

## Introduction

This guide provides information about using the Model 2461 as a drop-in replacement in an existing Model 2420, 2425, 2430, or 2440 application. This document refers to these four models collectively as the Series 2400. This document also provides information about converting existing Series 2400 SCPI code to 2461 SCPI code.

When you use a 2461 in an application designed for one of these instruments, you will not have access to the extended ranges and other features that were introduced with the 2461. In addition, the options that you can set from the front panel are more limited.

For example, the highest current range full scale on the Model 2425 is 3 A. The highest current on the 2461 is 10 A. However, when the 2461 is controlled using the SCPI 2425 command set, the maximum range is 3 A.

The 2461 options that are not available with the Series 2400 SCPI command sets include:

- Some current and voltage ranges
- New trigger model
- Ability to run scripts
- Front-panel features, including graphing, saving measurement data, and setting up tests
- Quick Setups from the QuickSet menu

In addition, source memory can be used, but it is no longer backed up with a battery.

This section describes:

- How to select a SCPI command set
- Differences between the Series 2400 SCPI command sets in the 2461 and the SCPI command sets available in the previous Series 2400 products



## Selecting a command set

You can select a command set from the front panel or over the remote interface. After you change the command set, you must reboot the instrument.

### Using the front panel:

1. Press the **MENU** key.
2. Under System, select **Settings**.
3. Select the button next to Command Set.

Figure 1: Selecting a command set



4. Select a command set. You will be prompted to reboot.
5. Select **OK**.

### Using SCPI or TSP remote commands:

Send the command:

```
*lang SCPIxxxx
```

Where `xxxx` can be 2420, 2425, 2430, or 2440. Reboot the instrument.

## Front-panel operation with the Series 2400 SCPI command sets

When a Series 2400 command set is selected, the options available through the front panel are limited. For example, you can observe measurements on the display, but you cannot control the source value using front-panel displays.

The following topics describe the options that are available when a Series 2400 command set is selected.

## Home screen display

When a Series 2400 SCPI command set is selected, the home screen is the only screen available. There are no swipe screens.

The options available on the home screen are described here.

**Figure 2: Home screen when a Series 2400 SCPI command set is selected**



#	Screen element	Description
1	System status and event indicators	At the top of the home screen. These indicators provide information about the present state of the instrument. Some of the indicators open up a dialog box with more information or a settings menu when selected. For details, see "Status and event indicators" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> .
2	MEASURE view area	Green part of the home screen; displays the value of the present measurement.
3	Range button	Displays the current measure range. Select the button to change the range.
	Swipe screen area	Blue part of the home screen. It displays the measured value of the source.
5	Source setting	Displays the current source value.
6	Local button	Cancels remote operation and changes to local operation.

## Status and error indicators when a command set is selected

The indicators at the top of the home screen contain information about instrument settings and states. Some of the indicators also provide access to instrument settings.

Select an indicator to get more information about the present state of the instrument. You can also select the indicators by turning the navigation control to select an indicator and then pressing **ENTER**.

**Figure 3: Status and error indicators**



The communications indicator is at the left. The options you may see here are listed in the following table.

Indicator	Meaning
<b>Local</b>	Instrument is controlled from the front panel.
<b>GPIB</b>	Instrument is communicating through a GPIB interface.
<b>TCPIP</b>	Instrument is communicating through a LAN interface.
<b>VXI-11</b>	Instrument is communicating using VXI-11.
<b>USBTMC</b>	Instrument is communicating through a USB interface.
<b>Telnet</b>	Instrument is communicating through Telnet.

The communications indicator displays the type of communications the instrument is using. Select the indicator to display the present communications settings. Select **Change Settings** at the bottom of the dialog box to open the System Communications screen, where you can change the settings.

There is an activity indicator next to the communications indicator. When the instrument is communicating with a remote interface, the up and down arrows flash.

If a service request has been generated, SRQ is displayed to the right of the up and down arrows. You can instruct the instrument to generate a service request (SRQ) when one or more errors or conditions occur. When this indicator is on, a service request has been generated. This indicator stays on until the serial poll byte is read or all the conditions that caused SRQ are cleared.





The measurement mode indicator is on the right. This indicator shows the active measurement method. Select the indicator to open a menu. Select one of the buttons on the menu to change the measurement method or initiate or abort the trigger model. You can select the following options:

- **Continuous Measurement:** The instrument is taking measurements continuously. CONT is displayed when this option is selected.
- **Manual Trigger Mode:** Press the front-panel TRIGGER key to initiate the current trigger model. MAN is displayed when this option is selected.

The system event indicator is on the far right side of the instrument status indicator bar. This indicator changes based on the type of event that occurred.

Press the indicator to open a message screen with a brief description of the error, warning, or event. Press the Event Log button to see the System Events screen, which contains more detailed descriptions of the events and options for controlling the types of error events that are displayed on the front panel.

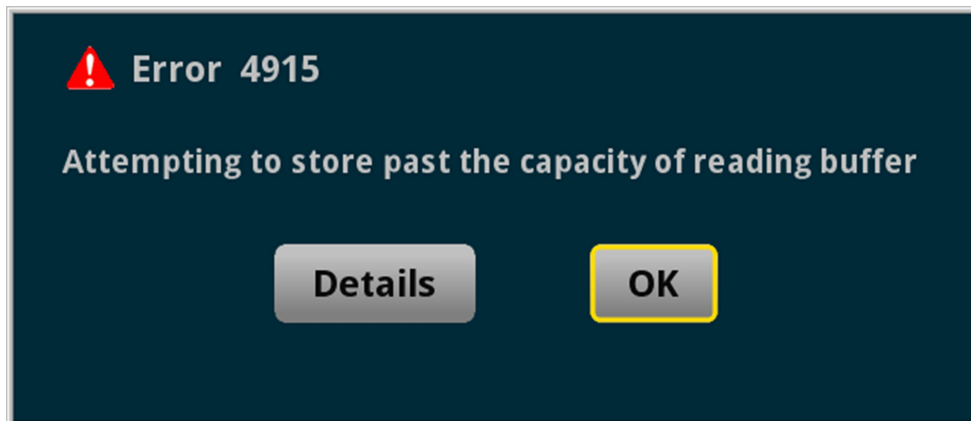
The following table describes the different event indicators and what they mean.

Icon	Description
	An empty triangle means that no new events were logged in the event log since the last time you viewed the event log.
	A blue circle means that an informational event message was logged. The message is for information only. This indicates status changes or information that may be helpful. If the Log Command option is on, it also includes commands.
	A yellow triangle means that a warning event message was logged. This message indicates that a change occurred that could affect operation.
	A red triangle means that an error event message was logged. This may indicate that a command was sent incorrectly.

## Event messages

During operation and programming, front-panel messages may be displayed. Messages are information, warning, or error notifications. For information on event messages, refer to "Using the event log" in the *Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual*.

Figure 4: Example front-panel error message



## Menus when a Series 2400 command set is selected

When a Series 2400 SCPI command set is selected, the only menus available from the front panel are the QuickSet menu and the System Settings menu. The QuickSet menu is only available through the QUICKSET key and has limited options.

## QuickSet menu when a Series 2400 command set is selected

When a Series 2400 command set is selected, the QuickSet menu is only available through the QUICKSET key and has limited options. You can set the following options:

- Function: Predefined setups for the measurement and source functions
- Use the Performance slider to adjust for performance (resolution versus speed)

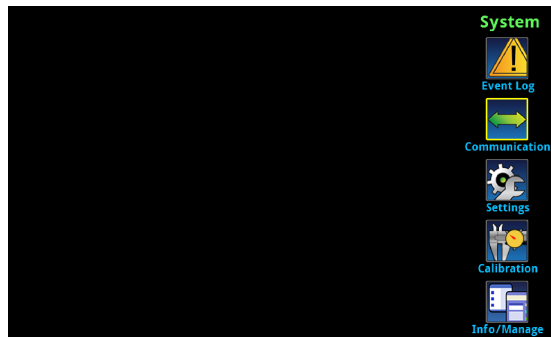
The Function option allows you to select the same options that you can select by pressing the FUNCTION key. To select one of the functions, press the function on the touchscreen. You can also select a function by turning the navigation control to highlight a function, and then pressing the control to select the function.

The Performance slider allows you to adjust the speed and resolution of the instrument based on where you position the slider. As you increase speed, you lower the amount of resolution. As you increase resolution, you decrease the reading speed. The settings the performance slider adjusts include autozero, autodelay and filter settings, display digits, NPLC, and source readback. These settings take effect the next time the output is turned on and measurements are made.

## System menu when a Series 2400 command set is selected

The System menu is available when a Series 2400 command set is selected. The options are the same as the options when the other command sets are selected, except that the TSP-Link® options in the Communication menu is not available.

**Figure 5: Main menu when a Series 2400 SCPI command set is selected**



## Series 2400 to 2461 command differences

You can use existing code from a Series 2400 application with a 2461; many of the commands are the same. However, there are some significant differences, including the following exceptions:

- Because the 2461 does not have an RS-232 communication port, any commands related to RS-232 communications are accepted and ignored
- Because there is no contact check functionality when using a Series 2400 command set, any commands related to contact-check functionality are accepted and ignored
- Because of the change to the display, the `DISP` commands will act differently
- Many of the commands in the `CALCulate2` subsystem are no longer supported or operate differently
- You cannot use the `:ABORT` command to abort a query that is waiting for a trigger

Details about these differences and other commands that operate differently are described in the following sections.

If a command is not listed in this section, you can use the command in the same way that you did for the previous Series 2400 products. The descriptions of the commands are provided in the *Series 2400 SourceMeter User's Manual*, (part number 2400S-900-01). You can download this manual from [tek.com/keithley](http://tek.com/keithley).

### Commands that are supported but operate differently

The command `:DISP:CNDisplay` is supported in the command sets of the Series 2400 instruments, but will return the display to the home screen.

The commands `:OUTPut:ENABle[:STATe]` and `:OUTPut:ENABle:TRIPped?` are supported in the Series 2400 SCPI command sets, but they affect the 2461 rear panel INTERLOCK connection instead of the DIGITAL I/O connection.

If you used `:CALCulate2:LIMit<x>:PASS:SOURce2` and `:CALCulate2:LIMit<x>:PASS:SOURce2?` in earlier code, replace them with `:CALCulate2:LIMit<x>:LOWer:SOURce2` and `:CALCulate2:LIMit<x>:LOWer:SOURce2?`

### Commands that are not supported in the 2461

The 2461 introduced features and hardware changes that made some earlier commands obsolete. These commands are documented in this section.

## RS-232 commands

The 2461 no longer supports the RS-232 interface, so commands related to RS-232 operation are not supported even when you are using a Series 2400 SCPI command set.

If you have existing code that sets RS-232 parameters, the commands will be accepted and ignored.

Commands that are related to the RS-232 interface that are no longer available are listed below.

- :SYSTem:LOCa1
- :SYSTem:RWLock

## Contact check commands

The 2461 does not support contact check, so commands related to this feature are not supported even when you are using a Series 2400 command set.

If you have existing code that sets contact check parameters, the commands are accepted and ignored or are accepted and return a default value.

The Series 2400 SCPI commands related to this feature and the 2461 response to them are listed below.

### Commands that are accepted and ignored

- :CALCulate2:LIMit4:FAIL?
- :CALCulate2:LIMit4:SOURce2
- :CALCulate2:LIMit4:SOURce2?
- :CALCulate2:LIMit4:STATe
- :CALCulate2:LIMit4:STATe?
- :SYSTem:CCHeck
- :SYSTem:CCHeck?
- :SYSTem:CCHeck:RESistance
- :SYSTem:CCHeck:RESistance?
- :TRIGger:SEQuence2:TOUT
- :TRIGger:SEQuence2:TOUT?
- :TRIGger:SEQuence2:SOURce
- :TRIGger:SEQuence2:SOURce?

### Commands that are accepted and return a default value

- \*OPT? (0 is returned)



## Display commands

The 2461 display is significantly different than the display of earlier models, so some commands related to the display no longer apply when you are using the Series 2400 SCPI command set.

If you have existing code that sets display parameters, the commands will either be accepted and return defaults, or be accepted and ignored.

The Series 2400 commands related to this display that are no longer available are listed below:

- `:DISPlay:ENABle`
- `:DISPlay:ENABle?`
- `:DISPlay:WINDow[1]:ATTRibutes?`
- `:DISPlay:WINDow[1]:DATA?`
- `:DISPlay:WINDow2:ATTRibutes?`
- `:DISPlay:WINDow2:DATA?`

## Other commands

Some additional commands are no longer supported when you are using the Series 2400 SCPI command set.

The 2461 accepts the following command but ignores it:

- `:SYSTem:MEMory:INITialize`

The 2461 accepts the following command but returns a default of 0:

- `*TST?`

The 2461 accepts the following command but returns the last key that was remapped to the ENTER or EXIT keys:

- `:SYSTem:KEY`

## Commands that were added to the SCPI command sets

To replace some features that are needed to use the 2461 in a Series 2400 application, the following commands were added.

- `:SYSTem:GPIB:ADDRess`: Assigns a GPIB address through a remote interface.
- `:SYSTem:TLINK`: Sets the digital I/O port to digital I/O or Trigger Link. See below for detail.

The `:SYSTEM:GPIB:ADDRESS` usage format is:

```
:SYSTEM:GPIB:ADDRESS <n>
```

Where `<n>` is the GPIB address of the instrument (1 to 30), or

```
:SYSTEM:GPIB:ADDRESS?
```

Which is used to query the address of the instrument.

The address can be set to any address value from 1 to 30. However, the address must be unique in the system. It cannot conflict with an address that is assigned to another instrument or to the GPIB controller. A new GPIB address takes effect when the command to change it is processed. If there are response messages in the output queue when this command is processed, they must be read at the new address.

If command messages are being queued (sent before this command has executed), the new settings may take effect in the middle of a subsequent command message, so care should be exercised when setting this attribute from the GPIB interface.

You should allow ample time for the command to be processed before attempting to communicate with the instrument again. After sending this command, make sure to use the new address to communicate with the instrument.

\*RST does not affect the GPIB address.

The `:SYSTEM:TLINK` usage format is:

```
:SYSTEM:TLINK <n>
```

Where `<n>` is:

- 0: Digital I/O connections. The DIGITAL I/O port on the rear panel of the instrument is set for digital I/O connections.
- 1: Trigger Link. The DIGITAL I/O port on the rear panel of the instrument is set for Trigger Link (TLINK) connections.

This command is stored in nonvolatile memory (the setting is retained through a power cycle). It is not saved as part of the user-saved setup (\*SAV and \*RCL).

When the port is set for digital I/O, the following signals are available on the digital I/O connector:

- Pin 1: Out 1
- Pin 2: Out 2
- Pin 3: Out 3
- Pin 4: Out 4 (end-of-test (EOT) or BUSY)
- Pin 6: Input (start-of-test (SOT))

When the port is set for Trigger Link, the following signals are available on the digital I/O connector:

- Pin 1: Trigger Link 1
- Pin 2: Trigger Link 2
- Pin 3: Trigger Link 3
- Pin 4: Trigger Link 4
- Pin 6: Input (start-of-test (SOT))

You can use the Series 2400 commands that support digital I/O and Trigger Link with these settings. For example, you can use the `SOURCE2:TTL` command to set the I/O port bit pattern for the digital I/O state. The `:ARM[:SEQUENCE[1]][LAYER[1]]:SOURCE TLINK` command can be used when the state is `TLINK`.

## Using Trigger Link or Digital I/O

The 2461 can support digital I/O or Trigger Link (TLINK) applications when a SCPI command set of the emulated instrument is selected. However, it cannot support both digital I/O and TLINK connections at the same time.

If you are using a 2461 in an application that used only the Series 2400 digital I/O, send the command:

```
:SYSTEM:TLINK 0
```

This sets the digital I/O port lines of the 2461 to operate the lines with the same pinouts as those on the Series 2400.

If you are using a 2461 in an application that used only the Series 2400 Trigger Link (TLINK) connector, send the command:

```
:SYSTEM:TLINK 1
```

This sets the digital I/O port lines to operate with the same connections as a Series 2400 TLINK connection. You can use the Model 2450-TLINK DB-9 to Trigger Link Connector Adapter to connect to the digital I/O connector.

If the connection to the digital I/O connector is always the same (either digital I/O or TLINK), you do not need to send the `:SYSTem:TLINK` command again. It is saved through power cycles.

If you are using the 2461 in a Series 2400 application that used both digital I/O and TLINK, you need to make changes to your application to accommodate the differences. One way to do this is to use the `*SAV` and `*RCL` commands to save and recall the settings for each type of connection. Note that the `:SYSTem:TLINK` command is not saved with the user-saved setup, so you must send that command for each change to digital I/O or TLINK.

For example, you might save the settings as follows.

Set the digital I/O port as a Series 2400 digital I/O:

```
:SYSTem:TLINK 0
```

Make other settings for the digital I/O application.

Save the settings to memory location 1:

```
*SAV 1
```

Set the digital I/O port as a Series 2400 TLINK:

```
:SYSTem:TLINK 1
```

Make other settings for the TLINK application.

Save the settings to memory location 2:

```
*SAV 2
```

To change between the applications, attach the appropriate cable (digital I/O or TLINK) and send the `:SYSTem:TLINK` command followed by the `*RCL` command.

For example, to restore the settings for the digital I/O application, send the command:

```
:SYSTem:TLINK 0  
*RCL 1
```

To restore the settings for the TLINK application, send the command:

```
:SYSTem:TLINK 1  
*RCL 2
```

For more detail on the `:SYSTem:TLINK` command, see [Commands that were added to the SCPI command sets](#) (on page 9).

## Converting Series 2400 code to 2461 code

This section provides information about converting existing Series 2400 SCPI code to 2461 SCPI code.

You must use the SCPI command set to use the new commands. See "Determining the command set you will use" in the *Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual*, (part number 2461-901-01), which you can download from [tek.com/keithley](http://tek.com/keithley).

This section also lists the SCPI commands that were available with the Series 2400 instruments. If there is an equivalent command in the 2461, a cross-reference to that command is provided. Differences between the commands are noted. If no differences are noted, the command should operate the same on the 2461 as it did on the Series 2400.

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### NOTE

"Series 2400" in this document refers to the Model 2420, 2425, 2430, and 2440 instruments.

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## Significant differences

This topic describes some of the more significant differences between the Series 2400 SCPI commands and the 2461 commands.

## Acquiring readings

The commands that you use to acquire readings have changed in the 2461.

When you make measurements, the 2461 allows you to select the buffer in which to store data and the buffer elements that should be stored. This change affects the `FETCh?`, `READ?`, and `MEASure?` commands.

In the 2461, the `:FORMat:ELEMents[:SENSe[1]]` command is no longer available. Instead, you specify the format elements as part of the `READ?`, `FETCh?`, `MEASure?`, and `TRACe:DATA?` commands. The format elements are specified with each use of the command instead of using a global setting for all commands. The elements can be unique for each command and can be unique each time the command is processed.

In the 2461, the `READ?` command does not initiate a trigger when it makes a measurement. It also makes only one measurement at a time. The data is automatically stored in a buffer (`defbuffer1` if the buffer is not specified in the command).

In the 2461, use the `TRACe:DATA?` command to read a specified amount of data from the buffer instead of all data. You can also define which data to return, such as the date, time, and units of measure.

The `:INITiate` command starts the trigger model. To trigger measurements when you are not using the trigger model, use the `:TRACe:TRIGger` command.

The command for the number of readings is also different. In the 2461, use the Simple Loop Trigger Template command `TRIG:LOAD "SimpleLoop"`.

An example of a data acquisition done for the Model 2425 compared with one done for the 2461 is shown in the following table. In these examples, the SourceMeter® instruments are programmed to output 5 V and make 10 current readings with autorange ON. The instruments return the source value, current measurements, and relative timestamps.

2425	2461
*RST	*RST
SOUR:FUNC VOLT	SOUR:FUNC VOLT
SOUR:DEL 0.1	SOUR:VOLT 5
SOUR:VOLT 5	SOUR:VOLT:ILIM 0.01
SENS:FUNC "CURR"	SENS:FUNC "CURR"
SENS:CURR:RANG:AUTO ON	SENS:CURR:RANG:AUTO ON
SENS:CURR:PROT 0.01	TRIG:LOAD "SimpleLoop", 10, 0.1
:FORM:ELEM VOLT, CURR, TIME	OUTP ON
:TRIG:COUNT 10	INIT
:SYST:TIME:RES:AUTO ON	*WAI
:OUTP ON	TRAC:DATA? 1, 10, "defbuffer1", SOUR, READ, REL
READ?	
OUTP OFF	OUTP OFF

## Making resistance measurements

The method for selecting manual or auto ohms and for making resistance measurements is different in the 2461 than it is in the Series 2400 instruments. For more information, see "Making resistance measurements" in the "General operation" section of the *Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual*, which you can download from [tek.com/keithley](http://tek.com/keithley).

## Compliance is now limit

The Series 2400 instruments used the term "compliance" to specify the maximum current or voltage that the instrument can source. The 2461 uses the term "source limit" to specify the maximum current or voltage that the instrument can source. For more information, see "Source limits" in the "General operation" section of the *Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual*.

This change affects the commands that you use to set and verify the source limit. The following table shows the Series 2400 SCPI command from the command set of the emulated instruments and the 2461 command that replaces it.

Series 2400	2461
:CURR:PROT	:SOUR:VOLT:ILIM
:CURR:PROT?	:SOUR:VOLT:ILIM?
:CURR:PROT:TRIP?	:SOUR:VOLT:ILIM:TRIP?
:VOLT:PROT	:SOUR:CURR:VLIM
:VOLT:PROT?	:SOUR:CURR:VLIM?
:VOLT:PROT:TRIP?	:SOUR:CURR:VLIM:TRIP?

For additional detail, see the following command descriptions in the *Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual*, which you can download from [tek.com/keithley](http://tek.com/keithley).

- :SOURce[1]:<function>:<x>LIMit[:LEVel]
- :SOURce[1]:<function>:<x>LIMit[:LEVel]:TRIPped?

## Event log

The 2461 provides expanded system event logging. Events include errors, warnings, and information messages. You can also log commands through the front panel.

In the 2461, event tracking is done as events are received by the instrument, not when they are executed.

Refer to "Using the event log" in the *Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual* for information.

## Buffers

The Series 2400 has two buffers. The 2461 has two default buffers and you can define additional buffers. Only one buffer is active.

For information about using buffers, see "Reading buffers" in the *Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual*, which you can download from [tek.com/keithley](http://tek.com/keithley).

## Sweeps

In the 2461, sweep commands include all the settings for the sweep in the sweep commands. An example of a sweep set up for a Series 2400 instrument compared to a sweep set up for a 2461 is shown in the table below. These examples configure the instrument to output a voltage sweep from 0 V to 0.55 V in 56 steps with a 100 ms delay.

Series 2400	2461
*RST	*RST
SOUR:FUNC VOLT	SOUR:FUNC VOLT
SOUR:VOLT:MODE SWEEP	SOUR:SWE:VOLT:LIN 0, 0.55, 56, 0.1
SOUR:VOLT:START 0	
SOUR:VOLT:STOP 0.55	
SOUR:VOLT:STEP 0.01	
TRIG:COUNT 56	
SOUR:DEL 0.1	

In the 2461, when you create a sweep, a trigger model for that sweep is automatically created. You can view and create sweeps and the related trigger models using the front panel, but not when you use a Series 2400 SCPI command set.

The list sweep for a Series 2400 compared to the 2461 is similar. An example of a list sweep for the Series 2400 compared with one done for the 2461 is shown in the following table. Note that for the 2461, the trigger count and voltage source mode do not have to be specified in separate commands, and the output is turned on and off automatically as part of the sweep.

Series 2400	2461
*RST	*RST
SOUR:FUNC VOLT	SOUR:FUNC VOLT
SOUR:DEL 0.2	SOUR:VOLT:ILIM 1
SOUR:VOLT:MODE LIST	SOUR:LIST:VOLT 10, 1, 4, 3, 4, 2
SOUR:LIST:VOLT 10, 1, 4, 3, 4, 2	SOUR:SWE:VOLT:LIST 1, 0.2
SENS:FUNC "CURR"	SENS:FUNC "CURR"
SENS:CURR:RANG:AUTO ON	SENS:CURR:RANG:AUTO ON
SENS:CURR:PROT 0.01	INIT
:FORM:ELEM VOLT, CURR	*WAI
TRIG:COUNT 6	TRAC:DATA? 1, 6, "defbuffer1", SOUR, READ
:SYST:TIME:RES:AUTO ON	OUTP OFF
OUTP ON	
READ?	
OUTP OFF	

For additional information about how to set up sweeps, see "Sweep operation" in the *Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual*, which you can download from [tek.com/keithley](http://tek.com/keithley).



## Trigger model

The trigger model has changed significantly from the Series 2400 instruments to the 2461.

The ARM subsystem commands are no longer available. The commands for the trigger model are now in the TRIGger subsystem.

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### NOTE

The following templates are not available when you use a Series 2400 SCPI command set with the 2461.

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The 2461 includes trigger model templates for common applications. You can use these templates without changing them, or you can modify them to meet the needs of your application.

The trigger model templates include:

- **Empty:** Clears the present trigger model.
- **ConfigList:** Creates a trigger model that loads a source and measure configuration list. The lists are iterated until every index in the configuration list with fewer indexes has been loaded. For example, if the measure list has seven indexes and the source configuration list has 10, it will iterate through seven indexes of the source list and all of the measure list. However, if the source list has three indexes and the measure list has five, it will iterate through three indexes of measure list and all of the indexes in the source list. At each index when the output is turned on, a measurement is made and the output is turned off.
- **LogicTrigger:** Creates a trigger model that waits on an input line, delays, makes a measurement, and sends out a trigger on the output line a specified number of times.
- **SimpleLoop:** Creates a trigger model that makes a specified number of readings. A count parameter defines the number of readings.
- **DurationLoop:** Creates a trigger model that makes continuous measurements for a specified amount of time. When you start this trigger model, the output is turned on.
- **LoopUntilEvent:** Creates a trigger model that makes continuous measurements until a specified event occurs.
- **GradeBinning:** Creates a trigger model that successively measures components and compares their readings to high or low limits to grade components.
- **SortBinning:** Creates a trigger model that successively measures components and compares their readings to high or low limits to sort components.

For detail about the 2461 trigger model, see "Trigger model" in the *Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual*, which you can download from [tek.com/keithley](http://tek.com/keithley).

## Pulsing (Model 2430 feature)

If you are bringing code from a Model 2430 to a 2461, the pulsing features and commands have changed significantly. Refer to "Pulse operation" in the *Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual* for more information.

For specific commands, refer to the following command descriptions in the *Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual*, which you can download from [tek.com/keithley](http://tek.com/keithley).

- :SOURce[1]:PULSe:<function>:<x>LIMit[:LEVel]
- :SOURce[1]:PULSe:<function>[:LEVel][:IMMediate][:AMPLitude]
- :SOURce[1]:PULSe:LIST:<function>
- :SOURce[1]:PULSe:LIST:<function>:APPend
- :SOURce[1]:PULSe:LIST:<function>:POINts?
- :SOURce[1]:PULSe:SWEep:<function>:LINear
- :SOURce[1]:PULSe:SWEep:<function>:LINear:STEP
- :SOURce[1]:PULSe:SWEep:<function>:LIST
- :SOURce[1]:PULSe:SWEep:<function>:LOG
- :SOURce[1]:PULSe:TRain:<function>

## Series 2400 to 2461 SCPI command cross-reference

This section provides information to help you convert existing Series 2400 code to 2461 SCPI code.

You must use the SCPI command set to use the new commands. See the *Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual*, which you can download from [tek.com/keithley](http://tek.com/keithley).

This section lists the SCPI commands that were available with the Series 2400 instruments, cross-referenced to the equivalent commands in the 2461 where available. Differences between the commands are noted. If no differences are noted, the command should operate the same way on the 2461 as it did on the Series 2400.

### CALCulate[1] subsystem

<b>Series 2400</b>	:CALCulate[1]:DATA?
<b>2461</b>	Not supported
<b>Notes</b>	Use the buffer to get user math data; see "TRACe subsystem" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> .
<b>Series 2400</b>	:CALCulate[1]:DATA:LATest?
<b>2461</b>	Not supported
<b>Notes</b>	Use the buffer to get user math data; see "TRACe subsystem" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> .

<b>Series 2400</b>	:CALCulate[1]:MATH[:EXpression]:CATalog?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate[1]:MATH[:EXpression][:DEFine]
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate[1]:MATH[:EXpression]:DELete:ALL
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate[1]:MATH[:EXpression]:DELete[:SELected]
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate[1]:MATH[:EXpression]:NAME :CALCulate[1]:MATH[:EXpression]:NAME?
<b>2461</b>	POWER:[SENSe[1]]:<function>:UNIT, where <function> is VOLTage or CURRENT and the setting is WATT. OFFCOMPOHM, VOLTcoeff, and VARALPHA are not available.
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate[1]:STATE :CALCulate[1]:STATE?
<b>2461</b>	:CALCulate[1]:<function>:MATH:STATE, where <function> is VOLTage[:DC], CURRENT[:DC], or RESistance. :CALCulate[1]:<function>:MATH:STATE?
<b>Notes</b>	If you send :CALCulate[1]:STATE, it sets the math state for all functions. If you send :CALCulate[1]:STATE?, a header error event occurs.
<b>Series 2400</b>	:CALCulate[1]:MATH:UNITs :CALCulate[1]:MATH:UNITs?
<b>2461</b>	Not supported
<b>Notes</b>	

## CALCulate2 subsystem

<b>Series 2400</b>	:CALCulate2:CLIMits:BCONtrol :CALCulate2:CLIMits:BCONtrol?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:CLIMits:CLEar:AUTO :CALCulate2:CLIMits:CLEar:AUTO?
<b>2461</b>	Not supported
<b>Notes</b>	

<b>Series 2400</b>	:CALCulate2:CLIMits:CLear[:IMMediate]
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:CLIMits:FAIL:SMLocation :CALCulate2:CLIMits:FAIL:SMLocation?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:CLIMits:FAIL:SOURce2 :CALCulate2:CLIMits:FAIL:SOURce2?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:CLIMits:MODE :CALCulate2:CLIMits:MODE?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:CLIMits:PASS:SMLocation :CALCulate2:CLIMits:PASS:SMLocation?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:CLIMits:PASS:SOURce2 :CALCulate2:CLIMits:PASS:SOURce2?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:DATA?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:DATA:LATest?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:FEED :CALCulate2:FEED?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:LIMit[1]:COMpliance:FAIL :CALCulate2:LIMit[1]:COMpliance:FAIL?
<b>2461</b>	Not supported
<b>Notes</b>	

<b>Series 2400</b>	:CALCulate2:LIMit[1]:COMPLIance:SOURce2 :CALCulate2:LIMit[1]:COMPLIance:SOURce2?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:LIMit[1]:FAIL?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:LIMit[1]:STATE :CALCulate2:LIMit[1]:STATE?
<b>2461</b>	Not supported
<b>Notes</b>	To disable source limits, set the limit value to the maximum allowed by the instrument.
<b>Series 2400</b>	:CALCulate2:LIMit<x>:FAIL?
<b>2461</b>	:CALCulate2:<function>:LIMit<Y>:FAIL?, where <function> is VOLTage[:DC], CURRent[:DC], or RESistance.
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:LIMit<x>:LOWer[:DATA] :CALCulate2:LIMit<x>:LOWer[:DATA]?
<b>2461</b>	:CALCulate2:<function>:LIMIT<Y>:LOWer[:DATA], where <function> is VOLTage[:DC], CURRent[:DC], or RESistance.
<b>Notes</b>	Note that this is only available for two limits in the 2461.
<b>Series 2400</b>	:CALCulate2:LIMit<x>:LOWer:SOURce2 :CALCulate2:LIMit<x>:LOWer:SOURce2?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:LIMit<x>:PASS:SOURce2 :CALCulate2:LIMit<x>:PASS:SOURce2?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:LIMit<x>:STATE :CALCulate2:LIMit<x>:STATE?
<b>2461</b>	:CALCulate2:<function>:LIMit<Y>:STATE, where <function> is VOLTage[:DC], CURRent[:DC], or RESistance and <Y> is 1 or 2.
<b>Notes</b>	Note that this is only available for two limits in the 2461. To disable source limits, set the limit value to the maximum allowed by the instrument.
<b>Series 2400</b>	:CALCulate2:LIMit<x>:UPPer[:DATA] :CALCulate2:LIMit<x>:UPPer[:DATA]?
<b>2461</b>	:CALCulate2:<function>:LIMit<Y>:UPPer[:DATA], where <function> is VOLTage[:DC], CURRent[:DC], or RESistance and <Y> is 1 or 2.
<b>Notes</b>	Note that this is only available for two limits in the 2461.

<b>Series 2400</b>	:CALCulate2:LIMit<x>:UPPer:SOURce2 :CALCulate2:LIMit<x>:UPPer:SOURce2?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:NULL:ACQuire
<b>2461</b>	[ :SENSe[1] ]:<function>:RELative:ACQuire, where <function> is VOLTage[:DC], CURRent[:DC], or RESistance.
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:NULL:OFFSet :CALCulate2:NULL:OFFSet?
<b>2461</b>	[ :SENSe[1] ]:<function>:RELative, where <function> is VOLTage[:DC], CURRent[:DC], or RESistance. [ :SENSe[1] ]:<function>:RELative?
<b>Notes</b>	
<b>Series 2400</b>	:CALCulate2:NULL:STATe :CALCulate2:NULL:STATe?
<b>2461</b>	[ :SENSe[1] ]:<function>:RELative:STATe, where <function> is VOLTage[:DC], CURRent[:DC], or RESistance.
<b>Notes</b>	

### CALCulate3 subsystem

<b>Series 2400</b>	:CALCulate3:DATA?
<b>2461</b>	Not supported
<b>Notes</b>	Use reading buffers; see "TRACe subsystem" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> .
<b>Series 2400</b>	:CALCulate3:FORMat :CALCulate3:FORMat?
<b>2461</b>	Not supported
<b>Notes</b>	Use reading buffers; see "TRACe subsystem" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> .

### CONFigure

<b>Series 2400</b>	:CONFigure :CONFigure?
<b>2461</b>	Not supported
<b>Notes</b>	

## DISPlay subsystem

<b>Series 2400</b>	:DISPlay:CNDisplay
<b>2461</b>	:DISPlay:SCReen
<b>Notes</b>	
<b>Series 2400</b>	:DISPlay:DIGits :DISPlay:DIGits?
<b>2461</b>	:DISPlay:<function>:DIGits, where <function> is VOLTage[:DC], CURRent[:DC], or RESistance. :DISPlay:<function>:DIGits?
<b>Notes</b>	Settings are 3 to 6 instead of 4 to 7.
<b>Series 2400</b>	:DISPlay:ENABle :DISPlay:ENABle?
<b>2461</b>	:DISPlay:LIGHt:STATe :DISPlay:LIGHt:STATe?
<b>Notes</b>	The Series 2400 uses the :DISPlay:ENABle to stop display updates for performance reasons . The 2461 does not.
<b>Series 2400</b>	:DISPlay[:WINDow[1]]:ATTRibutes?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:DISPlay[:WINDow[1]]:DATA?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:DISPlay:WINDow<n>:TEXT:DATA :DISPlay:WINDow<n>:TEXT:DATA?
<b>2461</b>	:DISPlay:USER<n>:TEXT[:DATA] :DISPlay:USER<n>:TEXT[:DATA]?
<b>Notes</b>	
<b>Series 2400</b>	:DISPlay:WINDow<n>:TEXT:STATe :DISPlay:WINDow<n>:TEXT:STATe?
<b>2461</b>	:DISPlay:USER<n>:TEXT[:DATA] :DISPlay:USER<n>:TEXT[:DATA]?
<b>Notes</b>	
<b>Series 2400</b>	:DISPlay:WINDow2:ATTRibutes?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:DISPlay:WINDow2:DATA?
<b>2461</b>	Not supported
<b>Notes</b>	

## FETCh?

<b>Series 2400</b>	:FETCh?
<b>2461</b>	:FETCh?
<b>Notes</b>	You can choose different buffers and which buffer elements to access from the buffer for 2461.

## FORMat subsystem

<b>Series 2400</b>	:FORMat:BORDer :FORMat:BORDer?
<b>2461</b>	:FORMat:BORDer :FORMat:BORDer?
<b>Notes</b>	
<b>Series 2400</b>	:FORMat[:DATA] :FORMat[:DATA]?
<b>2461</b>	:FORMat[:DATA] :FORMat[:DATA]?
<b>Notes</b>	
<b>Series 2400</b>	:FORMat:ELEMents[:SENSe[1]] :FORMat:ELEMents[:SENSe[1]]?
<b>2461</b>	Not supported
<b>Notes</b>	In the 2461, format elements are specified as part of the READ?, FETCh?, MEASure?, and TRACe:DATA? commands with each use of the command instead of using a global setting for all commands. The elements may be unique for each command and are unique each time the command is processed.
<b>Series 2400</b>	:FORMat:ELEMents:CALCulate :FORMat:ELEMents:CALCulate?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:FORMat:SOURce2 :FORMat:SOURce2?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:FORMat:SREGister :FORMat:SREGister?
<b>2461</b>	Not supported
<b>Notes</b>	



## MEASure:<function>?

<b>Series 2400</b>	:MEASure:CURRent[:DC]? :MEASure:RESistance? :MEASure:VOLTag[:DC]?
<b>2461</b>	:MEASure:<function>?, where <function> is VOLTag[:DC], CURRent[:DC], or RESistance.
<b>Notes</b>	You can specify a buffer in the 2461 and which buffer elements to access from the buffer when you specify the command. In the 2461, this command changes the measurement function to the function in the command if it is not already active, makes readings, and stores them in a reading buffer, which you can specify. When it changes to that function, it recalls the settings as they were the last time that function was active. It does not go to factory default settings for the function, as in the Series 2400 instruments. Also, in the 2461, this command does not map to CONFIGure, READ?, and FETCh?.

## OUTPut subsystem

<b>Series 2400</b>	:OUTPut[1]:ENABle[:STATe] :OUTPut[1]:ENABle[:STATe]?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:OUTPut[1]:ENABle:TRIPped?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:OUTPut[1]:INTerlock:TRIPped?
<b>2461</b>	:OUTPut[1]:INTerlock:TRIPped?
<b>Notes</b>	
<b>Series 2400</b>	:OUTPut[1]:SMODE :OUTPut[1]:SMODE?
<b>2461</b>	:OUTPut[1]:<function>:SMODE, where <function> is VOLTag[:DC] or CURRent[:DC]. :OUTPut[1]:<function>:SMODE?
<b>Notes</b>	
<b>Series 2400</b>	:OUTPut[1][:STATe] :OUTPut[1][:STATe]?
<b>2461</b>	:OUTPut[1][:STATe] :OUTPut[1][:STATe]?
<b>Notes</b>	

## READ?

<b>Series 2400</b>	:READ?
<b>2461</b>	:READ?
<b>Notes</b>	The 2461 allows you to choose different buffers and which buffer elements to access from the buffers when you send the command.

## ROUTE subsystem

<b>Series 2400</b>	:ROUTE:TERMinals :ROUTE:TERMinals?
<b>2461</b>	:ROUTE:TERMinals :ROUTE:TERMinals?
<b>Notes</b>	

## SENSE subsystem

<b>Series 2400</b>	[ :SENSE[1] ]:AVERAge:COUNT [ :SENSE[1] ]:AVERAge:COUNT?
<b>2461</b>	[ :SENSE[1] ]:<function>:AVERAge:COUNT, where <function> is VOLTage[:DC], CURRent[:DC], or RESistance.
<b>Notes</b>	This is now set for each measurement function.

<b>Series 2400</b>	[ :SENSE[1] ]:AVERAge[:STATe] [ :SENSE[1] ]:AVERAge[:STATe]?
<b>2461 command</b>	[ :SENSE[1] ]:<function>:AVERAge[:STATe], where <function> is VOLTage[:DC], CURRent[:DC], or RESistance.
<b>Notes</b>	This is now set for each measurement function.

<b>Series 2400</b>	[ :SENSE[1] ]:AVERAge:TCONTRol [ :SENSE[1] ]:AVERAge:TCONTRol?
<b>2461</b>	[ :SENSE[1] ]:<function>:AVERAge:TCONTRol, where <function> is VOLTage[:DC], CURRent[:DC], or RESistance.
<b>Notes</b>	This is now set for each measurement function.

<b>Series 2400</b>	[ :SENSE[1] ]:CURRent[:DC]:NPLCycles [ :SENSE[1] ]:CURRent[:DC]:NPLCycles? [ :SENSE[1] ]:RESistance:NPLCycles [ :SENSE[1] ]:RESistance:NPLCycles? [ :SENSE[1] ]:VOLTage[:DC]:NPLCycles [ :SENSE[1] ]:VOLTage[:DC]:NPLCycles?
<b>2461</b>	[ :SENSE[1] ]:<function>:NPLCycles, where <function> is VOLTage[:DC], CURRent[:DC], or RESistance. [ :SENSE[1] ]:<function>:NPLCycles?
<b>Notes</b>	If you send [ :SENSE[1] ]:NPLCycles, it sets NPLCs for all functions.

<b>Series 2400</b>	[ :SENSE[1] ]:CURRent[:DC]:PROTection[:LEVel] [ :SENSE[1] ]:CURRent[:DC]:PROTection[:LEVel]?
<b>2461</b>	:SOURce[1]:<function>:<x>LIMit[:LEVel], where <function> is VOLTage[:DC], CURRent[:DC], or RESistance.
<b>Notes</b>	

<b>Series 2400</b>	[ :SENSe[1] ]:CURRent[:DC]:PROTection:RSYNchronize [ :SENSe[1] ]:CURRent[:DC]:PROTection:RSYNchronize? [ :SENSe[1] ]:VOLTagE[:DC]:PROTection:RSYNchronize [ :SENSe[1] ]:VOLTagE[:DC]:PROTection:RSYNchronize?
<b>2461</b>	Not supported
<b>Notes</b>	Range synchronization is always turned on in 2461.
<b>Series 2400</b>	[ :SENSe[1] ]:CURRent[:DC]:PROTection:TRIPped?
<b>2461</b>	:SOURce[1]:<function>:<x>LIMit[:LEVel]:TRIPped?, where <function> is VOLTAGE [:DC] or CURRent [:DC] and <x> is I or V.
<b>Notes</b>	
<b>Series 2400</b>	[ :SENSe[1] ]:CURRent[:DC]:RANGe:AUTO [ :SENSe[1] ]:CURRent[:DC]:RANGe:AUTO? [ :SENSe[1] ]:RESistance:RANGe:AUTO [ :SENSe[1] ]:RESistance:RANGe:AUTO? [ :SENSe[1] ]:VOLTagE[:DC]:RANGe:AUTO [ :SENSe[1] ]:VOLTagE[:DC]:RANGe:AUTO?
<b>2461</b>	[ :SENSe[1] ]:<function>:RANGe:AUTO, where <function> is VOLTage[:DC], CURRent[:DC], or RESistance. [ :SENSe[1] ]:<function>:RANGe:AUTO?
<b>Notes</b>	
<b>Series 2400</b>	[ :SENSe[1] ]:CURRent[:DC]:RANGe:AUTO:LLIMit [ :SENSe[1] ]:CURRent[:DC]:RANGe:AUTO:LLIMit? [ :SENSe[1] ]:RESistance:RANGe:AUTO:LLIMit [ :SENSe[1] ]:RESistance:RANGe:AUTO:LLIMit? [ :SENSe[1] ]:VOLTagE[:DC]:RANGe:AUTO:LLIMit [ :SENSe[1] ]:VOLTagE[:DC]:RANGe:AUTO:LLIMit?
<b>2461</b>	[ :SENSe[1] ]:<function>:RANGe:AUTO:LLIMit, where <function> is VOLTage[:DC], CURRent[:DC], or RESistance. [ :SENSe[1] ]:<function>:RANGe:AUTO:LLIMit?
<b>Notes</b>	
<b>Series 2400</b>	[ :SENSe[1] ]:CURRent[:DC]:RANGe:AUTO:ULIMit? [ :SENSe[1] ]:RESistance:RANGe:AUTO:ULIMit [ :SENSe[1] ]:RESistance:RANGe:AUTO:ULIMit? [ :SENSe[1] ]:VOLTagE[:DC]:RANGe:AUTO:ULIMit?
<b>2461</b>	[ :SENSe[1] ]:<function>:RANGe:AUTO:ULIMit, where <function> is VOLTage[:DC], CURRent[:DC], or RESistance.
<b>Notes</b>	Upper limit is not available for voltage or current for the 2461. For voltage and current, you can query the upper limit for voltage, but not set it.
<b>Series 2400</b>	[ :SENSe[1] ]:CURRent[:DC]:RANGe:HOLDoff [ :SENSe[1] ]:CURRent[:DC]:RANGe:HOLDoff?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	[ :SENSe[1] ]:CURRent[:DC]:RANGe:HOLDoff:DELay [ :SENSe[1] ]:CURRent[:DC]:RANGe:HOLDoff:DELay?
<b>2461</b>	Not supported
<b>Notes</b>	

<b>Series 2400</b>	[ :SENSe[1] ]:CURRent[:DC]:RANGe[:UPPer] [ :SENSe[1] ]:CURRent[:DC]:RANGe[:UPPer]? [ :SENSe[1] ]:RESistance:RANGe[:UPPer] [ :SENSe[1] ]:RESistance:RANGe[:UPPer]? [ :SENSe[1] ]:VOLTage[:DC]:RANGe[:UPPer] [ :SENSe[1] ]:VOLTage[:DC]:RANGe[:UPPer]?
<b>2461</b>	[ :SENSe[1] ]:<function>:RANGe[:UPPer], where <function> is VOLTage[:DC], CURRent[:DC], or RESistance. [ :SENSe[1] ]:<function>:RANGe[:UPPer]?
<b>Notes</b>	
<b>Series 2400</b>	[ :SENSe[1] ]:DATA[:LATest]?
<b>2461</b>	Not supported
<b>Notes</b>	Retrieve buffers instead; see "TRACe subsystem" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> .
<b>Series 2400</b>	[ :SENSe[1] ]:FUNctIon:CONCurrenT [ :SENSe[1] ]:FUNctIon:CONCurrenT?
<b>2461</b>	Not supported
<b>Notes</b>	To do a similar action, set :SOURce[1]:<function>:READ:BACK and store both a source and measure value in the reading buffer.
<b>Series 2400</b>	[ :SENSe[1] ]:FUNctIon:OFF [ :SENSe[1] ]:FUNctIon:OFF?
<b>2461</b>	Not supported
<b>Notes</b>	Only one measurement function is active at a time.
<b>Series 2400</b>	[ :SENSe[1] ]:FUNctIon:OFF:ALL
<b>2461</b>	Not supported
<b>Notes</b>	Only one measurement function is active at a time.
<b>Series 2400</b>	[ :SENSe[1] ]:FUNctIon:OFF:COUNT?
<b>2461</b>	Not supported
<b>Notes</b>	Only one measurement function is active at a time.
<b>Series 2400</b>	[ :SENSe[1] ]:FUNctIon[:ON] [ :SENSe[1] ]:FUNctIon[:ON]?
<b>2461</b>	[ :SENSe[1] ]:FUNctIon[:ON] [ :SENSe[1] ]:FUNctIon[:ON]?
<b>Notes</b>	Does not support a list parameter in the 2461.
<b>Series 2400</b>	[ :SENSe[1] ]:FUNctIon[:ON]:ALL
<b>2461</b>	Not supported
<b>Notes</b>	Only one measurement function is active at a time.
<b>Series 2400</b>	[ :SENSe[1] ]:FUNctIon[:ON]:COUNT?
<b>2461</b>	Not supported
<b>Notes</b>	Only one measurement function is active at a time.

<b>Series 2400</b>	[ :SENSe[1] ]:FUNction:StAte?
<b>2461</b>	[ :SENSe[1] ]:FUNction[:ON]?
<b>Notes</b>	Only one measurement function is active at a time. [ :SENSe[1] ]:FUNction[:ON]? queries the active measurement function.
<b>Series 2400</b>	[ :SENSe[1] ]:RESistance:HOLDOff [ :SENSe[1] ]:RESistance:HOLDOff?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	[ :SENSe[1] ]:RESistance:HOLDOff:DELay [ :SENSe[1] ]:RESistance:HOLDOff:DELay?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	[ :SENSe[1] ]:RESistance:MODE [ :SENSe[1] ]:RESistance:MODE?
<b>2461</b>	[ :SENSe[1] ]:<function>:UNIT (set to OHM) [ :SENSe[1] ]:FUNction[:ON] (set to RESistance) [ :SENSe[1] ]:<function>:MODE, where <function> is RESistance.
<b>Notes</b>	For detail about the options that are available with these settings, see "Making resistance measurements" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> .
<b>Series 2400</b>	[ :SENSe[1] ]:RESistance:OCOMpensated [ :SENSe[1] ]:RESistance:OCOMpensated?
<b>2461</b>	[ :SENSe[1] ]:<function>:OCOMpensated, where <function> is RESistance. [ :SENSe[1] ]:<function>:OCOMpensated?
<b>Notes</b>	
<b>Series 2400</b>	[ :SENSe[1] ]:VOLTage[:DC]:PROTection[:LEVel] [ :SENSe[1] ]:VOLTage[:DC]:PROTection[:LEVel]?
<b>2461</b>	:SOURce[1]:<function>:<x>LIMit[:LEVel], where <function> is VOLTage[:DC] or CURRent[:DC] and <x> is I or V. :SOURce[1]:<function>:<x>LIMit[:LEVel]?
<b>Notes</b>	
<b>Series 2400</b>	[ :SENSe[1] ]:VOLTage[:DC]:PROTection:TRIPped?
<b>2461</b>	:SOURce[1]:<function>:<x>LIMit[:LEVel]:TRIPped?, where <function> is VOLTage[:DC] or CURRent[:DC] and <x> is I or V.
<b>Notes</b>	

## SOURce[1] subsystem

<b>Series 2400</b>	:SOURce[1]:CLEar:AUTO :SOURce[1]:CLEar:AUTO?
<b>2461</b>	Not supported
<b>Notes</b>	Use the trigger model. See the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:CLEar:AUTO:MODE :SOURce[1]:CLEar:AUTO:MODE?
<b>2461</b>	Not supported
<b>Notes</b>	Use the trigger model. See the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:CLEar[:IMMEDIATE]
<b>2461</b>	Not supported
<b>Notes</b>	Use the trigger model. See the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:CURRent:CENTer :SOURce[1]:CURRent:CENTer? :SOURce[1]:VOLTage:CENTer :SOURce[1]:VOLTage:CENTer?
<b>2461</b>	:SOURce[1]:SWEep:<function>:LINear :SOURce[1]:SWEep:<function>:LINear:STEP :SOURce[1]:SWEep:<function>:LIST :SOURce[1]:SWEep:<function>:LOG
<b>Notes</b>	Sweep parameters are built into the sweep command path. See "Sweep operation" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:CURRent[:LEVel][:IMMEDIATE][:AMPLitude] :SOURce[1]:CURRent[:LEVel][:IMMEDIATE][:AMPLitude]? :SOURce[1]:VOLTage[:LEVel][:IMMEDIATE][:AMPLitude] :SOURce[1]:VOLTage[:LEVel][:IMMEDIATE][:AMPLitude]?
<b>2461</b>	:SOURce[1]:<function>[:LEVel][:IMMEDIATE][:AMPLitude], where <function> is CURRent OR VOLTage. :SOURce[1]:VOLTage[:LEVel][:IMMEDIATE][:AMPLitude]?
<b>Notes</b>	
<b>Series 2400</b>	:SOURce[1]:CURRent[:LEVel]:TRIGgered[:AMPLitude] :SOURce[1]:CURRent[:LEVel]:TRIGgered[:AMPLitude]? :SOURce[1]:VOLTage[:LEVel]:TRIGgered[:AMPLitude] :SOURce[1]:VOLTage[:LEVel]:TRIGgered[:AMPLitude]?
<b>2461</b>	Not supported
<b>Notes</b>	Use the trigger model. See the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:CURRent[:LEVel]:TRIGgered:SFActor :SOURce[1]:CURRent[:LEVel]:TRIGgered:SFActor? :SOURce[1]:VOLTage[:LEVel]:TRIGgered:SFActor :SOURce[1]:VOLTage[:LEVel]:TRIGgered:SFActor?
<b>2461</b>	Not supported

<b>Notes</b>	Use the trigger model. See the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:CURRent[:LEVel]:TRIGgered:SFACTOR:STATE :SOURce[1]:CURRent[:LEVel]:TRIGgered:SFACTOR:STATE? :SOURce[1]:VOLTage[:LEVel]:TRIGgered:SFACTOR:STATE :SOURce[1]:VOLTage[:LEVel]:TRIGgered:SFACTOR:STATE?
<b>2461</b>	Not supported
<b>Notes</b>	Use the trigger model. See the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:CURRent:MODE :SOURce[1]:CURRent:MODE? :SOURce[1]:VOLTage:MODE :SOURce[1]:VOLTage:MODE?
<b>2461</b>	:SOURce[1]:FUNctioN[:MODE] :SOURce[1]:FUNctioN[:MODE]?
<b>Notes</b>	
<b>Series 2400</b>	:SOURce[1]:CURRent:RANGe :SOURce[1]:CURRent:RANGe? :SOURce[1]:VOLTage:RANGe :SOURce[1]:VOLTage:RANGe?
<b>2461</b>	:SOURce[1]:<function>:RANGe, where <function> is CURRent or VOLTage. :SOURce[1]:<function>:RANGe?
<b>Notes</b>	
<b>Series 2400</b>	:SOURce[1]:CURRent:RANGe:AUTO :SOURce[1]:CURRent:RANGe:AUTO? :SOURce[1]:VOLTage:RANGe:AUTO :SOURce[1]:VOLTage:RANGe:AUTO?
<b>2461</b>	:SOURce[1]:<function>:RANGe:AUTO, where <function> is CURRent or VOLTage. :SOURce[1]:<function>:RANGe:AUTO?
<b>Notes</b>	
<b>Series 2400</b>	:SOURce[1]:CURRent:SPAN :SOURce[1]:CURRent:SPAN? :SOURce[1]:VOLTage:SPAN :SOURce[1]:VOLTage:SPAN?
<b>2461</b>	:SOURce[1]:SWEep:<function>:LINear :SOURce[1]:SWEep:<function>:LINear:STEP :SOURce[1]:SWEep:<function>:LIST :SOURce[1]:SWEep:<function>:LOG
<b>Notes</b>	Sweep parameters are built into the sweep command path. See "Sweep operation" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

<b>Series 2400</b>	:SOURce[1]:CURRent:START :SOURce[1]:CURRent:START? :SOURce[1]:VOLTage:START :SOURce[1]:VOLTage:START?
<b>2461</b>	:SOURce[1]:SWEep:<function>:LINear :SOURce[1]:SWEep:<function>:LINear:STEP :SOURce[1]:SWEep:<function>:LIST :SOURce[1]:SWEep:<function>:LOG
<b>Notes</b>	Sweep parameters are built into the sweep command path. See "Sweep operation" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:CURRent:STEP :SOURce[1]:CURRent:STEP? :SOURce[1]:VOLTage:STEP :SOURce[1]:VOLTage:STEP?
<b>2461</b>	:SOURce[1]:SWEep:<function>:LINear :SOURce[1]:SWEep:<function>:LINear:STEP :SOURce[1]:SWEep:<function>:LIST :SOURce[1]:SWEep:<function>:LOG
<b>Notes</b>	Sweep parameters are built into the sweep command path. See "Sweep operation" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:CURRent:STOP :SOURce[1]:CURRent:STOP? :SOURce[1]:VOLTage:STOP :SOURce[1]:VOLTage:STOP?
<b>2461</b>	:SOURce[1]:SWEep:<function>:LINear :SOURce[1]:SWEep:<function>:LINear:STEP :SOURce[1]:SWEep:<function>:LIST :SOURce[1]:SWEep:<function>:LOG
<b>Notes</b>	Sweep parameters are built into the sweep command path. See "Sweep operation" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:DELay :SOURce[1]:DELay?
<b>2461</b>	:SOURce[1]:<function>:DELay, where <function> is CURRent or VOLTage. :SOURce[1]:<function>:DELay?
<b>Notes</b>	When a delay is set, source autodelay is turned off.
<b>Series 2400</b>	:SOURce[1]:DELay:AUTO :SOURce[1]:DELay:AUTO?
<b>2461</b>	:SOURce[1]:<function>:DELay:AUTO :SOURce[1]:<function>:DELay:AUTO?
<b>Notes</b>	
<b>2430</b>	:SOURce[1]:FUNction:SHAPE :SOURce[1]:FUNction:SHAPE?
<b>2461</b>	Not available.
<b>Notes</b>	Pulse parameters are built into the sweep and train command paths. See "Pulse operation" and "Pulse commands" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for more information.



<b>Series 2400</b>	:SOURce[1]:FUNction[:MODE] :SOURce[1]:FUNction[:MODE]?
<b>2461</b>	:SOURce[1]:FUNction[:MODE] :SOURce[1]:FUNction[:MODE]?
<b>Notes</b>	
<b>Series 2400</b>	:SOURce[1]:LIST:CURRent :SOURce[1]:LIST:CURRent?
<b>2461</b>	:SOURce[1]:SWEep:CURRent:LIST
<b>Notes</b>	In the 2461, this sets up a list of user-specified values for a sweep.
<b>Series 2400</b>	:SOURce[1]:LIST:CURRent:APPend
<b>2461</b>	:SOURce[1]:SWEep:CURRent:LIST
<b>Notes</b>	In the 2461, this setting is set as part of the configuration list that is created by the sweep command.
<b>Series 2400</b>	:SOURce[1]:LIST:CURRent:POINTs?
<b>2461</b>	:SOURce[1]:SWEep:CURRent:LIST
<b>Notes</b>	In the 2461, this setting is set as part of the configuration list that is created by the sweep command.
<b>Series 2400</b>	:SOURce[1]:LIST:CURRent:START :SOURce[1]:LIST:CURRent:START?
<b>2461</b>	:SOURce[1]:SWEep:CURRent:LIST
<b>Notes</b>	In the 2461, this setting is set as part of the configuration list that is created by the sweep command.
<b>Series 2400</b>	:SOURce[1]:LIST:VOLTage :SOURce[1]:LIST:VOLTage?
<b>2461</b>	:SOURce[1]:SWEep:VOLTage:LIST
<b>Notes</b>	In the 2461, this sets up a list of user-specified values for a sweep.
<b>Series 2400</b>	:SOURce[1]:LIST:VOLTage:APPend
<b>2461</b>	:SOURce[1]:SWEep:VOLTage:LIST
<b>Notes</b>	In the 2461, this setting is set as part of the configuration list that is created by the sweep command.
<b>Series 2400</b>	:SOURce[1]:LIST:VOLTage:POINTs?
<b>2461</b>	Not supported
<b>Notes</b>	In the 2461, this setting is set as part of the configuration list that is created by the sweep command.
<b>Series 2400</b>	:SOURce[1]:LIST:VOLTage:START :SOURce[1]:LIST:VOLTage:START?
<b>2461</b>	:SOURce[1]:SWEep:VOLTage:LIST
<b>Notes</b>	In the 2461, this setting is set as part of the configuration list that is created by the sweep command.

## Model 2461 in a Series 2400 Application Emulation and Migration Guide

<b>Series 2400</b>	:SOURce[1]:MEMory:POINTs :SOURce[1]:MEMory:POINTs?
<b>2461</b>	Not supported
<b>Notes</b>	You can achieve functionality that is close to source memory with the 2461 configuration lists. See "Configuration lists" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:MEMory:RECall
<b>2461</b>	Not supported
<b>Notes</b>	You can achieve functionality that is close to source memory with the 2461 configuration lists. See "Configuration lists" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:MEMory:SAVE
<b>2461</b>	Not supported
<b>Notes</b>	You can achieve functionality that is close to source memory with the 2461 configuration lists. See "Configuration lists" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:MEMory:START :SOURce[1]:MEMory:START?
<b>2461</b>	Not supported
<b>Notes</b>	You can achieve functionality that is close to source memory with the 2461 configuration lists. See "Configuration lists" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>2430</b>	:SOURce[1]:PULSe:WIDTh :SOURce[1]:PULSe:WIDTh?
<b>2461</b>	:SOURce[1]:PULSe:SWEEp:<function>:LINear :SOURce[1]:PULSe:SWEEp:<function>:LINear:STEP :SOURce[1]:PULSe:SWEEp:<function>:LIST :SOURce[1]:PULSe:SWEEp:<function>:LOG :SOURce[1]:PULSe:TRain:<function>
<b>Notes</b>	Pulse parameters are built into the sweep and train command paths. See "Pulse operation" and "Pulse commands" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for more information.
<b>2430</b>	:SOURce[1]:PULSe:DELay :SOURce[1]:PULSe:DELay?
<b>2461</b>	:SOURce[1]:PULSe:SWEEp:<function>:LINear :SOURce[1]:PULSe:SWEEp:<function>:LINear:STEP :SOURce[1]:PULSe:SWEEp:<function>:LIST :SOURce[1]:PULSe:SWEEp:<function>:LOG :SOURce[1]:PULSe:TRain:<function>
<b>Notes</b>	Pulse parameters are built into the sweep and train command paths. See "Pulse operation" and "Pulse commands" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for more information.
<b>Series 2400</b>	:SOURce[1]:SOAK :SOURce[1]:SOAK?
<b>2461</b>	Not supported
<b>Notes</b>	

<b>Series 2400</b>	:SOURce[1]:SWEep:CABoRt :SOURce[1]:SWEep:CABoRt?
<b>2461</b>	:SOURCe[1]:SWEep:<function>:LINear :SOURCe[1]:SWEep:<function>:LINear:STEP :SOURCe[1]:SWEep:<function>:LIST :SOURCe[1]:SWEep:<function>:LOG
<b>Notes</b>	Sweep parameters are built into the sweep command path. See "Sweep operation" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:SWEep:DIRectioN :SOURce[1]:SWEep:DIRectioN?
<b>2461</b>	:SOURCe[1]:SWEep:<function>:LINear :SOURCe[1]:SWEep:<function>:LINear:STEP :SOURCe[1]:SWEep:<function>:LIST :SOURCe[1]:SWEep:<function>:LOG
<b>Notes</b>	Sweep parameters are built into the sweep command path. See "Sweep operation" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:SWEep:POINts :SOURce[1]:SWEep:POINts?
<b>2461</b>	:SOURCe[1]:SWEep:<function>:LINear :SOURCe[1]:SWEep:<function>:LINear:STEP :SOURCe[1]:SWEep:<function>:LIST :SOURCe[1]:SWEep:<function>:LOG
<b>Notes</b>	Sweep parameters are built into the sweep command path. See "Sweep operation" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:SWEep:RANGing :SOURce[1]:SWEep:RANGing?
<b>2461</b>	:SOURCe[1]:SWEep:<function>:LINear :SOURCe[1]:SWEep:<function>:LINear:STEP :SOURCe[1]:SWEep:<function>:LIST :SOURCe[1]:SWEep:<function>:LOG
<b>Notes</b>	Sweep parameters are built into the sweep command path. See "Sweep operation" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:SWEep:SPACing :SOURce[1]:SWEep:SPACing?
<b>2461</b>	:SOURCe[1]:SWEep:<function>:LINear :SOURCe[1]:SWEep:<function>:LINear:STEP :SOURCe[1]:SWEep:<function>:LIST :SOURCe[1]:SWEep:<function>:LOG
<b>Notes</b>	Sweep parameters are built into the sweep command path. See "Sweep operation" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:SOURce[1]:VOLTage:PROTection[:LEVel] :SOURce[1]:VOLTage:PROTection[:LEVel]?
<b>2461</b>	:SOURce[1]:VOLTage:PROTection[:LEVel]
<b>Notes</b>	

<b>Series 2400</b>	:SOURce[1]:VOLTage:PROTection[:LEVEL]:TRIPped?
<b>2461</b>	:SOURce[1]:VOLTage:PROTection[:LEVEL]:TRIPped?
<b>Notes</b>	

## SOURce2 subsystem

<b>Series 2400</b>	:SOURce2:BSIZE :SOURce2:BSIZE?
<b>2461</b>	Not supported
<b>Notes</b>	All digital inputs and outputs on the 2461 are general; you can choose as appropriate. See "Digital I/O" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

<b>Series 2400</b>	:SOURce2:CLear:AUTO :SOURce2:CLear:AUTO?
<b>2461</b>	Not supported
<b>Notes</b>	

<b>Series 2400</b>	:SOURce2:CLear:AUTO:DElay :SOURce2:CLear:AUTO:DElay?
<b>2461</b>	Not supported
<b>Notes</b>	

<b>Series 2400</b>	:SOURce2:CLear[:IMMediate]
<b>2461</b>	Not supported
<b>Notes</b>	

<b>Series 2400</b>	:SOURce2:TTL[:LEVEL][:DEFault] :SOURce2:TTL[:LEVEL][:DEFault]?
<b>2461</b>	Not supported
<b>Notes</b>	All inputs and outputs on the 2461 are general; you can choose as appropriate. See "Digital I/O" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> .

<b>Series 2400</b>	:SOURce2:TTL[:LEVEL]:ACTual?
<b>2461</b>	Not supported
<b>Notes</b>	All inputs and outputs on the 2461 are general; you can choose as appropriate. See "Digital I/O" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

<b>Series 2400</b>	:SOURce2:TTL4:BSTate :SOURce2:TTL4:BSTate?
<b>2461</b>	Not supported
<b>Notes</b>	All inputs and outputs on the 2461 are general; you can choose as appropriate. See "Digital I/O" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

<b>Series 2400</b>	:SOURce2:TTL4:MODE :SOURce2:TTL4:MODE?
<b>2461</b>	Not supported
<b>Notes</b>	All inputs and outputs on the 2461 are general; you can choose as appropriate. See "Digital I/O" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

## STATus subsystem

<b>Series 2400</b>	:STATus:MEASurement:CONDition?
<b>2461</b>	Not supported
<b>Notes</b>	Use the Questionable Register to emulate this register; see "STATus subsystem" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

<b>Series 2400</b>	:STATus:MEASurement:ENABle :STATus:MEASurement:ENABle?
<b>2461</b>	Not supported
<b>Notes</b>	Use the Questionable Register to emulate this register; see "STATus subsystem" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

<b>Series 2400</b>	:STATus:MEASurement[:EVENT]?
<b>2461</b>	Not supported
<b>Notes</b>	Use the questionable register to emulate this register; see "STATus subsystem" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

<b>Series 2400</b>	:STATus:OPERation:CONDition?
<b>2461</b>	:STATus:OPERation:CONDition?
<b>Notes</b>	In the 2461, you need to map events into the register (there are no set bits). See "STATus subsystem" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

<b>Series 2400</b>	:STATus:OPERation:ENABle :STATus:OPERation:ENABle?
<b>2461</b>	:STATus:OPERation:ENABle :STATus:OPERation:ENABle?
<b>Notes</b>	In the 2461, you need to map events into the register (there are no set bits). See "Status model" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

<b>Series 2400</b>	:STATus:OPERation[:EVENT]?
<b>2461</b>	:STATus:OPERation[:EVENT]?
<b>Notes</b>	In the 2461, you need to map events into the register (there are no set bits). See "Status model" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

<b>Series 2400</b>	:STATus:PRESet
<b>2461</b>	:STATus:PRESet
<b>Notes</b>	

<b>Series 2400</b>	:STATus:QUEStionable:CONDition?
<b>2461</b>	:STATus:QUEStionable:CONDition?
<b>Notes</b>	In the 2461, you need to map events into the register (there are no set bits). See "Status model" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:STATus:QUEStionable:ENABle :STATus:QUEStionable:ENABle?
<b>2461</b>	:STATus:QUEStionable:ENABle :STATus:QUEStionable:ENABle?
<b>Notes</b>	In the 2461, you need to map events into the register (there are no set bits). See "Status model" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:STATus:QUEStionable[:EVENT]?
<b>2461</b>	:STATus:QUEStionable[:EVENT]?
<b>Notes</b>	In the 2461, you need to map events into the register (there are no set bits). See "Status model" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:STATus:QUEue:CLEAr
<b>2461</b>	Not supported
<b>Notes</b>	Use the event log. See "Using the event log" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:STATus:QUEue:DISAbLe :STATus:QUEue:DISAbLe?
<b>2461</b>	Not supported
<b>Notes</b>	Use the event log. See "Using the event log" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:STATus:QUEue:ENABle :STATus:QUEue:ENABle?
<b>2461</b>	Not supported
<b>Notes</b>	Use the event log. See "Using the event log" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.
<b>Series 2400</b>	:STATus:QUEue[:NEXT]?
<b>2461</b>	Not supported
<b>Notes</b>	Use the event log. See "Using the event log" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

## SYStem subsystem

<b>Series 2400</b>	:SYSTem:AZERo:CACHing:NPLCycles?
<b>2461</b>	Not supported
<b>Notes</b>	Caching is disabled on the 2461.
<b>Series 2400</b>	:SYSTem:AZERo:CACHing:REFresh
<b>2461</b>	Not supported
<b>Notes</b>	Caching is disabled on the 2461.

<b>Series 2400</b>	:SYSTem:AZERo:CACHing:RESet
<b>2461</b>	Not supported
<b>Notes</b>	Caching is disabled on the 2461.
<b>Series 2400</b>	:SYSTem:AZERo:CACHing[:STATe] :SYSTem:AZERo:CACHing[:STATe]?
<b>2461</b>	Not supported
<b>Notes</b>	Caching is disabled on the 2461.
<b>Series 2400</b>	:SYSTem:AZERo:STATe :SYSTem:AZERo:STATe?
<b>2461</b>	[ :SENSe[1] ]:<function>:AZERo[:STATe], where <function> is CURRENT[:DC], RESistance, Or VOLTage[:DC]. [ :SENSe[1] ]:<function>:AZERo[:STATe]?
<b>Notes</b>	
<b>Series 2400</b>	:SYSTem:BEEPer[:IMMediate]
<b>2461</b>	:SYSTem:BEEPer[:IMMediate]
<b>Notes</b>	
<b>Series 2400</b>	:SYSTem:BEEPer:STATe :SYSTem:BEEPer:STATe?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:SYSTem:CCHeck :SYSTem:CCHeck?
<b>2461</b>	:SYSTem:CCHeck:STATe :SYSTem:CCHeck:STATe?
<b>Notes</b>	Refer to "Contact check" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i>
<b>Series 2400</b>	:SYSTem:CCHeck:RESistance :SYSTem:CCHeck:RESistance?
<b>2461</b>	:SYSTem:CCHeck:THReshold :SYSTem:CCHeck:THReshold?
<b>Notes</b>	Refer to "Contact check" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> .
<b>Series 2400</b>	:SYSTem:CLEar
<b>2461</b>	:SYSTem:CLEar
<b>Notes</b>	
<b>Series 2400</b>	:SYSTem:ERRor:ALL?
<b>2461</b>	Not supported
<b>Notes</b>	Returns only errors from the event log. See "Using the event log" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for changes to error reporting.

<b>Series 2400</b>	:SYSTem:ERRor:CODE:ALL?
<b>2461</b>	Not supported
<b>Notes</b>	See "Using the event log" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for changes to error reporting.
<b>Series 2400</b>	:SYSTem:ERRor:CODE[:NEXT]?
<b>2461</b>	:SYSTem:ERRor:CODE[:NEXT]?
<b>Notes</b>	Returns only errors from the event log. See "Using the event log" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for changes to error reporting.
<b>Series 2400</b>	:SYSTem:ERRor:COUNT?
<b>2461</b>	:SYSTem:ERRor:COUNT?
<b>Notes</b>	Returns only errors from the event log. See "Using the event log" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for changes to error reporting.
<b>Series 2400</b>	:SYSTem:ERRor[:NEXT]?
<b>2461</b>	:SYSTem:ERRor[:NEXT]?
<b>Notes</b>	Returns only errors from the event log. See "Using the event log" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for changes to error reporting.
<b>Series 2400</b>	:SYSTem:GUARd :SYSTem:GUARd?
<b>2461</b>	Not supported
<b>Notes</b>	Cable guard is the only option available on 2461.
<b>Series 2400</b>	:SYSTem:KEY :SYSTem:KEY?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:SYSTem:LFRequency :SYSTem:LFRequency?
<b>2461</b>	:SYSTem:LFRequency?
<b>Notes</b>	Line frequency is always automatically detected in the 2461.
<b>Series 2400</b>	:SYSTem:LFRequency:AUTO :SYSTem:LFRequency:AUTO?
<b>2461</b>	Not supported
<b>Notes</b>	Line frequency is always automatically detected in the 2461.
<b>Series 2400</b>	:SYSTem:LOCAl
<b>2461</b>	Not supported
<b>Notes</b>	No RS-232 communications available in the 2461.
<b>Series 2400</b>	:SYSTem:MEMory:INITialize
<b>2461</b>	Not supported
<b>Notes</b>	No battery-backed RAM in the 2461.



<b>Series 2400</b>	:SYSTem:MEP:HOLDOff
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:SYSTem:MEP[:STATe]?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:SYSTem:POSetup :SYSTem:POSetup?
<b>2461</b>	:SYSTem:POSetup :SYSTem:POSetup?
<b>Notes</b>	
<b>Series 2400</b>	:SYSTem:PRESet
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:SYSTem:RCMode :SYSTem:RCMode?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:SYSTem:RSENse :SYSTem:RSENse?
<b>2461</b>	[:SENSe[1]]:<function>:RSENse, where <function> is VOLTage[:DC] OR RESistance. [:SENSe[1]]:<function>:RSENse?
<b>Notes</b>	
<b>Series 2400</b>	:SYSTem:RWLock :SYSTem:RWLock?
<b>2461</b>	Not supported
<b>Notes</b>	No RS-232 communications available in the 2461.
<b>Series 2400</b>	:SYSTem:TIME?
<b>2461</b>	:SYSTem:TIME :SYSTem:TIME?
<b>Notes</b>	2461 uses absolute time.
<b>Series 2400</b>	:SYSTem:TIME:RESet
<b>2461</b>	Not supported
<b>Notes</b>	2461 uses absolute time.
<b>Series 2400</b>	:SYSTem:TIME:RESet:AUTO
<b>2461</b>	Not supported
<b>Notes</b>	2461 uses absolute time.

<b>Series 2400</b>	:SYSTem:VERsion?
<b>2461</b>	:SYSTem:VERsion?
<b>Notes</b>	

## TRACe subsystem

<b>Series 2400</b>	:TRACe:CLEar
<b>2461</b>	:TRACe:CLEar
<b>Notes</b>	Allows selection of the buffer to clear.

<b>Series 2400</b>	:TRACe:DATA?
<b>2461</b>	:TRACe:DATA?
<b>Notes</b>	In the 2461, this command allows you to dynamically specify the buffer elements to retrieve from the reading buffer.

<b>Series 2400</b>	:TRACe:FEED :TRACe:FEED?
<b>2461</b>	Not supported
<b>Notes</b>	

<b>Series 2400</b>	:TRACe:FEED:CONTRol :TRACe:FEED:CONTRol?
<b>2461</b>	Not supported
<b>Notes</b>	

<b>Series 2400</b>	:TRACe:FREE?
<b>2461</b>	Not supported
<b>Notes</b>	

<b>Series 2400</b>	:TRACe:POINTs :TRACe:POINTs?
<b>2461</b>	:TRACe:POINTs :TRACe:POINTs?
<b>Notes</b>	The command allows you to resize the buffer. The query returns the maximum capacity of the buffer.

<b>Series 2400</b>	:TRACe:POINTs:ACTual?
<b>2461</b>	:TRACe:ACTual :TRACe:ACTual?
<b>Notes</b>	In the 2461, you can specify the buffer. See "TRACe subsystem" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> for information.

<b>Series 2400</b>	:TRACe:TSTamp:FORMat :TRACe:TSTamp:FORMat?
<b>2461</b>	Not supported
<b>Notes</b>	In the 2461, you can specify a timestamp element using :TRACe:DATA?.

## TRIGger subsystem

<b>Series 2400</b>	ABORt
<b>2461</b>	ABORt
<b>Notes</b>	
<b>Series 2400</b>	:ARM[:SEquence[1]][:LAYer[1]]:COUNT :ARM[:SEquence[1]][:LAYer[1]]:COUNT?
<b>2461</b>	Not supported
<b>Notes</b>	Use :TRIGger:BLOCK:BRANch:COUNter.
<b>Series 2400</b>	:ARM[:SEquence[1]][:LAYer[1]]:SOURce :ARM[:SEquence[1]][:LAYer[1]]:SOURce?
<b>2461</b>	Not supported
<b>Notes</b>	Similar functionality available with :TRIGger:BLOCK:WAIT.
<b>Series 2400</b>	:ARM[:SEquence[1]][:LAYer[1]][:TCONfigure]:DIRectiOn :ARM[:SEquence[1]][:LAYer[1]][:TCONfigure]:DIRectiOn?
<b>2461</b>	Not supported
<b>Notes</b>	For similar functionality, see the following commands: <ul style="list-style-type: none"> <li>▪ :TRIGger:BLOCK:BRANch:ALWays</li> <li>▪ :TRIGger:BLOCK:BRANch:ONCE</li> <li>▪ :TRIGger:BLOCK:BRANch:ONCE:EXCLuded</li> </ul>
<b>Series 2400</b>	:ARM[:SEquence[1]][:LAYer[1]][:TCONfigure]:ILINe :ARM[:SEquence[1]][:LAYer[1]][:TCONfigure]:ILINe?
<b>2461</b>	Not supported
<b>Notes</b>	For similar functionality, use a digital I/O line with the trigger model. Generate a notify event in the trigger model that feeds the stimulus setting to a digital I/O line to pulse as needed in the trigger model. See: <ul style="list-style-type: none"> <li>▪ :TRIGger:BLOCK:NOTify</li> <li>▪ :TRIGger:DIGital&lt;n&gt;:OUT:STIMulus</li> </ul>
<b>Series 2400</b>	:ARM[:SEquence[1]][:LAYer[1]][:TCONfigure]:OLINe :ARM[:SEquence[1]][:LAYer[1]][:TCONfigure]:OLINe?
<b>2461</b>	Not supported
<b>Notes</b>	For similar functionality, use a digital I/O line with the trigger model. Generate a notify event in the trigger model that feeds the stimulus setting to a digital I/O line to pulse as needed in the trigger model. See: <ul style="list-style-type: none"> <li>▪ :TRIGger:BLOCK:NOTify</li> <li>▪ :TRIGger:DIGital&lt;n&gt;:OUT:STIMulus</li> </ul>

<b>Series 2400</b>	:ARM[:SEquence[1]][:LAYer[1]][:TCONfigure]:OUTPut :ARM[:SEquence[1]][:LAYer[1]][:TCONfigure]:OUTPut?
<b>2461</b>	Not supported
<b>Notes</b>	Similar functionality available with :TRIGger:BLOCK:NOTify set to a digital I/O line.
<b>Series 2400</b>	:ARM[:SEquence[1]][:LAYer[1]]:TIMer :ARM[:SEquence[1]][:LAYer[1]]:TIMer?
<b>2461</b>	Not supported
<b>Notes</b>	For similar functionality, use :TRIGger:TIMer<n>:COUNT and :TRIGger:BLOCK:WAIT.
<b>Series 2400</b>	:INITiate[:IMMediate]
<b>2461</b>	:INITiate[:IMMediate]
<b>Notes</b>	
<b>Series 2400</b>	:TRIGger:CLEar
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:TRIGger[:SEquence[1]]:COUNT :TRIGger[:SEquence[1]]:COUNT?
<b>2461</b>	Not supported
<b>Notes</b>	For similar functionality, use :TRIGger:BLOCK:BRANch:COUNTer. You can also use the Simple Loop trigger mode with the 2461; for information, refer to "Trigger model templates" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> .
<b>Series 2400</b>	:TRIGger[:SEquence[1]]:DELAy :TRIGger[:SEquence[1]]:DELAy?
<b>2461</b>	Not supported
<b>Notes</b>	For similar functionality, use :TRIGger:BLOCK:DELAy:CONStant.
<b>Series 2400</b>	:TRIGger[:SEquence[1]]:SOURce :TRIGger[:SEquence[1]]:SOURce?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:TRIGger[:SEquence[1]][:TCONfigure][:ASYNchronous]:INPut :TRIGger[:SEquence[1]][:TCONfigure][:ASYNchronous]:INPut?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:TRIGger[:SEquence[1]][:TCONfigure]:DIRection :TRIGger[:SEquence[1]][:TCONfigure]:DIRection?
<b>2461</b>	Not supported
<b>Notes</b>	Similar functionality available with :TRIGger:BLOCK:WAIT.

<b>Series 2400</b>	:TRIGger[:SEquence[1]][:TCONfigure]:ILINe :TRIGger[:SEquence[1]][:TCONfigure]:ILINe?
<b>2461</b>	Not supported
<b>Notes</b>	For similar functionality, use a digital I/O line with the trigger model. Generate a notify event in the trigger model that feeds the stimulus setting to a digital I/O line to pulse as needed in the trigger model. See: <ul style="list-style-type: none"> <li>▪ :TRIGger:BLOCK:NOTify</li> <li>▪ :TRIGger:DIGital&lt;n&gt;:OUT:STIMulus</li> </ul>
<b>Series 2400</b>	:TRIGger[:SEquence[1]][:TCONfigure]:OLINe :TRIGger[:SEquence[1]][:TCONfigure]:OLINe?
<b>2461</b>	Not supported
<b>Notes</b>	For similar functionality, use a digital I/O line with the trigger model. Generate a notify event in the trigger model that feeds the stimulus setting to a digital I/O line to pulse as needed in the trigger model. See: <ul style="list-style-type: none"> <li>▪ :TRIGger:BLOCK:NOTify</li> <li>▪ :TRIGger:DIGital&lt;n&gt;:OUT:STIMulus</li> </ul>
<b>Series 2400</b>	:TRIGger[:SEquence[1]][:TCONfigure]:OUTPut :TRIGger[:SEquence[1]][:TCONfigure]:OUTPut?
<b>2461</b>	Not supported
<b>Notes</b>	Similar functionality available with :TRIGger:BLOCK:NOTify set to a digital I/O line.
<b>Series 2400</b>	:TRIGger:SEquence2:SOURce :TRIGger:SEquence2:SOURce?
<b>2461</b>	Not supported
<b>Notes</b>	
<b>Series 2400</b>	:TRIGger:SEquence2:TOUT :TRIGger:SEquence2:TOUT?
<b>2461</b>	Not supported
<b>Notes</b>	

## Common commands

Series 2400	2461 command	Notes
*CLS	*CLS	2461 has fewer registers
*ESE *ESE?	*ESE *ESE?	2461 has changes to registers
*ESR?	*ESR?	
*IDN?	*IDN?	
*OPC *OPC?	*OPC *OPC?	
*OPT?	See "Contact check" in the <i>Model 2461 1 kW Pulse Mode Interactive SourceMeter® Instrument Reference Manual</i> .	
*RCL	*RCL	
*RST	*RST	
*SAV	*SAV	
*SRE	*SRE	
*STB?	*STB?	
*TRG	*TRG	
*TST?	*TST?	Command accepted and returns 0
*WAI	*WAI	