

Command Manual

7130 Digital Power Meter

7140 Power Analyzer

7130/7140

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MICROTEST



Microtest



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Content

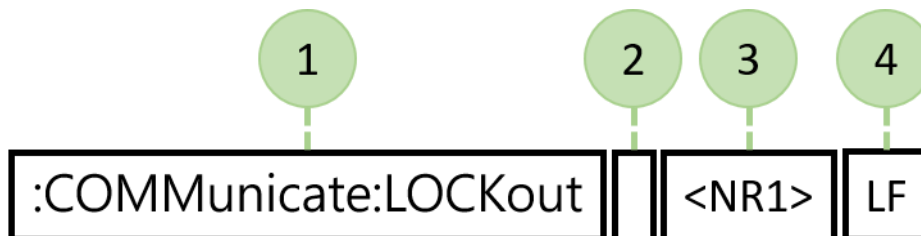
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Chapter 1 SCPI Command Overview

1.1 Command Structure

A standard SCPI command consists of the following four parts:

1. **Command** – The SCPI instruction used to control the instrument
2. **Space** – A single space separating the command and its parameter
3. **Parameter** – The value or setting assigned to the command
4. **Termination Character** – Line feed (LF) character indicating the end of the command



1.2 Command Parameter Types

Type	Description	Example
NR1	Integer values	1, 2, 3
NR2	Real numbers (floating point)	1.23, 0.456
NR3	Scientific notation (exponential format)	1.23E+3
NRF	Any of the above (NR1, NR2, or NR3)	-
Character	Single character	'A', 'B'
String	A string of characters	"Hello"
Boolean	Logical value: OFF, ON or 0, 1	-
Numeric	Signed number with units	+12.3V, -45.6A

1.3 Symbol Definitions

Symbol	Description	Example
<>	Indicates a required or defined value	DISP<X> , <X>=1 to 16
{ }	Indicates a list of selectable options. Choose one only. Do not enter braces.	{OFF ON 1 0 }
[]	Indicates an optional command keyword or parameter. Can be omitted if unused.	:AOUTput:MODE[:STATE] → :AOUTput:MODE is valid
	Separates available choices within { }. Only one option may be selected.	{OFF ON 1 0 }

1.4 SCPI Error Messages

Code	Description
0	No error
100	Command error
102	Syntax error
108	Parameter not allowed
109	Missing parameter
113	Undefined header
121	Invalid character
128	Numeric data not allowed
131	Invalid suffix
211	Trigger ignored
220	Parameter error
222	Data out of range
224	Illegal parameter
230	Data corrupted or outdated
256	File not found
340	Calibration failed
350	Queue overflow
363	Input buffer overflow
410	Query interrupted

Chapter 2 SCPI Command Reference

2.1 List of Command

Common Command Group

Command	Function
*CAL?	Queries the result of zero calibration. Always returns 0 due to factory calibration.
*CLS	Clears the Standard Event Register, Extended Event Register, and the error queue.
*ESE?	Queries the value of the Standard Event Enable Register.
*ESE <NR1>	Sets and clears the value of the Standard Event Enable Register.
*ESR?	Queries and clears the Standard Event Status Register.
*IDN?	Queries the manufacturer, model, serial number, and firmware version.
*OPC?	Not supported. Always returns 1.
*OPT?	Queries the installed options.
*RST	Resets all instrument settings to default values.
*SRE?	Queries the value of the Service Request Enable Register.
*SRE <NR1>	Sets the value of the Service Request Enable Register.
*STB?	Queries the value of the Status Byte Register.
*TRG	Executes a single measurement. (Instrument must be in HOLD mode. Use ":HOLD ON" first.)

AOUtpuT Group

Command	Function
:AOUtpuT:MODE[:STATE]	Sets the DAC state to ON or OFF.
:AOUtpuT:MODE:STATE?	Queries the current state of the DAC.

COmmUnicAte Group

Command	Function
:COmmUnicAte?	Returns all current communication settings.
:COmmUnicAte:HEADer?	Queries whether SCPI command headers are included in responses.
:COmmUnicAte:LOCKout	Sets the local operation lockout status.
:COmmUnicAte:LOCKout?	Queries the local operation lockout status.

:COMMunicate:REMote	Switches the instrument to remote control mode.
:COMMunicate:REMote?	Queries the current remote/local control status.
:COMMunicate:STATus?	Queries and clears interface-specific communication status (RS-232 only).
:COMMunicate:VERBose?	Queries whether verbose command responses (full spelling) are enabled.
:COMMunicate:WAIT	Sets the status of the specified extended event.
:COMMunicate:WAIT?	Queries the status of the specified extended event.

DISPlay Group

Command	Function
:DISPlay:parameter<x>	Sets the number of measurement items shown in Meter mode (4, 8, or 16).
:DISPlay?	Queries the number of items displayed in Meter mode.
:DISPlay:NORMal?	Returns the parameter configuration for Meter mode display.
:DISPlay[:NORMal]:ITEM<x>	Sets measurement parameters for display in Meter mode.
:DISPlay[:NORMal]:ITEM<x>?	Queries the assigned measurement parameter for the specified item.
:DISPlay:KEY <Key name>	Executes a command equivalent to pressing a front panel key.
:DISPlay:INTEgrate?	Queries all values in the Integrator display mode.
:DISPlay:INTEgrate:Mode	Sets the integrator mode
:DISPlay:INTEgrate:Mode?	Queries the integrator mode
:DISPlay:INTEgrate:ITEM<x>	Sets measurement parameters for Integrator display.
:DISPlay:INTEgrate:ITEM<x>?	Queries assigned measurement parameters in Integrator display.
:DISPlay:Wave:ITEM<x>	Sets the display item in the Waveform mode.
:DISPlay:Wave:ITEM<x>?	Queries the display item in the Waveform mode.
:DISPlay:Wave:Amplitude	Sets the amplitude display mode (AUTO or STD) in Waveform mode.
:DISPlay:Wave:Amplitude?	Queries the current amplitude display mode in Waveform mode.
:DISPlay:WAVE:Scale	Sets the time scale of the Waveform display.
:DISPlay:WAVE:Scale?	Queries the time scale setting of the Waveform display.
:DISPlay:Trend:ITEM<x>	Sets measurement items to be logged in Trend mode.
:DISPlay:Trend:ITEM<x>?	Queries measurement item settings in Trend mode.
:DISPlay:PAGE	Switches the currently displayed page.
:DISPlay:PAGE?	Queries the currently active display page.
:DISPlay:HARMonics?	Queries all display parameters for Harmonic mode.

:DISPlay:HARMonics:Hist:item<x>	Sets Histogram items for Harmonic mode. (7140 only)
:DISPlay:HARMonics:Hist:item<x>?	Queries Histogram items for Harmonic mode. (7140 only)
:DISPlay:HARMonics:LIST:SElect	Sets which harmonic orders are displayed in LIST.
:DISPlay:HARMonics:LIST:SElect?	Queries the selected LIST harmonic display setting.

HARMonics Group

Command	Function
:HARMonics:PLLSource	Sets the synchronization source for harmonic measurement.
:HARMonics:PLLSource?	Queries the current synchronization source.
:HARMonics:ORDer	Sets the minimum and maximum harmonic order. (Up to 100 for 7140 only)
:HARMonics:ORDer?	Queries the configured harmonic order range.
:HARMonics:DISPlay?	Queries the LIST display configuration in Harmonic mode.
:HARMonics?	Queries all harmonic measurement settings, including LIST and HIST.
:HARMonics:DISPlay[:STATe]	Enables or disables the Harmonic measurement mode.
:HARMonics:DISPlay:STATe?	Queries the ON/OFF state of the Harmonic measurement mode.
:HARMonics:DISPlay:ORDer	Sets the harmonic analysis order (7140 supports up to 100).
:HARMonics:DISPlay:ORDer?	Queries the harmonic analysis order setting.
:HARMonics:THD	Selects the calculation method for Total Harmonic Distortion (THD).
:HARMonics:THD?	Queries the selected THD calculation method.

HOLD Group

Command	Function
:HOLD	Enables or disables the hold function for measurement output.
:HOLD?	Queries the current state of the hold function.

INPut Group

Command	Function
[[:INPut]:EXTSensor:STATE	Enables or disables the EXT BNC filter.
[[:INPut]:EXTSensor:STATE?	Queries the state of the EXT BNC filter.
[[:INPut]:EXTSensor	Sets current to voltage ratio for the EXT BNC filter.
[[:INPut]:EXTSensor?	Queries current and voltage values of the EXT BNC filter.
:INPut?	Queries the current input settings of the instrument.
[[:INPut]:CFACTor	Sets the crest factor (peak factor).

[:INPut]:CFACtor?	Queries the current crest factor setting.
[:INPut]:WIRIng?	Queries the wiring configuration.
[:INPut]:VOLTage?	Queries all voltage measurement settings.
[:INPut]:VOLTage:AUTO	Enables or disables automatic voltage range selection.
[:INPut]:VOLTage:AUTO?	Queries the state of the voltage auto-range setting.
[:INPut]:VOLTage:RANGe	Sets the manual voltage range.
[:INPut]:VOLTage:RANGe?	Queries the currently selected voltage range.
[:INPut]:VOLTage:CONFig?	Queries all supported voltage range options.
[:INPut]:CURRent?	Queries all current measurement settings.
[:INPut]:CURRent:RANGe	Sets the manual current range or external voltage input range.
[:INPut]:CURRent:RANGe?	Queries the currently selected current range.
[:INPut]:CURRent:AUTO	Enables or disables automatic current range selection.
[:INPut]:CURRent:AUTO?	Queries the state of the current auto-range setting.
[:INPut]:CURRent:CONFig?	Queries all supported current range options.
[:INPut]:CURRent:EXTSensor:CONFig?	Queries supported external current sensor voltage ranges.
[:INPut]:SYNChronize	Sets the synchronization source (same as :HARMonics:PLLSource).
[:INPut]:SYNChronize?	Queries the current synchronization source.
[:INPut]:FILTer?	Queries all input filter settings.
[:INPut]:FILTer:LINE	Sets the line frequency filter.
[:INPut]:FILTer:LINE?	Queries the line filter setting.
[:INPut]:FILTer:FREQuency	Enables or disables the frequency filter.
[:INPut]:FILTer:FREQuency?	Queries the frequency filter status.

INTEGrate Group

Command	Function
:INTEGrate?	Queries all integrator configuration settings.
:INTEGrate:TIMer	Sets the timer value for integration.
:INTEGrate:TIMer?	Queries the current timer setting for integration.
:INTEGrate:STARt	Starts integration.
:INTEGrate:STOP	Stops integration.
:INTEGrate:RESet	Resets the integration data.
:INTEGrate:STATe?	Queries the current integration status.

NUMeric Group

Command	Function
:NUMeric?	Queries all numeric data output settings
:NUMeric:FORMat	Sets the data output format (e.g., ASCII, Float).
:NUMeric:FORMat?	Queries the data output format.
:NUMeric:NORMal?	Queries all current numeric output settings.

:NUMeric[:NORMal]:VALue?	Queries the numeric output values based on defined items.
:NUMeric[:NORMal]:NUMber	Sets the number of items returned by :NUM:NORM:VALue?.
:NUMeric[:NORMal]:NUMber?	Queries the number of items defined for numeric value output.
:NUMeric[:NORMal]:ITEM<x>	Sets individual output items (function, element, harmonic order).
:NUMeric[:NORMal]:ITEM<x>?	Queries the definition of a specified numeric output item.
:NUMeric[:NORMal]:PRESet?	Lists all available preset numeric output patterns.
:NUMeric[:NORMal]:PRESet	Applies a preset pattern to numeric output items.
:NUMeric[:NORMal]:CLEar	Clears all defined numeric output items (sets to NONE).
:NUMeric[:NORMal]:DELeTe	Deletes a defined numeric output item.
:NUMeric[:NORMal]:HEADer?	Queries the header information for numeric output data.
:NUMeric:LIST?	Queries all list output settings for harmonic numeric data.
:NUMeric:LIST:VALue?	Queries the actual list data for harmonic numeric output.
:NUMeric:LIST:NUMber	Sets the number of items returned by :NUM:LIST:VALue?.
:NUMeric:LIST:NUMber?	Queries the number of items defined for list numeric output.
:NUMeric:LIST:ORDer	Sets the max harmonic order for list output. <i>(7140 only: up to 100)</i>
:NUMeric:LIST:ORDer?	Queries the max harmonic order defined for list output.
:NUMeric:LIST:SELeCt	Sets the phase element(s) to include in list numeric output.
:NUMeric:LIST:SELeCt?	Queries the selected phase element(s) in list output.
:NUMeric:LIST:ITEM<x>	Defines individual items in the list output (function and element).
:NUMeric:LIST:ITEM<x>?	Queries a specific list item's configuration.
:NUMeric:LIST:PRESet	Applies a preset pattern to harmonic numeric list output.
:NUMeric:LIST:CLEar	Clears all harmonic list items (sets to NONE).
:NUMeric:LIST:DELeTe	Deletes a specific harmonic numeric list item.
:NUMeric:HOLD	Enables or disables the numeric data hold function.
:NUMeric:HOLD?	Queries the hold status for numeric data.

MEASure Group

Command	Function
:MEASure?	Queries all measurement and calculation results.
:MEASure:AVERaging?	Queries all averaging settings.

:MEASure:AVERaging[:STATe]	Enables or disables averaging.
:MEASure:AVERaging:STATe?	Queries whether averaging is enabled.
:MEASure:AVERaging:TYPE	Sets the averaging type.
:MEASure:AVERaging:TYPE?	Queries the averaging type.
:MEASure:AVERaging:COUNT	Sets the averaging count (e.g., 8, 16, 32, 64).
:MEASure:AVERaging:COUNT?	Queries the averaging count.
:MEASure:MHOLd	Enables or disables min/max hold function. <i>(Not available with DISP 16)</i>
:MEASure:MHOLd?	Queries the state of min/max hold function. <i>(Not available with DISP 16)</i>

RATE Group

Command	Function
:RATE <Time>	Sets the data update interval.
:RATE?	Queries the data update interval.

SYSTem Group

Command	Function
:SYSTem?	Queries all current system settings.
:SYSTem:KLOCK	Enables or disables front panel key lock.
:SYSTem:KLOCK?	Queries the key lock status.
:SYSTem:SUFFix?	Queries unit suffix settings.
:SYSTem:COMMunicate:COMMand?	Queries supported SCPI command types.
:SYSTem:COMMunicate:ETHernet :MACaddress?	Queries the Ethernet MAC address.
:SYSTem:MODEL?	Queries the instrument model code.
:SYSTem:SERial?	Queries the serial number.
:SYSTem:VERSion:FIRMware?	Queries the firmware version.
:SYSTem:RESolution?	Queries numeric display resolution.
:SYSTem:TIME	Sets internal clock date and time (YYYY/MM/DD HH:MM:SS).
:SYSTem:TIME?	Queries the instrument's current date and time.
:SYSTem:BEEPer[:STATe]	Enables or disables the operation beep.
:SYSTem:BEEPer:STATe?	Queries the status of the operation beep.
:SYSTem:SCPI:ERRor	Sets the status of SCPI errors beep.
:SYSTem:SCPI:ERRor?	Queries the status of SCPI errors beep.
:SYSTem:EOM:MODE?	Queries EOM (End-of-Message) output mode.
:SYSTem:EOM:MODE:PULSe	Sets the EOM output pulse duration.
:SYSTem:EOM:MODE:PULSe?	Queries the EOM output pulse duration.
:SYSTem:Screensaver	Sets screensaver timeout or disables it.
:SYSTem:Screensaver?	Queries screensaver status or timeout.
:SYSTem:Temperature	Sets the display unit for the internal temperature to Celsius or Fahrenheit.
:SYSTem:Temperature?	Queries the display unit for the internal temperature.
:SYSTem:LANGuages	Sets the user interface language.

:SYSTem:LANGuages?	Queries the current user interface language.
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RS232c Group

Command	Function
:RS232c:BAUD <NR1>	Sets the baud rate setting for RS-232C serial communication.
:RS232c:BAUD?	Queries the baud rate setting for RS-232C serial communication.

IP Group

Command	Function
:IP	Sets LAN mode to either DHCP (auto) or STATIC (manual).
:IP?	Queries current LAN mode (DHCP or STATIC).
:IP:Port	Sets LAN port number (range: 1–65535).
:IP:Port?	Queries the current LAN port number.
:IP:ADDRess	Sets the LAN IP address (only valid in STATIC mode).
:IP:ADDRess?	Queries the current LAN IP address.
:IP:SUBNetmask	Sets the subnet mask address (STATIC only).
:IP:SUBNetmask?	Queries the subnet mask address.
:IP:DEFaultgateway	Sets the default gateway (STATIC only).
:IP:DEFaultgateway?	Queries the default gateway address.
:IP:DNS	Sets the DNS address (STATIC only).
:IP:DNS?	Queries the DNS address.

STORe Group

Command	Function
:STORe:STATe?	Queries the storage state. <i>(Always enabled by default)</i>
:STORe:FILE:NAME	Sets the filename for storing numeric data to internal memory slot.
:STORe:FILE:Delete	Deletes numeric data stored in the specified memory slot.
:STORe:FILE:DRIVE	Saves data from internal memory slot to a USB drive.

RECall Group

Command	Function
:RECall:FILE:Load	Loads numeric data from a specified internal memory slot.
:RECall:FILE:DRIVE:LOAD	Loads numeric data from a USB drive into the instrument.

IMAGe Group

Command	Function
:IMAGe:SAVE:DRIVE	Saves the current screen image to a USB drive.

COMPare Group

Command	Function
:COMPare:SET:ITEM<x> Learn	Sets comparator Item 1–8 reference value using current measured data (learning).
:COMPare:SET:ITEM<x> STD,<NRf>	Manually sets comparator Item 1–8 reference value to a specific number.
:COMPare:SET:ITEM<x>?	Queries the reference value for comparator Item 1–8.
:COMPare:RANGe:ITEM<x>	Sets the upper and lower percentage tolerance limits for comparator Item 1–8.
:COMPare:RANGe:ITEM<x>?	Queries the upper and lower percentage tolerance limits for comparator Item 1–8.

Trend Group

Command	Function
:Trend:NEWFile	Sets the file name and time scale for TREND storage on the 7140.
:Trend:LoadFile	Loads a stored TREND file from USB into the 7140.
:Trend:TImEr	Sets the TREND timer value. Affected by the selected TimeScale.
:Trend:TImEr?	Queries the TREND timer setting.
:Trend:STARt	Starts TREND logging function.
:Trend:STOP	Stops TREND logging function.
:Trend:RESet	Resets the TREND timer.
:Trend TRAcK	Enables or disables time-axis tracking during TREND display.
:Trend:TRAcK?	Queries whether time-axis tracking is enabled.
:Trend:POS	Allows navigation to different timestamps when tracking is active.
:Trend:SAVE	Sets the trend save function.

STATus Group

Command	Function
:STATus?	Queries all the settings for the communication status feature.
:STATus:CONDition?	Queries contents of the condition register .
:STATus:EESE	Sets the Extended Event Enable Register (EESE).
:STATus:EESE?	Queries the EESE value.
:STATus:EESR?	Queries and clears the Extended Event Status Register (EESR).

:STATus:ERROR?	Queries the error code and message of the last error that has occurred (top of the error queue).
:STATus:QENable	Set whether messages other than errors will be stored to the error queue (ON) or not (OFF).
:STATus:QENable?	Queries whether messages other than errors will be stored to the error queue (ON) or not (OFF).
:STATus:QMESsage	Sets whether message information will be attached to the response to the STATus:ERRor? query (ON/OFF).
:STATus:QMESsage?	Queries whether message information will be attached to the response to the STATus:ERRor? query (ON/OFF).
:STATus:FILTer<X>	Sets the event trigger conditions for EESR output (Filter 1–9).
:STATus:FILTer<X>?	Queries the condition settings for EESR Filter 1–9.
:STATus:FILTer:ALL?	Queries all filter trigger settings for EESR output.

2.2 Common Command Group

*CAL?

Function	Queries the result of zero calibration. Always returns 0 due to factory calibration.
Syntax	*CAL?
Example	*CAL?
Return	0

*CLS

Function	Clears the Standard Event Register, Extended Event Register, and the error queue.
Syntax	*CLS
Example	*CLS
Description	If the *CLS command is located immediately after the program message terminator, the output queue is also cleared.

*ESE

Function	Sets or queries the standard event enable register.
Syntax	*ESE<NR1> *ESE? <NR1> = 0 to 255

Example	*ESE 1 *ESE? 1
Description	A query using *ESE? will not clear the contents of the standard event enable register.

*ESR?

Function	Queries and clears the standard event status register.
Syntax	*ESR?
Example	*ESR?
Return	0
Description	A query using *ESR? will clear the contents of the standard event status register.

*IDN?

Function	Queries the instrument model.
Syntax	*IDN?
Example	*IDN?
Return	MICROTEST,PA7140,TJ6-1016,V1.2503.100
Description	The information is returned in this form: <manufacture>, <model>, <serial number>, <firmware version>.

*OPC

Function	Sets bit 0 (the OPC bit) of the standard event register to 1 upon the completion of the specified overlap command.
Syntax	*OPC
Example	*OPC
Description	This instrument does not have overlap commands. The OPC bit is always set to 1.

*OPC?

Function	Returns ASCII code 1 if the specified overlap command has finished.
Syntax	*OPC?
Example	*OPC?
Return	1
Description	This instrument does not have overlap commands. 1 is always returned.

*OPT?

Function Queries the installed options.

Syntax *OPT?

Example *OPT?

Return C2, C3, C7, EX1, G5, DA2

Description

Code	Item
C1	GPIB
C2	RS-232
C3	USB Device
C7	Ethernet
EX1	External Sensor 1(0.5V/1V/2V/5V/10V)
G5	Harmonic measurement
DA2	2 channel D/A output

*RST

Function Initializes the settings.

Syntax *RST

Example *RST

Description All settings except communication settings are reset to their factory default values.

*SRE?

Function Sets or queries the service request enable register value.

Syntax *SRE <NR1>

*SRE?

<NR1> = 0 to 255

Example *SRE?

Return MICROTEST,PA7140,TJ6-1016,V1.2503.100

Description The information is returned in this form:
<manufacture>, <model>, <serial number>, <firmware version>.

2.3 AOUTput Group

:AOUTput:MODE[:STATE]

Function	Sets or queries the DAC state.
Syntax	:AOUTput:MODE:STATE {ON OFF 1 0} :AOUTput:MODE:STATE?
Example	:AOUTput:MODE:STATE ON :AOUTput:MODE:STATE?
Return	1

2.4 COMMunicate Group

:COMMunicate?

Function	Returns all current communication settings.
Syntax	:COMMunicate?
Example	:COMMunicate?
Return	COMMUNICATE: HEADER 0, LOCKOUT 0, REMote 0, STATus 0, VERBoSe 0

:COMMunicate:HEADer?

Function	Queries whether SCPI command headers are included in responses.
Syntax	:COMMunicate:HEADer?
Example	:COMMunicate:HEADer?
Return	0
Description	On models 7130/7140, this setting is fixed to OFF .

:COMMunicate:LOCKout

Function	Sets or queries the local operation lockout status.
Syntax	:COMMunicate:LOCKout {ON OFF 1 0} :COMMunicate:LOCKout?
Example	:COMMunicate:LOCKout OFF :COMMunicate:LOCKout?
Return	0
Description	Specifies whether local key operation is allowed. 0: Local keys are enabled (not locked). 1: Local keys are disabled (locked out from operation).

:COMMunicate:REMote

Function	Sets or queries remote or local mode.
Syntax	:COMMunicate:REMote {ON OFF 1 0}
	:COMMunicate:REMote?
Example	:COMMunicate:REMote OFF
	:COMMunicate:REMote?
Return	0
Description	0: Remote mode is disabled (instrument in local mode). 1: Remote mode is enabled (instrument in remote control state).

:COMMunicate:STATus?

Function	Queries and clears interface-specific communication status (RS-232 only).
Syntax	:COMMunicate:STATus?
Example	:COMMunicate:STATus?
Return	0
Description	The meaning of each status bit is as follows:

Bit	RS-232
0	Parity error
1	Framing error
2	Noise error Break character detection
3 and higher	Always zero.

Note: When an event occurs, the corresponding bit in the status register is set.
Reading the register clears the bit automatically.
This command returns 0 when used with interfaces other than RS-232.

:COMMunicate:VERBose?

Function	Queries whether the response to a query is returned fully spelled out or in its abbreviated form. This setting is fixed to ON ; all responses use full SCPI command format.
Syntax	:COMMunicate:VERBose?
Example	:COMMunicate:VERBose?
Return	1
Description	This setting cannot be changed. The instrument always returns query responses in their fully spelled-out SCPI format

:COMMunicate:WAIT

Function	Sets or queries the status of the specified extended event.
Syntax	:COMMunicate:WAIT <NR1> :COMMunicate:WAIT?
	<NR1> = 0 to 511
Example	:COMMunicate:WAIT 255 :COMMunicate:WAIT?
Return	255

2.5 DISPlay Group

:DISPlay:PARAMETER

Function	Sets the number of measurement items shown in Meter mode (4, 8, or 16).
Syntax	:DISPlay:PARAMETER <NR1>
Example	:DISPlay:PARAMETER 8

:DISPlay?

Function	Queries the number of measurement items shown in Meter mode (4, 8, or 16).
Syntax	:DISPlay?
Example	:DISPlay?
Return	8

:DISPlay:NORMal?

Function	Returns the parameter configuration for Meter mode display.
Syntax	:DISPlay:NORMal?
Example	:DISPlay:NORMal?
Return	Parameter=4 item 1:URMS item 2:IRMS item 3:ITHD item 4:LAMBda

:DISPlay[:NORMal]:ITEM<X>

Function	Sets or queries measurement parameters for display in Meter mode.
Syntax	:DISPlay[:NORMal]:ITEM<X> <Function>[,<Element>]

:DISPlay[:NORMal]:ITEM?

<X> = 1 to 16

<Function>={URMS|IRMS|P| LAMBda |UPPeak| UMPeak| IPPeak|
IMPeak| UDC| IDC| S| UMean| FU| FI| PHI| CFU| CFI| THD|
ITHD| PTHD| UPP| IPP| Q| MCR| PPPeak| PMPeak| LAMBdaK}

<Element>=1

Note: For models 7130 and 7140, <Element> is fixed to 1 and can be omitted.

Example :DISPlay[:NORMal]:ITEM1 URMS

:DISPlay[:NORMal]:ITEM1?

Return URMS

Function	Item	Description
URMS	VRMS	Voltage Root Mean Square (RMS) Value
IRMS	IRMS	Current Root Mean Square (RMS) Value
P	P	Active Power (Real Power)
LAMBda	PF	Power Factor
UPPeak	V+PK	Voltage Positive Peak Value
UMPeak	V-PK	Voltage Negative Peak Value
IPPeak	I+PK	Current Positive Peak Value
IMPeak	I-PK	Current Negative Peak Value
UDC	VDC	Voltage Average Value
IDC	IDC	Current Average Value
S	S	Apparent Power
UMEAN	Vmn	Rectified Average Value of Voltage
FU	V Hz	Voltage Frequency
FI	I Hz	Current Frequency
PHI	DEG	Voltage-Current Phase Angle
CFU	CFV	Voltage Crest Factor
CFI	CFI	Current Crest Factor
UTHD	VTHD	Voltage Total Harmonic Distortion (THD) Percentage
ITHD	ITHD	Current Total Harmonic Distortion (THD) Percentage
PTHD	PTHD	Watt Total Harmonic Distortion (THD) Percentage
UPP	VPP	Voltage Peak-to-Peak Value
IPP	IPP	Current Peak-to-Peak Value
Q	Q	Reactive Power
MCR	MCR	Maximum Current Ratio
PPPeak	P+PK	Maximum Power Value
PMPeak	P-PK	Minimum Power Value
LAMBdaK	DPF	Displacement Power Factor – Power factor of the

		fundamental (first harmonic) component
--	--	--

:DISPlay:KEY

Function Executes a command equivalent to pressing a front panel key.

Syntax :DISPlay:KEY <Key Name>

Example :DISPlay:KEY Meter

Key name	Local key
Meter	METER key
ITGR	INTERGATOR key
Wave	MONITOR key
List	HARMONIC key
Comp	COMPARATOR key (SHIFT+METER)
FILE	FILE Key (SHIFT+INTEGTATOR)
SETUP	SETUP key (SHIFT+MONITOR)
SYS	SYSTEM key (SHIFT+HARMONIC)
BACK	BACK SPACE key
ENTER	ENTER key
F1, F2, F3, F4, F5	F1, F2, F3, F4, F5 key
LEFT	Left key
RIGHT	Right key

:DISPlay:INTEgrate?

Function Queries all values in the Integrator display mode

Syntax :DISPlay:INTEgrate?

Example :DISPlay:INTEgrate?

Return
 DC
 URMS:0.0055V
 IRMS:0.0139mA
 WP 0.000e+00
 IH 0.000e+00
 WP+ 0.000e+00
 IH+ 0.000e+00
 WP- 0.000e+00
 IH- 0.000e+00

:DISPlay:INTEgrate:Mode

Function Sets or queries Integrator mode.

Syntax :DISPlay:INTEgrate:Mode <Fuction>

:DISPlay:INTEgrate:Mode?

Example :DISPlay:INTEgrate:Mode DC

Return :DISPlay:INTEgrate:Mode?
DC

:DISPlay:INTEgrate:ITEM<x>

Function Sets or queries measurement parameters for Integrator display.

Syntax :DISPlay:INTEgrate:ITEM<x> <Function>[,<Element>]
:DISPlay:INTEgrate:ITEM<x>?
<x>=1 to 2, item 3 to 8 are fixed.
<Function>={URMS|IRMS|P| LAMBda |UPPeak| UMPeak| IPPeak|
IMPeak| UDC| IDC| S| UMean| FU| FI| PHI| CFU| CFI| THD|
ITHD| PTHD| UPP| IPP| Q| MCR| PPPeak| PMPeak| LAMBdaK}
<Element>=1

Note: For models 7130 and 7140, <Element> is fixed to 1 and can be omitted.

Example :DISPlay:INTEgrate:ITEM1 P
:DISPlay:INTEgrate:ITEM1?

Return P,-0.000mW

INTEGRATOR Mode DC

Item1	Item2
WP(Fixed)	Ih(Fixed)
WP+(Fixed)	Ih+(Fixed)
WP-(Fixed)	Ih-(Fixed)

INTEGRATOR Mode RMS

Item1	Item2
WP(Fixed)	Ih(Fixed)
WP+(Fixed)	AVI(/h)(Fixed)
WP-(Fixed)	AVP(/h)(Fixed)

:DISPlay:Wave:ITEM<x>

Function Sets or queries the display item in the Waveform mode.

Syntax :DISPlay:Wave:ITEM<x> <Function>[,<Element>]
:DISPlay:Wave:ITEM<x1>?
<x> = 1 to 4
<Function>={URMS|IRMS|UDC|IDC|P|S|LAMBda|LAMBdaK}
<Element>=1

Note: For models 7130 and 7140, <Element> is fixed to 1 and can be omitted.

<x1> = 1 to 8

Item1 to 4	<Function>
Item5 (Fixed)	V+PK
Item6 (Fixed)	V-PK
Item7 (Fixed)	I+PK
Item8 (Fixed)	I-PK

Example :DISPlay:Wave:ITEM1 URMS

:DISPlay:Wave:ITEM1?

Return URMS,0.00545986

Function	Item	Description
URMS	VRMS	Voltage Root Mean Square (RMS) Value
IRMS	IRMS	Current Root Mean Square (RMS) Value
UDC	VDC	Voltage Average Value
IDC	IDC	Current Average Value
P	P	Active Power (Real Power)
S	S	Apparent Power
LAMBda	PF	Power Factor
LAMBdaK	DPF	Displacement Power Factor – Power factor of the fundamental (first harmonic) component

:DISPlay:Wave:Amplitude

Function Sets or queries the amplitude display mode (AUTO or STD) in Waveform mode.

Syntax :DISPlay:Wave:Amplitude <String>
:DISPlay:Wave:Amplitude?
<String> = {AUTO|STD}

Example :DISPlay:Wave:Amplitude STD
:DISPlay:Wave:Amplitude?

Return STD

:DISPlay:WAVE:Scale

Function Sets or queries the time scale of the Waveform display.

Syntax :DISPlay:WAVE:Scale <String>
:DISPlay:WAVE:Scale?
<String> = {100us|200us|500us|1ms|2ms|5ms|10ms}

Example :DISPlay:WAVE:Scale 10ms
:DISPlay:WAVE:Scale?

Return 10ms

:DISPlay:Trend:ITEM<x>

Function Sets or queries measurement items to be logged in Trend mode.
 Syntax :DISPlay:Trend:ITEM<x><Function>[,<Element>]
 :DISPlay:Trend:ITEM<x>?
 <x> = 1 to 4
 <Function>={URMS|IRMS|UDC|IDC|P|S|LAMBda|LAMBdaK|OFF}
 <Element>= 1
Note: For models 7130 and 7140, <Element> is fixed to 1 and can be omitted.

Example :DISPlay:Trend:ITEM1 URMS
 :DISPlay:Trend:ITEM1?

Return URMS,5.589e-03

Function	Item	Description
URMS	VRMS	Voltage Root Mean Square (RMS) Value
IRMS	IRMS	Current Root Mean Square (RMS) Value
UDC	VDC	Voltage Average Value
IDC	IDC	Current Average Value
P	P	Active Power (Real Power)
S	S	Apparent Power
LAMBda	PF	Power Factor
LAMBdaK	DPF	Displacement Power Factor – Power factor of the fundamental (first harmonic) component
OFF	OFF	Disable

:DISPlay:PAGE

Function Switches or queries the currently displayed page.
 Syntax :DISPlay:PAGE <Function>
 :DISPlay:PAGE?
 <Function>=
 {METER|ITGR|WAVE|TREND|LIST|HIST|COMP|FILE|SETUP|SYS}
 Example :DISPlay:PAGE METER
 :DISPlay:PAGE?
 Return METER

:DISPlay:HARMonics?

Function Sets or queries the time scale of the Waveform display.
 Syntax :DISPlay:HARMonics?
 Example :DISPlay:HARMonics?

Return List: U VHDF PHIV I IHDF PHII P PHDF
 ,Selet:ALL
 ,Hist1 U
 ,Hist2 I
 ,Hist3 P

:DISPlay:HARMonics?

Function Queries all display parameters for Harmonic mode.
 Syntax :DISPlay:HARMonics?
 Example :DISPlay:HARMonics?
 Return List: U VHDF PHIV I IHDF PHII P PHDF
 ,Selet:ALL
 ,Hist1 U
 ,Hist2 I
 ,Hist3 P

:DISPlay:HARMonics:Hist:item<x>

Function Sets or queries Histogram items for Harmonic mode. (7140 only)
 Syntax :DISPlay:HARMonics:Hist:item<x> <Function>[,<Element>]
 :DISPlay:HARMonics:Hist:item<x>?
 <x> = 1 to 3
 <Function>={U|I|P|UHDF|IHDF|PHDF|PHIU|PHII|}
 <Element>= 1
Note: For models 7130 and 7140, <Element> is fixed to 1 and can be omitted.
 Example :DISPlay:HARMonics:Hist:item1 U
 :DISPlay:HARMonics:Hist:item1?
 Return U

:DISPlay:HARMonics:LIST:SElect

Function Sets or queries which harmonic orders are displayed in LIST.
 (7140 only)
 Syntax :DISPlay:HARMonics:LIST:SElect <String>
 :DISPlay:HARMonics:LIST:SElect?
 <String>={EVEN|ODD|ALL}
 Example :DISPlay:HARMonics:LIST:SElect EVEN
 :DISPlay:HARMonics:LIST:SElect?
 Return Even

2.6 HARMonics Group

:HARMonics:PLLSource

Function	Sets or queries the synchronization source for harmonic measurement.
Syntax	:HARMonics:PLLSource <String> :HARMonics:PLLSource?
	<String>={U I}
Example	:HARMonics:PLLSource U :HARMonics:PLLSource?
Return	U

:HARMonics:ORDER

Function	Sets or queries the minimum and maximum harmonic order. (100 order for 7140 only)
Syntax	:HARMonics:ORDER <NRf>,<NRf> :HARMonics:ORDER?
	1 st <NRf> = 1 (Number of minimum order is fixed) 2 nd <NRf> = 50 or 100 (Number of maximum order)
Example	:HARMonics:ORDER 1,50 :HARMonics:ORDER?
Return	1,50

:HARMonics:DISPlay?

Function	Queries the LIST display configuration in Harmonic mode.
Syntax	:HARMonics:DISPlay?
Example	:HARMonics:DISPlay?
Return	Sync source: U, HARMONIC(ON/OFF): 1, Setup:Auto V 0.05A, LIST: U VHDF PHIV I IHDF PHII P PHDF ,Selet: Even ,ORDER: 1,100 ,Harmonic calculation method: IEC

:HARMonics?

Function	Queries all harmonic measurement settings, including LIST and HIST.
Syntax	:HARMonics?

Example :HARMonics?
 Return Sync source: U,
 HARMONIC(ON/OFF): 1,
 Setup:Auto V|0.05A
 ,LIST: U VHDF PHIV I IHDF PHII P PHDF
 ,Selet: Even
 ,Hist: 1.U 2.I 3.P
 ,ORDer: 100
 ,Harmonic calculation method: IEC

:HARMonics:DISPlay[:STATe]

Function Sets or queries the ON/OFF state of the Harmonic measurement mode.
 Syntax :HARMonics:DISPlay[:STATe] <Boolean>
 :HARMonics:DISPlay:STATe?
 <Boolean> = {OFF | ON | 0 | 1}
 Example :HARMonics:DISPlay[:STATe] OFF
 :HARMonics:DISPlay:STATe?
 Return 0

:HARMonics:DISPlay[:STATe]

Function Sets or queries the ON/OFF state of the Harmonic measurement mode.
 Syntax :HARMonics:DISPlay[:STATe] <Boolean>
 :HARMonics:DISPlay:STATe?
 <Boolean> = {OFF | ON | 0 | 1}
 Example :HARMonics:DISPlay[:STATe] OFF
 :HARMonics:DISPlay:STATe?
 Return 0

:HARMonics:DISPlay:ORDer

Function Sets or queries the ON/OFF state of the Harmonic measurement mode.
 Syntax :HARMonics:DISPlay:ORDer <NR1>
 :HARMonics:DISPlay:ORDer?
 <NR1> = 50 or 100
 Example :HARMonics:DISPlay:ORDer 50
 :HARMonics:DISPlay:ORDer?
 Return 50

:HARMonics:THD

Function	Sets or queries the calculation method for Total Harmonic Distortion (THD).
Syntax	:HARMonics:THD <String> :HARMonics:THD?
	<String> = {TOTAl FUNDamental} (TOTAl =(CSA), FUNDamental = (IEC))
Example	:HARMonics:THD FUNDamental :HARMonics:THD?
Return	IEC

2.7 Hold Group

:HOLD

Function	Sets or queries the hold function for measurement output.
Syntax	:HOLD <Boolean> :HOLD?
	<Boolean> = {OFF ON 0 1}
Example	:HOLD OFF :HOLD?
Return	0

2.8 INPut Group

[[:INPut]:EXTSensor:STATE

Function	Sets or queries the EXT BNC filter.
Syntax	[[:INPut]:EXTSensor:STATE<Boolean> [[:INPut]:EXTSensor:STATE?
	<Boolean> = {OFF ON 0 1}
Example	:INPut:EXTSensor:STATE ON :INPut:EXTSensor:STATE?
Return	1

[[:INPut]:EXTSensor

Function	Sets or queries the current to voltage ratio for the EXT BNC filter.
Syntax	[[:INPut]:EXTSensor <NRf>,<NRf> [[:INPut]:EXTSensor?
	1 st <NRf> = Current Range=0.00~99999.99

2nd <NRf>= Voltage Range=0.00~99999.99
 Example :INPut:EXTSensor 100,1
 :INPut:EXTSensor?
 Return 100,1

:INPut?

Function Queries the current input settings of the instrument.
 Syntax :INPut?
 Example :INPut?
 Return V AUTO:1, I AUTO:0,
 V range:Auto V, I range:0.05A,
 CFACTOR:3, WIRing:P1W2, SYNC:VOLTage,
 FILTer--
 LINE:5000Hz,
 FREQuency:0

[:INPut]:CFACTOR

Function Sets or queries the crest factor.
 Syntax [:INPut]:CFACTOR <NR1>
 [:INPut]:CFACTOR?
 <NR1>= {3|6}
 Example :INPut:CFACTOR 3
 :INPut:CFACTOR?
 Return CFACTOR 3

[:INPut]:WIRing?

Function Queries the wiring configuration.
 Syntax [:INPut]:WIRing?
 Example [:INPut]:WIRing?
 Return P1W2

[:INPut]:VOLTage?

Function Queries all voltage measurement settings
 Syntax [:INPut]:VOLTage?
 Example :INPut:VOLTage?
 Return VOLTage:AUTO 1 , VOLTage:RANGe AUTO

[:INPut]:VOLTage:AUTO

Function Sets or queries the state of the voltage auto-range setting.
 Syntax [:INPut]:VOLTage:AUTO <Boolean>

Example [:INPut]:VOLTage:AUTO?
 <Boolean>= {OFF | ON | 0 | 1}
 :INPut:VOLTage:AUTO ON
 :INPut:VOLTage:AUTO?
 Return 1

[:INPut]:VOLTage:RANGe

Function Sets or queries the voltage range.
 Syntax [:INPut]:VOLTage:RANGe <NRf>
 [:INPut]:VOLTage:RANGe?

CF	Voltage
3	15, 30, 60, 150, 300, 600(V)
6	7.5, 15, 30, 75, 150, 300(V)

Example :INPut:VOLTage:RANGe 600V
 :INPut:VOLTage:RANGe?
 Return 600V

[:INPut]:VOLTage:CONFig?

Function Queries all supported voltage range options.
 Syntax [:INPut]:VOLTage:CONFig?
 Example :INPut:VOLTage:CONFig?
 Return VOLTage:CONFig
 CF3: 15,30,60,150,300,600V
 CF6: 7.5,15,30,75,150,300V

[:INPut]:CURRent?

Function Queries all current measurement settings.
 Syntax [:INPut]:CURRent?
 Example :INPut:CURRent?
 Return CURRent:AUTO 0, CURRent:RANGe 0.05A

[:INPut]:CURRent:RANGe

Function Sets or queries the current range or external voltage input range.
 Syntax [:INPut]:CURRent:RANGe <String>,<NRf>
 [:INPut]:CURRent:RANGe?

CF	Voltage
3	0.005,0.01,0.02,0.05,0.1,0.2,0.5,1,2,5,10,20A
6	0.0025,0.005,0.01,0.025,0.05,0.1,0.25,0.5,1,2.5,5,10A
3/6	EXT 0.5V,EXT 1V,EXT 2V,EXT 5V,EXT 10V

Example :INPut:CURRent:RANGe 0.005A

	:INPut:CURRent:RANGe EXT,1V
	:INPut:CURRent:RANGe?
Return	EXT 1V

[[:INPut]:CURRent:AUTO

Function	Sets or queries the state of the current auto-range setting.
Syntax	[[:INPut]:CURRent:AUTO <Boolean> [[:INPut]:CURRent:AUTO? <Boolean>= {OFF ON 0 1}
Example	:INPut:CURRent:AUTO ON :INPut:CURRent:AUTO?
Return	1

[[:INPut]:CURRent:CONFig?

Function	Queries all supported CURRent range options.
Syntax	[[:INPut]:CURRent:CONFig?
Example	:INPut:CURRent:CONFig?
Return	CURRent:CONFig CF3:0.005,0.01,0.02,0.05,0.1,0.2,0.5,1,2,5,10,20A CF6:0.0025,0.005,0.01,0.025,0.05,0.1,0.25,0.5,1,2.5,5,10A CF3/6:EXT 0.5V,EXT 1V,EXT 2V,EXT 5V,EXT 10V

[[:INPut]:CURRent:EXTSensor:CONFig?

Function	Queries supported external current sensor voltage ranges.
Syntax	[[:INPut]:CURRent:EXTSensor:CONFig?
Example	:INPut:CURRent:EXTSensor:CONFig?
Return	CURRent:EXTSensor:CONFig CF3/6:EXT 0.5V,EXT 1V,EXT 2V,EXT 5V,EXT 10V

[[:INPut]:SYNChronize

Function	Sets or queries the synchronization source. (same as :HARMonics:PLLSource)
Syntax	[[:INPut]:SYNChronize <String> [[:INPut]:SYNChronize? <String>= {VOLTage CURRent OFF}
Example	:INPut:SYNChronize VOLTage :INPut:SYNChronize?
Return	VOLTage

[[:INPut]:FILTer?

Function Queries all input filter settings.
 Syntax [:INPut]:FILTer?
 Example :INPut:FILTer?
 Return LineFilter : 0,
 FrequencyFilter : 0

[[:INPut]:FILTer:LINE

Function Sets or queries the line frequency filter.
 Syntax [:INPut]:FILTer:LINE <NR1>
 [:INPut]:FILTer:LINE?
 <NR1>= {0(OFF)|500|5000|100000}
 Example :INPut:FILTer:LINE 5000
 :INPut:FILTer:LINE?
 Return 5000

[[:INPut]:FILTer:FREQuency

Function Sets or queries the line frequency filter.
 Syntax [:INPut]:FILTer:FREQuency <Boolean>
 [:INPut]:FILTer:FREQuency?
 <Boolean>= {OFF | ON | 0 | 1}
 Example :INPut:FILTer:FREQuency 1
 :INPut:FILTer:FREQuency?
 Return 1

2.9 INTEGrate Group

:INTEGrate?

Function Queries all integrator configuration settings.
 Syntax :INTEGrate?
 Example :INTEGrate?
 Return MOD:RMS
 Timer:0:5:0,
 STATE:RESet,
 ITEM:
 IRMS IRMS
 WP IH

WP+
WP-

:INTEGrate:TIMer

Function Sets or queries the timer value for integration.
 Syntax :INTEGrate:TIMer <NR1>,<NR1>,<NR1>
 :INTEGrate:TIMer?
 1st <NR1>= 0 to 9999 (hours)
 2nd <NR1>= 0 to 59 (minutes)
 3rd <NR1>= 0 to 59 (seconds)
 Example :INTEGrate:TIMer 1,0,0
 :INTEGrate:TIMer?
 Return 1,0,0

:INTEGrate:START

Function Starts integration.
 Syntax :INTEGrate:START
 Example :INTEGrate:START

:INTEGrate:STOP

Function Stops integration.
 Syntax :INTEGrate:STOP
 Example :INTEGrate:STOP

:INTEGrate:RESet

Function Resets the integration data.
 Syntax :INTEGrate:RESet
 Example :INTEGrate:RESet

:INTEGrate:STATe?

Function Queries the current integration status.
 Syntax :INTEGrate:STATe?

Item	Description
ERRor	Integration overflow occurred.
RESet	Integration has been reset.
START	Integration is in progress.
STOP	Integration has stopped manually.
TIMEup	The preset integration time has been reached.

Example :INTEGrate:STATe?
 Return RESet

2.10 NUMeric Group

:NUMeric?

Function Queries all numeric data output settings
 Syntax :NUMeric?

:NUMeric:FORMat

Function Sets or queries the numeric data format.
 Syntax :NUMeric:FORMat <String>
 :NUMeric:FORMat?
 <String> = {ASCIi|FLOat}
 Example :NUMeric:FORMat ASCIi
 :NUMeric:FORMat?
 Return ASCIi

:NUMeric:FORMat

Function Sets or queries the numeric data format.
 Syntax :NUMeric:FORMat <String>
 :NUMeric:FORMat?
 <String> = {ASCIi|FLOat}
 Example :NUMeric:FORMat ASCIi
 :NUMeric:FORMat?
 Return ASCIi
 Description The format of the numeric data output varies depending on the
 setting of this command.
 The available formats are described below:
 (1) ASCIi Format:
 Physical values are output in <NR3> format.
 (Only the elapsed integration time is output in <NR1> format.)
 Data items are separated by commas.
 (2) FLOat Format:
 Each numeric data item is represented as a 4-byte IEEE 754
 single-precision floating-point value, encoded in hexadecimal
 format (e.g., "0x42E62037").
 The byte order is MSB First (Most Significant Byte transmitted
 first).

:NUMeric:NORMal?

Function	Queries all numeric output settings.
Syntax	:NUMeric:NORMal?
Description	The number of numeric data items output by :NUMeric[:NORMal]:ITEM<x> is determined by :NUMeric[:NORMal]NUMber.

:NUMeric[:NORMal]:VALue?

Function	Queries the numeric data.
Syntax	:NUMeric[:NORMal]:VALue? [<NRf>] <NRf>= 1 to 30 (Items number)
Example	:NUMeric:NORMal:VALue? 1
Return	3.1958e-02
Description	When <NRf> is specified: :NUMERIC:NORMAL:VALUE? 1 → 103.79E+00 When <NRf> is omitted: :NUMERIC:NORMAL:VALUE? → 103.79E+00, 1.0143E+00, 105.27E+00, ...(omitted)..., 50.001E+00 When :NUMeric:FORMat is set to {FLOat}: :NUMERIC:NORMAL:VALUE? → 0x00000000

Note:

The number of numeric data items output by NUMeric:NORMal:ITEM<x> is determined by NUMeric:NORMal:NUMber.

- If <NRf> is specified, only the data of the designated item will be output.
- If <NRf> is omitted, the numeric data items from 1 up to the number specified by the NUMeric:NORMal:NUMber command will be output sequentially.

:NUMeric[:NORMal]:NUMber

Function	Sets or queries the number of items returned by :NUM:NORM:VALue?
Syntax	:NUMeric[:NORMal]:NUMber {<NRf> ALL} :NUMeric[:NORMal]:NUMber?
Example	:NUMeric:NORMal:NUMber 9 :NUMeric:NORMal:NUMber?
Return	9

:NUMeric[:NORMal]:ITEM<x>

Function	Sets or queries individual output items (function, element, harmonic order).
Syntax	:NUMeric[:NORMal]:ITEM<x>{NONE <Function>,<Element>,<Order> :NUMeric[:NORMal]:ITEM<x>? <x> = 1 to 30(item number) NONE = No output item <Function>={URMS IRMS P LAMBda UPPeak UMPeak IPPeak IMPeak UDC IDC S UMean FU FI PHI CFU CFI THD ITHD PTHD UPP IPP Q MCR PPPeak PMPeak} <Element>=1 <Order>=Specifying or omitting does not affect the operation. Note: For models 7130 and 7140, <Element> is fixed to 1 and can be omitted.
Example	:NUMeric:NORMal:ITEM1 IRMS :NUMeric:NORMal:ITEM1?
Return	IRMS

:NUMeric[:NORMal]:PRESet

Function	Sets or queries the preset pattern for numeric output items.
Syntax	:NUMeric[:NORMal]:PRESet <NRf> :NUMeric[:NORMal]:PRESet? <NRf>= 1 to 4
Example	:NUMeric:NORMal:PRESet 1 :NUMeric:NORMal:PRESet?
Return	URMS IRMS P ~1 S Q LAMBda PHI FU FI ~2 UPPeak UMPeak IPPeak IMPeak PPPeak PMPeak ~3 UDC IDC UMEAN CFU CFI UPP IPP MCR UTHD ITHD PTHD LAMBdaK ~4

Patterns 1 ITEM<x>	Function
1	URMS
2	IRMS
3	P
Patterns 2 ITEM<x>	
1	URMS
2	IRMS
3	P
4	S

5	Q
6	LAMBda
7	PHI
8	FU
9	FI
Patterns 3 ITEM<x>	
1	URMS
2	IRMS
3	P
4	S
5	Q
6	LAMBda
7	PHI
8	FU
9	FI
10	UPPeak
11	UMPeak
12	IPPeak
13	IMPeak
14	PPPeak
15	PMPeak
Patterns 4 ITEM<x>	
1	URMS
2	IRMS
3	P
4	S
5	Q
6	LAMBda
7	PHI
8	FU
9	FI
10	UPPeak
11	UMPeak
12	IPPeak
13	IMPeak
14	PPPeak
15	PMPeak
16	UDC
17	IDC

18	UMEAN
19	CFU
20	CFI
21	UPP
22	IPP
23	MCR
24	UTHD
25	ITHD
26	PTHD
27	LAMBdaK

:NUMeric[:NORMal]:CLEar

Function Clears all defined numeric output items

Syntax :NUMeric[:NORMal]:CLEar {ALL|<NRf>,<NRf>}

ALL = Clear all items ,
 1st <NRf> = 1 to 30 (the number of the first item to clear)
 2nd <NRf> = 1 to 30 (the number of the last item to clear)

Example :NUMERIC:NORMAL:CLEAR ALL

Description If the second <NRf> is omitted, the specified output item and all subsequent items (up to a maximum of 30 items) will be cleared.

:NUMeric[:NORMal]:DElete

Function Deletes a defined numeric output item.

Syntax :NUMeric[:NORMal]:DElete <NRf>,<NRf>

1st <NRf> = 1 to 30 (the number of the last item to delete)
 2nd <NRf> = 1 to 30 (the number of the last item to delete)

Example :NUMeric:NORMal:DElete 1

Description Deletes ITEM1 and shifts ITEM2 and all subsequent items forward.

- When an output item is deleted, subsequent items are shifted forward to fill the gap. The final vacant slot will be set to NONE.
- If the second <NRf> is omitted, only the output item specified by the first number will be deleted.

:NUMeric[:NORMal]:HEADer?

Function Queries the header information for numeric output data.

Syntax :NUMeric[:NORMal]:HEADer? <NRf>

<NRf> = 1 to 30 (item number)

Example :NUMeric:NORMal:HEADer? 1

Description When <NRf> is specified:

:NUMERIC:NORMAL:HEADER? 1 → U-E1

When <NRf> is omitted (with :NUMERIC:NORMAL:NUMBER set to 8):

:NUMERIC:NORMAL:HEADER? → URMS-E1, IRMS-E1, P-E1, S-E1, Q-E1, LAMBDA-E1, PHI-E1, FU-E1

Note:

- The header (data name) for each output item is generated.
- If <NRf> is specified, only the header corresponding to the specified item number is output.
- If <NRf> is omitted, headers for items from 1 up to the number specified by the :NUMERIC:NORMAL:NUMBER command are output sequentially.

:NUMERIC:LIST?

Function	Queries all list output settings for harmonic numeric data.
Syntax	:NUMERIC:LIST?
Example	:NUMERIC:LIST?
Description	The number of numeric list data items output by NUMERIC:LIST:ITEM<x> is determined by the NUMERIC:LIST:NUMBER setting.

:NUMERIC:LIST:VALUE?

Function	Queries the actual list data for harmonic numeric output.
Syntax	:NUMERIC:LIST:VALUE? <NRf> <NRf> = 1 to 8 (Item number)
Example	:NUMERIC:LIST:VALUE?
Description	When <NRf> is specified: :NUMERIC:LIST:VALUE? 1 → 103.58E+00, NAN, 103.53E+00, 0.09E+00, 2.07E+00, 0.04E+00, ... (omitted) ..., 0.01E+00, 0.01E+00 Up to 50 data values for model 7130, and up to 100 data values for model 7140. When <NRf> is omitted (with :NUMERIC:LIST:NUMBER set to 5): :NUMERIC:LIST:VALUE? → 103.58E+00, NAN, 103.53E+00, 0.09E+00, 2.07E+00, 0.04E+00, ... (omitted) ..., 0.00E+00, 0.00E+00 Up to 250 data values (50 × 5) for model 7130, and up to 500 data values for model 7140.

When :NUMeric:FORMat is set to {FLOat}:

:NUMERIC:LIST:VALUE?→ 0x42E620370XXXXXXXXX ... (8-digit hexadecimal, 4-byte floating-point IEEE 754 values in byte sequence)

Note:

- Each numeric list item consists of up to **50 individual data values**, corresponding to harmonic order starting from the 1st, up to the value specified by :NUMeric:LIST:ORDER.
- If <NRf> is specified, only the data set for the designated item is returned (up to 50 values).
- If <NRf> is omitted, the data sets for items 1 through :NUMeric:LIST:NUMber are output sequentially (maximum output = 50 × :NUMeric:LIST:NUMber values, up to the limit set by :NUMeric:LIST:ORDER).

:NUMeric:LIST:NUMber {<NRf> | ALL}

Function	Sets or queries the number of items returned by :NUM:LIST:VALue?.
Syntax	:NUMeric:LIST:NUMber {<NRf> ALL} :NUMeric:LIST:NUMber? <NRf>= 1 to 8
Example	:NUMeric:LIST:NUMber 5 :NUMeric:LIST:NUMber?
Return	5
Description	If the parameter is omitted from the :NUMeric:LIST:VALue? command, numeric list data items from 1 up to the specified value will be output sequentially. By default, the number of numeric data items is set to 3.

:NUMeric:LIST:ORDER {<NRf> | ALL}

Function	Sets or queries the number of items returned by :NUM:LIST:VALue?.
Syntax	:NUMeric:LIST:ORDER {<NRf> ALL} :NUMeric:LIST:ORDER? <NRf>= 1 to 50/100, (7140 only: up to 100)
Example	:NUMeric:LIST:ORDER :NUMeric:LIST:ORDER?
Return	50

:NUMeric:LIST:SElect {EVEN|ODD|ALL}

Function Sets or queries the phase element(s) to include in list numeric output.

Syntax :NUMeric:LIST:SElect {EVEN|ODD|ALL}
:NUMeric:LIST:SElect?

Example :NUMeric:LIST:SElect ALL
:NUMeric:LIST:SElect?

Return ALL

Description	EVEN	Outputs only the even-order harmonic components.
	ODD	Outputs only the odd-order harmonic components.
	ALL	Outputs all harmonic components.

:NUMeric:LIST:ITEM<x>

Function Sets or queries the configuration of an individual list item (function and element).

Syntax :NUMeric:LIST:ITEM<x> {NONE|<Function>}[,<Element>]
:NUMeric:LIST:ITEM<x>?
<x>= 1 to 8 (Item number)
NONE = No output item
<Function> = {U|I|P|PHIU|PHII|UHDF| IHDF|PHDF}
<Element>=1
Note: For models 7130 and 7140, <Element> is fixed to 1 and can be omitted.

Example :NUMeric:LIST:ITEM1 U
:NUMeric:LIST:ITEM1?

Return U

:NUMeric:LIST:PRESet

Function Applies a preset pattern to harmonic numeric list output.

Syntax :NUMeric:LIST:PRESet<NRf>
<NRf>= 1 to 4

Example :NUMeric:LIST:PRESet 1

Description	Patterns 1 ITEM<x>	Function
	1	U
	2	I
	3	P
	Patterns 2 ITEM<x>	
	1	U

2	I
3	P
4	PHIU
5	PHII
Patterns 3 ITEM<x>	
1	U
2	I
3	P
4	UHDF
5	IHDF
6	PHDF
Patterns 4 ITEM<x>	
1	U
2	I
3	P
4	PHIU
5	PHII
6	UHDF
7	IHDF
8	PHDF

:NUMeric:LIST:CLEar

Function	Clears all harmonic list items (sets to NONE).
Syntax	:NUMeric:LIST:CLEar {ALL <NRf>,<NRf>} ALL= Clears all items 1 st <NRf> = 1 to 8 (specifies the first item number to clear) 2 nd <NRf> = 1 to 8 (specifies the last item number to clear)
Example	:NUMeric:LIST:CLEar ALL
Description	If the 2 nd <NRf> is omitted, the output item specified by the first number and all subsequent items (up to 8 items in total) will be cleared.

:NUMeric:LIST:DElete

Function	Deletes a specific harmonic numeric list item.
Syntax	:NUMeric:LIST:DElete <NRf>,<NRf> 1 st <NRf> = 1 to 32 (specifies the first item number to delete) 2 nd <NRf> = 1 to 32 (specifies the last item number to delete)
Example	:NUMeric:LIST:DElete 1
Description	Deletes ITEM1 and shifts ITEM2 and subsequent items forward.

- When an output item is deleted, subsequent items are shifted forward to fill the gap. The final vacant slot is set to NONE.
- If the 2nd <NRf> is omitted, only the output item specified by the first number is deleted.

:NUMeric:HOLD

Function	Sets or queries the numeric data hold function.
Syntax	:NUMeric:HOLD <Boolean> :NUMeric:HOLD?
Example	<Boolean> = {OFF ON 0 1} :NUMeric:HOLD ON :NUMeric:HOLD?
Return	1
Description	If :NUMeric:HOLD is set to ON before executing the :NUMeric:NORMal:VALue? or :NUMeric:LIST:VALue? command, the numeric data at that moment will be internally held. As long as :NUMeric:HOLD remains ON, the numeric data remains held even if the displayed values on the screen are updated.

If :NUMeric:HOLD is set to ON again after it is already ON, the held data is cleared and the latest numeric data is newly held. This allows continuous retrieval of numeric data without repeatedly setting :NUMeric:HOLD to OFF.

2.11 MEASure Group

:MEASure?

Function	Queries all measurement and calculation results.
Syntax	:MEASure?
Example	:MEASure?
Return	AVERaging:STATe 0, AVERaging:type SMA, AVERaging:COUNt 8 MHOLd 0

:MEASure:AVERaging?

Function	Queries all averaging settings.
Syntax	:MEASure:AVERaging?
Example	:MEASure:AVERaging?
Return	AVERaging:STATe 0, AVERaging:type SMA, AVERaging:COUNt 8,

:MEASure:AVERaging[:STATe]

Function	Sets or queries the status of averaging.
Syntax	:MEASure:AVERaging[:STATe] <Boolean> :MEASure:AVERaging:STATe? <Boolean> = {OFF ON 0 1}
Example	:MEASure:AVERaging:STATe ON :MEASure:AVERaging:STATe?
Return	1

:MEASure:AVERaging:TYPE

Function	Sets or queries the averaging type.
Syntax	:MEASure:AVERaging:TYPE <String> :MEASure:AVERaging:TYPE? <String> = {SMA EMA}
Example	:MEASure:AVERaging:TYPE SMA :MEASure:AVERaging:TYPE?
Return	SMA

:MEASure:AVERaging:COUNt

Function	Sets or queries the averaging count. (e.g., 8, 16, 32, 64)
Syntax	:MEASure:AVERaging:COUNt <NR1> :MEASure:AVERaging:COUNt? <NR1> = 8, 16, 32, 64 (moving average count or attenuation constant)
Example	:MEASure:AVERaging:COUNt 8 :MEASure:AVERaging:COUNt?
Return	8

:MEASure:MHOLd

Function	Sets or queries the min/max hold function. (Not available with DISP 16)
Syntax	:MEASure:MHOLd <Boolean> :MEASure:MHOLd?
Example	<Boolean> = {OFF ON 0 1} :MEASure:MHOLd ON :MEASure:MHOLd?
Return	1

2.12 RATE Group

:RATE <Time>

Function	Sets or queries the data update interval.
Syntax	:RATE <Time> :RATE?
Example	<Time> = 50,100, 200, 250, 500(ms), 1, 2, 5, 10, 15, 30(s),1, 5, 10, 15, 30, 60(min) :RATE 250ms :RATE?
Return	250ms

2.13 SYSTem Group

:SYSTem?

Function	Queries all current system settings.
Syntax	:SYSTem?
Example	:SYSTem?

:SYSTem:KLOCK

Function	Sets or queries the key lock status.
Syntax	:SYSTem:KLOCK <Boolean> :SYSTem:KLOCK? <Boolean> = {OFF ON 0 1}

Example	:SYSTem:KLOCK ON :SYSTem:KLOCK?
Return	1

:SYSTem:SUFFix?

Function	Queries unit suffix settings.
Syntax	:SYSTem:SUFFix?
Example	:SYSTem:SUFFix?
Return	C2,C3,C7,EX1,G5,DA2

:SYSTem:COMMunicate:COMMand?

Function	Queries supported SCPI command types.
Syntax	:SYSTem:COMMunicate:COMMand?
Example	:SYSTem:COMMunicate:COMMand?
Return	PA7140

:SYSTem:COMMunicate:ETHernet :MACaddress?

Function	Queries the Ethernet MAC address.
Syntax	:SYSTem:COMMunicate:ETHernet :MACaddress?
Example	:SYSTem:COMMunicate:ETHernet :MACaddress?
Return	00:0F:CE:C3:3B:C2

:SYSTem:MODEl?

Function	Queries the instrument model code.
Syntax	:SYSTem:MODEl?
Example	:SYSTem:MODEl?
Return	PA7140

:SYSTem:SERial?

Function	Queries the serial number.
Syntax	:SYSTem:SERial?
Example	:SYSTem:SERial?
Return	TJ6-1016

:SYSTem:VERsion:FIRMware?

Function	Queries the firmware version.
Syntax	:SYSTem:VERsion:FIRMware?
Example	:SYSTem:VERsion:FIRMware?
Return	V1.2504.1801

:SYSTem:RESolution?

Function	Queries numeric display resolution.
Syntax	:SYSTem:RESolution?
Example	:SYSTem:RESolution?
Return	5.5

:SYSTem:TIME

Function	Sets or queries the internal clock date and time (YYYY/MM/DD HH:MM:SS).
Syntax	:SYSTem:TIME<NR1>,<NR1>,<NR1>,<NR1>,<NR1>,<NR1> :SYSTem:TIME? 1 st <NR1> = 0 to 3000 (Year) 2 nd <NR1> = 0 to 12 (Month) 3 rd <NR1> = 0 to 31 (Day) 4 th <NR1> = 0 to 24 (Hour) 5 th <NR1> = 0 to 59 (Minutes) 6 th <NR1> = 0 to 59 (Second)
Example	:SYSTem:TIME 2025,05,02,09,59,30 :SYSTem:TIME?
Return	2025,05,02,09,59,31

:SYSTem:BEEPer[:STATe]

Function	Sets or queries the status of the operation beep.
Syntax	:SYSTem:BEEPer[:STATe] <Boolean> :SYSTem:BEEPer:STATe? <Boolean> = {OFF ON 0 1}
Example	:SYSTem:BEEPer:STATe ON :SYSTem:BEEPer:STATe?
Return	1

:SYSTem:SCPI:ERRor

Function	Sets or queries the status of the SCPI error beep.
Syntax	:SYSTem:SCPI:ERRor <Boolean> :SYSTem:SCPI:ERRor?
Example	<Boolean> = {OFF ON 0 1} :SYSTem:SCPI:ERRor ON :SYSTem:SCPI:ERRor?
Return	1

:SYSTem:EOM:MODE?

Function	Queries EOM (End-of-Message) output mode.
Syntax	:SYSTem:EOM:MODE?
Example	:SYSTem:EOM:MODE?
Return	EOM

:SYSTem:EOM:MODE:PULSe

Function	Sets or queries the EOM output pulse duration.
Syntax	:SYSTem:EOM:MODE:PULSe <NR1> :SYSTem:EOM:MODE:PULSe?
Example	<NR1> = 1 to 40 (ms) :SYSTem:EOM:MODE:PULSe 10 :SYSTem:EOM:MODE:PULSe?
Return	10ms

:SYSTem:Screensaver

Function	Sets or queries the screensaver function.
Syntax	:SYSTem:Screensaver <String> :SYSTem:Screensaver?
Example	<String> = {OFF 15 30 60} :SYSTem:Screensaver 15 :SYSTem:Screensaver?
Return	30 min

:SYSTem:Temperature

Function	Sets or queries the display unit for the internal temperature.
Syntax	:SYSTem:Temperature <String> :SYSTem:Temperature?
	<String> = {Celsius Fahrenheit}
Example	:SYSTem:Temperature Celsius :SYSTem:Temperature?
Return	32.6 C

:SYSTem:LANGuages

Function	Sets the user interface language.
Syntax	:SYSTem:LANGuages <String> :SYSTem:LANGuages?
	<String> = {EN CN TW}
Example	:SYSTem:LANGuages EN :SYSTem:LANGuages?
Return	EN

2.14 RS232c Group

:RS232c:BAUD <NR1>

Function	Sets the user interface language.
Syntax	:RS232c:BAUD <NR1> :RS232c:BAUD?
	<NR1> = {9600 19200 38400 57600 115200}
Example	:RS232c:BAUD 115200 :RS232c:BAUD?
Return	115200 BPS

2.15 IP Group

:IP

Function	Sets or queries the LAN mode either DHCP (auto) or STATIC (manual).
Syntax	:IP <String>

	:IP?
	<String> = {STATIC DHCP}
Example	:IP DHCP
	:IP?
Return	DHCP

:IP:Port

Function	Sets or queries the LAN port number.
Syntax	:IP:Port <NR1> :IP:Port?
	<NR1> = 1 to 65535
Example	:IP:Port 6666 :IP:Port?
Return	6666

:IP:ADDRess

Function	Sets or queries the LAN IP address (only valid in STATIC mode).
Syntax	:IP:ADDRess <Address 1>,<Address 2>,<Address 3>,<Address 4> :IP:ADDRess?
	Address 1 = 000 to 255 Address 2 = 000 to 255 Address 3 = 000 to 255 Address 4 = 000 to 255
Example	:IP:ADDRess 192.168.0.170 :IP:ADDRess?
Return	192.168.0.170

:IP:SUBNetmask

Function	Sets or queries the subnet mask address (only valid in STATIC mode).
Syntax	:IP:SUBNetmask <Address 1>,<Address 2>,<Address 3>,<Address 4> :IP:SUBNetmask?
	Address 1 = 000 to 255 Address 2 = 000 to 255 Address 3 = 000 to 255 Address 4 = 000 to 255

Example :IP:SUBNetmask 255,255,255,0
 :IP:SUBNetmask?
 Return 255,255,255,0

:IP:DEFaultgateway

Function Sets or queries the default gateway (only valid in STATIC mode).
 Syntax :IP:DEFaultgateway <Address 1>,<Address 2>,<Address 3>,<Address 4>
 :IP:DEFaultgateway?
 Address 1 = 000 to 255
 Address 2 = 000 to 255
 Address 3 = 000 to 255
 Address 4 = 000 to 255
 Example :IP:DEFaultgateway 192,168,0,1
 :IP:DEFaultgateway?
 Return 192,168,0,1

:IP:DNS

Function Sets or queries the DNS address (only valid in STATIC mode).
 Syntax :IP:DNS <Address 1>,<Address 2>,<Address 3>,<Address 4>
 :IP:DNS?
 Address 1 = 000 to 255
 Address 2 = 000 to 255
 Address 3 = 000 to 255
 Address 4 = 000 to 255
 Example :IP:DNS 192,168,0,1
 :IP:DNS?
 Return 192,168,0,1

2.16 STORe Group

:STORe:STATe?

Function Queries the storage state. (Always enabled by default)
 Syntax :STORe:STATe?
 Example :STORe:STATe?
 Return 1

:STORE:FILE:NAME

Function Sets the filename for storing numeric data to internal memory slot.

Syntax :STORE:FILE:NAME <NR1>,<String>
 <NR1>(No.) = 001~100
 <String>(filename) = Up to 15 alphanumeric characters (A–Z, 0–9).

Example :STORE:FILE:NAME 001,2025

:STORE:FILE:Delete

Function Deletes numeric data stored in the specified memory slot.

Syntax :STORE:FILE:Delete <NR1>
 <NR1>(No.) = 001~100

Example :STORE:FILE:Delete 008

:STORE:FILE:DRIVE

Function Saves data from internal memory slot to a USB drive.

Syntax :STORE:FILE:DRIVE<NR1>,<String>
 <NR1>(No.) = 001~100
 <String>(filename) = Up to 15 alphanumeric characters (A–Z, 0–9).

Example :STORE:FILE:DRIVE

2.17 RECall Group

:RECall:FILE:Load

Function Loads numeric data from a specified internal memory slot.

Syntax :RECall:FILE:Load <NR1>
 <NR1>(No.) = 001~100

Example :RECall:FILE:Load 002

:RECall:FILE:DRIVE:LOAD

Function Loads numeric data from a USB drive into the instrument.

Syntax :STORe:FILE:DRIVE <String>,<String>
 1st <String>(filename) = Up to 15 alphanumeric characters (A–Z, 0–9).
 2nd <String> = USB

Example :STORe:FILE:DRIVE 2025,USB

2.18 IMAGE Group

:IMAGE:SAVE:DRIVE

Function Saves the current screen image to a USB drive.

Syntax :IMAGE:SAVE:DRIVE <String>
 <String> = USB

Example :IMAGE:SAVE:DRIVE USB

2.19 COMPare Group

:COMPare:SET:ITEM<x> Learn

Function Sets comparator Item 1–8 reference value using current measured data (learning).

Syntax :COMPare:SET:ITEM<x> Learn
 <x> = 1 to 8

Example COMP:Set:ITEM1 Learn

:COMPare:Set:ITEM<x> STD,<NRf>

Function Manually sets comparator Item 1–8 reference value to a specific number.

Syntax :COMPare:Set:ITEM<x> STD,<NRf>
 :COMPare:Set:ITEM<x>?
 <x> = 1 to 8
 <NRf> = 0.001 to 999.999

Example :COMP:Set:ITEM1 STD,110.000
 :COMPare:Set:ITEM<x>?

Return 110.000

:COMPare:RANGe:ITEM<x>

Function	Sets or queries the upper and lower percentage tolerance limits for comparator Item 1–8.
Syntax	:COMPare:RANGe:ITEM<x> <NR2> :COMPare:RANGe:ITEM<x>? <x> = 1 to 8 <NR2> = 0.001 to 99.999
Example	:COMPare:RANGe:ITEM1 10 :COMPare:RANGe:ITEM1?
Return	10

2.20 Trend Group

:Trend:NEWFile

Function	Sets the file name and time scale for TREND storage on the 7140.
Syntax	:Trend:NEWFile <String>,<String>,<String> 1 st <String> (Filename) = Up to 12 alphanumeric characters (A–Z, 0–9). 2 nd <String> (Timescale)= 1/ 10/ 30 s or 1/2/5/10/30/60 min 3 rd <String> = Confirm
Example	:Trend:NewFile 123456789ABC,1min,Confirm

:Trend:LoadFile

Function	Loads a stored Trend file from USB into the 7140.
Syntax	:Trend:LoadFile <String> <String> = Uxxxxxxxxxxx_xx (U is fixed)
Example	:Trend:LoadFile U20241203_1m

:Trend:TIMer

Function	Sets the Trend timer value. Affected by the selected Timescale
Syntax	:Trend:TIMer <NR1>,<NR1><NR1> :Trend:TIMer? 1 st <NR1> = 0 to 999(hours) 2 nd <NR1> = 0 to 59 (minutes) 3 rd <NR1> = 0 (seconds)

Timescale	Default	Maximum	Minimum
1sec	00:03:00	000:01:00	00:01:00
10sec	00:30:00	000:10:00	00:01:00
30sec	01:30:00	030:00:00	00:02:00
1min	03:20:00	060:00:00	00:05:00
2min	06:40:00	120:00:00	00:10:00
5min	16:40:00	300:00:00	00:25:00
10min	33:20:00	600:00:00	00:50:00
30min	100:00:00	999:00:00	03:00:00
60min	200:00:00	999:00:00	05:00:00

Example :Trend:TIMer 1,0,0

:Trend:TIMer?

Return 1,0,0

:Trend:START

Function Starts Trend logging function.

Syntax :Trend:START

Example :Trend:START

:Trend:STOP

Function Stops Trend logging function.

Syntax :Trend:STOP

Example :Trend:STOP

:Trend:RESet

Function Reset Trend logging function.

Syntax :Trend:RESet

Example :Trend:RESet

:Trend TRAck

Function Sets or queries the time-axis tracking during Trend display.

Syntax :Trend TRAck <Boolean>

:Trend TRAck?

<Boolean> = {OFF | ON | 0 | 1}

Example :Trend TRAck ON

:Trend TRAck?

Return 1

:Trend:POS

Function Allows navigation to different timestamps when tracking is active.
 Syntax :Trend:POS <String>
 <String> = {LEFT |RIGHT}
 Example :Trend:POS RIGHT

:Trend:SAVE

Function Sets the trend save function.
 Syntax :Trend:SAVE <Boolean>
 <Boolean> = {OFF | ON | 0 |1}
 Example :Trend:SAVE

2.21 STATus Group

:STATus?

Function Queries all the settings for the communication status feature.
 Syntax :STATus?
 Example :STATus?

:STATus:CONDition?

Function Queries contents of the condition register.
 Syntax :STATus:CONDition?
 Example :STATus:CONDition?
 Return "000000001",1

:STATus:EESE

Function Sets or queries the Extended Event Enable Register (EESE).
 Syntax :STATus:EESE <NR1>
 <NR1> = 0 to 255
 Example :STATus:EESE 255
 :STATus:EESE?

Return 255

:STATus:EESR?

Function Queries and clears the Extended Event Status Register (EESR).

Syntax :STATus:EESR?

Example :STATus:EESR?

Return "000000000",0

Description Set :STATus:FILTer1 to RISE and set the remaining filters (2–9) to NEVER.
Querying :STATus:EESR? returns "000000000", 0.

When :STATus:EESE? is also enabled,
querying :STATus:EESR? returns "000000001", 1.

:STATus:ERROR?

Function Queries the error code and message of the last error that has occurred (top of the error queue).

Syntax :STATus:ERROR?

Example :STATus:ERROR?

Return +0,"No error"

:STATus:QENable

Function Set or queries whether messages other than errors will be stored to the error queue (ON) or not (OFF).

Syntax :STATus:QENable <Boolean>
:STATus:QENable?

<Boolean> = {OFF | ON | 0 | 1}

Example :STATus:QENable ON
:STATus:QENable?

Return 1

:STATus:QMESsage

Function Sets or queries whether message information will be attached to the response to the :STATus:ERRor?.

Syntax :STATus:QMESsage <Boolean>
:STATus:QMESsage?

<Boolean> = {OFF | ON | 0 | 1}

Example :STATus:QMESsage ON
:STATus:QMESsage?
Return 1

:STATus:FILTer<X>

Function Sets or queries the event trigger conditions for EESR output (Filter 1–9).

Syntax :STATus:FILTer<x> <Function>
:STATus:FILTer<x>?
<x> = 1 to 9
<Function> = {RISE | FALL | BOTH | NEVER}

Example :STATus:FILTer1 NEVER
:STATus:FILTer1?

Return Never

Description RISE: Triggers on a 0-to-1 transition.
FAIL: Triggers on a 1-to-0 transition.
BOTH: Triggers on both 0-to-1 and 1-to-0 transitions.
NEVER: Disables the trigger.
The trigger judgment is based on the previously stored flag state.
(The flag is reset to NEVER at power-on or after a RESET command.)

:STATus:FILTer:ALL?

Function Queries all filter trigger settings for EESR output.

Syntax :STATus:FILTer:ALL?

Example :STATus:FILTer:ALL?

Return Never, Never, Never, Never, Never, Never, Never, Never, Never

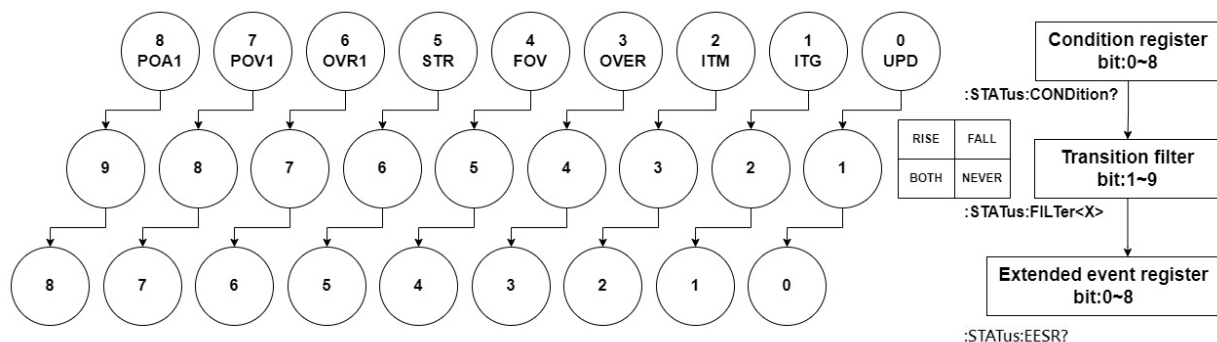
Chapter 3 Extended Event Register

Overview

Extended Event Register

The extended event register receives information about condition changes in the condition register. This register reflects the internal status of the instrument. The events are generated as a result of edge detection performed by the transition filters.

Code	Description
ISVOVER	POV voltage overflow
ISIOVER	POA current overflow
ISVIOVER	OVR voltage and current overflow
OVER	OVR voltage and current overflow
ITGR TIMER	ITM integration timer
TGR START	ITG integration start
TREND START	STR storage status
FREQ	When the frequency setting exceeds 110 kHz, the flag is raised but measurement does not stop.
UPD	Updates numeric data



Bit	CONDition	FILTer (RISE/FALL/BOT H/NEVER)	EESR (STATus:EESR?)	Description
0	UPD (Updating)	1	0	Set to 1 when updating measurement data. A transition from 1 to 0 indicates the update is complete.
1	ITG (Integrate Busy)	2	1	Set to 1 during the ITGR process.
2	ITM (Integrate Timer Busy)	3	2	Set to 1 when the ITGR timer is running.
3	OVRS (Σ Results Overflow)	4	3	Set to 1 when the Σ calculation result overflows.
4	FOV (Frequency Over)	5	4	Set to 1 when the frequency exceeds the measurement range.
5	STR (Trend Busy)	6	5	Set to 1 during the Trend process.
6	OVR1 (Element1 Measured Data Over)	7	6	Set to 1 when the voltage or current of Element 1 exceeds the range.
7	POV1 (Element1 Voltage Peak Over)	8	7	Set to 1 when the voltage peak of Element 1 exceeds the range.
8	POA1 (Element1 Current Peak Over)	9	8	Set to 1 when the current peak of Element 1 exceeds the range.

Revision History

Date	Description:	Version
2025-05-05	Translate from Chinese version 1.04	1.04