# Differential Channel Alignment Application

# Printable Online Help


077-0775-00

Tektronix

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## Contacting Tektronix

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For product information, sales, service, and technical support:

- In North America, call 1-800-833-9200.
- Worldwide, visit www.tektronix.com to find contacts in your area.

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# Technical support

Tektronix values your feedback on our products. To help us serve you better, please send us your suggestions, ideas, or comments on your application or oscilloscope. Contact Tektronix through mail, telephone, or the Web site. See Contacting Tektronix for more information.

When you contact Tektronix Technical Support, please include the following information (be as specific as possible):

## General information

- All instrument model numbers
- Hardware options, if any
- Probes used
- Your name, company, mailing address, phone number, and email address
- Please indicate if you would like to be contacted by Tektronix about your suggestion or comments.

## Application specific information

- Software version number
- Description of the problem such that technical support can duplicate the problem
- If possible, save the setup files for all the instruments used and the application
- If possible, save the TekExpress setup files, log.xml, *.TekX (session files and folders), and status messages text file
- If possible, save the waveform on which you are performing the measurement as a .wfm file

# Differential Channel Alignment application overview

The Differential Channel Alignment Application lets you:

- Perform acquisition and TDR step alignment (on TDR modules) for supported electrical sampling modules
- Calibrate the channel delay and TDR step deskew (on TDR modules) for supported modules
- View alignment information for all installed electrical sampling modules
- Manage the alignment storage memory areas for installed electrical sampling modules

You should run the Differential Channel Alignment application:

- When first installing an electrical sampling module in an instrument
- After moving an electrical sampling module from one module slot to another
- After installing an electrical sampling module on a sampling module extender

***NOTE.*** *For best results, allow the instrument and modules to warm up, and run the instrument and module compensation software, before running this application.*

**See also:**

Requirements (see page 3)

Starting the application (see page 4)

User interface elements (see page 5)

Application preferences (see page 8)

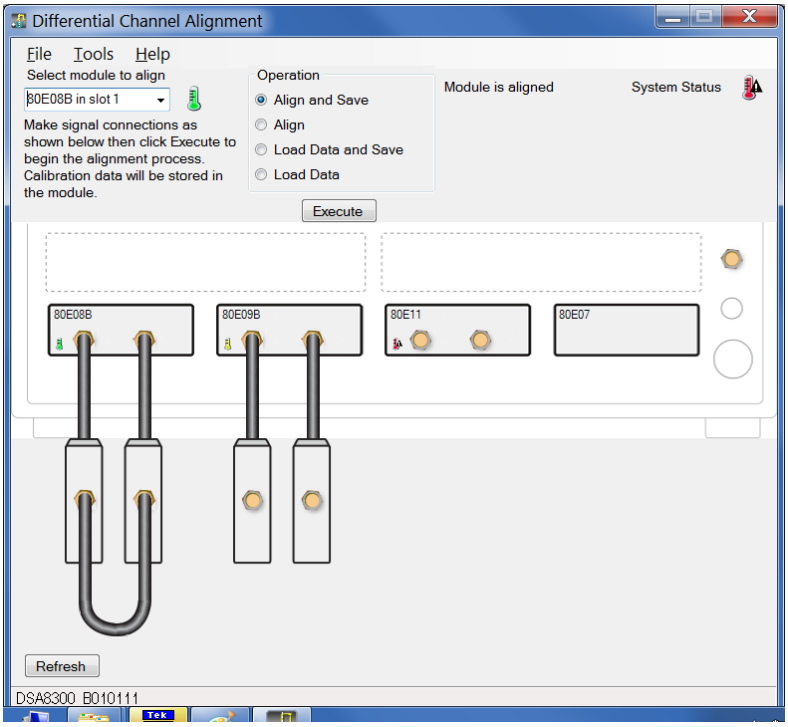
# Requirements

The Differential Channel Alignment Application runs on all DSA8300 Digital Serial Analyzer instruments with TekScope software version 6.2 or later, and all TDS/CSA/DSA8000 series instruments running Windows XP and with TekScope software version 5.2 or later.

Go to www.tek.com to download the latest versions of TekScope software.

# Starting the application

To start the application, select **Applications > DiffChanAlign** from the TekScope menu. The application shows a graphic representation of installed modules (and extenders if installed).



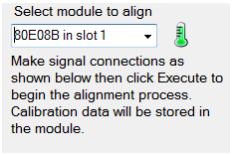
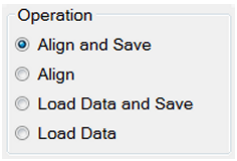

**See also:**

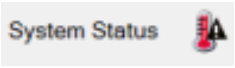
User interface elements (see page 5)

Application preferences (see page 8)

Alignment process (see page 7)

# User interface elements

| User interface element | Description |
|---|---|
| Select module to align<br>  | List of installed electrical modules that support acquisition and/or TDR step alignment. Select the module to align or to load alignment information from a previous alignment procedure. You can also click the graphic of the module to align in the Module Configuration pane.<br>Once a module is selected the Module Configuration pane displays the module fixturing required to perform the alignment for that module. The fixturing required depends on the module.<br>The thermometer icon shows the alignment status of the selected module (see *Module Alignment status* in this table).<br>***NOTE.*** *The cables, splitters, and adapters that are required to perform alignment on supported single-channel, dual-channel, and remote modules are included as standard accessories with the module. You may also order replacements for these accessories; see the Electrical Sampling Modules datasheet for more information.* |
| Operation controls<br>  | Specifies the alignment action to perform:<br>■ **Align and Save** (default): when executed the application guides the user through the alignment process. The results of the alignment are stored in the instrument's nonvolatile memory, in the selected module's nonvolatile memory, and in the instrument's volatile in-use memory version that is actually used during operation of the instrument.<br>■ **Align**: when executed the application guides the user through the alignment process. The results of the alignment are stored in both the instrument's nonvolatile memory and in the instrument volatile in-use memory version that is actually used during operation of the instrument. The alignment data is not saved in the module.<br>■ **Load Data and Save**: when executed the application loads the alignment data from the instrument's nonvolatile memory into the in-use memory that is used during operation of the instrument, and stores the data in the selected module's nonvolatile memory. If no valid alignment data is present on the instrument, the application disables this selection item.<br>■ **Load Data**: when executed the application loads the alignment data from the instrument's nonvolatile memory into the in-use memory version that is actually used during operation of the instrument. If no valid alignment data is present on the instrument, the application disables this selection item.<br>Alignment storage memory (see page 9) |
| Execute button<br>  | Performs the alignment task as set in the Operation controls.<br>If **Align** or **Align and Save** is the selected operation, connect cables and fixtures to the selected module as shown in the Module Configuration pane before clicking Execute. Follow any on-screen instructions. After the requested operation completes, the application updates the aligned module status to reflect the results of the alignment. |

| User interface element | Description |
|---|---|
| System status<br>  | Text and thermometer icon in the upper right area of the application that shows the overall module alignment status. Thermometer color:<br>■ **Green**: indicates that the alignment of all installed modules is up to date.<br>■ **Yellow**: indicates that one or more modules require alignment and that there is alignment information on the instrument for that module or modules. You can load the alignment information into the system without rerunning the alignment procedure.<br>■ **Red**: Indicates that one or more modules require alignment and that the alignment procedure should be run for those modules. |
| Module Configuration pane | Shows the installed modules, their alignment status, and required cables, splitters, and/or adapters for performing an alignment. |
| Module Alignment status<br>  | Thermometer icon on each supported module that show the alignment status of that module:<br>■ **Green**: indicates that the alignment of the module is up to date.<br>■ **Yellow**: indicates the module requires alignment and that there is alignment information on the instrument for that module. You can load this alignment information into the system without rerunning the alignment procedure.<br>■ **Red**: Indicates that the alignment procedure should be run on that module. |
| Refresh button<br>  | Reacquires the system and module status. Click Refresh after using the Module Configuration function to change module locations while powered on (for DSA8300 instruments with TekScope software version 6.2 and greater). |
| Instrument information | Shows the model and serial number information. |

## See Also:

Alignment process (see page 7)

Application preferences (see page 8)

# Alignment process

1. Set the Differential Channel Alignment application preferences (see page 8).
2. Select the module to align (from the list or by selecting the module in the Configuration pane).
3. Select the operation to perform (Align and Save, Align, Load Data, or Load Data and Save).
4. If the Align or Align and Save operation is selected, connect the module (cables, splitters, and adapters) as shown in the **Module Configuration** pane.

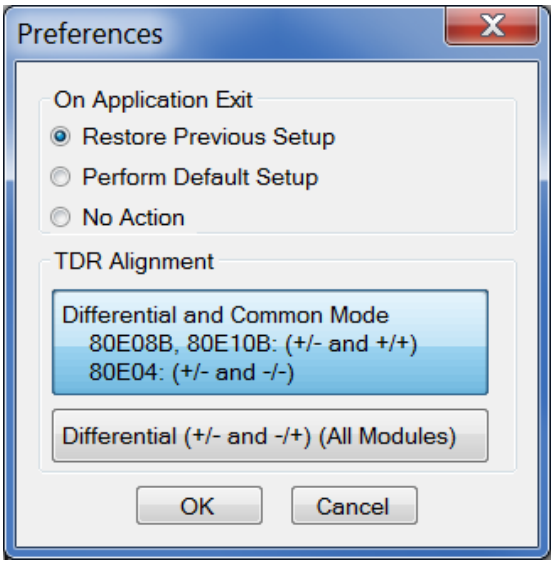
***CAUTION.*** *To avoid ESD damage, always wear an ESD wrist strap when connecting cables, splitters, and other signal components to the module or module extender inputs.*

5. Click **Execute**. Follow any on-screen instructions.

# Application preferences

The Preferences dialog box sets operation and exit preferences for the Differential Channel Alignment Application. Access this dialog box from **Tools > Preferences** in the application menu.

The parameters set in this dialog box are stored in nonvolatile memory on the instrument and are recalled when the application is started.




**On Application Exit** sets the action taken when exiting the Differential Channel Alignment Application:

- Restore Previous Setup (default): Restores the instrument settings to those present before the application was started.
- Perform Default Setup: Restores the instrument settings to factory defaults.
- No Action: leaves all instrument settings as they are.

**TDR Alignment**: Optimizes the TDR step alignment on TDR electrical sampling modules for Differential and Common Mode or Differential Mode stimulus:

- Differential/Common Mode (default): Optimizes the TDR step alignment for one polarity of Differential mode (+/-) and one polarity of Common mode (+/+ or -/-, depending on the TDR module type) stimulus.
- Differential: Optimizes the TDR step alignment for both polarities of Differential mode stimulus.

# Alignment storage memory

There are two nonvolatile alignment memory areas where the application permanently stores alignment information; one in the mainframe and one in the supported sampling module. Also, the alignment data is stored temporarily in a volatile run-time memory location of the mainframe during operation of the instrument.

The instrument automatically loads the alignment data from the module nonvolatile memory into the mainframe volatile run-time memory after power-on, or after a module is installed in a DSA8300 (SW Version 6.2 or later) using the guided **Change/View Module Config** application from the TekScope menu (**Utilities > Change/View Module Config**).