General Purpose Probes

Online Help

Agilent Technologies
Notices

© Agilent Technologies, Inc. 2001-2009

No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Agilent Technologies, Inc. as governed by United States and international copyright laws.

Manual Part Number

Version 03.82.0000

Edition

April 10, 2009

Available in electronic format only

Agilent Technologies, Inc.
1900 Garden of the Gods Road
Colorado Springs, CO 80907 USA

Warranty

The material contained in this document is provided “as is,” and is subject to being changed, without notice, in future editions. Further, to the maximum extent permitted by applicable law, Agilent disclaims all warranties, either express or implied, with regard to this manual and any information contained herein, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Agilent shall not be liable for errors or for incidental or consequential damages in connection with the furnishing, use, or performance of this document or of any information contained herein. Should Agilent and the user have a separate written agreement with warranty terms covering the material in this document that conflict with these terms, the warranty terms in the separate agreement shall control.

Technology Licenses

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

Restricted Rights Legend

If software is for use in the performance of a U.S. Government prime contract or subcontract, Software is delivered and licensed as “Commercial computer software” as defined in DFAR 252.227-7014 (June 1995), or as a “commercial item” as defined in FAR 2.101(a) or as “Restricted computer software” as defined in FAR 52.227-19 (June 1987) or any equivalent agency regulation or contract clause. Use, duplication or disclosure of Software is subject to Agilent Technologies’ standard commercial license terms, and non-DOD Departments and Agencies of the U.S. Government will receive no greater than Restricted Rights as defined in FAR 52.227-19(c)(1-2) (June 1987). U.S. Government users will receive no greater than Limited Rights as defined in FAR 52.227-14 (June 1987) or DFAR 252.227-7015 (b)(2) (November 1995), as applicable in any technical data.

Safety Notices

CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.
Using General Purpose Probes

General purpose probes let you define probes so that:

- Pin/pad numbers from the device under test show up in the Bus/Signal tab along with pod and channel numbers.
- This lets you define buses and signals directly from a schematic or netlist without having to figure out the pin mapping for the probe.
- Pod connections are documented.
- For example, suppose a probe that connects to "J1" on the device under test connects to Slot A Pod 1 and Slot A Pod 2. When "J1" is defined, the corresponding pods are saved in the configuration file. If there is any need to reconnect the pods, simply open the System Summary dialog and print out the "Probe Summary tab" (in the online help) which tells which pods to plug in to which probes.
- Bus/signal names can be assigned by importing an ASCII netlist file.

For information on using general purpose probes, see:

- To define probes (see page 7)
- To edit a probe (see page 13)
- To delete a probe (see page 15)

See Also

- Probe Control, COM Automation (see page 17)
- Probe Setup, XML Format (see page 19)
1 To define probes

1 From the main menu, choose Setup>(Logic Analyzer Module)>New Probe>General Purpose Probe.

![Setup Menu]

Or, in the Overview window, from a logic analyzer module's drop-down menu, choose New Probe>General Purpose Probe.

2 In the General Purpose Probe Set dialog (see page 10), define the probes associated with board connections in the device under test:
To define probes

For each probe:

- Click **Add Probe**....
- In the Select Probe to Add dialog, select the type of probe to add, and click **OK**.

If your probe doesn't appear in the list, you can "download the latest probe definitions from the web" (in the online help).

You can also edit an XML format file "to define new probe types" (in the online help).

- In the General Purpose Probe Edit dialog (see page 12), enter the reference designator of the connection in the device under test, and select the logic analyzer pods connected to the probe.
When you hover the mouse pointer over a pin description field, a tool tip appears describing buses/signals assigned, the pod connection, the channel number, and the signal type (single-ended or differential).

The pins numbers for clock inputs are labeled with "Clk".

**NOTE**

When connecting differential probe channel pin/pad/lead pairs to single-ended signals, make sure the negative pin/pad/lead is connected to ground and the positive pin/pad/lead is connected to the single-ended signal.

When a single-ended "threshold voltage is specified" (in the online help), the General Purpose Probe Edit dialog shows which pins/pads/leads should be connected to ground.

1. Click **OK**.
2. Click **OK** to close the General Purpose Probe Set dialog.

### See Also
- "To define buses and signals by importing netlist files" (in the online help)
- "Pod and Channel Naming Conventions" (in the online help)
- "To define new probe types" (in the online help)
To define probes

General Purpose Probe Set Dialog

Before you can import bus/signal names from netlist files and assign them to logic analyzer channels, you must use the Define Probes dialog to identify the probes that are used with the logic analyzer.

**Reference Designator**
Identifies the board connection in the device under test for the probe.

**Probe Type**
Probes connect logic analyzer pods to connectors in the device under test. The most commonly used probes connect to two pods. A probe type is the Agilent model number for the probe (for example, E5346A). If your probe doesn’t appear in the list, you can "download the latest probe definitions from the web" (in the online help). You can also edit an XML format file "to define new probe types" (in the online help).

The probe type “Unspecified” means that any of several probe types can be used with the configuration file you have loaded. You may leave the probe type as "Unspecified" unless you use the General Purpose Probe Edit dialog (see page 12) to view or edit the selected probe definition. When you click **Edit Probe...**, a dialog will appear asking you to select which probe you are using.

**Logic Analyzer Pod**
A collection of channels from a logic analyzer.
To define probes

<table>
<thead>
<tr>
<th>Add Probe...</th>
<th>Opens the General Purpose Probe Edit dialog (see page 12) for adding a probe definition.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edit Probe...</td>
<td>Opens the General Purpose Probe Edit dialog (see page 12) for viewing or editing the selected probe definition.</td>
</tr>
<tr>
<td>Delete Probe</td>
<td>Deletes the selected probe definition.</td>
</tr>
</tbody>
</table>

**See Also**

- To define probes (see page 7)
General Purpose Probe Edit Dialog

The General Purpose Probe Edit dialog lets you identify the device under test connector (reference designator) and the logic analyzer pods connected to the probe.

<table>
<thead>
<tr>
<th>Reference Designator</th>
<th>Identifies the reference designator (in the device under test) of the probe connector, the connectorless probe retention module, or pins probed by flying leads.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probe Pin/Pad Diagram</td>
<td>Diagrams probe pins/pads, flying-lead channels, or termination adapter pins, and provides fields for channel information tool tips.</td>
</tr>
<tr>
<td>Logic Analyzer Slot, Pod</td>
<td>Lets you select the logic analyzer module slots/pods to which the probe, flying leads, or termination adapter is connected.</td>
</tr>
<tr>
<td>Show Logic Analyzer Channels</td>
<td>When checked, the logic analyzer pod channel numbers are displayed in the probe pin/pad diagram next to the pin/pad numbers.</td>
</tr>
</tbody>
</table>

See Also

- To define probes (see page 7)
2 To edit a probe

1 From the main menu, choose Setup>(Logic Analyzer Module)>(General Purpose Probe Name)>Properties.

Or, in the Overview window, click the general purpose probe's Properties button.

2 In the General Purpose Probe Set dialog (see page 10), select the probe you want to edit, and click Edit Probe....
To edit a probe

3 In the General Purpose Probe Edit dialog (see page 12), you can change the reference designator or re-specify which logic analyzer pods are connected to the probe.

4 Click OK to close the General Purpose Probe Edit dialog.

5 Click OK to close the General Purpose Probe Set dialog.

See Also
- To define probes (see page 7)
3
To delete a probe

1 From the main menu, choose Setup>(Logic Analyzer Module)>(General Purpose Probe Name)>Properties. Or, in the Overview window, click the general purpose probe's Properties button.

2 In the General Purpose Probe Set dialog (see page 10), select the probe you want to delete, and click Delete Probe.

3 Click OK to close the Define Probes dialog.

See Also • To define probes (see page 7)
To delete a probe
The Agilent Logic Analyzer application includes the COM Automation Server. This software lets you write programs that control the Agilent Logic Analyzer application from remote computers on the Local Area Network (LAN).

In a COM automation program, you can configure a probe by:

- Loading a configuration file (which configures the complete logic analyzer setup).
- Using the "Probe" (in the online help) object's "DoCommands" (in the online help) method with an XML-format string parameter (see Probe Setup, XML Format (see page 19)).

You can get information about a probe's configuration using the Probe object's "QueryCommand" (in the online help) method. Queries supported by the general purpose probe are listed below.

For more information about logic analyzer COM automation and probe objects in general, see "COM Automation" (in the online help).

### XML-BasedQueries Supported

The general purpose probe supports the following XML-based queries (made with the "Probe" (in the online help) object's "QueryCommand" (in the online help) method).

<table>
<thead>
<tr>
<th>Query</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GetAllSetup</td>
<td>Returns the current setup, using the full tag set, used for writing generic configuration files (see the XML format &lt;Properties&gt; element (see page 24)).</td>
</tr>
<tr>
<td>GetProperties</td>
<td>Returns the current setup, using the full tag set, equivalent to &quot;GetAllSetup&quot; (see the XML format &lt;Properties&gt; element (see page 24)).</td>
</tr>
</tbody>
</table>

### See Also

- "COM Automation" (in the online help)
- Probe Setup, XML Format (see page 19)
When you save logic analyzer configurations to XML format files, setup information for the general purpose probe is included.

This XML format setup information is also used when writing COM automation programs to control the logic analyzer from a remote computer.

XML elements for the general purpose probe have the following hierarchy:

- `<Properties>` (see page 24)
- `<DefinedProbes>` (see page 20)
  - `<Probe>` (see page 23)
    - `<Pods>` (see page 22)
      - `<Pod>` (see page 21)

See Also
- "XML Format" (in the online help)
- Probe Control, COM Automation (see page 17)
The `<DefinedProbes>` element contains defined probes.

**Children**
This element can have the following children: `<Probe>` (see page 23).

**Parents**
This element can have the following parents: `<Properties>` (see page 24).

**Example**
```
<DefinedProbes>
  <Probe Name='J1' Type='E5346A 34-ch Micor single-ended probe'>
    <Pods>
      <Pod Index='1'/>
      <Pod Index='2'/>
    </Pods>
    <Signals/>
  </Probe>
  <Probe Name='J2' Type='E5346A 34-ch Micor single-ended probe'>
    <Pods>
      <Pod Index='3'/>
      <Pod Index='4'/>
    </Pods>
    <Signals/>
  </Probe>
</DefinedProbes>
```
<Pod> Element

The <Pod> element describes the pod index used within a defined probe.

Attributes

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index</td>
<td>'number'</td>
</tr>
</tbody>
</table>

Parents

This element can have the following parents: <Pods> (see page 22).

Example

<Pod Index='1'/>
<Pods> Element

The <Pods> element contains the pods used by a defined probe.

**Children**
This element can have the following children: <Pod> (see page 21).

**Parents**
This element can have the following parents: <Probe> (see page 23).

**Example**

```xml
<Pods>
  <Pod Index='1'/>
  <Pod Index='2'/>
</Pods>
```
<Probe> Element

The <Probe> element describes a defined probe.

Attributes

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>'string' (name of connector in device under test)</td>
</tr>
<tr>
<td>Type</td>
<td>'string' (name of probe)</td>
</tr>
</tbody>
</table>

Children

This element can have the following children: <Pods> (see page 22).

Parents

This element can have the following parents: <DefinedProbes> (see page 20).

Example

```xml
<Probe Name='J1' Type='E5346A 34-ch Mictor single-ended probe'>
  <Pods>
    <Pod Index='1'/>
    <Pod Index='2'/>
  </Pods>
  <Signals/>
</Probe>
```
<Properties> Element

The <Properties> element contains setup information for the general purpose probe.

Children

This element can have the following children: <DefinedProbes> (see page 20).

Parents

This element can have the following parents: "<Probe>" (in the online help).

When used in COM automation, this element is returned by the "QueryCommand method" (in the online help)'s GetAllSetup and GetProperties queries. You can also use this element string as an XMLCommand with the "DoCommands method" (in the online help) to configure the general purpose probe.

Example

<Properties>
  <DefinedProbes>
    <Probe Name='J1' Type='E5346A 34-ch Mictor single-ended probe'>
      <Pods>
        <Pod Index='1'/>
        <Pod Index='2'/>
      </Pods>
      <Signals/>
    </Probe>
  </DefinedProbes>
</Properties>
### Index

#### C
- Ck pin/pad locations, 7
- COM automation, general purpose probes, 17

#### D
- DefinedProbes, XML element, 20
- defining general purpose probes, 7
- differential probes and single-ended signals, 7

#### G
- General Purpose Probe Edit dialog, 12
- General Purpose Probe Set dialog, 10
- general purpose probe, deleting, 15
- general purpose probe, editing, 13
- general purpose probes, 3
- general purpose probes, defining, 7

#### N
- notices, 2

#### P
- pod, logic analyzer, 10
- Pod, XML element, 21
- pods, mapping general purpose probes, 12
- Pods, XML element, 22
- probe (general purpose), deleting, 15
- probe (general purpose), editing, 13
- probe type, 10
- Probe, XML element, 23
- probes (general purpose), defining, 7
- probes, general purpose, 3
- Properties, XML element, 24

#### R
- reference designator, 10, 12

#### S
- single-ended signals and differential probes, 7

#### T
- trademarks, 2

#### U
- unspecified probe type, 10

#### X
- XML format, general purpose probe, 19