



# Device**Plugin**

Keysight

Revision 2020.5.14

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# 1 Description

Provides an access to Keysight IVI devices via VISA.NET library.

Requires the **Keysight IO Suite** libraries version to be installed on the system.

Download from Keysight's [website](#).

Plugin version	IO Suite version
2.1.x	16.x
2.2.x	17.3.21412.2 (recommended, minimum required)

This plug-in is the successor of Agilent IO plugin. The major change is that Keysight plugin does not require the configuration - it automatically detects devices, configured by Keysight IO Suite. The Keysight plugin is command-compatible with Agilent IO plugin.



## 2 Commands

### 2.1 \*idn? (Identification)

```
*idn?
```

Gets the plug-in identification string.

#### Parameters

No parameters.

#### Return value

The identification string in standard format "<company>, <product/name>, <serial-no>, <version>".

### 2.2 params (Set parameters)

```
params: { Timeout=[ int] } { ; ReadError=[ bool] } { ; DotReplace=[ bool] }
```

Sets default parameters of communication

#### Parameters

Timeout	[int]	IO communication timeout in range 10 to 60000 [ms]. <b>Default:</b> 5000
ReadError	[bool]	Automatically perform a SYST:ERR? command on non-query commands and return this message as command result, otherwise non-query command are only sent with "SENT" answer. <b>Default:</b> true
DotReplace	[bool]	Automatically replace dot for comma in SCPI answer. <b>Default:</b> true

## Return value

No return value

## Examples

```
params: timeout=8000: dotreplace=yes
```

Set communication timeout to 8 seconds a automatically replace dot by comma.

## 2.3 scpi (SCPI command)

```
scpi: <cmd0>{: <cmd1>: . . . : <cmdN>}{: timeout=[ int]}
```

Open connection to the camera using specified or default user-name and password.

### Parameters

cmd <sub>N</sub>	[string]	SCPI command
timeout	[int]	IO timeout for this sequence of SCPI commands [ms] <b>Default:</b> Timeout value set by "params" command

### Return value

If a query command is passed then a command specific answer is returned - refer a manual to your device. In the case that a non-query command is passed, the result depending on `AutoNonQueryErr` is set or not - when set a result of `SYST:ERR?` query is returned (when no error, result = "OK"). Otherwise only "SENT" is returned.

### Examples

```
scpi: "*idn?"
```

This is a query command. The device identification should be returned, for example HEWLETT-PACKARD, 4263B, MY40108084, 01.06.

```
scpi: "*cls"
```

This is a non-eury command. If `AutoNonQueryErr` is set to true then result should be "OK" if command is proceeded ok. If set to false, then only "SENT" is returned.

```
scpi: "invalid"
```

This is an example of invalid command. If `AutoNonQueryErr` is set to true then result will be for example -113, "Undefined header" (readed by `SYST:ERR?` command). If set to false, then only "SENT" is returned.

```
: <cmd>
```

Short, pass-through version of "scpi" command above. Starting the command by a color ":" only will pass the following string like a SCPI command directly to the device a returns the answer - according to query/non-query and [ReadError](#) option.

### Parameters

cmd	[string]	SCPI command
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### Return value

Same like for non-short "scpi" command.

## Examples

```
:*idn?
```

Query command, returns for example HEWLETT-PACKARD, 4263B, MY40108084, 01.06.

```
:*cls
```

Non-query command, return value depends on [ReadError](#) option.

```
:meas:res? 100k
```

Resistance measurement with fixed range of 100k-ohms example. Requires a corresponding compatible devices (such as 34411, 34450, ... multimeters). Returns a value of resistance in format, specified in the device's SCPI reference guide.

## 2.4 dmm (Special multimeter commands)

```
dmm:lfreq:...
dmm:lfreq-duty:tresh=[float][:timeout=[int]]
```

Software solution to measure frequency and duty-cycle of **low frequency** signal by repeating multimeter's single measurements (typically reading of voltage). Internally - the "read?" command is performed by measurement. Before run the command, it is necessary **to configure the target DMM** properly (for example to measure voltage with fixed range...).

Example command to configure the target DMM (Agilent/Keysight 34450A):

```
:conf:volt:dc 10,3.0e-5
```

(voltage, DC, 10V range, "F"ast - see the SCPI programmer's guide of 34450A for details)

When measurement is started, the commands repeating the "read?" command and applying the threshold **until 2 rising edges are detected**.

Measurement resolution is about **0,05 Hz** (tested with 34450A DMM).

### Parameters

tresh	[float]	Threshold of input signal. Below or equal to the treshhold value, the signal is accepted like logical 0, otherwise logical 1.
timeout	[int]	Time to wait for 2 rising edges [ms]. <b>Default: 5000</b>

### Return value

- When 2 rising edges are not detected until timeout, the command returns "RANGE"
- Frequency in [Hz] in "0.00" format when "lfreq" command or duty-cycle (0 to 100 [%]) when "lfreq-duty" command

### Examples

```
dmm:lfreq:tresh=2.5:timeout=3000
```

Measure the signal with treshhold of 2,5 (below or equals to 2,5 => log. 0, above 2,5 => log. 1). Waits for 3 seconds to detect 2 rising edges. Returns value in hundreths of Hz, for example "2.45" (resolution 0,05).

## 2.5 open|close (Open/close device)

```
open|close
```

*[obsolete]*

**Does nothing.**

Implemented only to ensure compatibility with previous Agilent IO plugin. All devices are automatically opened during detection at start-up and closed while shut-down the plugin.

**Parameters**

No parameters.

**Return value**

No return value