



**Optical Signals
Application Plug-in
Programmer Manual**



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Getting Started

Introduction

This programmer manual provides information on how to use commands for remotely controlling the Optical Signals plug-in application.

The Optical Signals plug-in can be installed in either the SourceXpress software application or an AWG70000A series arbitrary waveform generator.

Communication with the plug-in is through the SourceXpress programmatic interface or the AWG70000A series instrument's programmatic interface. Using a single VISA or raw socket session, it is possible to communicate with both SourceXpress and AWG70000A series instruments.

For information on the Remote Control, GPIB Parameters, LAN Parameters, Connecting to the Instrument using GPIB, and Setting up GPIB Communication, refer to the *AWG70000A series Arbitrary Waveform Generators Programmer Manual*.

Documentation

In addition to this Optical Signals Programmer Guide, the following documentation is included with this application:

- Optical Signals Help. The help provides in-depth operation and user interface help.
- Optical Signals User Manual (PDF). This is adapted from the Optical Signal help system.

Syntax and Commands

Command Syntax

For information on the Syntax Overview, Command and Query Structure, Clearing the Instrument, Command Entry, Parameter Types, SCPI Commands and Queries, refer to the *AWG70000A Series Arbitrary Waveform Generators Programmer Manual*.

Command Groups

Control commands

Table 2-1: Control commands and their descriptions

Command	Description
WPLugin:ACTive	Sets or returns the active waveform creation plug-in. This command allows the use of the other PI commands of the active plug-in.
OPTical:RESet	Resets the Optical signal plug-in by setting all the values within the module to their default values.

Compile commands

Table 2-2: Compile commands and their descriptions

Command	Description
OPTical:COMPILE	Compiles and generates a waveform using the Optical plug-in compile settings.
OPTical:COMPILE:CANCel	Cancel a compilation currently in progress.
OPTical:COMPILE:CORRection:APPLY:X	Sets or returns the Apply Corrections to X state (enabled or disabled) for the Compile Settings.
OPTical:COMPILE:CORRection:APPLY:Y	Sets or returns the Apply Corrections to Y state (enabled or disabled) for the Compile Settings.
OPTical:COMPILE:CORRection:PATH:X	Sets or returns the path of the corrections file to apply to the X data source during compile.
OPTical:COMPILE:CORRection:PATH:Y	Sets or returns the path of the corrections file to apply to the Y data source during compile.
OPTical:COMPILE:NAME	Sets or returns the prefix to use to name the compiled waveforms.
OPTical:COMPILE:PLAY	Sets or returns the Play after assign state (enabled or disabled) for the Compile Settings.
OPTical:COMPILE:SRATe	Sets or returns the sampling rate for the compile settings.
OPTical:COMPILE:SRATe:AUTO	Sets or returns the value that indicates if the sampling rate will be automatically calculated at compile time.
OPTical:COMPILE:WLEngh:WAUTO	Sets or returns if the waveform length will be automatically calculated at compile time.
OPTical:COMPILE:WOVerwrite	Sets or returns the Overwrite existing waveform state (enabled or disabled) for compiling waveforms.
OPTical:COMPILE:XICHannel	Sets or returns which channel the X data source I waveform is assigned to upon compile.
OPTical:COMPILE:XQCHannel	Sets or returns which channel the X data source Q waveform is assigned to upon compile.
OPTical:COMPILE:XWLength	Sets or returns the X-Polarized waveform length.
OPTical:COMPILE:YICHannel	Sets or returns which channel the Y data source I waveform is assigned to upon compile.

Table 2-2: Compile commands and their descriptions (cont.)

Command	Description
OPTical:COMPILE:YQChannel	Sets or returns which channel the Y data source Q waveform is assigned to upon compile.
OPTical:COMPILE:YWLength	Sets or returns the Y-Polarized waveform length.

Setup commands

Table 2-3: Setup commands and their descriptions

Command	Description
OPTical:MODE	Sets or returns the Optical Polarization mode, Single or Dual.
OPTical:BRATE	Sets or returns the Baud Rate of the optical signal.
OPTical:XPOLarization:BBOffset	Sets or returns the Base Band Offset of X-Polarized optical signals.
OPTical:YPOLarization:BBOffset	Sets or returns the Base Band Offset of Y-Polarized optical signals.

Modulation commands

Table 2-4: Modulation commands and their descriptions

Command	Description
OPTical:MODulation	Sets or returns the Modulation type, using either predefined modulation types or using specific modulation parameters.
OPTical[:PREDefined]:PAM	Sets or returns the PAM modulation type.
OPTical[:PREDefined]:PAM:NVAue	Sets or returns the PAM Normalized Level of the specified index in the PAM table.
OPTical[:PREDefined]:PSK	Sets or returns the PSK modulation type.
OPTical[:PREDefined]:QAM	Sets or returns the QAM modulation type.
OPTical[:PREDefined]:TYPE	Sets or returns the modulation type when using a predefined type.

Custom modulation commands

Table 2-5: Custom modulation commands and their descriptions

Command	Description
OPTical:CMODulation:ADDMap	Adds the specified number of maps to the Custom Modulation map.
OPTical:CMODulation:DELMap	Deletes a single map from the Custom Modulation table.

Table 2-5: Custom modulation commands and their descriptions (cont.)

Command	Description
OPTical:CMODulation:ISYMBOL	Sets or returns the I symbol value of the currently selected Custom Modulation map.
OPTical:CMODulation:MMODE	Sets or returns the Modulation mode for the Custom Modulation.
OPTical:CMODulation:MOFFset	Sets or returns the Offset modulation state (enabled or disabled) for Custom Modulation.
OPTical:CMODulation:QSYMBOL	Sets or returns the Q symbol value of the currently selected Custom Modulation map.
OPTical:CMODulation:SELMap	Sets or returns the selected map in the Custom Modulation table.

Data source commands

Table 2-6: Data source commands and their descriptions

Command	Description
OPTical:XPOLarization:DSEBit:DATA	Sets or returns the X-Polarization Data Pattern type for the specified Bit index when the X Data Source is set to define a pattern type for each bit.
OPTical:XPOLarization:DSEBit:DATA:FILE	Sets or returns the X-Polarization Data Pattern file and file path for the specified Bit index when the X Data Source is set to define a pattern type for each bit.
OPTical:XPOLarization:DSEBit:DATA:PATTERN	Sets or returns the X-Polarization Data Pattern for the specified Bit index when the X Data Source is set to define a pattern type for each bit.
OPTical:XPOLarization:DSEBit:DATA:PRBS	Sets or returns the X-Polarization PRBS data type for the specified Bit index when the X Data Source is set to define a pattern type for each bit.
OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:POLYnomial	Sets or returns the X-Polarization PRBS Polynomial Expression for the User Defined PRBS for the specified Bit index when the X Data Source is set to define a pattern type for each bit.
OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:RESet	Resets the X-Polarization User Defined PRBS polynomial expression and shift register to their default values for the specified Bit index when the X Data Source is set to define a pattern type for each bit.
OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:SREGister	Sets or returns the X-Polarization PRBS Polynomial Shift Register Initial Value for the User Defined PRBS for the specified Bit index when the X Data Source is set to define a pattern type for each bit.
OPTical:XPOLarization:DSTYPE	Sets or returns the Data Source Pattern type of the X-Polarized optical signal.
OPTical:XPOLarization[:SDSource]:DATA	Sets or returns the X-Polarization Data Pattern type when the X Data Source is set to use a single data source.

Table 2-6: Data source commands and their descriptions (cont.)

Command	Description
OPTical:XPOLarization[:SDSource]:DATA:FILE	Sets or returns the X-Polarization Data Pattern file and file path when the X Data Source is set to use a single data source.
OPTical:XPOLarization[:SDSource]:DATA:PATtern	Sets or returns the X-Polarization user defined data pattern when the X Data Source is set to use a single data source.
OPTical:XPOLarization[:SDSource]:DATA:PRBS	Sets or returns the X-Polarization PRBS data type when the Data Source Pattern is set to PRBS when the X Data Source is set to use a single data source.
OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined:POLYnomial	Sets or returns the X-Polarization PRBS Polynomial Expression for the User Defined PRBS when the X Data Source is set to use a single data source.
OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined:RESet	Resets the X-Polarization User Defined PRBS polynomial expression and shift register to their default values when the X Data Source is set to use a single data source.
OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined:SREGister	Sets or returns the X-Polarization PRBS Polynomial Shift Register Initial Value for the User Defined PRBS when the X Data Source is set to use a single data source.
OPTical:YPOLarization:DSEBit:DATA	Sets or returns the Y-Polarization Data Pattern type for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.
OPTical:YPOLarization:DSEBit:DATA:FILE	Sets or returns the Y-Polarization Data Pattern file and file path for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.
OPTical:YPOLarization:DSEBit:DATA:PATtern	Sets or returns the Y-Polarization Data Pattern for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.
OPTical:YPOLarization:DSEBit:DATA:PRBS	Sets or returns the Y-Polarization PRBS data type for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.
OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:POLYnomial	Sets or returns the Y-Polarization PRBS Polynomial Expression for the User Defined PRBS for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.
OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:RESet	Resets the Y-Polarization User Defined PRBS polynomial expression and shift register to their default values for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.
OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:SREGister	Sets or returns the Y-Polarization PRBS Polynomial Shift Register Initial Value for the User Defined PRBS for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.
OPTical:YPOLarization:DSType	Sets or returns the Data Source Pattern type of the Y-Polarized optical signal.
OPTical:YPOLarization[:SDSource]:DATA	Sets or returns the Y-Polarization Data Pattern type when the Y Data Source is set to use a single data source.

Table 2-6: Data source commands and their descriptions (cont.)

Command	Description
OPTical:YPOLarization[:SDSource]:DATA:FILE	Sets or returns the Y-Polarization Data Pattern file and file path when the Y Data Source is set to use a single data source.
OPTical:YPOLarization[:SDSource]:DATA:PATtern	Sets or returns the Y-Polarization user defined data pattern when the Y Data Source is set to use a single data source.
OPTical:YPOLarization[:SDSource]:DATA:PRBS	Sets or returns the Y-Polarization PRBS data type when the Data Source Pattern is set to PRBS when the Y Data Source is set to use a single data source.
OPTical:YPOLarization[:SDSource]:DATA:PRBS:UDEFined:POLYnomial	Sets or returns the Y-Polarization PRBS Polynomial Expression for the User Defined PRBS when the Y Data Source is set to use a single data source.
OPTical:YPOLarization[:SDSource]:DATA:PRBS:UDEFined:RESet	Resets the Y-Polarization User Defined PRBS polynomial expression and shift register to their default values when the Y Data Source is set to use a single data source.
OPTical:YPOLarization[:SDSource]:DATA:PRBS:UDEFined:SREGister	Sets or returns the Y-Polarization PRBS Polynomial Shift Register Initial Value for the User Defined PRBS when the Y Data Source is set to use a single data source.

Filter commands

Table 2-7: Filter commands and their descriptions

Command	Description
OPTical:FILTer:ALPHa	Sets or returns the Alpha (filter roll off) value.
OPTical:FILTer:CLEngth	Sets or returns the Filter Convolution Length in symbols.
OPTical:FILTer:FILE	Sets or returns the path of the filter file for user defined filter.
OPTical:FILTer:TYPE	Sets or returns the Filter Type.

IQ impairments commands

Table 2-8: IQ impairments commands and their descriptions

Command	Description
OPTical:IQIMpairment:CLEApage:IOffset	Sets or returns the I Offset percentage for Carrier Leakage for IQ Impairments.
OPTical:IQIMpairment:CLEApage:IQOffset	Sets or returns the IQ Offset level for Carrier Leakage for IQ Impairments.
OPTical:IQIMpairment:CLEApage:QOffset	Sets or returns the Q Offset percentage for Carrier Leakage for IQ Impairments.
OPTical:IQIMpairment:CLEApage:TON	Sets or returns the Carrier Leakage state (enabled or disabled) for IQ Impairments.

Table 2-8: IQ impairments commands and their descriptions (cont.)

Command	Description
OPTical:IQImpairment:IQIMbalance:IMBalance	Sets or returns the Imbalance percentage for IQ Imbalance for IQ Impairments.
OPTical:IQImpairment:IQIMbalance:TON	Sets or returns the IQ Imbalance state (enabled or disabled) for IQ Impairments.
OPTical:IQImpairment:IQSWap:TON	Sets or returns the Swap I & Q state (enabled or disabled) for IQ Impairments.
OPTical:IQImpairment:NLDistortion:AM2K	Sets or returns the k2 level for AM/AM Nonlinear Distortions for IQ Impairments.
OPTical:IQImpairment:NLDistortion:AM3K	Sets or returns the k3 level for AM/AM Nonlinear Distortions for IQ Impairments.
OPTical:IQImpairment:NLDistortion:PM2K	Sets or returns the k2 level for AM/PM Nonlinear Distortions for IQ Impairments.
OPTical:IQImpairment:NLDistortion:PM3K	Sets or returns the k3 level for AM/PM Nonlinear Distortions for IQ Impairments.
OPTical:IQImpairment:NLDistortion:TON	Sets or returns the Nonlinear Distortions state (enabled or disabled) for IQ Impairments.
OPTical:IQImpairment:QERRor:ERRor	Sets or returns the I/Q Error percentage for Quadrature Error for IQ Impairments.
OPTical:IQImpairment:QERRor:TON	Sets or returns the Quadrature Error state (enabled or disabled) for IQ Impairments.

S-Parameter commands

Table 2-9: S-Parameter commands and their descriptions

Command	Description
OPTical:SPARAmeter:MODE	Sets or returns the S-Parameter mode (Cascading or Non-Cascading).
OPTical:SPARAmeter:SFORmat	Sets or returns the currently used signal format for all S-Parameter values.
OPTical:SPARAmeter:SFORmat:LPOlarizations	Sets or returns the S-Parameters Couple Settings state (enabled or disabled).
OPTical:SPARAmeter:TON	Sets or returns the S-Parameter state (enabled or disabled).
OPTical:SPARAmeter:BANDwidth	Sets or returns the S-Parameter bandwidth when setting manually.
OPTical:SPARAmeter:BANDwidth:AUTO	Sets or returns the S-Parameter automatic bandwidth calculation setting.
OPTical:SPARAmeter:CASCading:AGGRessor2[:ENABLE]	Sets or returns the aggressor 2 signal type state (enabled or disabled) in Cascading mode.
OPTical:SPARAmeter:CASCading:AGGRessor[n]:AMPLitude	Sets or returns the specified Aggressor's amplitude, in Cascading mode.

Table 2-9: S-Parameter commands and their descriptions (cont.)

Command	Description
OPTical:SPARameter:CASCading:AGGRessor[n]:CTAlk	Sets or returns the specified Aggressor's crosstalk type, in Cascading mode.
OPTical:SPARameter:CASCading:AGGRessor[n]:DRATe	Sets or returns the specified Aggressor's data rate, in Cascading mode.
OPTical:SPARameter:CASCading:AGGRessor[n]:SIGNal	Sets or returns specified Aggressor's signal type, in Cascading mode.
OPTical:SPARameter:CASCading:AGGRessor[n]:SIGNal:FILE	Sets or returns the filepath to the aggressor file for the specified Aggressor, in Cascading mode.
OPTical:SPARameter:CASCading:AGGRessor[n]:SIGNal:PRBS	Sets or returns the specified Aggressor's PRBS signal type, in Cascading mode.
OPTical:SPARameter:CASCading:DEEMbed	Sets or returns whether the Cascading S-Parameters is to de-embed (invert) the S-Parameters, in Cascading mode.
OPTical:SPARameter:CASCading:STAGe[m]:DRX[n]	Sets or returns the S-Parameter port assignment of the specified Stage and the channel's specified receiver port number (Rx-Port) in Cascading mode and Differential Signalling Scheme (where applicable).
OPTical:SPARameter:CASCading:STAGe[m]:DTX[n]	Sets or returns the S-Parameter port assignment of the specified Stage and the channel's specified transmission port number (Tx-Port) in Cascading mode and Differential Signalling Scheme (where applicable).
OPTical:SPARameter:CASCading:STAGe[m]:ENABle	Sets or returns the state of the specified Cascaded S-Parameter stage (enabled or disabled).
OPTical:SPARameter:CASCading:STAGe[m]:FILE	Sets or returns the filepath for the specified S-Parameters Cascading Stage, in Cascading mode.
OPTical:SPARameter:CASCading:STAGe[m]:RX[n]	Sets or returns the S-Parameter port assignment of the specified Stage and the channel's specified receiver port number (Rx-Port) in Cascading mode and Single-Ended Signalling Scheme (where applicable).
OPTical:SPARameter:CASCading:STAGe[m]:SSCHeme	Sets or returns the S-Parameter Signalling Scheme, in Cascading mode.
OPTical:SPARameter:CASCading:STAGe[m]:TX[n]	Sets or returns the S-Parameter port assignment of the specified Stage and the channel's specified transmission port number (Tx-Port) in Cascading mode and Single-Ended Signalling Scheme (where applicable).
OPTical:SPARameter:CASCading:STYPe	Sets or returns S-Parameter signal type (victim or aggressor), in Cascading mode.
OPTical:SPARameter:CASCading:TYPe	Sets or returns the S-Parameter number of ports, in Cascading mode.
OPTical:SPARameter:NCASCading:AGGRessor2[:ENABle]	Sets or returns the aggressor 2 signal type state (enabled or disabled) in Non-Cascading mode.
OPTical:SPARameter:NCASCading:AGGRessor[n]:AMPLitude	Sets or returns the specified Aggressor's amplitude, in Non-Cascading mode.

Table 2-9: S-Parameter commands and their descriptions (cont.)

Command	Description
<code>OPTical:SPARAmeter:NCAScading:AGGRessor[n]:CTALk</code>	Sets or returns the specified Aggressor's crosstalk type, in Non-Cascading mode.
<code>OPTical:SPARAmeter:NCAScading:AGGRessor[n]:DRATe</code>	Sets or returns the specified Aggressor's data rate, in Non-Cascading mode.
<code>OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal</code>	Sets or returns specified Aggressor's signal type, in Non-Cascading mode.
<code>OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal:FILE</code>	Sets or returns the filepath to the aggressor file for the specified Aggressor, in Non-Cascading mode.
<code>OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal:PRBS</code>	Sets or returns the specified Aggressor's PRBS signal type, in Non-Cascading mode.
<code>OPTical:SPARAmeter:NCAScading:DEEMbed</code>	Sets or returns whether the Non-Cascading S-Parameters is to de-embed (invert) the S-Parameters, in Non-Cascading mode.
<code>OPTical:SPARAmeter:NCAScading:DRX[n]</code>	Sets or returns the S-Parameter port assignment of the channel's specified receiver port number (Rx-Port) in Non-Cascading mode and Differential Signalling Scheme (where applicable).
<code>OPTical:SPARAmeter:NCAScading:DTX[n]</code>	Sets or returns the S-Parameter port assignment of the channel's specified transmission port number (Tx-Port) in Non-Cascading mode and Differential Signalling Scheme (where applicable).
<code>OPTical:SPARAmeter:NCAScading:FILE</code>	Sets or returns the filepath and file name of the S-Parameter file, in Non-Cascading mode.
<code>OPTical:SPARAmeter:NCAScading:LAYout</code>	Sets or returns the 4 port S-Parameter Matrix Configuration, in Non-Cascading mode.
<code>OPTical:SPARAmeter:NCAScading:RX[n]</code>	Sets or returns the S-Parameter port assignment of the channel's specified receiver port number (Rx-Port) in Non-Cascading mode and Single-Ended Signalling Scheme (where applicable).
<code>OPTical:SPARAmeter:NCAScading:SSCHeme</code>	Sets or returns the S-Parameter Signalling Scheme, in Non-Cascading mode. Signalling Scheme is only available when the Number of Ports is set to 4, 8, or 12.
<code>OPTical:SPARAmeter:NCAScading:STYPe</code>	Sets or returns S-Parameter signal type (victim or aggressor), in Non-Cascading mode.
<code>OPTical:SPARAmeter:NCAScading:TX[n]</code>	Sets or returns the S-Parameter port assignment of the channel's specified transmission port number (Tx-Port) in Non-Cascading mode and Single-Ended Signalling Scheme (where applicable).
<code>OPTical:SPARAmeter:NCAScading:TYPE</code>	Sets or returns the S-Parameter number of ports, in Non-Cascading mode.

Commands in alphabetical order

This section contains all available commands. They are presented in alphabetical order.

Use the Command Groups section to simplify navigating to specific groups of commands.

OPTical:BRATE

This command sets or returns the Baud Rate of the optical signal.

Group	Setup
Syntax	OPTical:BRATE <baudrate> OPTical:BRATE
Arguments	<baudrate> ::= <NR3> value.
Returns	A single <NR3> value.
Examples	OPTICAL:BRATE 1E9 sets the Baud Rate to 1 GHz. OPTICAL:BRATE? might return 900.000000000E+6, indicating that the Baud Rate is set to 900 MHz.

OPTical:CMODulation:ADDMap (No Query Form)

This command adds the specified number of maps to the Custom Modulation map.

Group	Custom modulation
Syntax	OPTical:CMODulation:ADDMap <maps>
Arguments	<maps> ::= <NR1> value.
Examples	OPTICAL:CMODULATION:ADDMAP 2 adds 2 new maps at the end of the Custom Modulation table.

OPTical:CMODulation:DELMap (No Query Form)

This command deletes a single map from the Custom Modulation table.

Group	Custom modulation
Syntax	OPTical:CMODulation:DELMap <index>
Arguments	<index>::= <NR1> value.
Examples	OPTICAL:CMODULATION:DELMAP 2 deletes map 2 in the Custom Modulation table.

OPTical:CMODulation:ISYMBOL

This command sets or returns the I symbol value of the currently selected Custom Modulation map.

Group	Custom modulation
Syntax	OPTical:CMODulation:ISYMBOL <I_symbol>
Related Commands	OPTical:CMODulation:SELMap
Arguments	<I_symbol>::= <NR2> value.
Returns	A single <NR2> value.
Examples	<p>OPTICAL:CMODULATION:ISYMBOL 25 sets the I symbol value of the currently selected map to 25.</p> <p>OPTICAL:CMODULATION:ISYMBOL? might return 5.000000000, indicating that the I symbol value of the currently selected map is set to 5.</p>

OPTical:CMODulation:MMODE

This command sets or returns the Modulation mode for the Custom Modulation.

Group	Custom modulation
Syntax	OPTical:CMODulation:MMODE {NORMal DIFFerential} OPTical:CMODulation:MMODE?
Arguments	NORMal DIFFerential
Returns	NORM DIFF
Examples	OPTICAL:CMODULATION:MMODE NORM sets the Modulation mode for Custom Modulation to Normal. OPTICAL:CMODULATION:MMODE? might return DIFF, indicating that the Modulation mode for Custom Modulation is set to Differential.

OPTical:CMODulation:MOFFset

This command sets or returns the Offset modulation state (enabled or disabled) for Custom Modulation.

Group	Custom modulation
Syntax	OPTical:CMODulation:MOFFset {1 0 ON OFF} OPTical:CMODulation:MOFFset?
Arguments	OFF or 0 disables Offset modulation. OFF or 0 is the default value. ON or 1 enables Offset modulation.
Returns	A single <Boolean> value.

Examples `OPTICAL:CMODULATION:MOFFSET 1` enables Offset modulation.
`OPTICAL:CMODULATION:MOFFSET?` might return 0, indicating that Offset modulation is disabled.

OPTical:CMODulation:QSYMBOL

This command sets or returns the Q symbol value of the currently selected Custom Modulation map.

Group Custom modulation

Syntax `OPTical:CMODulation:QSYMBOL <Q_symbol>`

Related Commands [OPTical:CMODulation:SELMap](#)

Arguments `<Q_symbol> ::= <NR2> value.`

Returns A single `<NR2>` value.

Examples `OPTICAL:CMODULATION:QSYMBOL 25` sets the Q symbol value of the currently selected map to 25.
`OPTICAL:CMODULATION:QSYMBOL?` might return 5.000000000, indicating that the Q symbol value of the currently selected map is set to 5.

OPTical:CMODulation:SELMap

This command sets or returns the selected map in the Custom Modulation table.

Group Custom modulation

Syntax `OPTical:CMODulation:SELMap <index>`
`OPTical:CMODulation:SELMap?`

Arguments `<index> ::= <NR1> value.`

Returns A single `<NR1>` value.

- Examples** `OPTICAL:CMODULATION:SELMAP 3` selects the third map in the Custom Modulation table.
- `OPTICAL:CMODULATION:SELMAP?` might return `2.0000000000`, indicating that the second map in the Custom Modulation table is selected.

OPTical:COMPile (No Query Form)

This command compiles and generates a waveform using the Optical plug-in compile settings.

- Conditions** The active plug-in must be Optical signal.
- This is an overlapping command. Overlapping commands run concurrently with other commands, allowing additional commands to start before the overlapping command has finished.
- Group** Compile
- Syntax** `OPTical:COMPile`
- Examples** `OPTICAL:COMPILE` compiles and generates the waveforms.

OPTical:COMPile:CANCEL (No Query Form)

This command cancels a compilation currently in progress.

- Conditions** The active plug-in must be Optical signal.
- Group** Compile
- Syntax** `OPTical:COMPile:CANCEL`
- Examples** `OPTICAL:COMPILE:CANCEL` immediately ends the current compile process.

OPTical:COMPile:CORRection:APPLy:X

This command sets or returns the Apply Corrections to X state (enabled or disabled) for the Compile Settings.

Group Compile

Syntax OPTical:COMPile:CORRection:APPLy:X {1|0|ON|OFF}
OPTical:COMPile:CORRection:APPLy:X?

Related Commands [OPTical:COMPile:CORRection:PATH:Y](#)

Arguments OFF or 0 disables Apply Corrections to X. OFF or 0 is the default value.
ON or 1 enables Apply Corrections to X.

Returns A single <Boolean> value.

Examples OPTICAL:COMPILE:CORRECTION:APPLY:X ON enables Apply Corrections to X.
OPTICAL:COMPILE:CORRECTION:APPLY:X? might return 0, indicating that Apply Corrections to X is disabled.

OPTical:COMPile:CORRection:APPLy:Y

This command sets or returns the Apply Corrections to Y state (enabled or disabled) for the Compile Settings.

Group Compile

Syntax OPTical:COMPile:CORRection:APPLy:Y {1|0|ON|OFF}
OPTical:COMPile:CORRection:APPLy:Y?

Related Commands [OPTical:COMPile:CORRection:PATH:Y](#)

Arguments OFF or 0 disables Apply Corrections to Y. OFF or 0 is the default value.
ON or 1 enables Apply Corrections to Y.

Returns A single <Boolean> value.

Examples `OPTICAL:COMPILE:CORRECTION:APPLY:Y ON` enables Apply Corrections to Y.
`OPTICAL:COMPILE:CORRECTION:APPLY:Y?` might return 0, indicating that Apply Corrections to Y is disabled.

OPTical:COMPile:CORRection:PATH:X

This command sets or returns the path of the corrections file to apply to the X data source during compile.

Group Compile

Syntax `OPTical:COMPile:CORRection:PATH:X <filepath>`
`OPTical:COMPile:CORRection:PATH:X?`

Arguments `<filepath>::=<string>` defines path to the corrections file.

Returns A single <filepath> string.

Examples `OPTICAL:COMPILE:CORRECTION:PATH:X`
`"C:\temp\XCorrectionFile.corr"` sets the Correction File's path and filename for the X data source.
`OPTICAL:COMPILE:CORRECTION:PATH:X?` might return
`"C:\temp\XCorrectionFile.corr"`.

OPTical:COMPile:CORRection:PATH:Y

This command sets or returns the path of the corrections file to apply to the Y data source during compile.

Group Compile

Syntax `OPTical:COMPile:CORRection:PATH:Y <filepath>`
`OPTical:COMPile:CORRection:PATH:Y?`

Arguments `<filepath>::=<string>` defines path to the corrections file.

Returns A single <filepath> string.

Examples OPTICAL:COMPILE:CORRECTION:PATH:Y
"C:\temp\YCorrectionFile.corr" sets the Correction File's path and filename for the Y data source.

OPTICAL:COMPILE:CORRECTION:PATH:Y? might return
"C:\temp\YCorrectionFile.corr".

OPTical:COMPile:NAME

This commands sets or returns the prefix to use to name the compiled waveforms.

Group Compile

Syntax OPTical:COMPile:NAME <signal_name>
OPTical:COMPile:NAME?

Arguments <signal_name>::= <string> defines the prefix for the signal names.

Returns <string>

Examples OPTICAL:COMPILE:NAME "OpticalWfm" sets the waveform name prefix to OpticalWfm.

OPTICAL:COMPILE:NAME? might return "OpticalWfm".

OPTical:COMPile:PLAY

This command sets or returns the Play after assign state (enabled or disabled) for the Compile Settings.

Play after assign is active only when Compile and assign is enabled.

Group Compile

Syntax OPTical:COMPile:PLAY {0|1|OFF|ON}
OPTical:COMPile:PLAY?

- Arguments** OFF or 0 disables Play after assign. OFF or 0 is the default value.
ON or 1 enables Play after assign.
- Returns** A single <Boolean> value.
- Examples** OPTICAL:COMPILE:PLAY 1 enables Play after assign.
OPTICAL:COMPILE:PLAY? might return 0, indicating that Play after assign is disabled.

OPTical:COMPile:SRATe

This command sets or returns the sampling rate for the compile settings.

- Group** Compile
- Syntax** OPTical:COMPile:SRATe <rate>
OPTical:COMPile:SRATe?
- Arguments** <rate> ::= <NR3> value.
The maximum sampling rate is dependent on the instrument and instrument options.
- Returns** A single <NR3> value.
- Examples** OPTICAL:COMPILE:SRATE 6E9 sets the Sampling Rate to 6 GS/s in the Compile settings.
OPTICAL:COMPILE:SRATE? might return 6.000000000E+9, indicating that the sampling rate is GS/s

OPTical:COMPile:SRATe:AUTO

This command sets or returns the value that indicates if the sampling rate will be automatically calculated at compile time.

Group Compile

Syntax OPTical:COMPile:SRATe:AUTO {0|1|OFF|ON}
OPTical:COMPile:SRATe:AUTO?

Arguments OFF or 0 disables the sampling rate auto calculation and the manual setting for is used.

ON or 1 enables the auto calculation. ON or 1 is the default value.

Returns A single <Boolean> value.

Examples OPTICAL:COMPILE:SRATE:AUTO ON sets the signal's sampling rate to be automatically calculated at compile time.

OPTICAL:COMPILE:SRATE:AUTO? might return 0, indicating that the sampling rate will not be automatically calculated at compile time.

OPTical:COMPile:WLENgth:WAUto

This command sets or returns if the waveform length will be automatically calculated at compile time.

Group Compile

Syntax OPTical:COMPile:WLENgth:WAUto {0|1|OFF|ON}
OPTical:COMPile:WLENgth:WAUto?

Arguments OFF or 0 disables waveform length auto calculation and manual setting for .

ON or 1 enables the auto calculation. ON or 1 is the default value.

Returns A single <Boolean> value.

Examples OPTICAL:COMPILE:WLENGTH:WAUTO ON sets the signal's waveform length to be automatically calculated at compile time.

OPTICAL:COMPILE:WLENGTH:WAUTO? might return 0, indicating that the waveform length will not be automatically calculated at compile time.

OPTical:COMPile:WOverwrite

This command sets or returns the Overwrite existing waveform state (enabled or disabled) for compiling waveforms. When enabled, new waveforms overwrite existing waveforms list. When disabled, new waveforms are generated with an additional numeric suffix added at the end of the waveform name.

Group	Compile
Syntax	OPTical:COMPile:WOverwrite {1 0 ON OFF} OPTical:COMPile:WOverwrite?
Arguments	OFF or 0 disables Overwriting waveforms. OFF or 0 is the default value. ON or 1 enables Overwriting waveforms.
Returns	A single <Boolean> value.
Examples	OPTICAL:COMPILE:WOVERWRITE 1 enables Overwriting waveforms. OPTICAL:COMPILE:WOVERWRITE? might return 0, indicating that Overwriting waveforms is disabled.

OPTical:COMPile:XIChannel

This command sets or returns which channel the X data source I waveform is assigned to upon compile.

Group	Compile
Syntax	OPTical:COMPile:XIChannel {NONE <channel>} OPTical:COMPile:XIChannel?
Arguments	NONE indicates that the X data source I waveform will be compiled but not assigned to a channel. <channel>::= <NR1> is a valid channel number.

Returns A single <NR1> value or NONE.

Examples OPTICAL:COMPILE:XCHANNEL 2 assigns the X data source I waveform to channel 2 after the compile completes.

OPTICAL:COMPILE:XCHANNEL? might return NONE, indicating that X data source I waveform are not assigned to any channel after the compile is complete.

OPTical:COMpile:XQCHannel

This command sets or returns which channel the X data source Q waveform is assigned to upon compile.

Group Compile

Syntax OPTical:COMpile:XQCHannel {NONE|<channel>}
OPTical:COMpile:XQCHannel?

Arguments NONE indicates that the X data source Q waveform will be compiled but not assigned to a channel.

<channel> ::= <NR1> is a valid channel number.

Returns A single <NR1> value or NONE.

Examples OPTICAL:COMPILE:XQCHANNEL 2 assigns the X data source Q waveform to channel 2 after the compile completes.

OPTICAL:COMPILE:XQCHANNEL? might return NONE, indicating that X data source Q waveform are not assigned to any channel after the compile is complete.

OPTical:COMpile:XWLength

This command sets or returns the X-Polarized waveform length. If the waveform length is not set to auto, then the value for waveform length is based on the value provided.

Group Compile

Syntax OPTical:COMpile:XWLength <length>
OPTical:COMpile:XWLength?

Related Commands	OPTical:COMPile:WLENgth:WAUto
Arguments	<length>::= <NR3> value.
Returns	A single <NR3> value.
Examples	<p>OPTICAL:COMPILE:XWLENGTH 10E-3 sets the X-Polarized waveform length to 10000 Symbols.</p> <p>OPTICAL:COMPILE:XWLENGTH? might return 3.000000000E+3, and if the unit is time, it indicates that the X-Polarized waveform length is 3000 Symbols.</p>

OPTical:COMPile:YICHannel

This command sets or returns which channel the Y data source I waveform is assigned to upon compile.

Group	Compile
Syntax	<pre>OPTical:COMPile:YICHannel {NONE <channel>} OPTical:COMPile:YICHannel?</pre>
Arguments	<p>NONE indicates that the Y data source I waveform will be compiled but not assigned to a channel.</p> <p><channel>::= <NR1> is a valid channel number.</p>
Returns	A single <NR1> value or NONE.
Examples	<p>OPTICAL:COMPILE:YICHANNEL 2 assigns the Y data source I waveform to channel 2 after the compile completes.</p> <p>OPTICAL:COMPILE:YICHANNEL? might return NONE, indicating that Y data source I waveform are not assigned to any channel after the compile is complete.</p>

OPTical:COMPile:YQCHannel

This command sets or returns which channel the Y data source Q waveform is assigned to upon compile.

Group	Compile
Syntax	OPTical:COMPile:YQCHannel {NONE <channel>} OPTical:COMPile:YQCHannel?
Arguments	NONE indicates that the Y data source Q waveform will be compiled but not assigned to a channel. <channel> ::= <NR1> is a valid channel number.
Returns	A single <NR1> value or NONE.
Examples	OPTICAL:COMPILE:YQCHANNEL 2 assigns the Y data source Q waveform to channel 2 after the compile completes. OPTICAL:COMPILE:YQCHANNEL? might return NONE, indicating that Y data source Q waveform are not assigned to any channel after the compile is complete.

OPTical:COMPile:YWLength

This command sets or returns the Y-Polarized waveform length. If the waveform length is not set to auto, then the value for waveform length is based on the value provided.

Group	Compile
Syntax	OPTical:COMPile:YWLength <length> OPTical:COMPile:YWLength?
Related Commands	OPTical:COMPile:WLENgth:WAUto
Arguments	<length> ::= <NR3> value.
Returns	A single <NR3> value.

Examples `OPTICAL:COMPILE:YWLENGTH 10E-3` sets the Y-Polarized waveform length to 10000 Symbols.

`OPTICAL:COMPILE:YWLENGTH?` might return `3.0000000000E+3`, and if the unit is time, it indicates that the Y-Polarized waveform length is 3000 Symbols.

OPTical:FILTer:ALPHa

This command sets or returns the Alpha (filter roll off) value.

Conditions Filter type must be set to Raised Cosine, or Root Raised Cosine.

Group Filter

Syntax `OPTical:FILTer:ALPHa <alpha>`
`OPTical:FILTer:ALPHa?`

Related Commands [OPTical:FILTer:TYPE](#)

Arguments `<alpha>::= <NR3> value.`

Returns A single `<NR3>` value.

Examples `OPTICAL:FILTER:ALPHA 0.23` sets the Alpha filter roll off value to 0.23.

`OPTICAL:FILTER:ALPHA?` may return `230.0000000000E-3`, indicating that the Alpha filter roll off value is set to 0.23.

OPTical:FILTer:CLENgth

This command sets or returns the Filter Convolution Length in symbols.

Group Filter

Syntax `OPTical:FILTer:CLENgth <length>`
`OPTical:FILTer:CLENgth?`

Arguments `<length>::= <NR3> value.`

Returns A single <NR1> value.

Examples OPTICAL:FILTER:CLENGTH 21 sets the Convolution Length to 21 symbols.
OPTICAL:FILTER:CLENGTH? might return 21.0000000000, indicating that the Convolution Length is set to 21 symbols.

OPTical:FILTer:FILE

This command sets or returns the path of the filter file for user defined filter.

Group Filter

Syntax OPTical:FILTer:FILE <filepath>
OPTical:FILTer:FILE?

Arguments <filepath>::= <string>.

Returns A single <filepath> string.

Examples OPTICAL:FILTER:FILE "c:\test\filter_file.txt" sets the filter file name.
OPTICAL:FILTER:FILE? might return "c:\test\filter_file.txt" for the filter file.

OPTical:FILTer:TYPE

This command sets or returns the Filter Type.

Group Filter

Syntax OPTical:FILTer:TYPE {RECTangular|RCOSine|RRCosine|UDEFined}
OPTical:FILTer:TYPE?

Arguments RECTangular, RCOSine, RRCosine, and UDEFined are the selectable filter types.
When setting to UDEF (User Defined), use the command [OPTical:FILTer:FILE](#) to set the path to the user defined filter file.

Returns RECT, RCOS, RRC, or UDEF as the filter type.

Examples OPTICAL:FILTER:TYPE RRCOSINE sets the Filter Type to Root Raised Cosine.
OPTICAL:FILTER:TYPE? might return RRC, indicating that the Filter Type is set to Root Raised Cosine.

OPTical:IQIMpairment:CLEAorage:IOFFset

This command sets or returns the I Offset percentage for Carrier Leakage for IQ Impairments.

Group IQ impairments

Syntax OPTical:IQIMpairment:CLEAorage:IOFFset <percentage>
OPTical:IQIMpairment:CLEAorage:IOFFset?

Arguments <percentage> ::= <NR3> value.

Returns A single <NR3> value.

Examples OPTICAL:IQIMPAIRMENT:CLEAKAGE:IOFFSET -10 sets the Carrier Leakage I Offset percentage to -10 %.
OPTICAL:IQIMPAIRMENT:CLEAKAGE:IOFFSET? might return 3.000000000, indicating that the Carrier Leakage I Offset percentage is set to 3 %.

OPTical:IQIMpairment:CLEAorage:IQOFFset

This command sets or returns the IQ Offset level for Carrier Leakage for IQ Impairments.

Group IQ impairments

Syntax OPTical:IQIMpairment:CLEAorage:IQOFFset <level>
OPTical:IQIMpairment:CLEAorage:IQOFFset?

Arguments <level> ::= <NR1> value.

Returns A single <NR2> value.

Examples OPTICAL:IQIMPAIRMENT:CLEAKAGE:IQOFFSET -5 sets the Carrier Leakage IQ Offset level to -5 dB.

OPTICAL:IQIMPAIRMENT:CLEAKAGE:IQOFFSET? might return -20.0000000000, indicating that the Carrier Leakage IQ Offset level is set to -20 dB.

OPTical:IQIMpairment:CLEAorage:QOFFset

This command sets or returns the Q Offset percentage for Carrier Leakage for IQ Impairments.

Group IQ impairments

Syntax OPTical:IQIMpairment:CLEAorage:QOFFset <percentage>
OPTical:IQIMpairment:CLEAorage:QOFFset?

Arguments <percentage>::= <NR3> value.

Returns A single <NR3> value.

Examples OPTICAL:IQIMPAIRMENT:CLEAKAGE:QOFFSET -10 sets the Carrier Leakage Q Offset percentage to -10 %.

OPTICAL:IQIMPAIRMENT:CLEAKAGE:QOFFSET? might return 3.0000000000, indicating that the Carrier Leakage Q Offset percentage is set to 3 %.

OPTical:IQIMpairment:CLEAorage:TON

This command sets or returns the Carrier Leakage state (enabled or disabled) for IQ Impairments.

Group IQ impairments

Syntax OPTical:IQIMpairment:CLEAorage:TON {1|0|ON|OFF}
OPTical:IQIMpairment:CLEAorage:TON?

- Arguments** OFF or 0 disables Carrier Leakage. OFF or 0 is the default value.
ON or 1 enables Carrier Leakage.
- Returns** A single <Boolean> value.
- Examples** OPTICAL:IQIMPAIRMENT:CLEAKAGE:TON 1 enables the Carrier Leakage.
OPTICAL:IQIMPAIRMENT:CLEAKAGE:TON? might return 0, indicating that the Carrier Leakage is disabled.

OPTical:IQIMpairment:IQIMbalance:IMBalance

This command sets or returns the Imbalance percentage for IQ Imbalance for IQ Impairments.

- Group** IQ impairments
- Syntax** OPTical:IQIMpairment:IQIMbalance:IMBalance <percentage>
OPTical:IQIMpairment:IQIMbalance:IMBalance?
- Arguments** <percentage>::= <NR3> value.
- Returns** A single <NR3> value.
- Examples** OPTICAL:IQIMPAIRMENT:IQIMBALANCE:IMBALANCE -11 sets the IQ Imbalance percentage to -11 %.
OPTICAL:IQIMPAIRMENT:IQIMBALANCE:IMBALANCE? might return 3.0000000000, indicating that the IQ Imbalance percentage is set to 3 %.

OPTical:IQIMpairment:IQIMbalance:TON

This command sets or returns the IQ Imbalance state (enabled or disabled) for IQ Impairments.

- Group** IQ impairments
- Syntax** OPTical:IQIMpairment:IQIMbalance:TON {1|0|ON|OFF}
OPTical:IQIMpairment:IQIMbalance:TON?

- Arguments** OFF or 0 disables IQ Imbalance. OFF or 0 is the default value.
ON or 1 enables IQ Imbalance.
- Returns** A single <Boolean> value.
- Examples** OPTICAL:IQIMPAIRMENT:IQIMBALANCE:TON 1 enables the IQ Imbalance.
OPTICAL:IQIMPAIRMENT:IQIMBALANCE:TON? might return 0, indicating that the IQ Imbalance is disabled.

OPTical:IQIMpairment:IQSWap:TON

This command sets or returns the Swap I & Q state (enabled or disabled) for IQ Impairments.

- Group** IQ impairments
- Syntax** OPTical:IQIMpairment:IQSWap:TON {1|0|ON|OFF}
OPTical:IQIMpairment:IQSWap:TON?
- Arguments** OFF or 0 disables Swap I & Q. OFF or 0 is the default value.
ON or 1 enables Swap I & Q.
- Returns** A single <Boolean> value.
- Examples** OPTICAL:IQIMPAIRMENT:IQSWAP:TON 1 enables Swap I & Q.
OPTICAL:IQIMPAIRMENT:IQSWAP:TON? might return 0, indicating that Swap I & Q is disabled.

OPTical:IQIMpairment:NLDistortion:AM2K

This command sets or returns the k2 level for AM/AM Nonlinear Distortions for IQ Impairments.

- Group** IQ impairments
- Syntax** OPTical:IQIMpairment:NLDistortion:AM2K <level>
OPTical:IQIMpairment:NLDistortion:AM2K?

Arguments	<level>::= <NR3> value.
Returns	A single <NR3> value.
Examples	<p>OPTICAL:IQIMPAIRMENT:NLDISTORTION:AM2K -1 sets the AM/AM k2 level to -1 dB.</p> <p>OPTICAL:IQIMPAIRMENT:NLDISTORTION:AM2K? might return -1.0000000000, indicating that the AM/AM k2 level is set to -1 dB.</p>

OPTical:IQIMpairment:NLDistortion:AM3K

This command sets or returns the k3 level for AM/AM Nonlinear Distortions for IQ Impairments.

Group	IQ impairments
Syntax	<p>OPTical:IQIMpairment:NLDistortion:AM3K <level></p> <p>OPTical:IQIMpairment:NLDistortion:AM3K?</p>
Arguments	<level>::= <NR3> value.
Returns	A single <NR3> value.
Examples	<p>OPTICAL:IQIMPAIRMENT:NLDISTORTION:AM3K -1 sets the AM/AM k3 level to -1 dB.</p> <p>OPTICAL:IQIMPAIRMENT:NLDISTORTION:AM3K? might return -1.0000000000, indicating that the AM/AM k3 level is set to -1 dB.</p>

OPTical:IQIMpairment:NLDistortion:PM2K

This command sets or returns the k2 level for AM/PM Nonlinear Distortions for IQ Impairments.

Group	IQ impairments
Syntax	<p>OPTical:IQIMpairment:NLDistortion:PM2K <level></p> <p>OPTical:IQIMpairment:NLDistortion:PM2K?</p>

Arguments	<level> ::= <NR3> value.
Returns	A single <NR3> value.
Examples	<code>OPTICAL:IQIMPAIRMENT:NLDISTORTION:PM2K -1</code> sets the AM/PM k2 level to -1 dB. <code>OPTICAL:IQIMPAIRMENT:NLDISTORTION:PM2K?</code> might return -1.0000000000, indicating that the AM/PM k2 level is set to -1 dB.

OPTical:IQIMpairment:NLDistortion:PM3K

This command sets or returns the k3 level for AM/PM Nonlinear Distortions for IQ Impairments.

Group	IQ impairments
Syntax	<code>OPTical:IQIMpairment:NLDistortion:PM3K <level></code> <code>OPTical:IQIMpairment:NLDistortion:PM3K?</code>
Arguments	<level> ::= <NR3> value.
Returns	A single <NR3> value.
Examples	<code>OPTICAL:IQIMPAIRMENT:NLDISTORTION:PM3K -1</code> sets the AM/PM k3 level to -1 dB. <code>OPTICAL:IQIMPAIRMENT:NLDISTORTION:PM3K?</code> might return -1.0000000000, indicating that the AM/PM k3 level is set to -1 dB.

OPTical:IQIMpairment:NLDistortion:TON

This command sets or returns the Nonlinear Distortions state (enabled or disabled) for IQ Impairments.

Group	IQ impairments
Syntax	<code>OPTical:IQIMpairment:NLDistortion:TON {1 0 ON OFF}</code> <code>OPTical:IQIMpairment:NLDistortion:TON?</code>

Arguments	OFF or 0 disables Nonlinear Distortions. OFF or 0 is the default value. ON or 1 enables Nonlinear Distortions.
Returns	A single <Boolean> value.
Examples	OPTICAL : IQIMPAIRMENT : NLDISTORTION : TON 1 enables the Nonlinear Distortions. OPTICAL : IQIMPAIRMENT : NLDISTORTION : TON? might return 0, indicating that the Nonlinear Distortions is disabled.

OPTical:IQIMpairment:QERRor:ERRor

This command sets or returns the I/Q Error percentage for Quadrature Error for IQ Impairments.

Group	IQ impairments
Syntax	OPTical:IQIMpairment:QERRor:ERRor <percentage> OPTical:IQIMpairment:QERRor:ERRor?
Arguments	<percentage> ::= <NR3> value.
Returns	A single <NR3> value.
Examples	OPTICAL : IQIMPAIRMENT : QERROR : ERROR -11 sets the Quadrature Error I/Q Error percentage to -11 %. OPTICAL : IQIMPAIRMENT : QERROR : ERROR? might return 3.000000000, indicating that the Quadrature Error I/Q Error percentage is set to 3 %.

OPTical:IQIMpairment:QERRor:TON

This command sets or returns the Quadrature Error state (enabled or disabled) for IQ Impairments.

Group	IQ impairments
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Syntax OPTical:IQIMpairment:QERRor:TON {1|0|ON|OFF}
OPTical:IQIMpairment:QERRor:TON?

Arguments OFF or 0 disables Quadrature Error. OFF or 0 is the default value.
ON or 1 enables Quadrature Error.

Returns A single <Boolean> value.

Examples OPTICAL:IQIMPAIRMENT:QERROR:TON 1 enables the Quadrature Error.
OPTICAL:IQIMPAIRMENT:QERROR:TON? might return 0, indicating that the Quadrature Error is disabled.

OPTical:MODE

This command sets or returns the Optical Polarization mode, Single or Dual.

Selecting Single Polarization generates either one or two X-Polarized waveforms.
Selecting Dual Polarization generates either one or two X-Polarized waveforms and one or two Y-Polarized waveforms.

Group Setup

Syntax OPTical:MODE {SINGle|DUAL}
OPTical:MODE

Arguments SINGle = Single Polarization (X).
DUAL = Dual Polarization (X & Y).

Returns SING
DUAL

Examples OPTICAL:MODE SING sets the Optical Mode is set to Single Polarization (X).
OPTICAL:MODE? might return DUAL, indicating that the Optical Mode is set to Dual Polarization (X & Y).

OPTical:MODulation

This command sets or returns the Modulation type, using either predefined modulation types or using specific modulation parameters.

Group	Modulation
Syntax	OPTical:MODulation {PREDefined CMODulation} OPTical:MODulation?
Arguments	PREDefined CMODulation
Returns	PRED CMOD
Examples	OPTICAL:MODULATION PREDEFINED sets the Modulation Type to use one of the available modulation types. OPTICAL:MODULATION? might return CMOD, indicating the Modulation type is set to use custom modulation parameters.

OPTical[:PREDefined]:PAM

This command sets or returns the PAM modulation type.

Group	Modulation
Syntax	OPTical[:PREDefined]:PAM {PAM2 PAM4 PAM8} OPTical[:PREDefined]:PAM?
Arguments	PAM2, PAM4, and PAM8 are selectable PAM modulation types.
Returns	PAM2, PAM4, or PAM8
Examples	OPTICAL:PREDEFINED:PAM PAM4 sets the PAM Modulation type to PAM4. OPTICAL:PREDEFINED:PAM? might return PAM8, indicating that the PAM Modulation type is set to PAM8.

OPTical[:PREDEFINED]:PAM:NVALUE

This command sets or returns the PAM Normalized Level of the specified index in the PAM table.

Group	Modulation
Syntax	OPTical[:PREDEFINED]:PAM:NVALUE <index>, <nvalue> OPTical[:PREDEFINED]:PAM:NVALUE? <index>
Arguments	<index>::= <NR1> value. The acceptable values (Integer Values) are determined by the PAM type. 0 is the first Integer Value in the PAM parameters table. <nvalue>::= <NR3> value.
Returns	A single <NR3> value.
Examples	OPTICAL:PREDEFINED:PAM:NVALUE 0, -0.5 sets the Normalized Level to -0.5 at index 0 in the PAM parameters table. OPTICAL:PREDEFINED:PAM:NVALUE? 2 might return 333.0000000000E-3, indicating that the Normalized Level at index 2 in the PAM parameters table is set to 0.333.

OPTical[:PREDEFINED]:PSK

This command sets or returns the PSK modulation type.

Group	Modulation
Syntax	OPTical[:PREDEFINED]:PSK {BPSK QPSK OQPSK} OPTical[:PREDEFINED]:PSK?
Arguments	BPSK, QPSK, and OQPSK are selectable PSK modulation types.
Returns	BPSK, QPSK, or OQPSK.
Examples	OPTICAL:PREDEFINED:PSK BPSK sets the PSK Modulation type to BPSK. OPTICAL:PREDEFINED:PSK? might return QPSK, indicating that the PSK Modulation type is set to QPSK.

OPTical[:PREDEFINED]:QAM

This command sets or returns the QAM modulation type.

Group	Modulation
Syntax	OPTical[:PREDEFINED]:QAM {QAM8 QAM16 QAM32 QAM64 QAM128 QAM256 QAM512 QAM1024} OPTical[:PREDEFINED]:QAM?
Arguments	QAM8, QAM16, QAM32, QAM64, QAM128, QAM256, QAM512, and QAM1024 are the selectable QAM modulation types.
Returns	QAM8, QAM16, QAM32, QAM64, QAM128, QAM256, QAM512, or QAM1024.
Examples	OPTICAL:PREDEFINED:QAM QAM16 sets the QAM Modulation type to QAM16. OPTICAL:PREDEFINED:QAM? might return QAM32, indicating that the QAM Modulation type is set to QAM32.

OPTical[:PREDEFINED]:TYPE

This command sets or returns the modulation type when using a predefined type.

Conditions	Modulation must be set to Predefined Modulation.
Group	Modulation
Syntax	OPTical[:PREDEFINED]:TYPE {PSK QAM PAM OOK NRZ} OPTical[:PREDEFINED]:TYPE?
Related Commands	OPTical:MODulation OPTical[:PREDEFINED]:PSK OPTical[:PREDEFINED]:QAM OPTical[:PREDEFINED]:PAM
Arguments	PSK, QAM, PAM, OOK, and NRZ are the selectable modulation types. PSK, QAM, and PAM require further definition. See related commands.

Returns PSK, QAM, PAM, OOK, or NRZ indicating the modulation type.

Examples `OPTICAL:PREDEFINED:TYPE PSK` sets the modulation type to the most recently selected PSK type modulation.

`OPTICAL:PREDEFINED:TYPE?` might return OOK, indicating that the digital modulation type is set to OOK.

OPTical:RESet (No Query Form)

This command resets the Optical signal plug-in by setting all the values within the module to their default values.

Conditions The active plug-in must be Optical.

Group Control

Syntax `OPTical:RESet`

Examples `OPTICAL:RESET` returns the Optical signal plug-in to its default values.

OPTical:SPARAmeter:MODE

This command sets or returns the S-Parameter mode (Cascading or Non-Cascading).

Conditions Requires an S-Parameters license.

Group S-Parameters

Syntax `OPTical:SPARAmeter:MODE {CASC|NCAS}`
`OPTical:SPARAmeter:MODE?`

Arguments `CASCAding` sets the S-Parameter mode to cascading, allowing you to cascade up to six S-parameter files and apply the characteristics on the waveform.

`NCASCAding` sets the S-Parameter mode to non-cascading, allowing you to apply S-parameter characteristics on the waveform from only one S-parameter file.

Returns CASC
NCASC

Examples OPTICAL:SPARAMETER:MODE CASCADING sets the S-Parameter mode to cascading.
OPTICAL:SPARAMETER:MODE? might return NCAS, indicating that the S-Parameter mode is set to Non-Cascading mode.

OPTical:SPARAmeter:SFORmat

This command sets or returns the currently used signal format for all S-Parameter values.

The Setup Mode and Modulation type affects the available parameters.

Conditions Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:SFORmat {signal_format}
OPTical:SPARAmeter:SFORmat?

Related Commands [OPTical:MODE](#),
[OPTical:MODulation](#),
[OPTical\[:PREDeFined\]:TYPE](#)

Arguments The available arguments are affected by the selected Mode and Modulation Type.

Predefined Modulation

Setup Mode	Modulation type	S-Parameter selections
Single Polarization	PAM, NRZ	<signal_format>::= { X }
Single Polarization	QAM, PSK, OOK	<signal_format>::= { XI XQ }
Dual Polarization	PAM, NRZ	<signal_format>::= { X Y }
Dual Polarization	QAM, PSK, OOK	<signal_format>::= {XI XQ YI YQ }

Custom Modulation

Setup Mode	S-Parameter selections
Single Polarization	<signal_format>::= { XI XQ }
Dual Polarization	<signal_format>::= {XI XQ YI YQ }

Returns X – S-Parameters applied to the X plane.
 Y – S-Parameters applied to the Y plane.
 XI – S-Parameters applied to the I signal on the X plane.
 XQ – S-Parameters applied to the Q signal on the X plane.
 YI – S-Parameters applied to the I signal on the Y plane.
 YQ – S-Parameters applied to the Q signal on the Y plane.
 COUP – S-Parameters applied to all signals because Couple Settings is enabled.

Examples OPTICAL:SPARAMETER:SFORMAT X applies the S-Parameters to the IQ X plane for Modulation types PAM or NRZ.
 OPTICAL:SPARAMETER:SFORMAT? might return COUP, indicating that the S-Parameters Couple Settings is enabled.

OPTical:SPARAmeter:SFORmat:LPOLArizations

This command sets or returns the S-Parameters Couple Settings state (enabled or disabled). When enabled, all I and Q S-Parameters are linked together (chained) so that all parameters match between I and Q.

Conditions Requires an S-Parameters license.

Couple Settings is not available when Mode is set to Single Polarization and the Modulation type is set to PAM or NRZ since only one waveform is created.

Group S-Parameters

Syntax OPTical:SPARAMeter:SFORmat:LPOLArizations {1|0|ON|OFF}
 OPTical:SPARAMeter:SFORmat:LPOLArizations?

Related Commands [OPTical:MODE](#),
[OPTical:MODulation](#),
[OPTical\[:PREDEfined\]:TYPE](#)

Arguments OFF or 0 disables Couple Settings. OFF or 0 is the default value.
 ON or 1 enables Couple Settings.

Returns A single <Boolean> value.

Examples OPTICAL:SPARAMETER:SFORMAT:LPOLARIZATIONS 1 enables the Couple Settings.

OPTICAL:SPARAMETER:SFORMAT:LPOLARIZATIONS? might return 0, indicating that the Couple Settings is disabled.

OPTical:SPARAmeter:TON

This command sets or returns the S-Parameter state (enabled or disabled).

Conditions	Requires an S-Parameters license.
Group	S-Parameters
Syntax	OPTical:SPARAmeter:TON {1 0 ON OFF} OPTical:SPARAmeter:TON?
Arguments	OFF or 0 disables S-Parameters. OFF or 0 is the default value. ON or 1 enables S-Parameters.
Returns	A single <Boolean> value.
Examples	OPTICAL:SPARAMETER:TON 1 enables the S-Parameters. OPTICAL:SPARAMETER:TON? might return 0, indicating that the S-Parameters is disabled.

OPTical:SPARAmeter:BANDwidth

This command sets or returns the S-Parameter bandwidth when setting manually.

Conditions	Requires an S-Parameters license.
Group	S-Parameters
Syntax	OPTical:SPARAmeter:BANDwidth {FULL <bandwidth>} OPTical:SPARAmeter:BANDwidth?
Related Commands	OPTical:SPARAmeter:BANDwidth:AUTO

Arguments	<p>FULL – The bandwidth is set to ½ of the waveform’s sample rate (i.e. Nyquist Frequency).</p> <p><bandwidth>::= <NR3> value.</p> <p>Range: 1 Hz to ½ of the maximum sample rate of the instrument.</p> <p>If the set Bandwidth is greater than the Nyquist (Sample rate of the waveform/2), then the software limits the bandwidth to ½ of the waveform’s sample rate.</p>
Returns	<p>FULL</p> <p>A single <NR3> value.</p>
Examples	<p>OPTICAL:SPARAMETER:BANDWIDTH 60E6 sets the S-Parameter Bandwidth Value to 60 MHz.</p> <p>OPTICAL:SPARAMETER:BANDWIDTH? might return 1.000000000E+9, indicating the S-Parameter Bandwidth is set to 1 GHz.</p>

OPTical:SPARAmeter:BANDwidth:AUTO

This command sets or returns the S-Parameter automatic bandwidth calculation setting. The bandwidth is defined at the point where the signal rolls off to –60 dB. If this results in a bandwidth greater than the instrument supports, the bandwidth is set to ½ of the waveform’s sample rate (i.e. Nyquist Frequency).

Conditions	Requires an S-Parameters license.
Group	S-Parameters
Syntax	<p>OPTical:SPARAmeter:BANDwidth:AUTO {0 1 OFF ON}</p> <p>OPTical:SPARAmeter:BANDwidth:AUTO?</p>
Related Commands	OPTical:SPARAmeter:BANDwidth
Arguments	<p>ON or 1 enables automatic bandwidth calculation. ON or 1 is the default value.</p> <p>OFF or 0 disables automatic bandwidth calculation and sets the Bandwidth setting to Manual, requiring a value.</p>
Returns	A single <Boolean> value.

Examples `OPTICAL:SPARAMETER:BANDWIDTH:AUTO 0` disables the S-Parameter automatic bandwidth calculation and sets it to use a manual value.

`OPTICAL:SPARAMETER:BANDWIDTH:AUTO?` might return 1, indicating the S-Parameter automatic bandwidth calculation is enabled.

OPTical:SPARAmeter:CASCading:AGGRessor2[:ENABLE]

This command sets or returns the aggressor 2 signal type state (enabled or disabled) in Cascading mode. Aggressor2 signals are available when the number of ports is set to 12.

Conditions S-Parameter Mode must be set to Cascading.
 Number of Ports must be set to 12.
 Requires an S-Parameters license.

Group S-Parameters

Syntax `OPTical:SPARAMeter:CASCading:AGGRessor2[:ENABle]`
`{0|1|ON|OFF}`
`OPTical:SPARAmeter:CASCading:AGGRessor2[:ENABle]?`

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments OFF or 0 disables the aggressor 2 signal type. OFF or 0 is the default value.
 ON or 1 enables the aggressor 2 signal type.

Returns A single <Boolean> value.

Examples `OPTICAL:SPARAMETER:CASCADING:AGGRESSOR2:ENABLE ON` enables the aggressor 2 signal type, in Cascading mode.

`OPTICAL:SPARAMETER:CASCADING:AGGRESSOR2:ENABLE?` might return 0, indicating that the aggressor 2 signal type is disabled, in Cascading mode.

OPTical:SPARAmeter:CASCading:AGGRessor[n]:AMPLitude

This command sets or returns the specified Aggressor's amplitude, in Cascading mode.

Conditions S-Parameter Mode must be set to Cascading.
 Number of ports must be either 8 or 12.
 Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:CASCading:AGGRessor[n]:AMPLitude
 <amplitude>
 OPTical:SPARAmeter:CASCading:AGGRessor[n]:AMPLitude?

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments [n] ::= {1|2} (“n” determines the aggressor signal (1 or 2). 2 is only valid if the number of ports is set to 12.)
 If omitted, n is interpreted as 1.
 <amplitude> ::= <NRf>

Returns A single <NR3> value.

Examples OPTICAL:SPARAMETER:CASCADING:AGGRESSOR1:AMPLITUDE 200E-3 sets the first Aggressor's amplitude to 200 mV, in Cascading mode.
 OPTICAL:SPARAMETER:CASCADING:AGGRESSOR2:AMPLITUDE? might return 100.0000000000E-3, indicating that the 2nd Aggressor's amplitude is set to 100 mV, in Cascading mode.

OPTical:SPARAmeter:CASCading:AGGRessor[n]:CTALK

This command sets or returns the specified Aggressor's crosstalk type, in Cascading mode.

Conditions S-Parameter Mode must be set to Cascading.
 Number of ports must be either 8 or 12.
 Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:CASCading:AGGRessor[n]:CTALK
 {NEXT|FEXT|BOTH}
 OPTical:SPARAmeter:CASCading:AGGRessor[n]:CTALK?

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments [n] ::= {1|2} (“n” determines the aggressor signal (1 or 2). 2 is only valid if the number of ports is set to 12.)

If omitted, n is interpreted as 1.

NEXT – Near-End Crosstalk

FEXT – Far-End Crosstalk

BOTH – Near and Far-End Crosstalk

Returns NEXT
 FEXT
 BOTH

Examples OPTICAL:SPARAMETER:CASCADING:AGGRESSOR1:CTALK FEXT sets the first Aggressor's Crosstalk type to Far End Crosstalk, in Cascading mode.

OPTICAL:SPARAMETER:CASCADING:AGGRESSOR2:CTALK? might return NEXT, indicating that the 2nd Aggressor crosstalk type is set to Far End Crosstalk, in Cascading mode.

OPTical:SPARAmeter:CASCading:AGGRessor[n]:DRATE

This command sets or returns the specified Aggressor's data rate, in Cascading mode.

Conditions S-Parameter Mode must be set to Cascading.
 Number of ports must be either 8 or 12.
 Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:CASCading:AGGRessor[n]:DRATE <data_rate>
 OPTical:SPARAmeter:CASCading:AGGRessor[n]:DRATE?

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments [n] ::= {1|2} (“n” determines the aggressor signal (1 or 2). 2 is only valid if the number of ports is set to 12.)

If omitted, n is interpreted as 1.

<data_rate> ::= <NRf>

Returns A single <NR3> value.

Examples OPTICAL:SPARAMETER:CASCADING:AGGRESSOR1:DRATE 4E9 sets the first Aggressor's data rate to 4 Gbps, in Cascading mode.

OPTICAL:SPARAMETER:CASCADING:AGGRESSOR2:DRATE? might return 500.0000000000E+3, indicating that the 2nd Aggressor's data rate is set to 500 kbps, in Cascading mode.

OPTical:SPARAmeter:CASCading:AGGRessor[n]:SIGNAl

This command sets or returns specified Aggressor's signal type, in Cascading mode.

Conditions S-Parameter Mode must be set to Cascading.
 Number of ports must be either 8 or 12.
 Requires an S-Parameters license.

Group	S-Parameters
Syntax	<pre>OPTical:SPARAmeter:CASCading:AGGRessor[n]:SIGNal {CLOCK PRBS FILE SAVictim} OPTical:SPARAmeter:CASCading:AGGRessor[n]:SIGNal?</pre>
Related Commands	<pre>OPTical:SPARAmeter:MODE OPTical:SPARAmeter:CASCading:AGGRessor[n]:SIGNal:FILE</pre>
Arguments	<p>[n] ::= {1 2} (“n” determines the aggressor signal (1 or 2). 2 is only valid if the number of ports is set to 12.)</p> <p>If omitted, n is interpreted as 1.</p> <p>CLOCK – Indicates that the aggressor signal is a clock pattern.</p> <p>PRBS – Indicates that the aggressor signal is a PBRs pattern. You also must set the PBRs type.</p> <p>FILE – Aggressor is set to use a file. You must set the file path.</p> <p>SAVictim – Aggressor is the same as the victim.</p>
Returns	<pre>CLOC PRBS FILE SAV</pre>
Examples	<pre>OPTICAL:SPARAMETER:CASCADING:AGGRESSOR1:SIGNAL SAVICTIM</pre> <p>sets the aggressor signal to be the same as the victim, in Cascading mode.</p> <pre>OPTICAL:SPARAMETER:CASCADING:AGGRESSOR2:SIGNAL?</pre> <p>might return FILE, indicating that 2nd Aggressor has a signal type set to use a file, in Cascading mode.</p>

OPTical:SPARAmeter:CASCading:AGGRessor[n]:SIGNal:FILE

This command sets or returns the filepath to the aggressor file for the specified Aggressor, in Cascading mode.

Conditions S-Parameter Mode must be set to Cascading.

Number of ports must be either 8 or 12.

Aggressor signal type must be File.

Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:CASCading:AGGRessor[n]:SIGNal:FILE
<filepath>
OPTical:SPARAmeter:CASCading:AGGRessor[n]:SIGNal:FILE?

Related Commands [OPTical:SPARAmeter:MODE](#)
[OPTical:SPARAmeter:CASCading:AGGRessor\[n\]:SIGNal](#)

Arguments [n] ::= {1|2} (“n” determines the aggressor signal (1 or 2). 2 is only valid if the number of ports is set to 12.)

If omitted, n is interpreted as 1.

<filepath> ::= <string> defines the path to the aggressor file.

Returns A single <filepath> string.

Examples OPTICAL:SPARAMETER:CASCADING:AGGRESSOR1:SIGNAL:FILE
"C:\temp\myFile.txt" sets the first Aggressor's file and filepath when the aggressor is set to use a file, in Cascading mode.

OPTICAL:SPARAMETER:CASCADING:AGGRESSOR2:SIGNAL:FILE? might return "C:\temp\myFile.txt" indicating that the 2nd Aggressor has a signal type filepath set to "C:\temp\myFile.txt", in Cascading mode.

OPTical:SPARAmeter:CASCading:AGGRessor[n]:SIGNal:PRBS

This command sets or returns the specified Aggressor's PRBS signal type, in Cascading mode.

Conditions S-Parameter Mode must be set to Cascading.

Number of ports must be either 8 or 12.

Aggressor signal type must be PRBS.

Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:CASCading:AGGReSSor[n]:SIGNal:PRBS
 {PRBS7|PRBS9|PRBS15|PRBS16|PRBS20|PRBS21|PRBS23|PRBS29|PRBS31}
 OPTical:SPARAmeter:CASCading:AGGReSSor[n]:SIGNal:PRBS?

Related Commands [OPTical:SPARAmeter:MODE](#)
[OPTical:SPARAmeter:CASCading:AGGReSSor\[n\]:SIGNal](#)

Arguments [n] ::= {1|2} (“n” determines the aggressor signal (1 or 2). 2 is only valid if the number of ports is set to 12.)

If omitted, n is interpreted as 1.

Patterns available include: PRBS7, PRBS9, PRBS15, PRBS16, PRBS20, PRBS21, PRBS23, PRBS29, PRBS31.

Returns PRBS7, PRBS9, PRBS15, PRBS16, PRBS20, PRBS21, PRBS23, PRBS29, PRBS31

Examples OPTICAL:SPARAMETER:CASCADING:AGGRESSOR1:SIGNAL:PRBS PRBS31 sets the first Aggressor's Signal type's PRBS value to PRBS31, in Cascading mode.
 OPTICAL:SPARAMETER:CASCADING:AGGRESSOR2:SIGNAL:PRBS? might return PRBS15, indicating that the 2nd Aggressor has a signal type PRBS value set to PRBS15, in Cascading mode.

OPTical:SPARAmeter:CASCading:DEEMbed

This command sets or returns whether the Cascading S-Parameters is to de-embed (invert) the S-Parameters, in Cascading mode.

Conditions S-Parameter Mode must be set to Cascading.
 Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:CASCading:DEEMbed {0|1|OFF|ON}
 OPTical:SPARAmeter:CASCading:DEEMbed?

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments	OFF or 0 disables de-embedding. OFF or 0 is the default value. ON or 1 enables de-embedding.
Returns	A single <Boolean> value.
Examples	<p>OPTICAL:SPARAMETER:CASCADING:DEEMBED 1 will de-embed the S-Parameters for Cascading mode.</p> <p>OPTICAL:SPARAMETER:CASCADING:DEEMBED? might return 0, indicating that S-Parameters will not be de-embedded for Cascading mode.</p>

OPTical:SPARAmeter:CASCading:STAGe[m]:DRX[n]

This command sets or returns the S-Parameter port assignment of the specified Stage and the channel's specified receiver port number (Rx-Port) in Cascading mode and Differential Signalling Scheme (where applicable).

Conditions	<p>S-Parameter Mode must be set to Cascading.</p> <p>S-Parameter Signalling Scheme must be set to Differential (where applicable).</p> <p>Requires an S-Parameters license.</p>
Group	S-Parameters
Syntax	<p>OPTical:SPARAmeter:CASCading:STAGe[m]:DRX[n] <port number> OPTical:SPARAmeter:CASCading:STAGe[m]:DRX[n]?</p>
Related Commands	<p>OPTical:SPARAmeter:MODE OPTical:SPARAmeter:CASCading:STYPe OPTical:SPARAmeter:CASCading:TYPE OPTical:SPARAmeter:CASCading:STAGe[m]:DTX[n]</p>
Arguments	<p>[m] ::= {1 2 3 4 5 6}. A variable value to define the Stage. If omitted, interpreted as 1</p> <p>[n] ::= <NR1> value. A variable value to define the receiver port number (Rx-Port) of the channel. The actual range is dependent on the Number of Ports (Type).</p>

Type = 4, then n = {1}
 Type = 8 then n = {1 – 2}
 Type = 12 then n = {1 – 3}

If omitted, n is interpreted as 1.

<port number> ::= <NR1>. A variable value to define the S-Parameter Port assigned to the specified Rx-Port of the channel.

The actual range is dependent on the Number of Ports (Type).

Type = 4 then <port number> = {1 – 2}
 Type = 8 then <port number> = {1 – 4}
 Type = 12 then <port number> = {1 – 6}

Returns A single <NR1> value.

Examples OPTICAL:SPARAMETER:CASCADING:STAGE2:DRX2 4 assigns S-Parameter port 4 to the channel’s receiver port 2 for Stage 2, in the Differential, Cascading mode.

OPTICAL:SPARAMETER:CASCADING:STAGE6:RX3? might return 10, indicating that S-Parameter Port 10 is assigned to the channel’s receiver port 3 for Stage 6, in the Differential, Cascading mode.

OPTical:SPARAmeter:CASCading:STAGe[m]:DTX[n]

This command sets or returns the S-Parameter port assignment of the specified Stage and the channel’s specified transmission port number (Tx-Port) in Cascading mode and Differential Signalling Scheme (where applicable).

Conditions S-Parameter Mode must be set to Cascading.

S-Parameter Signalling Scheme must be set to Differential (where applicable).

Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAMeter:CASCading:STAGe[m]:DTX[n] <port number>
 OPTical:SPARAMeter:CASCading:STAGe[m]:DTX[n]?

Related Commands [OPTical:SPARAmeter:MODE](#)
[OPTical:SPARAmeter:CASCading:STYPE](#)
[OPTical:SPARAmeter:CASCading:TYPE](#)
[OPTical:SPARAmeter:CASCading:STAGe\[m\]:DRX\[n\]](#)

Arguments	<p><code>[m]</code> ::= {1 2 3 4 5 6}. A variable value to define the Stage.</p> <p>If omitted, interpreted as 1</p> <p><code>[n]</code> ::= <NR1> value. A variable value to define the transmission port number (Tx-Port) of the channel.</p> <p>The actual range is dependent on the Number of Ports (Type).</p> <p>Type = 4, then n = {1}</p> <p>Type = 8 then n = {1 – 2}</p> <p>Type = 12 then n = {1 – 3}</p> <p>If omitted, n is interpreted as 1.</p> <p><port number> ::= <NR1>. A variable value to define the S-Parameter Port assigned to the specified Tx-Port of the channel.</p> <p>The actual range is dependent on the Number of Ports (Type).</p> <p>Type = 4 then <port number> = {1 – 2}</p> <p>Type = 8 then <port number> = {1 – 4}</p> <p>Type = 12 then <port number> = {1 – 6}</p>
Returns	A single <NR1> value.
Examples	<p><code>OPTICAL:SPARAMETER:CASCADING:STAGE2:DTX2 4</code> assigns S-Parameter port 4 to the channel's transmission port 2 for Stage 2, in the Differential, Cascading mode.</p> <p><code>OPTICAL:SPARAMETER:CASCADING:STAGE6:TX3?</code> might return 10, indicating that S-Parameter Port 10 is assigned to the channel's transmission port 3 for Stage 6, in the Differential, Cascading mode.</p>

OPTical:SPARAmeter:CASCading:STAGe[m]:ENABle

This command sets or returns the state of the specified Cascaded S-Parameter stage (enabled or disabled).

Conditions	<p>S-Parameter Mode must be set to Cascading.</p> <p>Requires an S-Parameters license.</p>
Group	S-Parameters
Syntax	<p><code>OPTical:SPARAMeter:CASCading:STAGe[m]:ENABle {0 1 OFF ON}</code></p> <p><code>OPTical:SPARAMeter:CASCading:STAGe[m]:ENABle?</code></p>

Related Commands	OPTical:SPARAmeter:MODE OPTical:SPARAmeter:NCAScading:FILE
Arguments	<code>[m] ::= {1 – 6}</code> ("m" determines the stage number) If omitted, m is interpreted as 1. OFF or 0 disables the specified Cascading Stage. OFF or 0 is the default value. ON or 1 enables the Stage.
Returns	A single <Boolean> value.
Examples	<code>OPTICAL : SPARAMETER : CASCADING : STAGE6 : ENABLE 1</code> enables Stage 6 in Cascading mode. <code>OPTICAL : SPARAMETER : CASCADING : STAGE6 : ENABLE?</code> might return 0, indicating that Stage 6 is not enabled in Cascading mode.

OPTical:SPARAmeter:CASCading:STAGe[m]:FILE

This command sets or returns the filepath for the specified S-Parameters Cascading Stage, in Cascading mode.

Conditions	S-Parameter Mode must be set to Cascading. Requires an S-Parameters license.
Group	S-Parameters
Syntax	<code>OPTical:SPARAmeter:CASCading:STAGe[m]:FILE <filepath></code> <code>OPTical:SPARAmeter:CASCading:STAGe[m]:FILE</code>
Related Commands	OPTical:SPARAmeter:MODE
Arguments	<code>[m] ::= {1 – 6}</code> ("m" determines the stage number) If omitted, m is interpreted as 1. <code><filepath> ::= <string></code> defines the path to the S-Parameter file.
Returns	<code><filepath> ::= <string></code> .

Examples `OPTICAL:SPARAMETER:CASCADING:STAGE1:FILE`
 "`C:\temp\myFile.s12p`" sets the filepath to "`C:\temp\myFile.s12p`" for use during compilation for Stage 1.

`OPTICAL:SPARAMETER:CASCADING:STAGE1:FILE?` might return "`C:\temp\myFile.s12p`" indicating the filepath for Stage 1.

OPTical:SPARAmeter:CASCading:STAGe[m]:RX[n]

This command sets or returns the S-Parameter port assignment of the specified Stage and the channel's specified receiver port number (Rx-Port) in Cascading mode and Single-Ended Signalling Scheme (where applicable).

Conditions S-Parameter Mode must be set to Cascading.
 S-Parameter Signalling Scheme must be set to Single-Ended (where applicable).
 Requires an S-Parameters license.

Group S-Parameters

Syntax `OPTical:SPARAmeter:CASCading:STAGe[m]:RX[n] <port_number>`
 `OPTical:SPARAmeter:CASCading:STAGe[m]:RX[n]?`

Related Commands [OPTical:SPARAmeter:MODE](#)
 [OPTical:SPARAmeter:CASCading:STYPe](#)
 [OPTical:SPARAmeter:CASCading:TYPE](#)
 [OPTical:SPARAmeter:CASCading:STAGe\[m\]:TX\[n\]](#)

Arguments `[m] ::= {1|2|3|4|5|6}`. A variable value to define the Stage.
 If omitted, interpreted as 1

`[n] ::= <NR1> value`. A variable value to define the receiver port number (Rx-Port) of the channel.

The actual range is dependent on the Number of Ports (Type).

Type = 1, then n = no value
 Type = 2, then n = {1}
 Type = 4 then n = {1 – 2}
 Type = 6 then n = {1 – 3}
 Type = 8 then n = {1 – 4}
 Type = 12 then n = {1 – 6}

<port_number> ::= <NR1>. A variable value to define the S-Parameter Port assigned to the specified Tx-Port of the channel.

The actual range is dependent on the Number of Ports (Type).

Type = 1, then <port number> = no value

Type = 2, then <port number> = {1 – 2}

Type = 4 then <port number> = {1 – 4}

Type = 6 then <port number> = {1 – 6}

Type = 8 then <port number> = {1 – 8}

Type = 12 then <port number> = {1 – 12}

Returns A single <NR1> value.

Examples `OPTICAL:SPARAMETER:CASCADING:STAGE2:RX2 4` assigns S-Parameter port 4 to the channel's receiver port 2 for Stage 2, in the Single-Ended, Cascading mode.

`OPTICAL:SPARAMETER:CASCADING:STAGE6:RX3?` might return 10, indicating that S-Parameter Port 10 is assigned to the channel's receiver port 3 for Stage 6, in the Single-Ended, Cascading mode.

OPTical:SPARAmeter:CASCading:STAGe[m]:SSCHeme

This command sets or returns the S-Parameter Signalling Scheme, in Cascading mode. Signalling Scheme is only available when the Number of Ports is set to 4, 8, or 12.

Conditions S-Parameter Mode must be set to Cascading.

Requires an S-Parameters license.

Group S-Parameters

Syntax `OPTical:SPARAmeter:CASCading:STAGe[m]:SSCHeme`
`{SENDEd|DIFFerential}`
`OPTical:SPARAmeter:CASCading:STAGe[m]:SSCHeme?`

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments `[m] ::= {1 – 6}` ("m" determines the stage number)

If omitted, m is interpreted as 1.

SENDEd – Single Ended Signal Scheme

DIFFerential – Differential Signal Scheme

Returns SEND
DIFF

Examples OPTICAL:SPARAMETER:CASCADING:STAGE2:SSCHEME DIFF sets the Stage 2 Signalling Scheme to Differential, in Cascading mode.

OPTICAL:SPARAMETER:CASCADING:STAGE3:SSCHEME? might return SEND, indicating that the Stage 3 Signalling Scheme is set to Single Ended, in Cascading mode.

OPTical:SPARAmeter:CASCading:STAGe[m]:TX[n]

This command sets or returns the S-Parameter port assignment of the specified Stage and the channel's specified transmission port number (Tx-Port) in Cascading mode and Single-Ended Signalling Scheme (where applicable).

Conditions S-Parameter Mode must be set to Cascading.
S-Parameter Signalling Scheme must be set to Single-Ended (where applicable).
Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:CASCading:STAGe[m]:TX[n] <port number>
OPTical:SPARAmeter:CASCading:STAGe[m]:TX[n]?

Related Commands [OPTical:SPARAmeter:MODE](#)
[OPTical:SPARAmeter:CASCading:STYPe](#)
[OPTical:SPARAmeter:CASCading:TYPE](#)
[OPTical:SPARAmeter:CASCading:STAGe\[m\]:RX\[n\]](#)

Arguments [m] ::= {1|2|3|4|5|6}. A variable value to define the Stage.
If omitted, interpreted as 1

[n] ::= <NR1> value. A variable value to define the transmission port number (Tx-Port) of the channel.
The actual range is dependent on the Number of Ports (Type).

Type = 1, then n = no value
 Type = 2, then n = {1}
 Type = 4 then n = {1 – 2}
 Type = 6 then n = {1 – 3}
 Type = 8 then n = {1 – 4}
 Type = 12 then n = {1 – 6}

<port number> ::= <NR1>. A variable value to define the S-Parameter Port assigned to the specified Tx-Port of the channel.

The actual range is dependent on the Number of Ports (Type).

Type = 1, then <port number> = no value
 Type = 2, then <port number> = {1 – 2}
 Type = 4 then <port number> = {1 – 4}
 Type = 6 then <port number> = {1 – 6}
 Type = 8 then <port number> = {1 – 8}
 Type = 12 then <port number> = {1 – 12}

Returns A single <NR1> value.

Examples OPTICAL:SPARAMETER:CASCADING:STAGE2:TX2 4 assigns S-Parameter port 4 to the channel’s transmission port 2 for Stage 2, in the Single-Ended, Cascading mode.

OPTICAL:SPARAMETER:CASCADING:STAGE6:TX3? might return 10, indicating that S-Parameter Port 10 is assigned to the channel’s transmission port 3 for Stage 6, in the Single-Ended, Cascading mode.

OPTical:SPARAmeter:CASCading:STYPe

This command sets or returns S-Parameter signal type (victim or aggressor), in Cascading mode. The number of ports must be either 8 or 12.

Conditions S-Parameter Mode must be set to Cascading.

Number of Ports must be either 8 or 12.

Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAMeter:CASCading:STYPe {VICTim|AGGRessor|BOTH}
 OPTical:SPARAMeter:CASCading:STYPe?

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments VICTim – enables the victim signal type.
AGGRessor – enables the aggressor signal type.
BOTH – enables the victim and aggressor signal types.

Returns VICT
AGGR
BOTH

Examples OPTICAL:SPARAMETER:CASCADING:STYPE BOTH sets the signal type to include both the Victim and Aggressor signal types, in Cascading mode.
OPTICAL:SPARAMETER:CASCADING:STYPE? might return AGGR, indicating that the S-Parameter signal type is currently set to be Aggressor, in Cascading mode.

OPTical:SPARAmeter:CASCading:TYPE

This command sets or returns the S-Parameter number of ports, in Cascading mode.

Conditions Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAMeter:CASCading:TYPE {2|4|6|8|12}
OPTical:SPARAMeter:CASCading:TYPE?

Arguments {2|4|6|8|12} – defines the number of S-Parameter ports.

Returns A single <NR1> value.

Examples OPTICAL:SPARAMETER:CASCADING:TYPE 12 sets the S-Parameter type to a 12-Port system for the cascading mode.
OPTICAL:SPARAMETER:CASCADING:TYPE? might return 6, indicating that the S-Parameter type is a 6-Port system for Cascading mode.

OPTical:SPARAmeter:NCAScading:AGGRessor2[:ENABLE]

This command sets or returns the aggressor 2 signal type state (enabled or disabled) in Non-Cascading mode. Aggressor2 signals are available when the number of ports is set to 12.

Conditions S-Parameter Mode must be set to Non-Cascading.
Number of Ports must be set to 12.
Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:NCAScading:AGGRessor2[:ENABLE]
{0|1|ON|OFF}
OPTical:SPARAmeter:NCAScading:AGGRessor2[:ENABLE]?

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments OFF or 0 disables the aggressor 2 signal type. OFF or 0 is the default value.
ON or 1 enables the aggressor 2 signal type.

Returns A single <Boolean> value.

Examples OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR2:ENABLE ON enables the aggressor 2 signal type, in Non-Cascading mode.
OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR2:ENABLE? might return 0, indicating that the aggressor 2 signal type is disabled, in Non-Cascading mode.

OPTical:SPARAmeter:NCAScading:AGGRessor[n]:AMPLitude

This command sets or returns the specified Aggressor's amplitude, in Non-Cascading mode.

Conditions S-Parameter Mode must be set to Non-Cascading.
Number of ports must be either 8 or 12.
Requires an S-Parameters license.

Group	S-Parameters
Syntax	<pre>OPTical:SPARAmeter:NCAScading:AGGRessor[n]:AMPLitude <amplitude> OPTical:SPARAmeter:NCAScading:AGGRessor[n]:AMPLitude?</pre>
Related Commands	OPTical:SPARAmeter:MODE
Arguments	<p>[n] ::= {1 2} (“n” determines the aggressor signal (1 or 2). 2 is only valid if the number of ports is set to 12.)</p> <p>If omitted, n is interpreted as 1.</p> <p><amplitude> ::= <NR3> value.</p>
Returns	A single <NR3> value.
Examples	<p>OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR1:AMPLITUDE 200E-3 sets the 1st Aggressor's amplitude to 200 mV, in Non-Cascading mode.</p> <p>OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR2:AMPLITUDE? might return 100.0000000000E-3, indicating that the 2nd Aggressor's amplitude is set to 100 mV, in Non-Cascading mode.</p>

OPTical:SPARAmeter:NCAScading:AGGRessor[n]:CTALK

This command sets or returns the specified Aggressor's crosstalk type, in Non-Cascading mode.

Conditions	<p>S-Parameter Mode must be set to Non-Cascading.</p> <p>Number of ports must be either 8 or 12.</p> <p>Requires an S-Parameters license.</p>
Group	S-Parameters
Syntax	<pre>OPTical:SPARAmeter:NCAScading:AGGRessor[n]:CTALK {NEXT FEXT BOTH} OPTical:SPARAmeter:NCAScading:AGGRessor[n]:CTALK?</pre>
Related Commands	OPTical:SPARAmeter:MODE

Arguments	<p>[n] ::= {1 2} (“n” determines the aggressor signal (1 or 2). 2 is only valid if the number of ports is set to 12.)</p> <p>If omitted, n is interpreted as 1.</p> <p>NEXT – Near-End Crosstalk</p> <p>FEXT – Far-End Crosstalk</p> <p>BOTH – Near and Far-End Crosstalk</p>
Returns	<p>NEXT</p> <p>FEXT</p> <p>BOTH</p>
Examples	<p>OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR1:CTALK FEXT sets the 1st Aggressor's Crosstalk type to Far End Crosstalk, in Non-Cascading mode.</p> <p>OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR2:CTALK? might return NEXT, indicating that the 2nd Aggressor crosstalk type is set to Near End Crosstalk, in Non-Cascading mode.</p>

OPTical:SPARAmeter:NCAScading:AGGRessor[n]:DRATe

This command sets or returns the specified Aggressor's data rate, in Non-Cascading mode.

Conditions	<p>S-Parameter Mode must be set to Non-Cascading.</p> <p>Number of ports must be either 8 or 12.</p> <p>Requires an S-Parameters license.</p>
Group	S-Parameters
Syntax	<p>OPTical:SPARAmeter:NCAScading:AGGRessor[n]:DRATe <data_rate></p> <p>OPTical:SPARAmeter:NCAScading:AGGRessor[n]:DRATe?</p>
Related Commands	OPTical:SPARAmeter:MODE
Arguments	<p>[n] ::= {1 2} (“n” determines the aggressor signal (1 or 2). 2 is only valid if the number of ports is set to 12.)</p> <p>If omitted, n is interpreted as 1.</p>

<data_rate> ::= <NR3> value.

Returns A single <NR3> value.

Examples OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR1:DRATE 4E9 sets the 1st Aggressor's data rate to 4 Gbps, in Non-Cascading mode.

OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR2:DRATE? might return 500.0000000000E+3, indicating that the 2nd Aggressor's data rate is set to 500 kbps, in Non-Cascading mode.

OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal

This command sets or returns specified Aggressor's signal type, in Non-Cascading mode.

Conditions S-Parameter Mode must be set to Non-Cascading.
 Number of ports must be either 8 or 12.
 Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal
 {CLOCK|PRBS|FILE|SAVictim}
 OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal?

Related Commands [OPTical:SPARAmeter:MODE](#)
[OPTical:SPARAmeter:CASCading:AGGRessor\[n\]:SIGNal:FILE](#)

Arguments [n] ::= {1|2} (“n” determines the aggressor signal (1 or 2). 2 is only valid if the number of ports is set to 12.)

If omitted, n is interpreted as 1.

CLOCK – Indicates that the aggressor signal is a clock pattern.

PRBS – Indicates that the aggressor signal is a PBRS pattern. You also must set the PBRS type.

FILE – Aggressor is set to use a file. You must set the file path.

SAVictim – Aggressor is the same as the victim.

Returns	CLOC PRBS FILE SAV
Examples	<p><code>OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR1:SIGNAL SAVICTIM</code> sets the 1st aggressor signal to be the same as the victim, in Non-Cascading mode</p> <p><code>OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR2:SIGNAL?</code> might return FILE, indicating that 2nd Aggressor has a signal type set to use a file, in Non-Cascading mode.</p>

OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal:FILE

This command sets or returns the filepath to the aggressor file for the specified Aggressor, in Non-Cascading mode.

Conditions	<p>S-Parameter Mode must be set to Non-Cascading.</p> <p>Number of ports must be either 8 or 12.</p> <p>Aggressor signal type must be File.</p> <p>Requires an S-Parameters license.</p>
Group	S-Parameters
Syntax	<p><code>OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal:FILE</code> <code><filepath></code> <code>OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal:FILE?</code></p>
Related Commands	<p>OPTical:SPARAmeter:MODE</p> <p>OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal</p>
Arguments	<p><code>[n] ::= {1 2}</code> (“n” determines the aggressor signal (1 or 2). 2 is only valid if the number of ports is set to 12.)</p> <p>If omitted, n is interpreted as 1.</p> <p><code><filepath> ::= <string></code> defines the path to the aggressor file.</p>
Returns	A single <code><filepath></code> string.

- Examples** `OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR1:SIGNAL:FILE`
`"C:\temp\myFile.txt"` sets the 1st Aggressor's file and filepath when the aggressor is set to use a file, in Non-Cascading mode.
- `OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR2:SIGNAL:FILE?` might return `"C:\temp\myFile.txt"` indicating that the 2nd Aggressor has a signal type filepath set to `"C:\temp\myFile.txt"`, in Non-Cascading mode.

OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal:PRBS

This command sets or returns the specified Aggressor's PRBS signal type, in Non-Cascading mode.

- Conditions** S-Parameter Mode must be set to Non-Cascading.
 Number of ports must be either 8 or 12.
 Aggressor signal type must be PRBS.
 Requires an S-Parameters license.
- Group** S-Parameters
- Syntax** `OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal:PRBS`
`{PRBS7|PRBS9|PRBS15|PRBS16|PRBS20|PRBS21|PRBS23|PRBS29|PRBS31}`
`OPTical:SPARAmeter:NCAScading:AGGRessor[n]:SIGNal:PRBS?`
- Related Commands** [OPTical:SPARAmeter:MODE](#)
[OPTical:SPARAmeter:NCAScading:AGGRessor\[n\]:SIGNal](#)
- Arguments** `[n] ::= {1|2}` (“n” determines the aggressor signal (1 or 2). 2 is only valid if the number of ports is set to 12.)
 If omitted, n is interpreted as 1.
 Patterns available include: PRBS7, PRBS9, PRBS15, PRBS16, PRBS20, PRBS21, PRBS23, PRBS29, PRBS31
- Returns** PRBS7, PRBS9, PRBS15, PRBS16, PRBS20, PRBS21, PRBS23, PRBS29, PRBS31
- Examples** `OPTICAL:SPARAMETER:NCASCADING:AGGRESSOR1:SIGNAL:PRBS PRBS31`
 sets the 1st Aggressor's Signal type's PRBS value to PRBS31, in Non-Cascading mode.

OPTICAL : SPARAMETER : NCASCADING : AGGRESSOR2 : SIGNAL : PRBS? might return PRBS15, indicating that the 2nd Aggressor has a signal type PRBS value set to PRBS15, in Non-Cascading mode.

OPTical:SPARAmeter:NCAScading:DEEMbed

This command sets or returns whether the Non-Cascading S-Parameters is to de-embed (invert) the S-Parameters, in Non-Cascading mode.

Conditions S-Parameter Mode must be set to Non-Cascading.
Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:NCAScading:DEEMbed {0|1|OFF|ON}
OPTical:SPARAmeter:NCAScading:DEEMbed?

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments OFF or 0 disables de-embedding. OFF or 0 is the default value.
ON or 1 enables de-embedding.

Returns A single <Boolean> value.

Examples OPTICAL : SPARAMETER : NCASCADING : DEEMBED 1 will de-embed the S-Parameters for Non-Cascading mode.

OPTICAL : SPARAMETER : NCASCADING : DEEMBED? might return 0, indicating that S-Parameters will not be de-embedded for Non-Cascading mode.

OPTical:SPARAmeter:NCAScading:DRX[n]

This command sets or returns the S-Parameter port assignment of the channel's specified receiver port number (Rx-Port) in Non-Cascading mode and Differential Signalling Scheme (where applicable).

Conditions S-Parameter Mode must be set to Non-Cascading.
 S-Parameter Signalling Scheme must be set to Differential.
 Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:NCAScading:DRX[n] <port_number>
 OPTical:SPARAmeter:NCAScading:DRX[n]?

Related Commands [OPTical:SPARAmeter:MODE](#)
[OPTical:SPARAmeter:CASCading:STYPe](#)
[OPTical:SPARAmeter:NCAScading:TYPE](#)
[OPTical:SPARAmeter:NCAScading:RX\[n\]](#)

Arguments [n] ::= <NR1>. A variable value to define the receiver port number (Rx-Port) of the channel.

The actual range is dependent on the Number of Ports (Type).

Type = 4, then n = {1}

Type = 8 then n = {1 – 2}

Type = 12 then n = {1 – 3}

If omitted, n is interpreted as 1.

<port_number> ::= <NR1> value. A variable value to define the S-Parameter Port assigned to the specified Rx-Port of the channel.

The actual range is dependent on the Number of Ports (Type).

Type = 4, then n = {1 – 2}

Type = 8 then <port number> = {1 – 4}

Type = 12 then <port number> = {1 – 6}

Returns A single <NR1> value.

Examples OPTICAL:SPARAMETER:NCASCADING:DTX2 4 assigns S-Parameter port 4 to channel's receiver port 2, in the Differential, Non-Cascading mode.

OPTICAL:SPARAMETER:NCASCADING:DTX3? might return 6, indicating that S-Parameter Port 6 is assigned to the channel's receiver port 3, in the Differential, Non-Cascading mode.

OPTical:SPARAmeter:NCAScading:DTX[n]

This command sets or returns the S-Parameter port assignment of the channel's specified transmission port number (Tx-Port) in Non-Cascading mode and Differential Signalling Scheme (where applicable).

Conditions	<p>S-Parameter Mode must be set to Non-Cascading.</p> <p>S-Parameter Signalling Scheme must be set to Differential.</p> <p>Requires an S-Parameters license.</p>
Group	S-Parameters
Syntax	<p>OPTical:SPARAMeter:NCASCading:DTX[n] <port_number></p> <p>OPTical:SPARAMeter:NCASCading:DTX[n]?</p>
Related Commands	<p>OPTical:SPARAMeter:MODE</p> <p>OPTical:SPARAMeter:NCASCading:STYPe</p> <p>OPTical:SPARAMeter:NCASCading:TYPE</p> <p>OPTical:SPARAMeter:NCASCading:DRX[n]</p>
Arguments	<p>[n] ::= <NR1> value. A variable value to define the transmission port number (Tx-Port) of the channel.</p> <p>The actual range is dependent on the Number of Ports (Type).</p> <p>Type = 4, then n = {1}</p> <p>Type = 8 then n = {1 – 2}</p> <p>Type = 12 then n = {1 – 3}</p> <p>If omitted, n is interpreted as 1.</p> <p><port_number> ::= <NR1> value. A variable value to define the S-Parameter Port assigned to the specified Tx-Port of the channel.</p> <p>The actual range is dependent on the Number of Ports (Type).</p> <p>Type = 4 then <port number> = {1 – 2}</p> <p>Type = 8 then <port number> = {1 – 4}</p> <p>Type = 12 then <port number> = {1 – 6}</p>

Returns A single <NR1> value.

Examples OPTICAL:SPARAMETER:NCASCADING:DTX2 4 assigns S-Parameter port 4 to channel's transmission port 2, in the Differential, Non-Cascading mode.

OPTICAL:SPARAMETER:NCASCADING:DTX3? might return 6, indicating that S-Parameter Port 6 is assigned to the channel's transmission port 3, in the Differential, Non-Cascading mode.

OPTical:SPARAmeter:NCAScading:FILE

This command sets or returns the filepath and file name of the S-Parameter file, in Non-Cascading mode.

Conditions S-Parameter Mode must be set to Non-Cascading.
Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:NCAScading:FILE <filepath>

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments <filepath>::= <string> defines the path to the S-Parameter file.

Returns A single <filepath> string.

Examples OPTICAL:SPARAMETER:NCASCADING:FILE "C:\temp\myFile.s12p" sets the filepath to "C:\temp\myFile.s12p" for use during compilation.

OPTICAL:SPARAMETER:NCASCADING:FILE? might return "C:\temp\myOtherFile.s6p", indicating the current filepath.

OPTical:SPARAmeter:NCAScading:LAYOut

This command sets or returns the 4 port S-Parameter Matrix Configuration, in Non-Cascading mode.

Conditions S-Parameter Mode must be set to Non-Cascading.
 Number of Ports must be set to 4.
 Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:NCAScading:LAYOut {TYPical|ALTErnate}
 OPTical:SPARAmeter:NCAScading:LAYOut?

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments TYPical or ALTErnate: selects the S-Parameter Matrix.

S-Parameter Matrix Typical				S-Parameter Matrix Alternate			
SDD11	SDD12	SDC11	SDC12	SCC11	SCC12	SCD11	SCD12
SDD21	SDD22	SDC21	SDC22	SCC21	SCC22	SCD21	SCD22
SCD11	SCD12	SCC11	SCC12	SDC11	SDC12	SDD11	SDD12
SCD21	SCD22	SCC21	SCC22	SDC21	SDC22	SDD21	SDD22

Returns TYP
 ALT

Examples OPTICAL:SPARAMETER:NCASCADING:LAYOUT TYPICAL sets the 4 port configuration's Layout to Typical, in Non-Cascading mode.

OPTICAL:SPARAMETER:NCASCADING:LAYOUT? might return TYP, indicating that configuration's Layout for port 4 is set to Typical, in Non-Cascading mode.

OPTical:SPARAmeter:NCAScading:RX[n]

This command sets or returns the S-Parameter port assignment of the channel's specified receiver port number (Rx-Port) in Non-Cascading mode and Single-Ended Signalling Scheme (where applicable).

Conditions	<p>S-Parameter Mode must be set to Non-Cascading.</p> <p>S-Parameter Signalling Scheme must be set to Single-Ended.</p> <p>Requires an S-Parameters license.</p>
Group	S-Parameters
Syntax	<p>OPTical:SPARAmeter:NCAScading:RX[n] <port number></p> <p>OPTical:SPARAmeter:NCAScading:RX[n]?</p>
Related Commands	<p>OPTical:SPARAmeter:MODE</p> <p>OPTical:SPARAmeter:CASCading:STYPe</p> <p>OPTical:SPARAmeter:NCAScading:TYPE</p> <p>OPTical:SPARAmeter:NCAScading:TX[n]</p>
Arguments	<p>[n] ::= <NR1>. A variable value to define the receiver port number (Rx-Port) of the channel.</p> <p>The actual range is dependent on the Number of Ports (Type).</p> <p>Type = 1, then n = no value</p> <p>Type = 2, then n = {1}</p> <p>Type = 4 then n = {1 – 2}</p> <p>Type = 6 then n = {1 – 3}</p> <p>Type = 8 then n = {1 – 4}</p> <p>Type = 12 then n = {1 – 6}</p> <p>If omitted, n is interpreted as 1.</p> <p><port number> ::= <NR1>. A variable value to define the S-Parameter Port assigned to the specified Rx-Port of the channel.</p> <p>The actual range is dependent on the Number of Ports (Type).</p> <p>Type = 1, then <port number> = no value</p> <p>Type = 2, then <port number> = {1 – 2}</p> <p>Type = 4 then <port number> = {1 – 4}</p> <p>Type = 6 then <port number> = {1 – 6}</p> <p>Type = 8 then <port number> = {1 – 8}</p> <p>Type = 12 then <port number> = {1 – 12}</p>

Returns A single <NR1> value.

Examples `OPTICAL:SPARAMETER:NCASCADING:RX2 4` assigns S-Parameter port 4 to the channel's receiver port 2, in the Single-Ended, Non-Cascading mode.

`OPTICAL:SPARAMETER:NCASCADING:RX4?` might return 6, indicating that S-Parameter Port 6 is assigned to the channel's receiver port 4, in the Single-Ended, Non-Cascading mode.

OPTical:SPARAmeter:NCAScading:SSCHeme

This command sets or returns the S-Parameter Signalling Scheme, in Non-Cascading mode. Signalling Scheme is only available when the Number of Ports is set to 4, 8, or 12.

Conditions S-Parameter Mode must be set to Non-Cascading.
Requires an S-Parameters license.

Group S-Parameters

Syntax `OPTical:SPARAmeter:NCAScading:SSCHeme {SENDEd|DIFFerential}`
`OPTical:SPARAmeter:NCAScading:SSCHeme?`

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments SENDEd – Single Ended Signal Scheme
DIFFerential – Differential Signal Scheme

Returns SEND
DIFF

Examples `OPTICAL:SPARAMETER:NCASCADING:SSCHEME DIFF` sets the Signalling Scheme to Differential, in Non-Cascading mode.

`OPTICAL:SPARAMETER:NCASCADING:SSCHEME?` might return SEND, indicating that the Signalling Scheme is set to Single Ended, in Non-Cascading mode.

OPTical:SPARAmeter:NCAScading:STYPe

This command sets or returns S-Parameter signal type (victim or aggressor), in Non-Cascading mode. The number of ports must be either 8 or 12.

Conditions S-Parameter Mode must be set to Non-Cascading.
Number of Ports must be either 8 or 12.
Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:NCAScading:STYPe {VICTim|AGGRessor|BOTH}
OPTical:SPARAmeter:NCAScading:STYPe?

Related Commands [OPTical:SPARAmeter:MODE](#)

Arguments VICTim – enables the victim signal type.
AGGRessor – enables the aggressor signal type.
BOTH – enables the victim and aggressor signal types.

Returns VICT
AGGR
BOTH

Examples OPTICAL:SPARAMETER:NCASCADING:STYPe BOTH sets the signal type to include both the Victim and Aggressor signal types, in Non-Cascading mode.
OPTICAL:SPARAMETER:NCASCADING:STYPe? might return AGGR, indicating that the S-Parameter signal type is currently set to be Aggressor, in Non-Cascading mode.

OPTical:SPARAmeter:NCAScading:TX[n]

This command sets or returns the S-Parameter port assignment of the channel's specified transmission port number (Tx-Port) in Non-Cascading mode and Single-Ended Signalling Scheme (where applicable).

Conditions S-Parameter Mode must be set to Non-Cascading.
S-Parameter Signalling Scheme must be set to Single-Ended (where applicable).
Requires an S-Parameters license.

Group S-Parameters

Syntax OPTical:SPARAmeter:NCAScading:TX[n] <port number>
OPTical:SPARAmeter:NCAScading:TX[n]?

Related Commands [OPTical:SPARAmeter:MODE](#)
[OPTical:SPARAmeter:CASCading:STYPe](#)
[OPTical:SPARAmeter:NCAScading:TYPE](#)
[OPTical:SPARAmeter:NCAScading:RX\[n\]](#)

Arguments [n] ::= <NR1>. A variable value to define the transmission port number (Tx-Port) of the channel.

The actual range is dependent on the Number of Ports (Type).

Type = 1, then n = no value
Type = 2, then n = {1}
Type = 4 then n = {1 - 2}
Type = 6 then n = {1 - 3}
Type = 8 then n = {1 - 4}
Type = 12 then n = {1 - 6}

If omitted, n is interpreted as 1.

<port number> ::= <NR1>. A variable value to define the S-Parameter Port assigned to the specified Tx-Port of the channel.

The actual range is dependent on the Number of Ports (Type).

Type = 1, then <port number> = no value
Type = 2, then <port number> = {1 - 2}
Type = 4 then <port number> = {1 - 4}
Type = 6 then <port number> = {1 - 6}
Type = 8 then <port number> = {1 - 8}
Type = 12 then <port number> = {1 - 12}

Returns A single <NR1> value.

Examples `OPTICAL:SPARAMETER:NCASCADING:TX2 4` assigns S-Parameter port 4 to the channel's transmission port 2, in the Single-Ended, Non-Cascading mode.

`OPTICAL:SPARAMETER:NCASCADING:TX4?` might return 6, indicating that S-Parameter Port 6 is assigned to the channel's transmission port 4, in the Single-Ended, Non-Cascading mode.

OPTical:SPARAmeter:NCAScading:TYPE

This command sets or returns the S-Parameter number of ports, in Non-Cascading mode.

Conditions Requires an S-Parameters license.

Group S-Parameters

Syntax `OPTical:SPARAmeter:NCAScading:TYPE {1|2|4|6|8|12}`

Arguments {1|2|4|6|8|12} – defines the number of S-Parameter ports.

Returns A single <NR1> value.

Examples `OPTICAL:SPARAMETER:NCASCADING:TYPE 12` sets the S-Parameter type to a 12-Port system for Non-Cascading mode.

`OPTICAL:SPARAMETER:NCASCADING:TYPE?` might return 6, indicating that the S-Parameter type is a 6-Port system for Non-Cascading mode.

OPTical:XPOLarization:BBOffset

This command sets or returns the Base Band Offset of X-Polarized optical signals.

Group Setup

Syntax `OPTical:XPOLarization:BBOffset <offset>`
`OPTical:XPOLarization:BBOffset?`

Arguments	<offset> ::= <NR3> value.
Returns	A single <NR3> value.
Examples	<p>OPTICAL:XPOLARIZATION:BBOFFSET 2E9 sets the X BaseBand Offset frequency to 2 GHz.</p> <p>OPTICAL:XPOLARIZATION:BBOFFSET? might return 4.000000000E+9, indicating that the X BaseBand Offset frequency of the is set to 4 GHz.</p>

OPTical:XPOLarization:DSEBit:DATA

This command sets or returns the X-Polarization Data Pattern type for the specified Bit index when the X Data Source is set to define a pattern type for each bit.

When setting the pattern type to PRBS, Pattern, or File, use the additional commands noted with each argument to continue defining these pattern types.

Conditions X Data Source must be set to “Data source for each bit”.

Group Data source

Syntax OPTical:XPOLarization:DSEBit:DATA
 <bit_index>, {AONE|AZERO|FILE|PRBS|PATTERN}
 OPTical:XPOLarization:DSEBit:DATA? <bit_index>

Related Commands [OPTical:XPOLarization:DSType](#)

Arguments <bit_index> ::= <NR1> value. The selected modulation type determines the number of bits available.

AONE is a data type of all ones.

AZERO is a data type of all zeroes.

FILE is a file data type. Use the command [OPTical:XPOLarization:DSEBit:DATA:FILE](#) to set and query the pattern file and file path.

PRBS is one of the available PRBS data types. Use the command [OPTical:XPOLarization:DSEBit:DATA:PRBS](#) to set and query the actual PRBS data type.

PATTERN is a pattern data type. Use the command [OPTical:XPOLarization:DSEBit:DATA:PATTERN](#) to set and query the pattern.

Returns AZER (all zeros)
 AON (all ones)
 PRBS
 PATT (pattern)
 FIL (file)

Examples OPTICAL:XPOLARIZATION:DSEBIT:DATA 0,AONE sets the X-Polarization Data Pattern type for Bit 0 to All Ones.
 OPTICAL:XPOLARIZATION:DSEBIT:DATA? 1 might return AZER, indicating that the X-Polarization Data Pattern type for Bit 1 is set to All Zero.

OPTical:XPOLarization:DSEBit:DATA:FILE

This command sets or returns the X-Polarization Data Pattern file and file path for the specified Bit index when the X Data Source is set to define a pattern type for each bit.

Conditions X Data Source must be set to “Data source for each bit”.
 The Data Pattern type must be set to File.

Group Data source

Syntax OPTical:XPOLarization:DSEBit:DATA:FILE
 <bit_index>, <filepath>
 OPTical:XPOLarization:DSEBit:DATA:FILE? <bit_index>

Related Commands [OPTical:XPOLarization:DSType](#),
[OPTical:XPOLarization:DSEBit:DATA](#)

Arguments <bit_index> ::= <NR1> value. The selected modulation type determines the number of bits available.
 <filepath> ::= <string>.

Returns A single <filepath> string.

Examples OPTICAL:XPOLARIZATION:DSEBIT:DATA:FILE
 0, "C:\temp\dataPattern.txt" sets the X-Polarization Data Pattern file and filepath for Bit 0.

OPTICAL:XPOLARIZATION:DSEBIT:DATA:FILE? 1 might return "C:\temp\dataPattern.txt" as the X-Polarization Data Pattern file and filepath for Bit 1.

OPTical:XPOLarization:DSEBit:DATA:PATtern

This command sets or returns the X-Polarization Data Pattern for the specified Bit index when the X Data Source is set to define a pattern type for each bit.

Conditions X Data Source must be set to "Data source for each bit".
The Data Pattern type must be set to Pattern.

Group Data source

Syntax OPTical:XPOLarization:DSEBit:DATA:PATtern
<bit_index>,<pattern>
OPTical:XPOLarization:DSEBit:DATA:PATtern? <bit_index>

Related Commands [OPTical:XPOLarization:DSType](#),
[OPTical:XPOLarization:DSEBit:DATA](#)

Arguments <bit_index> ::= <NR1> value. The selected modulation type determines the number of bits available.
<pattern> ::= <string>.

Returns A single <pattern> string.

Examples OPTICAL:XPOLARIZATION:DSEBIT:DATA:PATTERN 0,"11001111" sets the X-Polarization data pattern for Bit 0.

OPTICAL:XPOLARIZATION:DSEBIT:DATA:PATTERN? 1 might return "11001101", indicating this is the X-Polarization Data Pattern type for Bit 1.

OPTical:XPOLarization:DSEBit:DATA:PRBS

This command sets or returns the X-Polarization PRBS data type for the specified Bit index when the X Data Source is set to define a pattern type for each bit.

Conditions	<p>X Data Source must be set to “Data source for each bit”.</p> <p>The Data Pattern type must be set to PRBS.</p>
Group	Data source
Syntax	<pre>OPTical:XPOLarization:DSEBit:DATA:PRBS <bit_index>,{PRBS7 PRBS9 PRBS15 PRBS16 PRBS20 PRBS21 PRBS23 PRBS29 PRBS31 UDEFined} OPTical:XPOLarization:DSEBit:DATA:PRBS? <bit_index></pre>
Related Commands	<p>OPTical:XPOLarization:DSType, OPTical:XPOLarization:DSEBit:DATA</p>
Arguments	<p><bit_index> ::= <NR1> value. The selected modulation type determines the number of bits available.</p> <p>PRBS7, PRBS9, PRBS15, PRBS16, PRBS20, PRBS21, PRBS23, PRBS29, PRBS31, and UDEFined are the PRBS types.</p> <p>When setting to UDEF (User Defined), use the commands OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:PLOYnomial and OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:SREGister to define the PRBS Polynomial Expression and Shift register initial value.</p>
Returns	PRBS7, PRBS9, PRBS15, PRBS16, PRBS20, PRBS21, PRBS23, PRBS29, PRBS31, UDEF
Examples	<p>OPTICAL:XPOLARIZATION:DSEBIT:DATA:PRBS 0,PRBS15 sets the X-Polarization PRBS Data type to PRBS 15 for Bit 0.</p> <p>OPTICAL:XPOLARIZATION:DSEBIT:DATA:PRBS? 1 might return PRBS7, indicating that the X-Polarization PRBS Data Type is set to PRBS 15 for Bit 0.</p>

OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:PLOYnomial

This command sets or returns the X-Polarization PRBS Polynomial Expression for the User Defined PRBS for the specified Bit index when the X Data Source is set to define a pattern type for each bit.

Conditions X Data Source must be set to “Data source for each bit”.
The Data Pattern type must be set to PRBS, User Defined.

Group Data source

Syntax OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:PLOYnomial
<bit_index>,<polynomial>
OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:PLOYnomial?
<bit_index>

Related Commands [OPTical:XPOLarization:DSType](#),
[OPTical:XPOLarization:DSEBit:DATA:PRBS](#)

Arguments <bit_index>::= <NR1> value. The selected modulation type determines the number of bits available.
<polynomial>::= <string>.
The highest degree of polynomial is 31. If the expression contains more than 31 an error will be returned. For example X32+X23+1 returns an error.

Returns A single <polynomial> string.

Examples OPTICAL:XPOLARIZATION:DSEBIT:DATA:PRBS:UDEFINED:PLOYNOMIAL
0,"X12+X11+1" sets the X-Polarization User Defined PRBS Polynomial
Expression for Bit 0.
OPTICAL:XPOLARIZATION:DSEBIT:DATA:PRBS:UDEFINED:PLOYNOMIAL?
1 might return "X12+X11+1", indicating the X-Polarization User Defined PRBS
Polynomial Expression for Bit 1.

OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:RESet (No Query Form)

This command resets the X-Polarization User Defined PRBS polynomial expression and shift register to their default values for the specified Bit index when the X Data Source is set to define a pattern type for each bit.

Conditions	X Data Source must be set to “Data source for each bit”. The Data Pattern type must be set to PRBS, User Defined.
Group	Data source
Syntax	OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:RESet <bit_index>
Related Commands	OPTical:XPOLarization:DSType , OPTical:XPOLarization:DSEBit:DATA:PRBS
Examples	OPTICAL:XPOLARIZATION:DSEBIT:DATA:PRBS:UDEFINED:RESET 0 resets the X-Polarization User Defined PRBS polynomial expression and shift register values for Bit 0.

OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:SREGister

This command sets or returns the X-Polarization PRBS Polynomial Shift Register Initial Value for the User Defined PRBS for the specified Bit index when the X Data Source is set to define a pattern type for each bit.

Conditions	X Data Source must be set to “Data source for each bit”. The Data Pattern type must be set to PRBS, User Defined.
Group	Data source
Syntax	OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:SREGister <bit_index>, <shift_register> OPTical:XPOLarization:DSEBit:DATA:PRBS:UDEFined:SREGister? <bit_index>
Related Commands	OPTical:XPOLarization:DSType , OPTical:XPOLarization:DSEBit:DATA:PRBS

Arguments	<p><bit_index> ::= <NR1> value. The selected modulation type determines the number of bits available.</p> <p><shift_register> ::= <string>.</p> <p>The number of shift register values should match the highest polynomial degree. For example, if the user defined polynomial is "X⁵+X⁴+1", then the initial shift register should have 5 values.</p>
Returns	A single <polynomial> string.
Examples	<p>OPTICAL:XPOLARIZATION:DSEBIT:DATA:PRBS:UDEFINED:SREGISTER 0,"11011" sets the X-Polarization User Defined PRBS Shift Register for Bit 0.</p> <p>OPTICAL:XPOLARIZATION:DSEBIT:DATA:PRBS:UDEFINED:SREGISTER? 1 might return "11011", indicating the X-Polarization User Defined PRBS Shift Register for Bit 1.</p>

OPTical:XPOLarization:DSType

This command sets or returns the Data Source Pattern type of the X-Polarized optical signal. The Pattern type can be defined to use the same pattern for each bit or to define a pattern for each bit.

Group	Data source
Syntax	OPTical:XPOLarization:DSType {SDSource DSEBit}
Arguments	<p>SDSource = Single data source where the Pattern type is the same for each bit.</p> <p>DSEBit = Data source for each bit where you can set a Pattern type for each bit.</p>
Returns	<p>SDS</p> <p>DSEB</p>
Examples	<p>OPTICAL:XPOLARIZATION:DSTYPE SDSource sets the X Data Source type to Single data source.</p> <p>OPTICAL:XPOLARIZATION:DSTYPE? might return SDS, indicating that the X Data Source type is set to Single data source.</p>

OPTical:XPOLarization[:SDSource]:DATA

This command sets or returns the X-Polarization Data Pattern type when the X Data Source is set to use a single data source.

When setting the pattern type to PRBS, Pattern, or File, use the additional commands noted with each argument to continue defining these pattern types.

Conditions	X Data Source must be set to “Single data source”.
Group	Data source
Syntax	<pre>OPTical:XPOLarization[:SDSource]:DATA {AZERo AONe PRBS PATTern FILE} OPTical:XPOLarization[:SDSource]:DATA?</pre>
Related Commands	OPTical:XPOLarization:DSType
Arguments	<p>AZERO is a data type of all zeroes.</p> <p>AONE is a data type of all ones.</p> <p>PRBS is one of the available PRBS data types. Use the command OPTical:XPOLarization[:SDSource]:DATA:PRBS to set and query the actual PRBS data type.</p> <p>PATTern is a pattern data type. Use the command OPTical:XPOLarization[:SDSource]:DATA:FILE to set and query the pattern.</p> <p>FILE is a file data type. Use the command OPTical:XPOLarization[:SDSource]:DATA:FILE to set and query the pattern file and file path.</p>
Returns	<pre>AZER AON PRBS PATT FIL</pre>
Examples	<p>OPTICAL:XPOLARIZATION:SDSOURCE:DAT AONE sets the X-Polarization Data Pattern type to All Ones.</p> <p>OPTICAL:XPOLARIZATION:SDSOURCE:DATA? might return AONE, indicating that the X-Polarization Data Pattern type is set to All Ones.</p>

OPTical:XPOLarization[:SDSource]:DATA:FILE

This command sets or returns the X-Polarization Data Pattern file and file path when the X Data Source is set to use a single data source.

Conditions X Data Source must be set to “Single data source”.
The Data Pattern type must be set to File.

Group Data source

Syntax OPTical:XPOLarization[:SDSource]:DATA:FILE <filepath>

Related Commands [OPTical:XPOLarization\[:SDSource\]:DATA](#)

Arguments <filepath>::= <string>.

Returns A single <filepath> string.

Examples OPTICAL:XPOLARIZATION:SDSOURCE:DATA:FILE
"C:\temp\dataPattern.txt" X-Polarization Data Pattern file and path.
OPTICAL:XPOLARIZATION:SDSOURCE:DATA:FILE? might return
"C:\temp\dataPattern.txt" as the X-Polarization Data Pattern filepath.

OPTical:XPOLarization[:SDSource]:DATA:PATtern

This command sets or returns the X-Polarization user defined data pattern when the X Data Source is set to use a single data source.

Conditions X Data Source must be set to “Single data source”.
The Data Pattern type must be set to Pattern.

Group Data source

Syntax OPTical:XPOLarization[:SDSource]:DATA:PATtern <pattern>

Related Commands	OPTical:XPOLarization[:SDSource]:DATA OPTical:XPOLarization:DSType
Arguments	<pattern> ::= <string>.
Returns	A single <pattern> string.
Examples	OPTICAL:XPOLARIZATION:SDSOURCE:DATA:PATTERN "11001111" sets the X-Polarization data pattern. OPTICAL:XPOLARIZATION:SDSOURCE:DATA:PATTERN? might return "11001101", indicating this is the X-Polarization user defined data pattern.

OPTical:XPOLarization[:SDSource]:DATA:PRBS

This command sets or returns the X-Polarization PBRS data type when the Data Source Pattern is set to PRBS when the X Data Source is set to use a single data source.

Conditions	X Data Source must be set to “Single data source”.
Group	Data source
Syntax	OPTical:XPOLarization[:SDSource]: DATA:PRBS {PRBS7 PRBS9 PRBS15 PRBS16 PRBS20 PRBS21 PRBS23 PRBS29 PRBS31 UDEFined} OPTical:XPOLarization[:SDSource]:DATA:PRBS?
Related Commands	OPTical:XPOLarization:DSType
Arguments	PRBS7, PRBS9, PRBS15, PRBS16, PRBS20, PRBS21, PRBS23, PRBS29, PRBS31, and UDEFined are the PRBS types. When setting to UDEF (User Defined), use the commands OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined:POLYnomial and OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined:SREGister to define the PRBS Polynomial Expression and Shift register initial value.
Returns	PRBS7, PRBS9, PRBS15, PRBS16, PRBS20, PRBS21, PRBS23, PRBS29, PRBS31, UDEF

- Examples** `OPTICAL:XPOLARIZATION:SDSOURCE:DATA:PRBS PRBS15` sets the X-Polarization PRBS Data Type to PRBS 15.
- `OPTICAL:XPOLARIZATION:SDSOURCE:DATA:PRBS?` might return `PRBS15`, indicating that the X-Polarization PRBS Data Type is set to PRBS 15.

OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined:POLYnomial

This command sets or returns the X-Polarization PRBS Polynomial Expression for the User Defined PRBS when the X Data Source is set to use a single data source.

- Conditions** X Data Source must be set to “Single data source”.
The Data Pattern type must be set to PRBS, User Defined.

Group Data source

Syntax `OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined:POLYnomial <polynomial>`
`OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined:POLYnomial?`

Related Commands [OPTical:XPOLarization:DSType](#),
[OPTical:XPOLarization\[:SDSource\]:DATA:PRBS](#)

Arguments `<polynomial> ::= <string>`.
The highest degree of polynomial is 31. If the expression contains more than 31 an error will be returned. For example `X32+X23+1` returns an error.

Returns A single `<polynomial>` string.

- Examples** `OPTICAL:XPOLARIZATION:SDSOURCE:DATA:PRBS:UDEFINED:POLYNOMIAL "x12+x11+1"` sets the X-Polarization User Defined PRBS Polynomial Expression.
- `OPTICAL:XPOLARIZATION:SDSOURCE:DATA:PRBS:UDEFINED:POLYNOMIAL?` might return `"x12+x11+1"`, indicating the X-Polarization User Defined PRBS Polynomial Expression.

OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined:RESet (No Query Form)

This command resets the X-Polarization User Defined PRBS polynomial expression and shift register to their default values when the X Data Source is set to use a single data source.

Conditions	X Data Source must be set to “Single data source”.
Group	Data source
Syntax	OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined:RESet
Related Commands	OPTical:XPOLarization:DSType , OPTical:XPOLarization[:SDSource]:DATA:PRBS
Examples	OPTICAL:XPOLARIZATION:SDSOURCE:DATA:PRBS:UDEFINED:RESET resets the X-Polarization User Defined PRBS polynomial expression and shift register values.

OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined:SREGister

This command sets or returns the X-Polarization PRBS Polynomial Shift Register Initial Value for the User Defined PRBS when the X Data Source is set to use a single data source.

Conditions	X Data Source must be set to “Single data source”. The Data Pattern type must be set to PRBS, User Defined.
Group	Data source
Syntax	OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined: SREGister <shift_register> OPTical:XPOLarization[:SDSource]:DATA:PRBS:UDEFined: SREGister?
Related Commands	OPTical:XPOLarization:DSType , OPTical:XPOLarization[:SDSource]:DATA:PRBS

Arguments	<p><shift_register> ::= <string>.</p> <p>The number of shift register values should match the highest polynomial degree. For example, if the user defined polynomial is "X5+X4+1", then the initial shift register should have 5 values.</p>
Returns	A single <polynomial> string.
Examples	<p>OPTICAL:XPOLARIZATION:SDSOURCE:DATA:PRBS:UDEFINED:SREGISTER "11011" sets the X-Polarization User Defined PRBS Shift Register.</p> <p>OPTICAL:XPOLARIZATION:SDSOURCE:DATA:PRBS:UDEFINED:SREGISTER? might return "11011", indicating the X-Polarization User Defined PRBS Shift Register.</p>

OPTical:YPOLarization:BBOffset

This command sets or returns the Base Band Offset of Y-Polarized optical signals.

Conditions	The setup Mode must be set to Dual Polarization (X & Y).
Group	Setup
Syntax	<p>OPTical:YPOLarization:BBOffset <offset></p> <p>OPTical:YPOLarization:BBOffset?</p>
Related Commands	OPTical:MODE
Arguments	<offset> ::= <NR3> value.
Returns	A single <NR3> value.
Examples	<p>OPTICAL:YPOLARIZATION:BBOFFSET 2E9 sets the Y BaseBand Offset frequency to 2 GHz.</p> <p>OPTICAL:YPOLARIZATION:BBOFFSET? might return 4.000000000E+9, indicating that the Y BaseBand Offset frequency of the is set to 4 GHz.</p>

OPTical:YPOLarization:DSEBit:DATA

This command sets or returns the Y-Polarization Data Pattern type for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.

When setting the pattern type to PRBS, Pattern, or File, use the additional commands noted with each argument to continue defining these pattern types.

Conditions Y Data Source must be set to “Data source for each bit”.

Group Data source

Syntax OPTical:YPOLarization:DSEBit:DATA
 <bit_index>, {AONE|AZERO|FILE|PRBS|PATTERN}
 OPTical:YPOLarization:DSEBit:DATA? <bit_index>

Related Commands [OPTical:YPOLarization:DSType](#)

Arguments <bit_index> ::= <NR1> value. The selected modulation type determines the number of bits available.

AONE is a data type of all ones.

AZERO is a data type of all zeroes.

FILE is a file data type. Use the command [OPTical:YPOLarization:DSEBit:DATA:FILE](#) to set and query the pattern file and file path.

PRBS is one of the available PRBS data types. Use the command [OPTical:YPOLarization:DSEBit:DATA:PRBS](#) to set and query the actual PRBS data type.

PATTERN is a pattern data type. Use the command [OPTical:YPOLarization:DSEBit:DATA:PATTERN](#) to set and query the pattern.

Returns AZER (all zeros)
 AON (all ones)
 PRBS
 PATT (pattern)
 FIL (file)

Examples OPTICAL:YPOLARIZATION:DSEBIT:DATA 0,AONE sets the Y-Polarization Data Pattern type for Bit 0 to All Ones.

OPTICAL:YPOLARIZATION:DSEBIT:DATA? 1 might return AZER, indicating that the Y-Polarization Data Pattern type for Bit 1 is set to All Zero.

OPTical:YPOLarization:DSEBit:DATA:FILE

This command sets or returns the Y-Polarization Data Pattern file and file path for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.

Conditions Y Data Source must be set to “Data source for each bit”.
The Data Pattern type must be set to File.

Group Data source

Syntax OPTical:YPOLarization:DSEBit:DATA:FILE
<bit_index>,<filepath>
OPTical:YPOLarization:DSEBit:DATA:FILE? <bit_index>

Related Commands [OPTical:YPOLarization:DSType](#),
[OPTical:YPOLarization:DSEBit:DATA](#)

Arguments <bit_index>::= <NR1> value. The selected modulation type determines the number of bits available.
<filepath>::= <string>.

Returns A single <filepath> string.

Examples OPTICAL:YPOLARIZATION:DSEBIT:DATA:FILE
0,"C:\temp\dataPattern.txt" sets the Y-Polarization Data Pattern file and filepath for Bit 0.
OPTICAL:YPOLARIZATION:DSEBIT:DATA:FILE? 1 might return
"C:\temp\dataPattern.txt" as the Y-Polarization Data Pattern file and filepath for Bit 1.

OPTical:YPOLarization:DSEBit:DATA:PATTErn

This command sets or returns the Y-Polarization Data Pattern for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.

Conditions Y Data Source must be set to “Data source for each bit”.
The Data Pattern type must be set to Pattern.

Group	Data source
Syntax	<pre>OPTical:YPOLarization:DSEBit:DATA:PATTERN <bit_index>, <pattern> OPTical:YPOLarization:DSEBit:DATA:PATTERN? <bit_index></pre>
Related Commands	OPTical:YPOLarization:DSType , OPTical:YPOLarization:DSEBit:DATA
Arguments	<p><bit_index> ::= <NR1> value. The selected modulation type determines the number of bits available.</p> <p><pattern> ::= <string>.</p>
Returns	A single <pattern> string.
Examples	<pre>OPTICAL:YPOLARIZATION:DSEBIT:DATA:PATTERN 0, "11001111" sets the Y-Polarization data pattern for Bit 0.</pre> <pre>OPTICAL:YPOLARIZATION:DSEBIT:DATA:PATTERN? 1 might return "11001101", indicating this is the Y-Polarization Data Pattern type for Bit 1.</pre>

OPTical:YPOLarization:DSEBit:DATA:PRBS

This command sets or returns the Y-Polarization PRBS data type for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.

Conditions	<p>Y Data Source must be set to “Data source for each bit”.</p> <p>The Data Pattern type must be set to PRBS.</p>
Group	Data source
Syntax	<pre>OPTical:YPOLarization:DSEBit:DATA:PRBS <bit_index>, {PRBS7 PRBS9 PRBS15 PRBS16 PRBS20 PRBS21 PRBS23 PRBS29 PRBS31 UDEFined} OPTical:YPOLarization:DSEBit:DATA:PRBS? <bit_index></pre>
Related Commands	OPTical:YPOLarization:DSType , OPTical:YPOLarization:DSEBit:DATA

Arguments	<p><bit_index> ::= <NR1> value. The selected modulation type determines the number of bits available.</p> <p>PRBS7, PRBS9, PRBS15, PRBS16, PRBS20, PRBS21, PRBS23, PRBS29, PRBS31, and UDEFined are the PRBS types.</p> <p>When setting to UDEF (User Defined), use the commands OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:PLOYnomial and OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:SREGister to define the PRBS Polynomial Expression and Shift register initial value.</p>
Returns	<p>PRBS7, PRBS9, PRBS15, PRBS16, PRBS20, PRBS21, PRBS23, PRBS29, PRBS31, UDEF</p>
Examples	<p><code>OPTICAL:YPOLARIZATION:DSEBIT:DATA:PRBS 0,PRBS15</code> sets the Y-Polarization PRBS Data type to PRBS 15 for Bit 0.</p> <p><code>OPTICAL:YPOLARIZATION:DSEBIT:DATA:PRBS? 1</code> might return PRBS7, indicating that the Y-Polarization PRBS Data Type is set to PRBS 15 for Bit 0.</p>

OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:PLOYnomial

This command sets or returns the Y-Polarization PRBS Polynomial Expression for the User Defined PRBS for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.

Conditions	<p>Y Data Source must be set to “Data source for each bit”.</p> <p>The Data Pattern type must be set to PRBS, User Defined.</p>
Group	<p>Data source</p>
Syntax	<p><code>OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:PLOYnomial <bit_index>,<polynomial></code> <code>OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:PLOYnomial? <bit_index></code></p>
Related Commands	<p>OPTical:YPOLarization:DSType, OPTical:YPOLarization:DSEBit:DATA:PRBS</p>
Arguments	<p><bit_index> ::= <NR1> value. The selected modulation type determines the number of bits available.</p> <p><polynomial> ::= <string>.</p>

The highest degree of polynomial is 31. If the expression contains more than 31 an error will be returned. For example X32+X23+1 returns an error.

Returns A single <polynomial> string.

Examples OPTICAL:YPOLARIZATION:DSEBIT:DATA:PRBS:UDEFINED:PLOYNOMIAL 0, "X12+X11+1" sets the Y-Polarization User Defined PRBS Polynomial Expression for Bit 0.

OPTICAL:YPOLARIZATION:DSEBIT:DATA:PRBS:UDEFINED:PLOYNOMIAL? 1 might return "X12+X11+1", indicating the Y-Polarization User Defined PRBS Polynomial Expression for Bit 1.

OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:RESet (No Query Form)

This command resets the Y-Polarization User Defined PRBS polynomial expression and shift register to their default values for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.

Conditions Y Data Source must be set to “Data source for each bit”.
The Data Pattern type must be set to PRBS, User Defined.

Group Data source

Syntax OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:RESet <bit_index>

Related Commands [OPTical:YPOLarization:DSType](#),
[OPTical:YPOLarization:DSEBit:DATA:PRBS](#)

Examples OPTICAL:YPOLARIZATION:DSEBIT:DATA:PRBS:UDEFINED:RESET 0 resets the Y-Polarization User Defined PRBS polynomial expression and shift register values for Bit 0.

OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:SREGister

This command sets or returns the Y-Polarization PRBS Polynomial Shift Register Initial Value for the User Defined PRBS for the specified Bit index when the Y Data Source is set to define a pattern type for each bit.

Conditions Y Data Source must be set to “Data source for each bit”.
The Data Pattern type must be set to PRBS, User Defined.

Group Data source

Syntax OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:SREGister
<bit_index>,<shift_register>
OPTical:YPOLarization:DSEBit:DATA:PRBS:UDEFined:SREGister?
<bit_index>

Related Commands [OPTical:YPOLarization:DSType](#),
[OPTical:YPOLarization:DSEBit:DATA:PRBS](#)

Arguments <bit_index>::= <NR1> value. The selected modulation type determines the number of bits available.
<shift_register>::= <string>.
The number of shift register values should match the highest polynomial degree. For example, if the user defined polynomial is "X5+X4+1", then the initial shift register should have 5 values.

Returns A single <polynomial> string.

Examples OPTICAL:YPOLARIZATION:DSEBIT:DATA:PRBS:UDEFINED:SREGISTER 0, "11011" sets the Y-Polarization User Defined PRBS Shift Register for Bit 0.
OPTICAL:YPOLARIZATION:DSEBIT:DATA:PRBS:UDEFINED:SREGISTER? 1 might return "11011", indicating the Y-Polarization User Defined PRBS Shift Register for Bit 1.

OPTical:YPOLarization:DSType

This command sets or returns the Data Source Pattern type of the Y-Polarized optical signal. The Pattern type can be defined to use the same pattern for each bit or to define a pattern for each bit.

Group	Data source
Syntax	OPTical:YPOLarization:DSType {SDSource DSEBit}
Arguments	SDSource = Single data source where the Pattern type is the same for each bit. DSEBit = Data source for each bit where you can set a Pattern type for each bit.
Returns	SDS DSEB
Examples	OPTICAL:YPOLARIZATION:DSTYPE SDSource sets the Y Data Source type to Single data source. OPTICAL:YPOLARIZATION:DSTYPE? might return SDS, indicating that the Y Data Source type is set to Single data source.

OPTical:YPOLarization[:SDSource]:DATA

This command sets or returns the Y-Polarization Data Pattern type when the Y Data Source is set to use a single data source.

When setting the pattern type to PRBS, Pattern, or File, use the additional commands noted with each argument to continue defining these pattern types.

Conditions	Y Data Source must be set to “Single data source”.
Group	Data source
Syntax	OPTical:YPOLarization[:SDSource]:DATA {AZERo AONE PRBS PATTERN FILE} OPTical:YPOLarization[:SDSource]:DATA?
Related Commands	OPTical:YPOLarization:DSType

Arguments	<p>AZERO is a data type of all zeroes.</p> <p>AONE is a data type of all ones.</p> <p>PRBS is one of the available PRBS data types. Use the command OPTical:YPOLarization[:SDSource]:DATA:PRBS to set and query the actual PRBS data type.</p> <p>PATTERN is a pattern data type. Use the command OPTical:YPOLarization[:SDSource]:DATA:FILE to set and query the pattern.</p> <p>FILE is a file data type. Use the command OPTical:YPOLarization[:SDSource]:DATA:FILE to set and query the pattern file and file path.</p>
Returns	<p>AZER</p> <p>AON</p> <p>PRBS</p> <p>PATT</p> <p>FIL</p>
Examples	<p>OPTICAL:YPOLARIZATION:SDSOURCE:DATA AONE sets the Y-Polarization Data Pattern type to All Ones.</p> <p>OPTICAL:YPOLARIZATION:SDSOURCE:DATA? might return AONE, indicating that the Y-Polarization Data Pattern type is set to All Ones.</p>

OPTical:YPOLarization[:SDSource]:DATA:FILE

This command sets or returns the Y-Polarization Data Pattern file and file path when the Y Data Source is set to use a single data source.

Conditions	<p>Y Data Source must be set to “Single data source”.</p> <p>The Data Pattern type must be set to File with the command OPTical:YPOLarization[:SDSource]:DATA.</p>
Group	Data source
Syntax	OPTical:YPOLarization[:SDSource]:DATA:FILE <filepath>
Related Commands	OPTical:YPOLarization[:SDSource]:DATA
Arguments	<filepath> ::= <string>.

Returns A single <filepath> string.

Examples OPTICAL:YPOLARIZATION:SDSOURCE:DATA:FILE
"C:\temp\dataPattern.txt" Y-Polarization Data Pattern file and path.
OPTICAL:YPOLARIZATION:SDSOURCE:DATA:FILE? might return
"C:\temp\dataPattern.txt" as the Y-Polarization Data Pattern filepath.

OPTical:YPOLarization[:SDSource]:DATA:PATtern

This command sets or returns the Y-Polarization user defined data pattern when the Y Data Source is set to use a single data source.

Conditions Y Data Source must be set to “Single data source”.

The Data Pattern type must be set to Pattern with the command
[OPTical:YPOLarization\[:SDSource\]:DATA](#).

Group Data source

Syntax OPTical:YPOLarization[:SDSource]:DATA:PATtern <pattern>

Related Commands [OPTical:YPOLarization\[:SDSource\]:DATA](#)
[OPTical:YPOLarization:DSType](#)

Arguments <pattern>::= <string>.

Returns A single <pattern> string.

Examples OPTICAL:YPOLARIZATION:SDSOURCE:DATA:PATTERN "11001111" sets
the Y-Polarization data pattern.
OPTICAL:YPOLARIZATION:SDSOURCE:DATA:PATTERN? might return
"11001101", indicating this is the Y-Polarization user defined data pattern.

OPTical:YPOLarization[:SDSource]:DATA:PRBS

This command sets or returns the Y-Polarization PRBS data type when the Data Source Pattern is set to PRBS when the Y Data Source is set to use a single data source.

Conditions Y Data Source must be set to “Single data source”.

Group Data source

Syntax OPTical:YPOLarization[:SDSource]:
DATA:PRBS {PRBS7|PRBS9|PRBS15|PRBS16
|PRBS20|PRBS21|PRBS23|PRBS29|PRBS31|UDEFined}
OPTical:YPOLarization[:SDSource]:DATA:PRBS?

Related Commands [OPTical:YPOLarization:DSType](#)

Arguments PRBS7, PRBS9, PRBS15, PRBS16, PRBS20, PRBS21, PRBS23, PRBS29, PRBS31, and UDEFined are the PRBS types.

When setting to UDEF (User Defined), use the commands [OPTical:YPOLarization\[:SDSource\]:DATA:PRBS:UDEFined:POLYnomial](#) and [OPTical:YPOLarization\[:SDSource\]:DATA:PRBS:UDEFined:SREGister](#) to define the PRBS Polynomial Expression and Shift register initial value.

Returns PRBS7, PRBS9, PRBS15, PRBS16, PRBS20, PRBS21, PRBS23, PRBS29, PRBS31, UDEF

Examples OPTICAL:YPOLARIZATION:SDSOURCE:DATA:PRBS PRBS15 sets the Y-Polarization PRBS Data Type to PRBS 15.

OPTICAL:YPOLARIZATION:SDSOURCE:DATA:PRBS? might return PRBS15, indicating that the Y-Polarization PRBS Data Type is set to PRBS 15.

OPTical:YPOLarization[:SDSource]:DATA:PRBS:UDEFined:POLYnomial

This command sets or returns the Y-Polarization PRBS Polynomial Expression for the User Defined PRBS when the Y Data Source is set to use a single data source.

Conditions Y Data Source must be set to “Single data source”.

The Data Pattern type must be set to PRBS, User Defined.

Group	Data source
Syntax	<pre>OPTical:YPOLarization[:SDSource]:DATA:PRBS:UDEFined: POLYnomial <polynomial> OPTical:YPOLarization[:SDSource]:DATA:PRBS:UDEFined: POLYnomial?</pre>
Related Commands	OPTical:YPOLarization:DSType , OPTical:YPOLarization[:SDSource]:DATA:PRBS
Arguments	<p><polynomial> ::= <string>.</p> <p>The highest degree of polynomial is 31. If the expression contains more than 31 an error will be returned. For example X32+X23+1 returns an error.</p>
Returns	A single <polynomial> string.
Examples	<pre>OPTICAL:YPOLARIZATION:SDSOURCE:DATA:PRBS:UDEFINED:POLYNOMIAL "x12+x11+1" sets the Y-Polarization User Defined PRBS Polynomial Expression.</pre> <pre>OPTICAL:YPOLARIZATION:SDSOURCE:DATA:PRBS:UDEFINED:POLYNOMIAL? might return "x12+x11+1", indicating the Y-Polarization User Defined PRBS Polynomial Expression.</pre>

OPTical:YPOLarization[:SDSource]:DATA:PRBS:UDEFined:RESet (No Query Form)

This command resets the Y-Polarization User Defined PRBS polynomial expression and shift register to their default values when the Y Data Source is set to use a single data source.

Conditions	Y Data Source must be set to “Single data source”.
Group	Data source
Syntax	<pre>OPTical:YPOLarization[:SDSource]:DATA:PRBS:UDEFined:RESet</pre>
Related Commands	OPTical:YPOLarization:DSType , OPTical:YPOLarization[:SDSource]:DATA:PRBS

Examples `OPTICAL:YPOLARIZATION:SDSOURCE:DATA:PRBS:UDEFINED:RESET` resets the Y-Polarization User Defined PRBS polynomial expression and shift register values.

OPTical:YPOLarization[:SDSource]:DATA:PRBS:UDEFined:SREGister

This command sets or returns the Y-Polarization PRBS Polynomial Shift Register Initial Value for the User Defined PRBS when the Y Data Source is set to use a single data source.

Conditions Y Data Source must be set to "Single data source".
The Data Pattern type must be set to PRBS, User Defined.

Group Data source

Syntax `OPTical:YPOLarization[:SDSource]:DATA:PRBS:UDEFined:SREGister <shift_register>`
`OPTical:YPOLarization[:SDSource]:DATA:PRBS:UDEFined:SREGister?`

Related Commands [OPTical:YPOLarization:DSType](#),
[OPTical:YPOLarization\[:SDSource\]:DATA:PRBS](#)

Arguments `<shift_register> ::= <string>`.
The number of shift register values should match the highest polynomial degree. For example, if the user defined polynomial is "X5+X4+1", then the initial shift register should have 5 values.

Returns A single `<polynomial>` string.

Examples `OPTICAL:YPOLARIZATION:SDSOURCE:DATA:PRBS:UDEFINED:SREGISTER "11011"` sets the Y-Polarization User Defined PRBS Shift Register.
`OPTICAL:YPOLARIZATION:SDSOURCE:DATA:PRBS:UDEFINED:SREGISTER?` might return "11011", indicating the Y-Polarization User Defined PRBS Shift Register.

WPlugin:ACTive

This command sets or returns the active waveform plug-in.

To use the Optical signal commands in this document, the active waveform plug-in must be set to Optical.

Group Control

Syntax WPlugin:ACTive <plug-in_name>
WPlugin:ACTive?

Arguments <plug-in_name>::=<string>

A single string representing the waveform plug-in name.

"Optical" is the proper string to activate the Optical plug-in.

Returns <plug-in_name>::=<string>

Examples WPLUGIN:ACTIVE "Optical" sets the RF Generic Signal plug-in as the active plug-in.

WPLUGIN:ACTIVE? might return "Optical", indicating Optical is currently the active waveform plug-in.

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