controlsetting	3values, unit is fixed with centigrade Whether or not to enable low andupper limits 0=close 1= openup lower， upper	None
26	[SOURce:]TEMPerature:CONFig?	To acquire operation state of temperature controlsetting	None	1value 0=Internaltemperature control 1=Externaltemperature control 2=External dualtemperature control 3=External doubletop temperaturecontrol 4=Externaltemperature control

NO.	Command	Explanation	Parameters	Returning values
27	[SOURce:]TEMPerature:CONFig<config>	To design operation state of temperature controlsetting	1value config running state: 0=Internal temperature control 1=External temperature control 2=Double temperaturecontrol 3=External double top temperature control 4=External temperature control 5=Internal top temperature control6=Externalcalibration	None
28	[SOURce:]TEMPerature:CONParams?	To read controlparameters	None	6 values, comma separated Tq_main Tf_main Tq_H_L Tf_H_L Tq_M_L Tf_M_L
29	[SOURce:]TEMPerature:CONParams <tqMain>,<tfMain>,<tqHL>,<tfHL>,<tqML>,<tfML>,	To design controlparameters	6 values, comma separated Tq_main Tf_main Tq_H_L Tf_H_L Tq_M_L Tf_M_L	None

NO.	Command	Explanation	Parameters	Returning values
30	OUTPut:24V[:STATe]<enable>	To design 24Vstate	1value Enableon and off 0=OFF 1=ON	None
31	OUTPut:24V[:STATe]?	To read 24Vstate	None	1value, 0=off 1=on
32	[SOURce:]TEMPerature:OPTions:COOLing<mode>	To set temperature cooling controlmode	1value mode： 0=common，1=fast	None
33	[SOURce:]TEMPerature:OPTions:COOLing?	To read current set temperature cooling controlmode	None	1value 0=common ，1=fast

1.5 systemcommand

NO.	Command	Explanation	Parameters	Returning values
1	SYSTem:VERSion?[<module>]	According to parameters, tosearch version NO. of different modules, to overlook this parameter,returning back to SCIP version NO followed bysystem	"APPLication": Softwareversion number of the main program "CONTroller:FIRMware": Controller firmware version number; "CONTroller:HARDware": Controller hardware version number; "ElECtricity:FIRMware": The version number of the electric test board firmware; "ElECtricity:HARDware": Electric test boardhardware	VersionNO.

NO.	Command	Explanation	Parameters	Returning values
2	SYSTem:ERRor[:NEXT]?	Query the next error item in the error queue, and delete the item from the queue. The error queue can store 50 error messages. If there are more than 50 error messages, the last one is replaced by -350, "Queue overflow".System power off or *CLS instruction can clear the errorqueue	None	wronginformation
3	SYSTem:DATE<year>,<month>,<day>	To design the date ofsystem	year: month: day:	None
4	SYSTem:DATE?	To search the date ofsystem	-	Year ,month day
5	SYSTem:TIME<hour>,<minute>,<second>	To design the date ofsystem	hour: minute: second:	None

NO.	Command	Explanation	Parameters	Returning values
6	SYSTem:TIME?	To acquire systemtime	None	3 values , comma separated hour minute second
7	SYSTem:TIME:FORMat?	To read system timeformat	None	2values, separated by commas Whether it is a 24-hour clock Current timezone
8	SYSTem:TIME:FORMat<Boolean>,<Numeric>	To set system timeformat	2parameters, separated by commas Whether it is a 24-hourclock Time zone UTCvalue	None
9	SYSTem:KLOCk<Boolean>|ON|OFF	To design local lock-out state of system, only to lock out the functionaloperation ofpanel	1 ON: system is locked –out 0 , OFF: system isunlock	None
10	SYSTem:KLOCk?	To search local lock-out state ofsystem	None	1:lock-out 0:unlock
11	SYSTem:BEEPer:ALARm<Boolean>|ON|OFF	To design warning tonestate	open or not	None
12	SYSTem:BEEPer:TOUCh<Boolean>|ON|OFF	To design keypad tonestate	open or not	None
13	SYSTem:COMMunicate:SOCKet:WLAN[:STATe] <Boolean>|ON|OFF	To design WIFIstate Attention: if the wifi is opened, the serial port of controller will beclosed. During the time of opening wifi and connecting wifi, thecommunication with controller is only done through ethternet	1，ON:WIFI; 0，OFF:WIFI	None

NO.	Command	Explanation	Parameters	Returning values
14	SYSTem:COMMunicate:SOCKet:WLAN[:STATe]?	To search wifistate	None	1: WIFIon； 0: WIFIoff
15	SYSTem:COMMunicate:SOCKet:WLAN:ADDRess<IP address>	To design the IP address of WIFI before designing the DHCP、IPsubset maskandgatewayofWIFI,pleaseconfirm that the wifi module has been opened and doesn't connect with any hot spots.	IP address: character string without quotation, formatis <NR1>.<NR1>.<NR1>.<NR1>	None
16	SYSTem:COMMunicate:SOCKet:WLAN:ADDRess?	To search the IP address ofWIFI	None	IPaddress
17	SYSTem:COMMunicate:SOCKet:WLAN:MASK<IP address>	To design subnet mask ofwifi Before designing the DHCP、IP subset maskandgatewayofWIFI,pleaseconfirm that the wifi module has been opened and doesn't connect with anyhot spots.	IP address: character string without quotation, formatis <NR1>.<NR1>.<NR1>.<NR1>	None

NO.	Command	Explanation	Parameters	Returning values
18	SYSTem:COMMunicate:SOCKet:WLAN:MASK?	To search subnet mask ofWIFI	None	IPaddress
19	SYSTem:COMMunicate:SOCKet:WLAN:GATeway <IPaddress>	To design gateway ofwifi Before designing the DHCP、IP subset maskandgatewayofWIFI,pleaseconfirm that the wifi module has been opened and doesn't connect with any hot spots.	IP address: character string without quotation, formatis <NR1>.<NR1>.<NR1>.<NR1>	None
20	SYSTem:COMMunicate:SOCKet:WLAN:GATeway ?	To search gateway ofwifi	None	IPaddress
21	SYSTem:COMMunicate:SOCKet:WLAN:MAC?	To search physical address ofwifi	None	Physicaladdress
22	SYSTem:COMMunicate:SOCKet:WLAN:DHCP[:STATe] <Boolean>|OFF|ON	To design WIFIDHCPstate Before designing the DHCP、IP subset maskandgatewayofWIFI,pleaseconfirm that the wifi module has been opened and doesn't connect with any hot spots.	1=ON:DHCP; 0=OFF:DHCP	None
23	SYSTem:COMMunicate:SOCKet:WLAN:DHCP[:STATe]?	To search WIFIDHCPstate	None	1:DHCPopen; 0:DHCPclosed

NO.	Command	Explanation	Parameters	Returning values
24	SYSTem:COMMunicate:SOCKet:WLAN:SSID?[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 isoverlooked, 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, pleasereturn	None	{["ssid: way of encryption"]}
25	SYSTem:COMMunicate:SOCKet:WLAN:CONNect <"ssid">,<"encryptionMode">[,<"password">]	To make the wifi connect with the appointed hotspot	1) "ssid hot spot name, the character string withquotation 2) "encryptionMode WEP_OFF, WEP_ON, WEP_AUTO, 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 stringwith quotation	None
26	SYSTem:COMMunicate:SOCKet:WLAN:CONNect ?	To search the connection state ofwifi	None	Successfully, Initialization, SSIDNotFound SSIDNotConfigured, JoinFaile ScaningConfiguredSSID WaitingIPConfiguration ModuleJoinedListeningSocke ts

NO.	Command	Explanation	Parameters	Returning values
27	SYSTem:COMMunicate:SOCKet:WLAN:DISConnect	To Break the wificonnection	None	None
28	SYSTem:COMMunicate:SOCKet:WLAN:DBM?	To search signal strength and dBmvalue ofWIFI	None	DBM Value unit isdBm
29	SYSTem:COMMunicate:SOCKet:ETHernet:DHCP?	To acquire DHCP state ofethernet	None	1=DHCP，0=staticstate
30	SYSTem:COMMunicate:SOCKet:ETHernet:DHCP <enable>	To design DHCP state ofethernet	Open or not enable，1=ON=open, 0=OFF=close	None
31	SYSTem:COMMunicate:SOCKet:ETHernet:ADDRess?	To design DHCP state ofethernet	None	IPaddress
32	SYSTem:COMMunicate:SOCKet:ETHernet:ADDRess <ip>	To set IP address of Ethernet in static state	Ipaddress	None
33	SYSTem:COMMunicate:SOCKet:ETHernet:MASK?	To acquire IP address ofethernet	None	Subnet mask
34	To design subnet mask of Ethernet underthe staticstate	To design subnet mask ofEthernet under the staticstate	Mask subnet mask	None

NO.	Command	Explanation	Parameters	Returning values
35	SYSTem:COMMunicate:SOCKet:ETHernet:GATeway?	To acquire gateway ofEthernet	None	gateway
36	SYSTem:COMMunicate:SOCKet:ETHernet:GATeway ay <gateway>	TodesigngatewayofEthernetunderthe staticstate	gateway	None
37	SYSTem:COMMunicate:SOCKet:ETHernet:PHYS icaladd ress?	To read physical Address ofEthernet	None	physicalAddress
38	SYSTem:VOLume?	To read systemvolume	None	1value The percentage of system volume（0~100)
39	SYSTem:VOLume<per>	To design systemvolume	1value per The percentage of systemvolume（0~100)	None
40	SYSTem:SCReensaver<timeout>	To set screen protectiontime	1value Screenprotection time, unit minutes, 1|5|10|30|60|-1，1=off	None
41	SYSTem:SCReensaver?	To access screen protectiontime	None	1value Screenprotection time, unit minutes，1=off

1.6 displaycommand

NO.	Command	Explanation	Parameters	Returning values
1.	DISPlay:BRIGhtness<type>,<level>	To designbrightness	2 values, commaseparated type, PercentageValue= concrete value Level：brightness	
2.	DISPlay:BRIGhtness?<type>	To searchbrightness	1vaule type, Percentage，Value= concretevalue	brightness
3.	DISPlay:MESSagebox<"Message">	Display dialogbox	1value "Message"information	None
4.	DISPlay:DECimals:CONTrol?	To acquire indicating decimal digits of controltemperature	None	1value decimaldigits
5.	DISPlay:DECimals:CONTrol<decimal>	To design indicating decimal digits of controltemperature	1value decimal digits decimal(0,3)	None
6.	DISPlay:DECimals:REF?	To acquire indicating decimal digits of externaltemperature	None	1value decimaldigits
7.	DISPlay:DECimals:REF<decimal>	To design indicating decimal digits of externaltemperature	1vaule decimal digits decimal(0,3)	None
8.	DISPlay:DECimals:CHTemp?	To read indicating decimal digits of temperaturemeasurement	None	1value decimaldigits
9.	DISPlay:DECimals:CHTemp<decimal>	To design indicating decimal digits of temperaturemeasurement	1value decimal digits decimal(0,3)	None
10.	DISPlay:DECimals:ELECtric?	To read indicatingdecimaldigits of measuringcurrent,voltage,resistance	None	1value decimaldigits

11.	DISPlay:DECimals:ELECtric<decimal>	To design indicating decimal digits of measuringcurrent,voltage,resistance	1value decimal digits decimal(0,4)	None
12.	DISPlay:HOME?	To search on the main interface ornot	None	0 not on the main interface 1 on the maininterface
13.	DISPlay:HOME	To return back to the main interface from currentinterface (temporaily only support the return of system designinginterface)	None	None
14.	DISPlay:LANGuage?	To search current systemlanguage	None	1vaule Standard character string of currentlanguage For example:zh-CN
15.	DISPlay:LANGuagelanguageName[,isReboot]	To design current systemlanguage	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

1.7 Unitcommand

NO.	Command	Explanation	Parameters	Returning values
1	UNIT:TEMPerature<unit_ID>|<"unit_name">	To design temperature unit of current system	onevalue Unit: unit name or unitID unit_name is the character string with quotation unit_ID isfigure	None
2	UNIT:TEMPerature?	To acquire temperature unit of current system	None	2values, comma separated Name of temperature unit, temperature unitid

1.8 Taskscommand

NO.	Command	Explanation	Parameters	Returning values
1	TASK:INSTrument:COUNt?	To search the number ofinstruments		The number ofinstruments
2	TASK:INSTrument:RESult:COUNt?<Guid>	To search the result numberunder instruments	Instrumentss'sGuid	the result number under instrumentss
3	TASK:INSTrument:CATalog? < index >,< count>	To read information ofinstruments' list	Index:initialposition Count:quantity（0-10）	ClassName, character dataof Base64, CRC16 checkcode

NO.	Command	Explanation	Parameters	Returning values
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, character data of Base64, CRC16 checkcode
5	TASK:INSTrument:INFo?<Guid>	To read detailed information of instruments	Guid:instrumentsID	ClassName, character data of Base64, CRC16 checkcode
6	TASK:INSTrument:RESult:CLEAr<Guid>	To delete all resultsunder instruments	Guid:instrumentsID	
7	TASK:INSTrument:SEARch:COUNt?<"condition">	According to searching conditions, to find the number ofinstruments	Search conditions" condition": JSon character string ，JSon character string can not have linebreak	The number ofInstrumentss
8	TASK:INSTrument:SEARch:CATalog?<"condition">,< index >,< count>	According to searching conditions, to read information of instrumentslist	Search conditions" condition": JSon character string ，JSon character string can not have linebreak Index:initial position Count:quantity（0-10）	ClassName, character data of Base64, CRC16 checkcode
9	TASK:TEST:COUNt?	To search the number oftasks		the number oftasks
10	TASK:TEST:RESult:COUNt?<Guid>	To search result number under instruments	Guid:tasksGuid	result umnber undertasks
11	TASK:TEST:CATalog? < index >,< count>	To read information of taskslist	Index:initialposition Count: quantity（0-10）	ClassName, character dataof Base64, CRC16 checkcode

NO.	Command	Explanation	Parameters	Returning values
12	TASK:TEST:RESult:CATalog? < Guid >,< index>,< count>	To read information of result list under instruments	Guid:tasks ID Index:initialposition Count: quantity（0-10）	ClassName, character data of Base64, CRC16 checkcode
13	TASK:TEST:INFo?<Guid>	Toreadthedetailedinformationoftasks	Guid:tasks ID	ClassName, character data of Base64, CRC16 checkcode
14	TASK:TEST:RESult:CLEAr<Guid>	To delete all results undertasks	Guid:tasks ID	
15	TASK:TEST:SEARch:COUNt?<"condition">	According to conditions, to find the number oftasks	Search conditions" condition": JSon character string , JSon character string can not have linebreak	The number of tasks matchingconditions
16	TASK:TEST:SEARch:CATalog? <"condition">,< index>,< count>	According to conditions, to readthe information of taskslist	Search conditions" condition": JSon character string , JSon character string can not have linebreak Index:initial position Count: quantity（0-10	ClassName, character data of Base64, CRC16 checkcode
17	TASK:RESult:COUNt?	To search resultnumber		The resultnumber
18	TASK:RESult:CATalog?<index>,<count>	To read information of resultlist	Index:initial position Count: quantity（0-10）	ClassName, character data of Base64, CRC16 checkcode
19	TASK:RESult:INFo?<Guid>	To read detailed information ofresult	Guid: resultID	ClassName, character data of Base64, CRC16 checkcode

33

NO.	Command	Explanation	Parameters	Returning values
20	TASK:RESult:SEARch:COUNt?<"condition">	According to conditions, to searchresult number	Search conditions" condition": JSon character string , JSon character string can not have linebreak	The result number with matchingconditions
21	TASK:RESult:SEARch:CATalog? <"condition">,<index>,<count>	According to conditions, to read the information of resultlist	Search conditions" condition": JSon character string , JSon character string can not have linebreak Index:initial position Count: quantity (0-10)	ClassName, character data of Base64, CRC16 checkcode
22	TASK:DELete TASK|RESult|INSTrument,<Operation>	To deletetasks\results\instrument	TASK To operate the task data RESult To operate the resultdata INSTrument To operate the instrument data Operation： ALL： To operate the all data Guid： According to ID, directly write in Guide "Guids"： Thecharacterstring isconsist of Guid, commaseparated.	
23	TASK:ADD:TEST<data>	To add tasks	date(base64 encodingcharacters)	
24	TASK:ADD:INSTrument<calssname>,<data>	To addinstruments	Classname:Instrumentclass data:data(Base encodingcharacters)	
25	TASK:ADD:RESult < data>	To addresults	data:data(Base64 characterstring)	

1.9 sensorcommand

NO.	Command	Explanation	Parameters	Returning values
1	SENSor:COUNt?<SenorType>	To acquire the number ofsensor	1value sensor type SenorType:RTD|SPRT|CVD|NTC|NTC_SH2|SMART|UUT RTD=10，SPRT=3，CVD=2，NTC=1，NTC_SH2=12, StandardTC=6, StandardTCB=60,StandardTCS=61	1value To custom the number of sensor
2	SENSor:CATalog?<SensorType>,<offset>,<count>	To acquire the information of sensor head	3value sensor type SensorType:UUT|SPRT|RTD|CVD|NTC|NTC_SH2|SMART，RTD=10，SPRT=3，CVD=2，NTC=1，NTC_SH2=12,StandardTC=6, StandardTCB=60,StandardTCS=61 Initial positionoffset， Numbercount UUT denotes allsensors	3values, comma separated ClassName,the real thing is List<SensorHeader> Base64 characterdata CRC16 checkcode

NO.	Command	Explanation	Parameters	Returning values
3	SENSor:INFormations?<id>	To acquire the information of single sensor	1value sensorid	3values, comma separated ClassName,the real thing is TemperatureSensorInfo Base64 character data CRC16 checkcode
4	SENSor:SETSensorinfo:ADD <SensorType >,<"Info">	new constructedsensor	2value s snsor typeSensorType:RTD|SPRT|CVD|NTC|NTC_SH2, RTD=10, SPRT=3, CVD=2, NTC=1, NTC_SH2=12, StandardTCB=60,StandardTCS=61 "Info"is the character data ofBase64	None
5	SENSor:SETSensorinfo:UPDate <SensorType >,< "Info">	To modifysensor	2 values, sensor types SensorType:RTD|SPRT|CVD|NTC|NTC_ SH2, RTD=10, SPRT=3, CVD=2, NTC=1, NTC_SH2=12, StandardTCB=60,StandardTCS=61 "Info"is the character data ofBase64	None

NO.	Command	Explanation	Parameters	Returning values
6	SENSor:Delete<"ids">	To deletesensor	1value Sensor ids, comma separated in the quotation mark	None
7	SENSor:SEARch?<"condition">	To searchsensor	One value,comma separated Searching condition of sensor,Base64 characterdata	3 values, comma separated ClassName, the real things is List< SensorHeader> Base64 character data CRC16 checkcode
8	SENSor:REF:AVAilable?	To acquire online state ofexternal connectedsensor	None	3values, comma separated. External connected sensor is online or not, 1=online 0=offline External connected sensor is smart or not, 1=smart 0=not smart Available, 1=available 0= not available
9	SENSor:REF[:SENSorinfo]?	To acquire information ofexternal connectedsensor	None	7 values,comma separated. Class name of sensor data sensorid sensor name sensorSN Smart smart or not Character data of Base64 CRC16 checkcode

NO.	Command	Explanation	Parameters	Returning values
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 beonline	two values SensorType SensorType:StandardTCB|StandardTCS Info"is the character data of Base64	None

1.10 Applicablecommand

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 steptest SWITch=switch test SNAPshot=sanpshoot CONTrolcurve=controlcurve	onevalue the number ofdata

NO.	Command	Explanation	Parameters	Returning values
2	APPLication:DATas:DATa?<App>,<Index>	To acquire the configuration of applicable data and specific data(except control curve	2values, comma separated Applicable typeApp Serial NO. of dataindex	1value Character string of data json Snapshoot is the character data of Base64, control curve only control configuration, and has nodata)
3	APPLication:DATas:DELete<App>,<Index>	To delete applicabledata	2 values, comma separated Applicable typeApp Data serial NO.index	None
4	APPLication:DATas:DIAGnosis:RESult:LENGth? <"path">	Toreadapplicabledatalengthofcontrol curve	One value filepath	1value the length ofdata
5	APPLication:DATas:DIAGnosis:RESult:DATa? <"path">,<Index>,<Count>	To read applicable data of controlcurve	3 values, comma separated filepath Offset Address of initiation Lengthcount	2 values, comma separated Real data, Base64 character data CRC16 checkcode

1.11 HARTcommand

NO.	Command	Explanation	Parameters	Returning values
1.	HART:SEARCH Start|Stop|Zero[,<Numeric>][,<Numeric>]	HARTsearch	Start：Start searching Stop：Stop searching Zero：only searching 0address Notes: to add address to the parameters of start andstop Range parameters, for example,0,15	

NO.	Command	Explanation	Parameters	Returning values
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：master variable AO：simulated currentvalue %：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 processsquantity	PV：master variable AO：simulated currentvalue %：range percentage SV：second master variable TV：third master variable FV：fourth master variable LoopCurrent：	-
6.	HART:ONLDEVice:PROCess:VALue?	To read the value of processsquantity		the value of processsquantity
7.	HART:ONLDEVice:PARameter?<"name">	To searchparameters	""name"Parameters'names	
8.	HART:ONLDEVice:PARameter[:ECHO] <"name">,<"value">|<value>	To designparameters	"name"Parameters'names value"value(with character string or figure of quotation mark))	

NO.	Command	Explanation	Parameters	Returning values
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 devicerev	If no parameters, to return back to information values of allinstruments If designingparamters'name, to return back to corresponding parameters' value
10.	HART:ONLDEVice:SENSor?	To return back to all parameters'values ofsensor Or according to designing parameters's name, to return back to correspondingvalues	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 ofsensor If designingparamters'name, to return back to corresponding parameters' value
11.	HART:ONLDEVice:OUTput?	to return back to all numerical values output byHART Or according to designing paramters'name, to return back to corresponding parameters'value	No parameters or<parameters'name) Name list of parameters is asfollows unit lrv urv damping transferFunction	If no parameters, to return back to all numericalvalues output byHART If designingparamters'name, to return back to corresponding parameters' value；
12.	HART:ONLDEVice:CONNected?	To acquire HART instrument device is connected ornot.	None	onevalue 1=connected0=disconnected

Appendix 1: unit id list ofSCPI

UNITId	UNIT
2000	textunit
32767	the emptyunit
1211	mA
1212	µA
1209	A
1240	V
1243	mV
1281	Ω

1284	kΩ
1283	MΩ
1000	K
1001	℃
1002	°F
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/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
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

Appendix 2: default value is industrialengineering

Sensortypes	Sensor name(usedin
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

2ErrorDefinition

NO.	Error code	Description oferror	Explanation
1	0	Noerror	No errors (allgood!)
Instruction relatederrors			
2	120	Commandparametererror	One of the parameters has anerror.
3	-108	Parameter notallowed	There are too many or too fewparameters.

NO.	Error code	Description oferror	Explanation
4	-109	Missingparameter	A parameter ismissing.
5	-110	Command headererror	Command has a headererror.
6	-114	Header suffix out ofrange	Command has a header suffix that is out ofrange.
7	-123	Numericoverflow	Number is greater than the max value of numbers on the device (number hasan exponent greater than43)
8	-151	Invalid stringdata	Part of the command is not a valid string (for example, quotation marks donot match)
9	-171	Invalidexpression	Part of the command is not patterned correctly (for example, parenthesees donot match)
Execution relatederrors			
10	-200	Executionerror	Executionerror.
11	-221	Settingsconflict	SettingsConflict
12	-222	Data out ofrange	Parameter value exceeds the range fo thecommand.
13	-223	Too muchdata	Too much data (beyond what the unit is capable ofprocessing)
14	-224	Illegal parametervalue	Incorrect parametervalue.
15	-230	Data corrupt orstale	The data is invalid or does notexist.
16	-240	Hardwareerror	Hardwareerror.
17	-256	File name notfound	File name was notfound.
18	-282	Illegal programname	Illegal programname.
19	220	Measureerror	Measureerror.
20	221	Failed to set measurefunction	Failed to switch the measurementitem.
21	222	Failed to read measurevalue	Failed to read themeasurement.
22	223		ContactAdditel.

NO.	Error code	Description oferror	Explanation
23	224		ContactAdditel.
24	240	Controlerror	Controlerror.
25	241		ContactAdditel
26	242		ContactAdditel.
27	243		ContactAdditel.
28	260	Calibrationerror	Calibrationerror.
29	261	Calibrationsecured	This device is in a state that protects it from beingcalibrated.
30	262	Invalid calibration securecode	The calibration password isinvalid.
31	263	Missing calibrationvalue	This error occurs if the calibration value is set without setting the calibrationpoint (during current/voltagecalibration).
32	264	Missing calibrationdata	This error occurs if the calibration point is set without setting the calibrationdata.
33	265	Failed to set calibrationfunction	Failed to set calibrationitem.
34	266	Calibration data is notenough	This error occurs when calibration data is saved with less than 3points.
35	271	Setion_name_not_found	No segment namefound.
36	272	Key_name_not_found	No key namefound.
37	291	Updatesecured	The device is in a state that protects it fromupgrades.
38	292	Invalid update securecode	Upgrade password is notvalid.
39	293	Not found the servicepack	No upgrade packagefound.
40	294	The service packunavailable	Upgrade package is notavailable.
41	295	AppUpdate notfound	AppUpdate.exe notfound.
		Device relatederrors	
42	-310	Systemerror	SystemError
43	-311	Memoryerror	MemoryError

NO.	Error code	Description oferror	Explanation
44	-350	Queueoverflow	Error queueoverflow
45	-360	Communicationerror	Communicationerror.
46	301	Internal module is notconnected	No internal moduleconnected.
47	302	External module is notconnected	No external moduleconnected.
48	303	Supply module is notconnected	No positive pressure moduleconnected.
49	304	Vacuum module is notconnected	No negative pressure moduleconnected.
50	361	Open WLANFailed	Failed to open theWifi.
51	362	Set WLAN address modefailed	Failed to set the Wifi addressmode.
52	363	Set WLAN addressfailed	Failed to set the Wifiaddress.
53	364	Communication port to WIFI moduleis notopen	The communication port with the Wifi module is notopen.
54	365	WLANisnotconnected	Wifi is notconnected.