



ZWave M-Class Waveform Generator Soft Front Panel

Models ZT5211, ZT5212

User's Manual: 0004-000076
Revision 2

September 16, 2010

Contact

| | |
|---|--|
| ZTEC Instruments 7715 Tiburon Street NE Albuquerque, NM 87109 | Telephone: (505) 342-0132 Fax: (505) 342-0222 Web Site: www.ztecinstruments.com |
|---|--|

ZTEC Instruments, Inc. welcomes your comments on this manual. All manuals are thoroughly reviewed before distribution. We are, however, grateful for any comments from our users which will further help to improve the content and quality of our documents.

Copyright

Copyright 2009 by ZTEC Instruments

Printed in the United States of America.

All rights reserved under copyright laws of the United States and other countries.

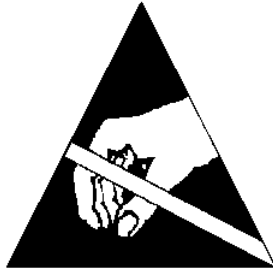
All technical data and computer software documentation contained herein is proprietary and confidential to ZTEC Instruments, Inc. or its licensor. The reproduction and/or transmission of this publication in whole or in part by any means, electronic or mechanical, is prohibited without the prior written consent of ZTEC Instruments, Inc.

ZTEC, ZScope, ZWave, and associated logos are registered trademarks of ZTEC Instruments.

ZTEC[®] Instruments has attempted throughout this publication to distinguish proprietary trademarks from descriptive terms by following the capitalization style used by the manufacturer. Product names listed are trademarks of their respective manufacturers. Company names listed are trademarks or trade names of their respective companies.

Windows[™] Microsoft Corporation

The material in this manual is for informational purposes only and is subject to change without notice. ZTEC[®] Instruments, Inc. assumes no responsibility for any error or for consequential damages that may result from the use or misinterpretation of any of the procedures in this publication.



Handling Precautions for Electronic Devices Subject to Damage by Static Electricity

This instrument is susceptible to Electronic Static Discharge (ESD) damage. When transporting, place the instrument or module in conductive (anti-static) envelopes or carriers. Open only at an ESD-approved work surface. An ESD safe work surface is defined as follows:

- The work surface must be conductive and reliably connected to an earth ground with a safety resistance of approximately 250 kilohms.
- The surface must NOT be metal. A resistance of 30–300 kilohms per square inch is suggested.

Ground the frame of any line-powered equipment, chassis, test instruments, lamps, soldering irons, etc., directly to the earth ground. To avoid shorting out the safety resistance, ensure that the grounded equipment has rubber feet or other means of insulation from the work surface.

Avoid placing tools or electrical parts on insulators. Do NOT use any hand tool that can generate a static charge, such as a non-conductive plunger-type solder sucker. Use a conductive strap or cable with a wrist cuff to reliably ground to the work surface. The cuff must make electrical contact directly with the skin; do NOT wear it over clothing.

Note: Resistance between the skin and the work surface is typically 250 kilohms to 1 megohm using a commercially-available personnel grounding device.

Avoid circumstances that are likely to produce static charges, such as wearing clothes of synthetic material, sitting on a plastic-covered stool (especially when wearing woolen material), combing the hair, or making extensive pencil erasures. These circumstances are most significant when the air is dry.

When testing static sensitive devices, ensure DC power is ON before, during, and after application of test signals. Ensure all pertinent voltages are switched OFF while circuit boards or components are removed or inserted.

Revision History

| Rev | Date | Section | Description |
|-----|-----------|---------|-----------------|
| 1 | 6-9-2009 | All | Initial Release |
| 2 | 9-16-2009 | All | LXI updates |

Table of Contents

| | |
|--------------------------------------|-----------|
| Introduction | 7 |
| General | 7 |
| Compatibility..... | 7 |
| Instrument Interface | 7 |
| Design | 8 |
| Status Display | 9 |
| Control Palette | 11 |
| Palettes | 11 |
| Control Functionality..... | 13 |
| <i>Channel Common Settings</i> | 13 |
| <i>Standard Functions</i> | 16 |
| <i>Multi-Tone</i> | 17 |
| <i>Serial Data</i> | 18 |
| <i>Arbitrary Waveforms</i> | 19 |
| <i>Sweep</i> | 20 |
| <i>Burst Mode</i> | 21 |
| <i>Binary Modulation Mode</i> | 23 |
| <i>Pattern Trigger</i> | 24 |
| <i>Waveform Library</i> | 25 |
| <i>Reference Channels</i> | 26 |
| <i>Sequences</i> | 27 |
| <i>External Output</i> | 28 |
| <i>Logic Trigger Output</i> | 30 |
| <i>Save/Recall</i> | 31 |
| <i>Instrument</i> | 32 |
| <i>Status</i> | 34 |
| Waveform Viewer | 35 |
| Toolbar | 36 |

List of Figures

| | |
|--|----|
| Figure 1.1: SFP Layout | 8 |
| Figure 2.1: Status Display..... | 9 |
| Figure 3.1: Palette Selects..... | 12 |
| Figure 3.2: Sample Palette Tab | 12 |
| Figure 3.3: Output Common Palette | 13 |
| Figure 3.4: Output Common Burst Controls | 15 |
| Figure 3.5: Output Common Binary Modulation Controls..... | 15 |
| Figure 3.6: Output Functions Tab..... | 16 |
| Figure 3.7: Output Functions Tab Multi-Tone Controls..... | 17 |
| Figure 3.8: Output Functions Tab Serial Data Controls..... | 18 |
| Figure 3.9: Output Arbitrary Tab | 19 |
| Figure 3.10: Output Sweep Tab..... | 20 |
| Figure 3.11: Trigger Burst Tab..... | 21 |
| Figure 3.12: Trigger Burst Tab Alternate View | 22 |
| Figure 3.13: Trigger Binary Modulation Tab | 23 |
| Figure 3.14: Trigger Binary Modulation Tab External Controls | 23 |
| Figure 3.15: Trigger Pattern Tab | 24 |
| Figure 3.16: Waveform Library Tab | 25 |
| Figure 3.17: Waveform Reference Tab | 26 |
| Figure 3.18: Waveform Sequence Tab..... | 27 |
| Figure 3.19: Output External Out Tab..... | 28 |
| Figure 3.20: Output Logic Trigger Out Tab..... | 30 |
| Figure 3.21: Settings Save/Recall Tab | 31 |
| Figure 3.22: Settings Instrument Tab..... | 32 |
| Figure 3.23: Status Palette Controls | 34 |
| Figure 4.1: Waveform Viewer..... | 35 |
| Figure 4.1: Toolbar..... | 36 |

List of Tables

| | |
|---------------------------------------|----|
| Table 3.1: Palette Organization | 11 |
|---------------------------------------|----|

Introduction



General

The ZWave[®] M-Class Soft Front Panel is designed for use with all ZTEC[®] M-Class Arbitrary Waveform Generators. ZWave[®] automatically detects any PCI, PXI or VXI instruments that are available and allows the user to dynamically switch between viewing and controlling all available instruments. LXI instruments need to have their resource names added to the system through the ZFind[™] utility before ZWaveM[®] will be able to see them. ZTEC[®] instruments of other classes and types have their own soft front panels. ZWave[®] is both a Windows and Linux application. ZWave[®] provides a simulation mode that can be used whether or not instruments are available; however, most instrument functionality requires an active instrument.

Compatibility

Please visit ZTEC[®] Support at www.ztecinstruments.com/support for information on revisions.

Instrument Interface

It is ZTEC[®]'s philosophy that functionality should be kept on the instrument. This keeps intelligence centralized and user interfaces simple. What this means to ZWave[®] is that the user interface is merely a viewer; it is a graphical representation of states and functionality that are in the instrument. There are a couple of side effects from this:

1. The instrument state may become un-synced from the states displayed in the panel. ZWave[®] does not have the ability to know when the instrument's state is changed through another interface (such as driver calls or a second application). In order to insure that ZWave[®] is accurate, it is necessary to re-sync the settings, using the provided Sync button in the *SETTINGS:INSTRUMENT* tab, whenever the instrument has been changed outside of the application
2. Not all ZWave[®] states affect the instrument. Closing and opening ZWave[®] can only affect the channel state. Disabling waveform display, moving docks and other display options only change the viewer settings, not the instrument.
3. Most functionality is not available in simulation mode.

There are also benefits from this architecture; for instance, complex calculations or processes will not tax the host computer.

Design

ZWave® M-Class is designed to expose all instrument functionality in an easy-to-use interface.

The soft front panel (SFP) consists of three main areas:

1. Status Display – Basic instrument status information
2. Control Palette - Access Advanced User Controls
3. Waveform View – View waveform data.

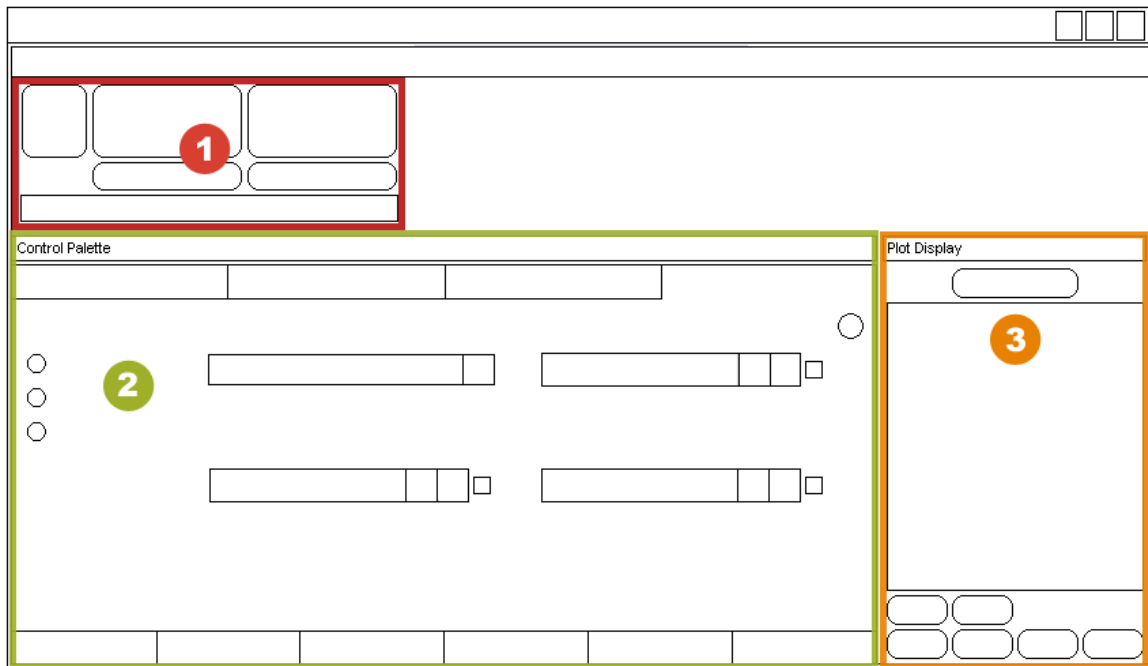


Figure 1.1: SFP Layout

When not actively changing instrument settings, the application may be shrunk to utilize minimal desktop space. This is done by closing the Control Palette and Waveform Viewer, to show only the Status Display. The Status Display displays basic information such as channel state and shape and has output enable controls.

The Control Palette contains all other controls for changing instrument states. Controls are separated into Tabs and Palettes (sets of tabs) in logical function groups. The Control Palette may be undocked from the main application, closed or moved to other dock locations.

The Waveform Viewer allows a direct view of channel waveform data. The data is not updated automatically and new waveforms must be requested.

For explanations of instrument functionality, please see the instrument manual: [MClassAWG_Instrument_Manual.pdf](#).

Status Display

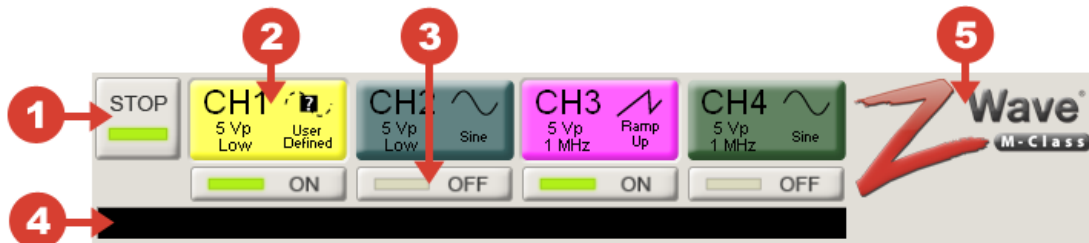


Figure 2.1: Status Display

1 Run/Stop

Initiate or abort instrument output. When the instrument is initiated all enabled channels will play their loaded waveforms. When the instrument is not initiated, no waveforms are played.

Individual instrument channels can be enabled independently by enabling/disabling channels while the instrument is initiated. When this is done the channels are completely independent and may have skew based on the timing of the channel enable.

Enabled channels can begin playing together by initiating the instrument after all desired channels are enabled. When this is done, all channels begin playing at the same time.

2 Channel Information

A display is shown for each instrument channel that contains basic information on what waveform is being played on that channel. In the figure above, output channel 3 is currently playing a ramp up wave at 1 MHz and 5 Vpp, and channel 4 is a sine function that is not currently playing. This is only a small subset of the information available for the channel, but should be enough for basic identification of the waveform. Clicking on a channel information display will set that channel's palette as the active control palette.

3 Output Channel Enable

Enable or disable an output channel. Inactive channels will output a constant value at the selected offset voltage.

Individual instrument channels can be enabled independently by enabling/disabling channels while the instrument is initiated. When this is

done the channels are completely independent and may have skew based on the timing of the channel enable.

Enabled channels can begin playing together by initiating the instrument after all desired channels are enabled. When this is done, all channels begin playing at the same time.

4 Message Display

The message display is a central location for display of all panel and instrument messages. Messages include error states and general status information such as when the application has completed a process.

5 Logo

Clicking on the logo will bring up panel version information.

Control Palette



The Control Palette contains all instrument controls. The controls are grouped into five palettes that contain several tabs. The Control Palette can be minimized, undocked and moved to other dock locations in the main window. To automatically re-dock the Control Palette, simply double-click on the title bar or select “Dock Control Palette” in the view menu. If the Control Palette is closed, it can be opened through the view menu in the toolbar or by typing ‘Ctrl+T’.

Palettes

| Palette | Tabs |
|----------------|-------------------|
| OUTPn | Common |
| | Functions |
| | Arbitrary |
| | Sweep |
| Trigger | Burst |
| | Binary Modulation |
| | Pattern |
| Waveforms | Library |
| | Reference |
| | Sequence |
| Output | External Out |
| | Logic Trigger Out |
| Settings | Save/Recall |
| | Instrument |
| | Status |

Table 3.1: Palette Organization



Figure 3.1: Palette Selects

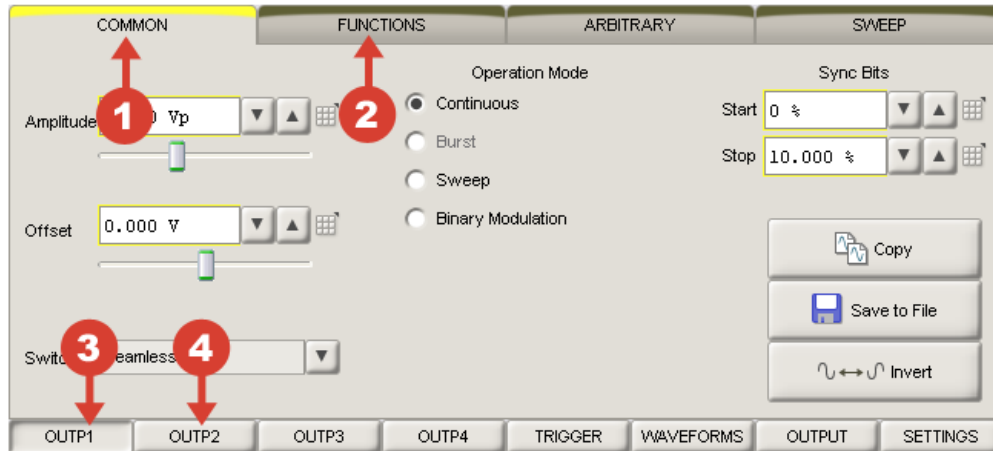


Figure 3.2: Sample Palette Tab

1 Active Tab

The lighter tab color indicates that this is the active displayed Tab. The active Tab in a Palette is saved when a palette is deselected and will remain active when the Palette is re-selected.

2 Inactive Tab

Other tabs in the same Palette can be brought forward by selecting the appropriate tab.

3 Active Palette Select

An active Palette Select indicates that the corresponding Palette is currently displayed.

4 Inactive Palette Select

Select to change the currently displayed Palette. Switching between Palettes does not affect which Tab is in the front of each Palette.

Control Functionality

Channel Common Settings

Palette Tabs: *OUTPn:COMMON*

Common Settings are applicable to the channel whether it is currently playing a standard function, an arbitrary waveform or a sequence.

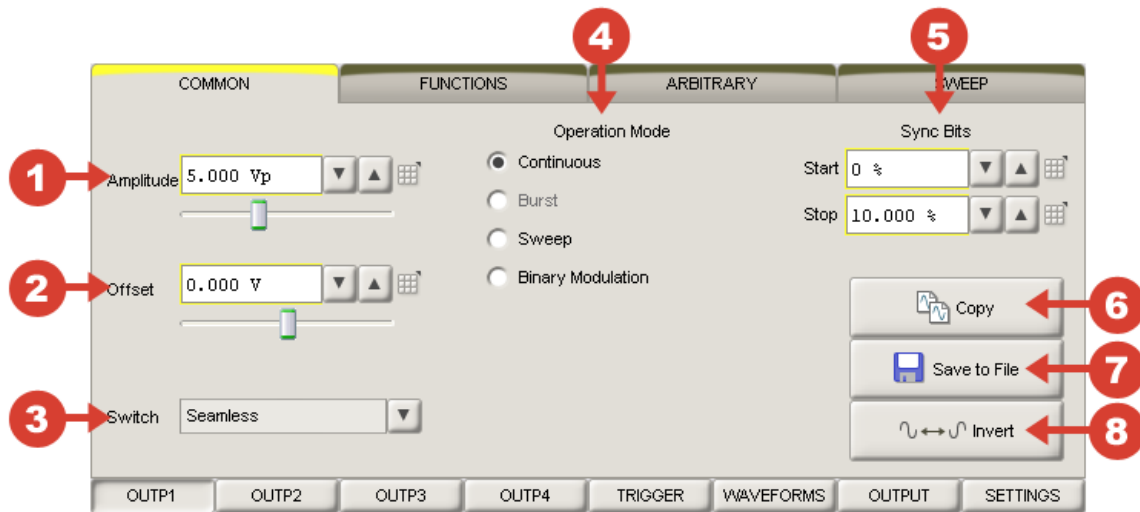


Figure 3.3: Output Common Palette

1 Amplitude

Select the full-scale range for output waveforms. All generated functions are automatically set to full-scale, and may be changed by pressing scale. Arbitrary functions are either uploaded as codes or normalized voltages that are scaled by the full-scale range when output.

2 Offset

Set the zero voltage level for output waveforms. Note that the combined amplitude and offset may not exceed the maximum instrument voltage.

- 3 Switch**

Select a mode for the instrument to change over to the new waveform when an output is changed. In instantaneous mode the new waveform is played as soon as it is available; in Seamless mode the new waveform will begin playing at the end of a current waveform period.
- 4 Operation Mode**

Select the way the instrument generates waveforms. Continuous Mode will continuously replay the waveform. Burst Mode will play the waveform a selected number of times upon a trigger event. Sweep Mode will continuously play the waveform while sweeping the output frequency. Binary Modulation switches between two loaded waveforms based upon a trigger state. Note that Burst and Binary Modulation may not both be used at the same time. For example, if Output 2 is in Burst Mode you will not be able to select Binary Modulation on Output 1. Modes that are not currently available will appear grayed-out.
- 5 Sync Bits**

Set the start and stop locations for the channel's synchronization bit. Synchronization bits can be used to provide an output pulse that is synchronized to start and stop at the selected points in the channel's output.
- 6 Copy**

Copy the channel's waveform data to another channel, reference channel, or to the waveform library.
- 7 Save to File**

Save the channel's waveform data as a comma separated value (.csv) file. The generated file is compatible with ZScopeM.
- 8 Invert**

Invert the channel's waveform data.

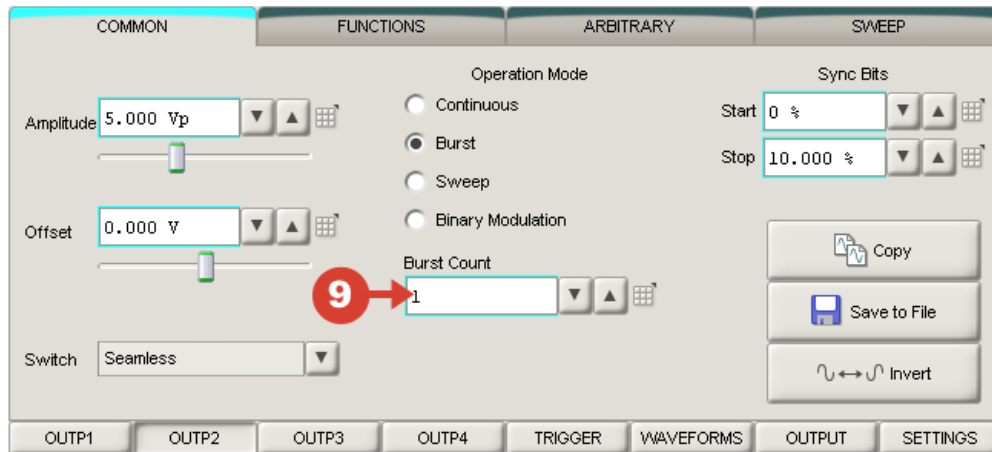


Figure 3.4: Output Common Burst Controls

9 Burst Count

Set the number of waveform cycles that are played upon a trigger event.

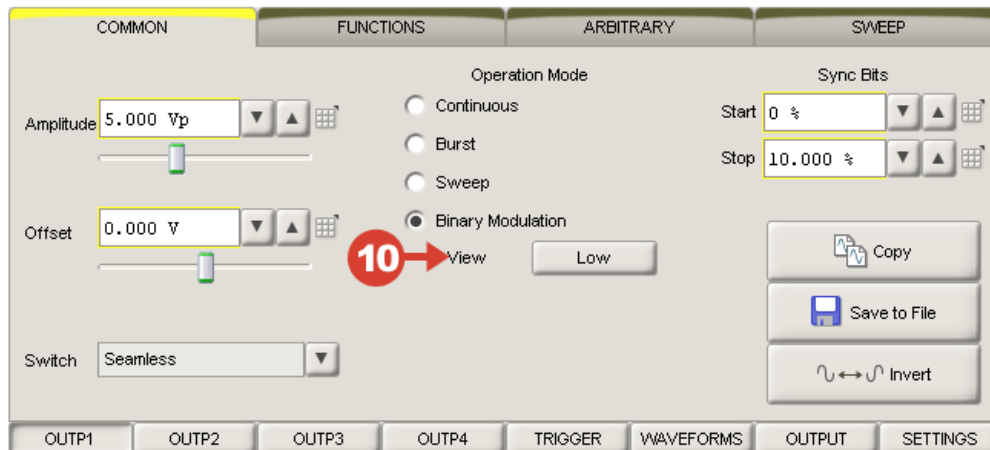


Figure 3.5: Output Common Binary Modulation Controls

10 View

Select the binary modulation view. This selects which state's waveform buffer is used when performing waveform data operation such as copy, save and scale.

Standard Functions

Palette Tabs: *OUTPn:FUNCTIONS*

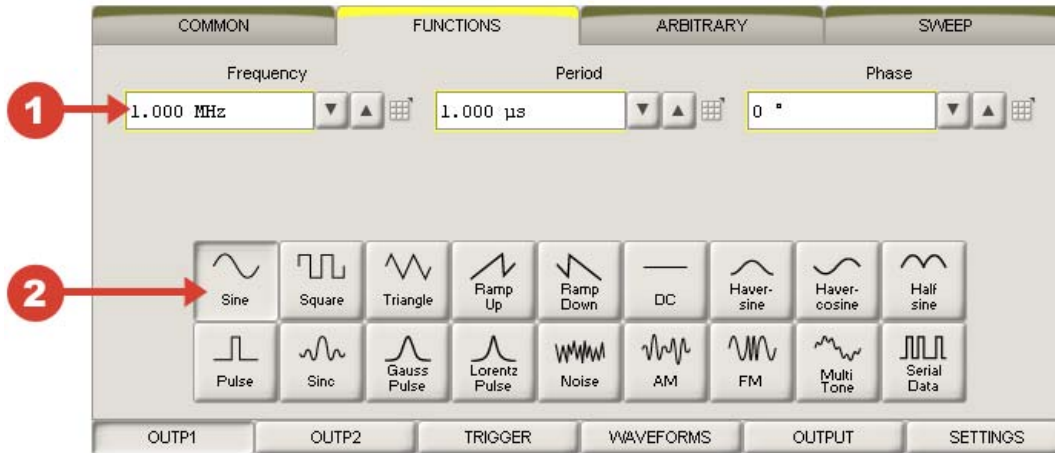


Figure 3.6: Output Functions Tab

1 Parameters

These controls allow the setting of all parameters necessary to create the requested function. Different functions may have different numbers and types of parameters.

2 Shape

Select a standard function shape for the instrument to generate. The instrument will automatically calculate a waveform based on the selected parameters.

Multi-Tone

Additional controls are available when Multi-Tone is selected as the channel shape.

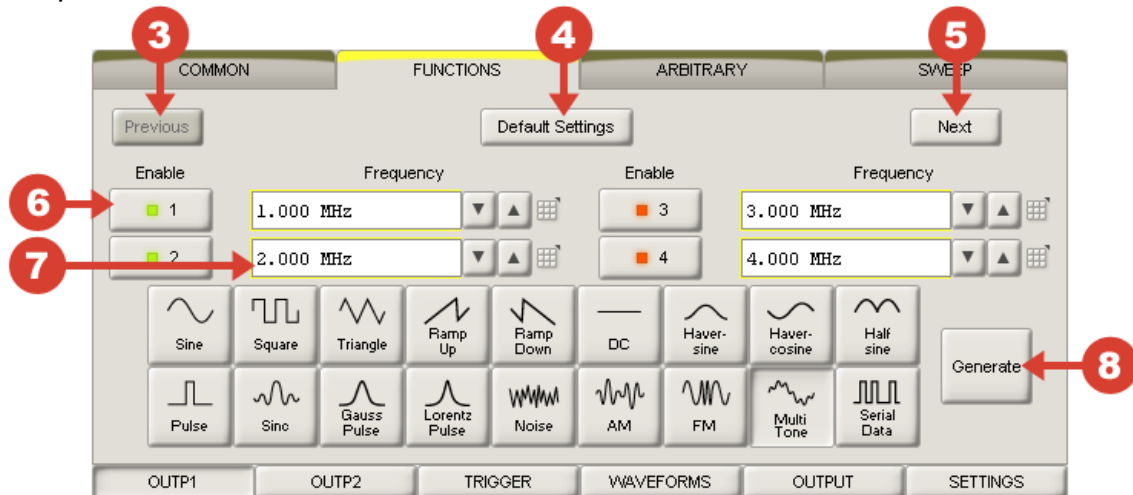


Figure 3.7: Output Functions Tab Multi-Tone Controls

- 3 Previous**
View the settings for the previous four tones.
- 4 Default Settings**
Reset all tone states and frequencies to default values.
- 5 Next**
View the settings for the next four tones.
- 6 Enable**
Enable the selected tones. Only enabled tones are included in the output waveform. Enabled tones do not have to be in sequential order.
- 7 Frequency**
Select the frequency component for the tone. Tone frequency limitations are described in the instrument manual.
- 8 Generate**
Regenerate the waveform data. Since AM, FM and Multi Tone functions may take a significant time to generate; they are not automatically generated on attribute changes like the other shapes are. Instead, they are generated when this control is pressed, or when the shape is changed.

Serial Data

Additional controls are available when Serial Data is selected as the channel shape.

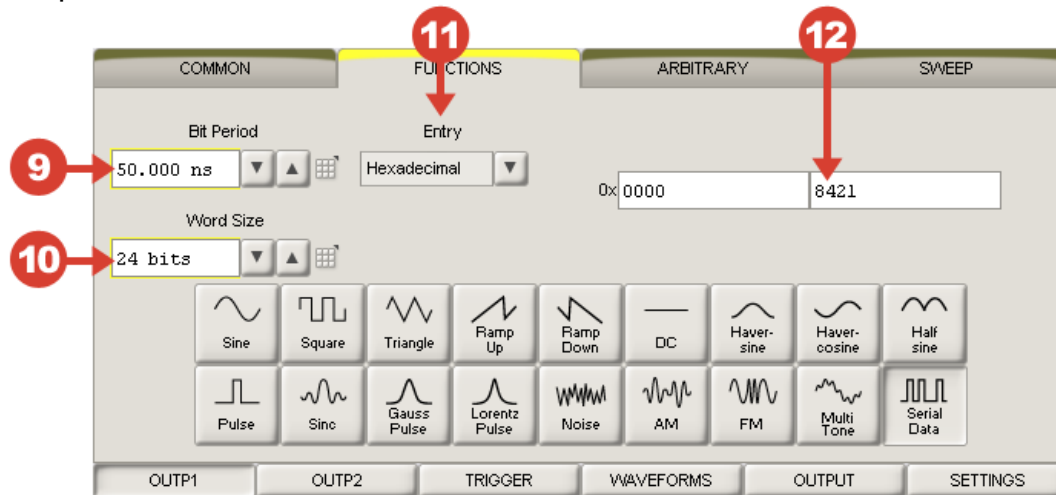


Figure 3.8: Output Functions Tab Serial Data Controls

- 9 Bit Period**
Set the period (length of time) for playing each bit in the word. Total waveform period is the bit period times the word size.
- 10 Word Size**
Select the number of bits in the played word. Word information outside of the word size is ignored.
- 11 Entry Mode**
Select the method to view and enter Serial Data words: binary or hexadecimal.
- 12 Word**
View and change the current Serial Data word.

Arbitrary Waveforms

Palette Tabs: *OUTPn:ARBITRARY*

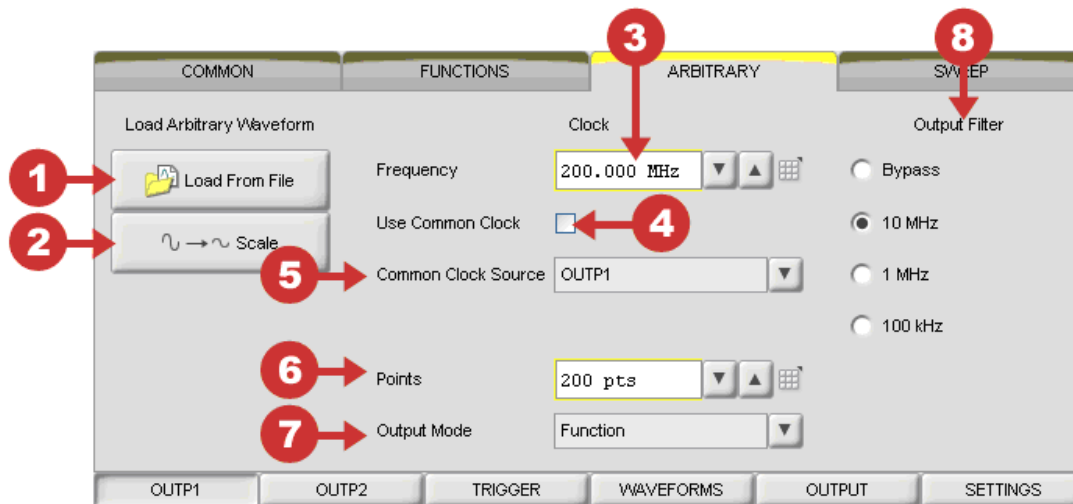


Figure 3.9: Output Arbitrary Tab

1 Load From File

Load an arbitrary waveform into the channel from a comma separated value file. The file format should match the files saved from the application. ZWave[®] and ZScope[®] both use the same file format. Sample waveforms are included with the installation package.

2 Scale

Adjust the waveform data to a fraction of the current values..

3 Clock Frequency

Set the DAC clock frequency. Total waveform frequency is the DAC frequency divided by the number of waveform points.

4 Use Common Clock

Select whether the channel should use the common clock. The channel may either use its own clock at the selected frequency, or use the common clock.

5 Common Clock Source

Set which DAC clock is used as the common clock. The common clock can be selected as any of the channel clocks.

6 Points

Set the number of points in the current waveform.

7 Output Mode

Select how waveforms are generated on the channel. When in Function mode, waveforms are automatically generated from standard functions and instrument settings may be coerced to create the waveforms. In Arbitrary mode, waveform data is treated as an arbitrary set of information. In Sequence mode waveform data is treated as a generated sequence.

8 Output Filter

Select the active output lowpass filter.

Sweep

Palette Tabs: *OUTPn:SWEEP*

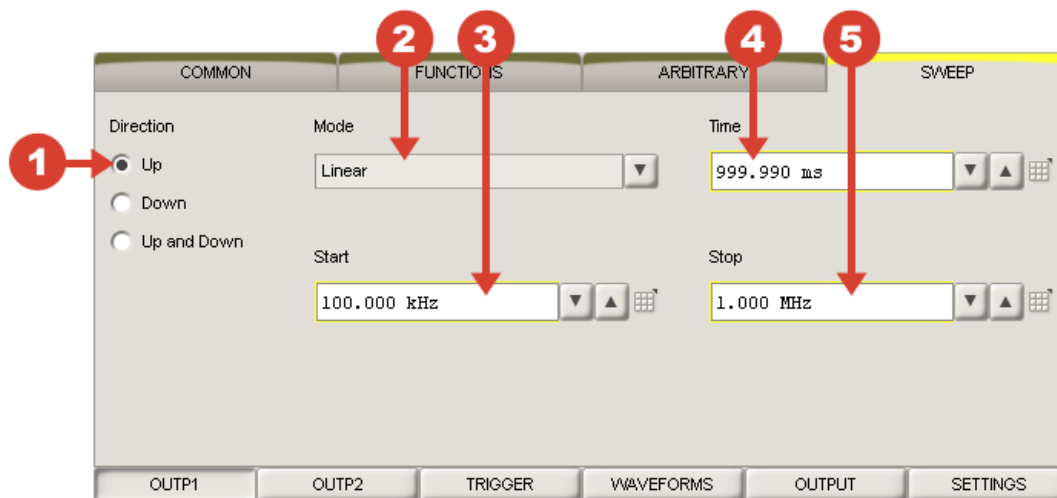


Figure 3.10: Output Sweep Tab

1 Direction

Select the direction that the frequency sweeps in: Up, Down, or Up and Down.

2 Mode

Set the sweep mode. The sweep mode, or spacing, is the way that sweep frequencies are calculated: linear or logarithmic.

3 Start

Set the sweep start frequency.

4 Time

Set the amount of time to complete an entire sweep cycle.

5 Stop

Set the sweep stop frequency.

Burst Mode

Palette Tabs: *TRIGGER: BURST*

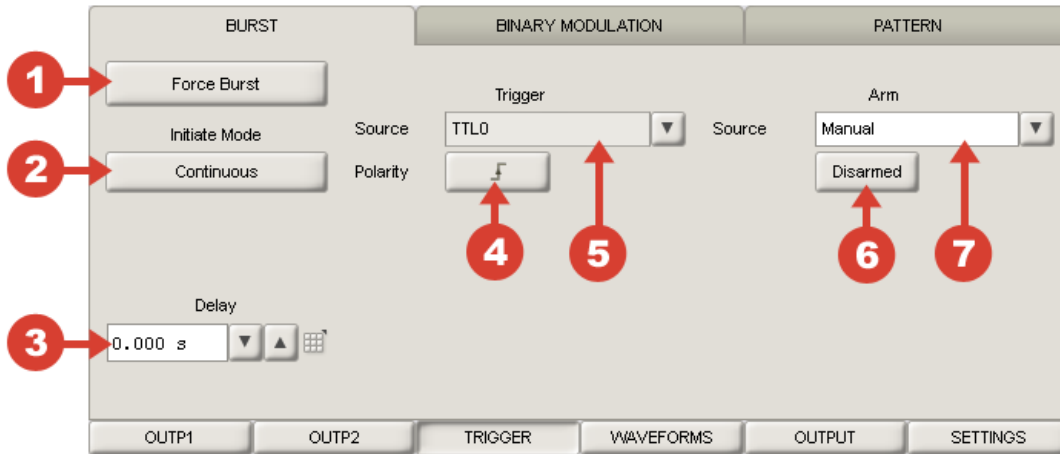


Figure 3.11: Trigger Burst Tab

- 1 Force Burst**
Force the instrument to immediately burst regardless of Trigger and Arm conditions.
- 2 Initiate Mode**
Select the initiate mode; in Continuous mode the instrument will continue bursting as long as trigger events occur; in Single mode, the instrument will cease bursting after a single trigger event.
- 3 Delay**
Set a delay between trigger events and waveform output.
- 4 Trigger Polarity**
Select the trigger polarity: rising or falling edge.
- 5 Trigger Source**
Select the trigger event source.
- 6 Arm State**
Manually control the arm state when the source is set to manual.
- 7 Arm Source**
Select the arm source.

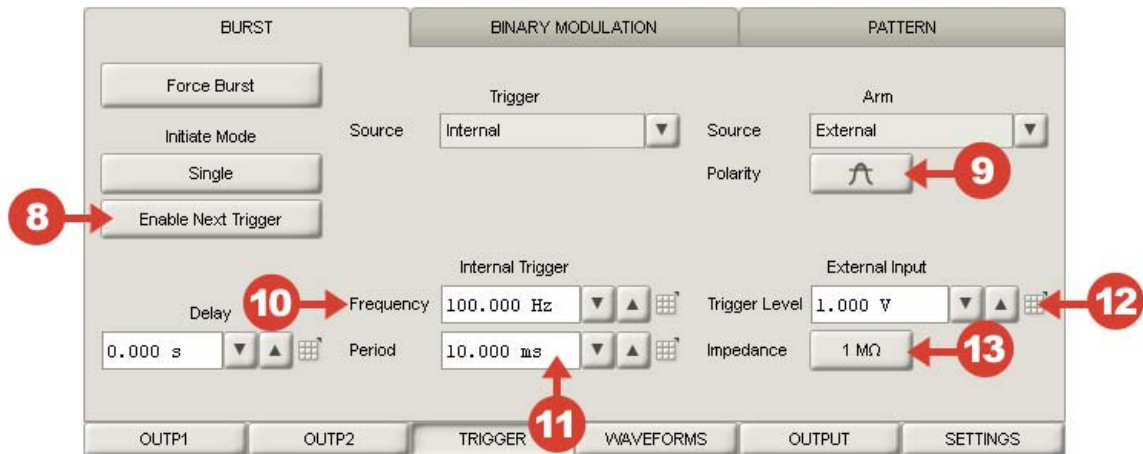


Figure 3.12: Trigger Burst Tab Alternate View

- 8 Enable Next Trigger**
 Enable another trigger event. When initiate mode is set to single, this allows a new burst to occur on the next trigger even if a single event has already occurred.
- 9 Arm Polarity**
 Select the arm polarity: positive or negative.
- 10 Internal Trigger Frequency**
 Set the frequency of internal trigger events.
- 11 Internal Trigger Period**
 Set the period between internal trigger events.
- 12 External Trigger Level**
 Set the trigger level for external signals.
- 13 External Impedance**
 Select the impedance of the external trigger signal.

Binary Modulation Mode

Palette Tabs: *TRIGGER: BINARY MODULATION*

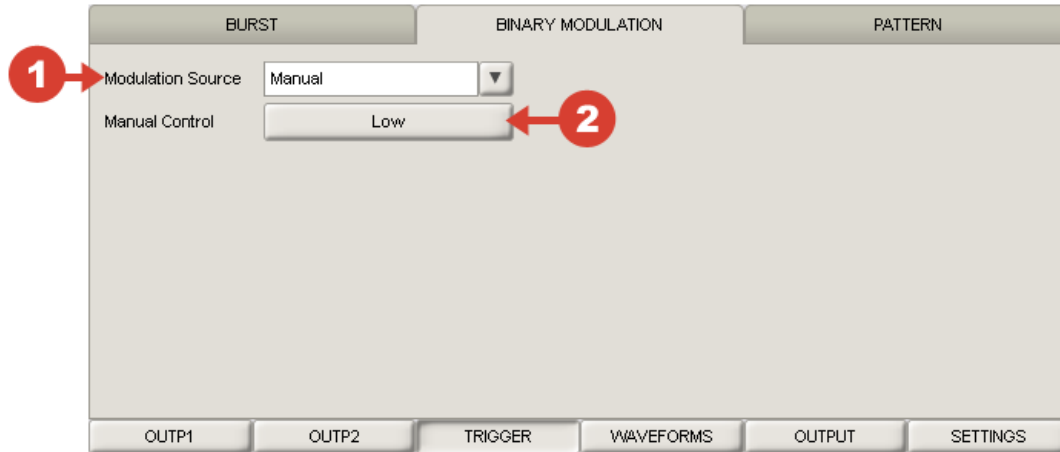


Figure 3.13: Trigger Binary Modulation Tab

1 Modulation Source

Select the modulation source.

2 Manual Control

Manually change the modulation state when the source is set to Manual.

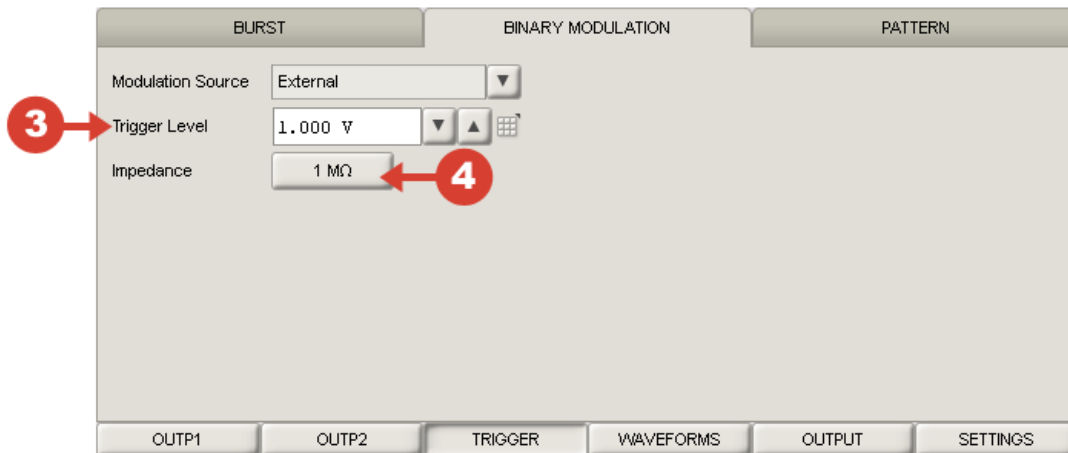


Figure 3.14: Trigger Binary Modulation Tab External Controls

- 3 External Trigger Level**
Set the trigger level for external signals.

- 4 External Impedance**
Select the impedance of the external trigger signal.

Pattern Trigger

Palette Tabs: *TRIGGER:PATTERN*

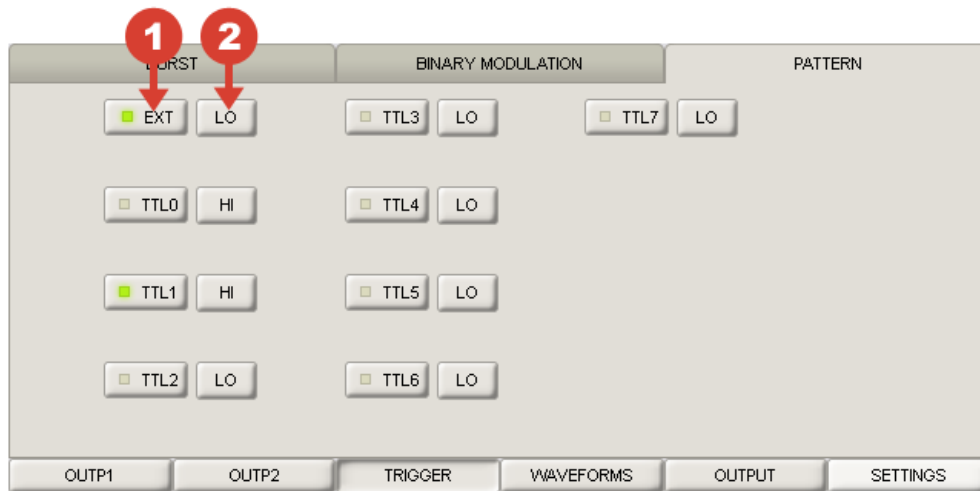


Figure 3.15: Trigger Pattern Tab

- 1 Mask**
Select whether the trigger source is used for pattern triggering
- 2 Truth**
Select the active state for pattern triggering: high or low.

Waveform Library

Palette Tabs: *WAVEFORMS:LIBRARY*

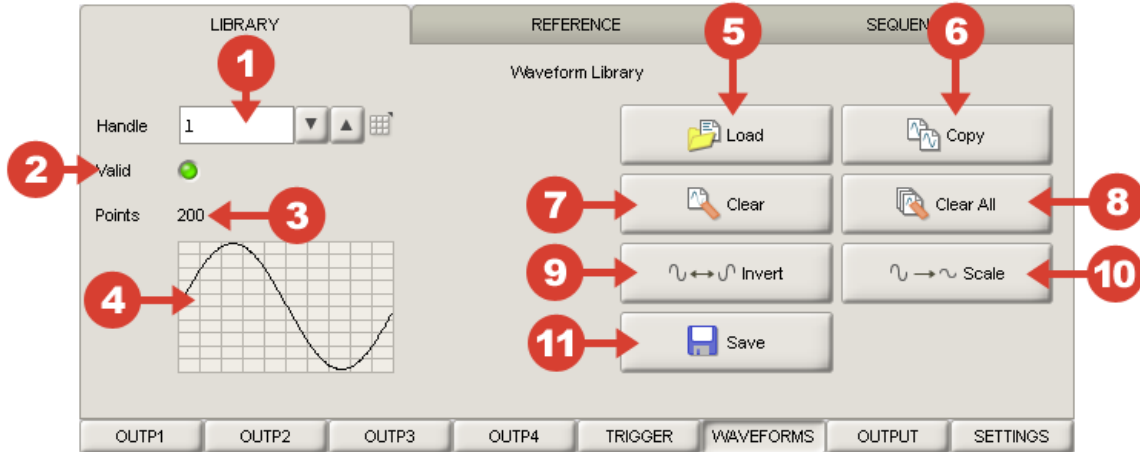


Figure 3.16: Waveform Library Tab

- 1 Handle**
Select which waveform handle to view information about.
- 2 Valid**
The valid LED indicates whether there is a valid waveform at the selected handle location.
- 3 Points**
The points display indicates the number of data points in the selected handle location.
- 4 Waveform Preview**
The waveform preview displays a preview of the waveform data in the selected library location. For a larger view, use the waveform viewer.
- 5 Load**
Load a waveform from a comma separated value file to the waveform library. Sample waveforms are included with the installation package.
- 6 Copy**
Copy the selected waveform to an output channel, reference channel, or to a second library location.
- 7 Clear**
Clear the currently selected handle location.

- 8 Clear All**
Clear the entire waveform library.
- 9 Invert**
Invert the waveform data in the selected handle location.
- 10 Scale**
Reduce the scale of the waveform in the selected handle location to a percentage of current.
- 11 Save**
Save the selected waveform data to a comma separated value file.

Reference Channels

Palette Tabs: *WAVEFORMS:REFERENCE*

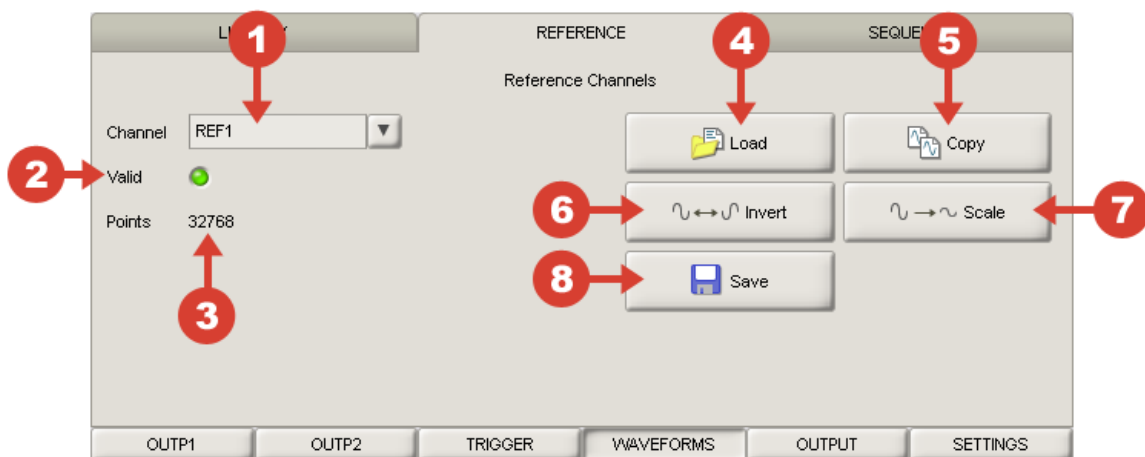


Figure 3.17: Waveform Reference Tab

- 1 Channel**
Select which reference channel to view information about.
- 2 Valid**
The valid LED indicates whether there is a valid waveform in the selected channel.

- 3 Points**
The points display indicates the number of data points in the selected channel.
- 4 Load**
Load a waveform from a comma separated value file to the selected channel. Sample waveforms are included with the installation package.
- 5 Copy**
Copy the selected waveform to an output channel, another reference channel, or to a library location.
- 6 Invert**
Invert the waveform data in the channel.
- 7 Scale**
Reduce the scale of the waveform in the selected channel to a percentage of current.
- 8 Save**
Save the selected waveform data to a comma separated value file.

Sequences

Palette Tabs: *WAVEFORMS:SEQUENCE*

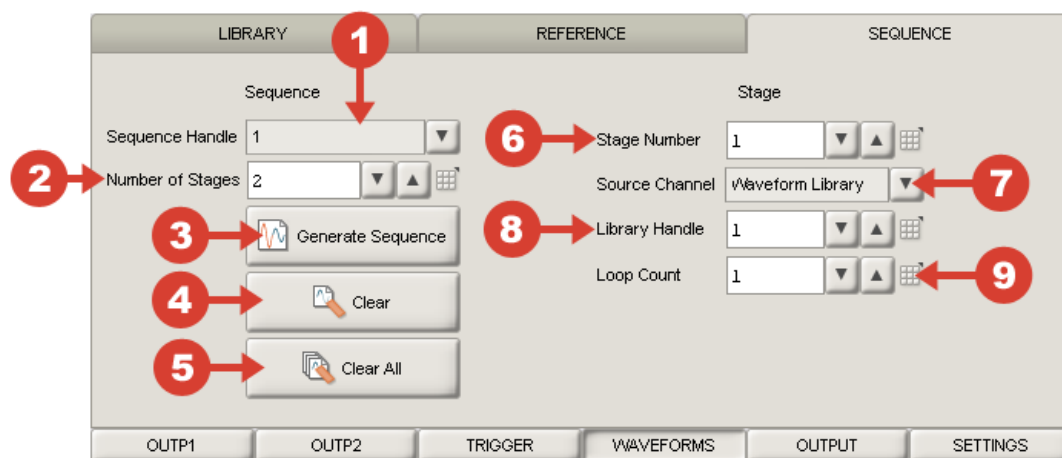


Figure 3.18: Waveform Sequence Tab

- 1 Sequence Handle**
Select a sequence handle to view and edit.

- 2 Number of Stages**
Select the sequence length in number of stages.
- 3 Generate Sequence**
Generate the defined sequence in an output channel
- 4 Clear**
Clear the current sequence setup.
- 5 Clear All**
Clear all sequence setups.
- 6 Stage Number**
Select a stage in the selected sequence to view and edit.
- 7 Source Channel**
Select a channel containing the waveform to use as the stage source.
- 8 Library Handle**
Select the source library handle when Waveform Library is selected as the source channel.
- 9 Loop Count**
Set the number of times the stage is repeated in the sequence before moving to the next stage.

External Output

Palette Tabs: *OUTPUT:EXTERNAL OUT*

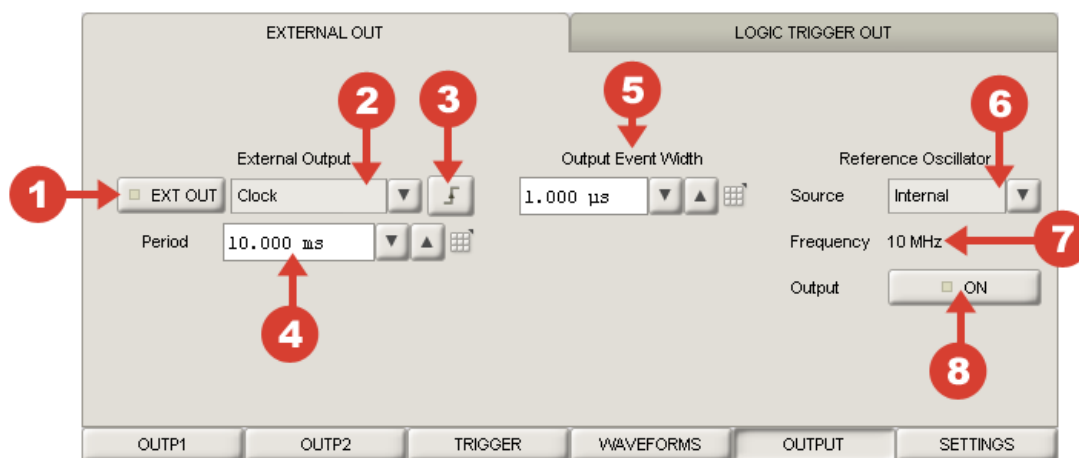


Figure 3.19: Output External Out Tab

- 1 External Output Enable**
Enable or disable the external output.
- 2 External Output Source**
Select the source for the external output wave; see the instrument manual for source descriptions.
- 3 External Output Polarity**
Select the external output wave's polarity.
- 4 External Output Pulse Period**
Set the pulse period for clock and pulse output waves.
- 5 Output Event Width**
Set the pulse width for event driven output pulses; this is used for TTL, ECL and the external output.
- 6 Reference Oscillator Source**
Select the source for the reference oscillator clock: Internal, External or Clock10.
- 7 Reference Oscillator Frequency**
The frequency indicator displays the current reference oscillator frequency.
- 8 Reference Oscillator Output Enable**
Enable the reference oscillator output. This is available for PCI instruments only.

Logic Trigger Output

Palette Tabs: *OUTPUT:LOGIC TRIGGER OUT*

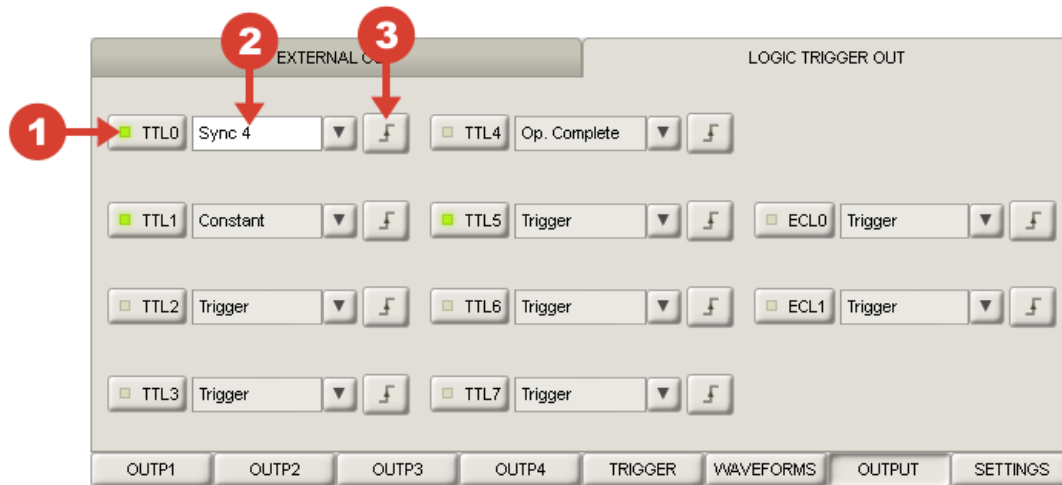


Figure 3.20: Output Logic Trigger Out Tab

- 1 Output Enable**
Enable or disable the output.
- 2 Output Source**
Select the source for the output wave; see the instrument manual for source descriptions.
- 3 Output Polarity**
Select the output wave's polarity.

Save/Recall

Palette Tabs: *SETTINGS:SAVE/RECALL*

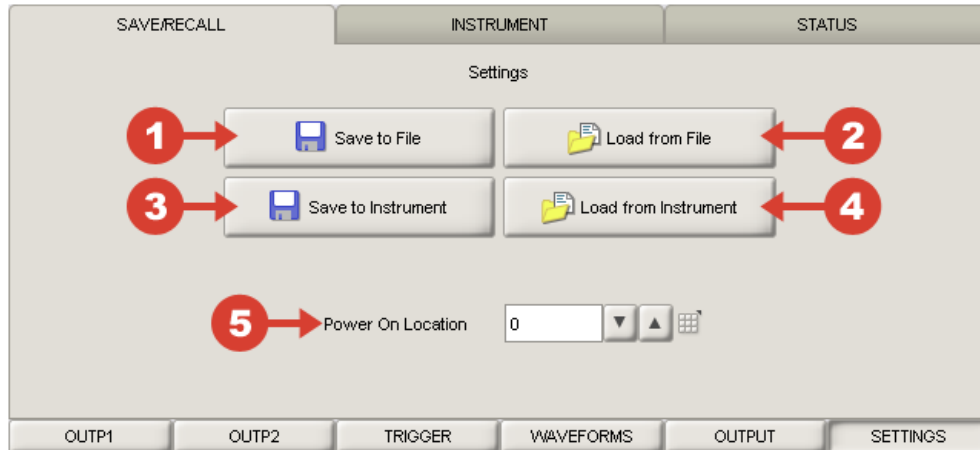


Figure 3.21: Settings Save/Recall Tab

- 1 Save to File**
Save the current instrument settings to a comma separated values file.
- 2 Load from File**
Load instrument settings from a comma separated values file.
- 3 Save to Instrument**
Save the current instrument settings to an instrument memory location: 1-14.
- 4 Load from Instrument**
Load instrument settings from an instrument memory location: 1-14.
- 5 Power On Location**
Select an instrument memory location to load on instrument power on. States 1-14 are previously saved instrument states, state 0 is default reset conditions.

Instrument

Palette Tabs: *SETTINGS:INSTRUMENT*

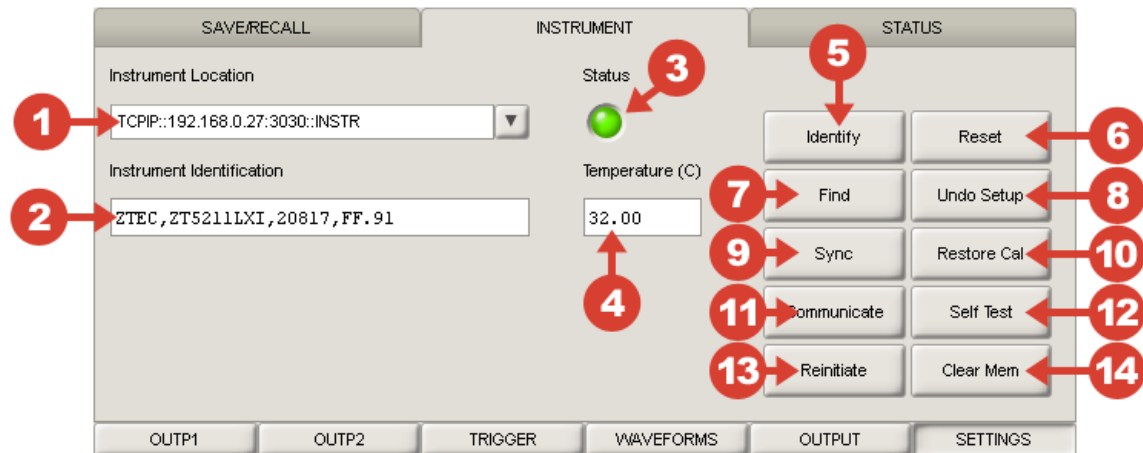


Figure 3.22: Settings Instrument Tab

1 Instrument Location

Select the location of the instrument that the panel is talking to. To add LXI instruments that are not in the list, close the ZWaveM[®] interface and use the *Add* utility in ZFind[™]; see the *Adding an Instrument* section of the ZFind[™] User's Guide for more detail. Instruments may also be selected when launching ZWaveM[®] from the command-line. LXI instruments still need to be added in ZFind[™] to use them through this feature. To select an instrument from the command-line, simply type the resource string as an argument. For example, to select a VXI instrument, the command may be as follows:

```
ZWaveM VXI0::19::INSTR
```

2 Instrument Information

This area displays information describing the instrument.

3 Status

This LED indicates the instrument communication status. A red LED indicates that the instrument communication session has failed.

4 Temperature

This is a display of the instrument temperature in degrees Celsius.

5 Identify Self

Cause the instrument's HST (PCI, PXI and VXI) or LAN (LXI) light to flash.

- 6 Reset**
Reset all instrument settings.
- 7 Find**
Refresh the list of instruments in the Instrument ID pull down.
- 8 Undo Setup**
Undo an instrument reset or state recall.
- 9 Sync**
Update all panel values with current instrument state.
- 10 Restore Calibration**
Return instrument to factory calibration settings. This operation may take several minutes.
- 11 Communicate**
Attempt to establish an instrument communication session.
- 12 Self Test**
Perform an instrument self test. Self test results can be viewed in the *SETTINGS:STATUS* tab in the Status register. *This* operation may take several minutes.
- 13 Reinitiate**
Reinitiate instrument output. This is useful since during waveform adjustment the channels may become unsynchronized. Reinitiating will restart all channels at the same time, which will cause all channels that are the same play length to synchronize. Other factors such as filters and cables may still affect channel-to-channel skew.
- 14 Clear Memory**
Clear flash memory including reference channels.

Status

Status controls allow a direct view to the instrument status register bits. This is meant to be an aid to advanced instrument users only.

PaletteTabs: *SETTINGS:STATUS*

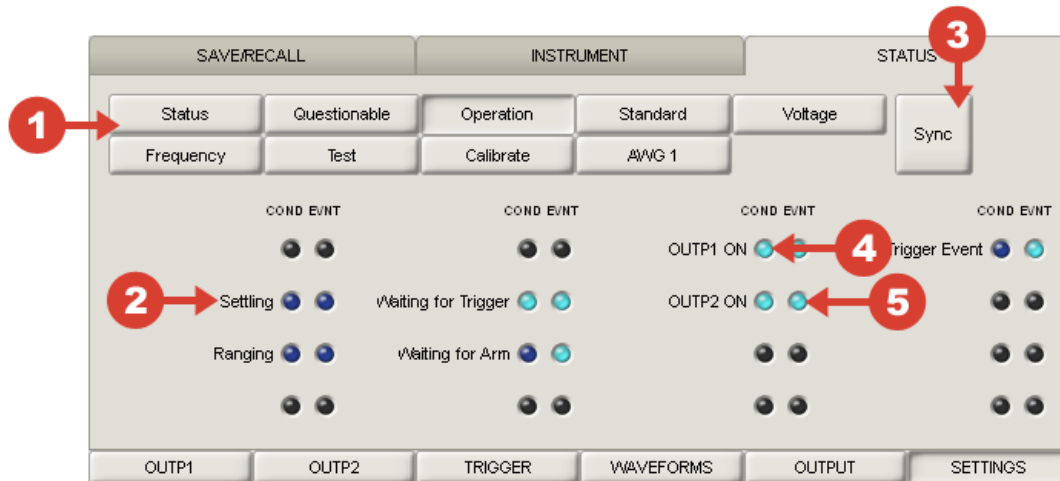


Figure 3.23: Status Palette Controls

- 1 Register Select**
Select the status register to view.
- 2 Bit Label**
The text describes the parameter whose status is stored in the register.
- 3 Sync**
Retrieve the current status from the instrument. The instrument status is only read when requested because the event bits are cleared when read. This control will update all status registers, not only the currently viewed one.
- 4 Condition**
The LED indicates the parameter's condition status. A bright LED indicates a high bit, dim indicates a low bit, and black indicates an unused bit.
- 5 Event**
The LED indicates the parameter's event status. A bright LED indicates a high bit, dim indicates a low bit, and black indicates an unused bit.

Waveform Viewer



The Waveform Viewer shows the current waveform data in the output and reference channels. To view waveform data, enable the desired channel's display then update the plot. The plot can be closed, undocked and moved to other dock locations in the main window. To automatically re-dock the palette, simply double-click on the title bar or select "Dock Waveform Viewer" in the toolbar. If the plot is closed, it can be opened through the view menu in the toolbar or by typing Ctrl+W.

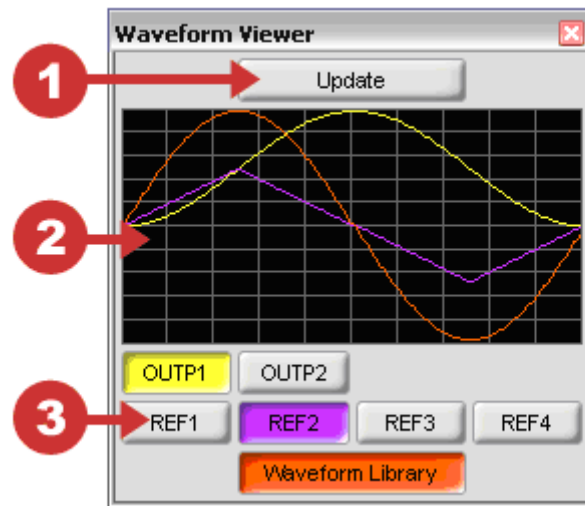


Figure 4.1: Waveform Viewer

1 Update

Update the waveform display. Waveforms do not update unless requested. The graph can also be updated by pressing F5.

2 Display

A visual display of the selected waveforms. Waveforms are shown with all points and at full scale. There is no scale information since voltage and time are determined when the waveform is played.

3 Display Enable

Select which channel displays are active. Enabled output channels cannot be downloaded, and are temporarily disabled when the waveform viewer is updating. When Waveform Library display is enabled, the current library location selected in *WAVEFORMS:LIBRARY* is displayed.

Toolbar



The application toolbar provides useful tools and shortcuts.

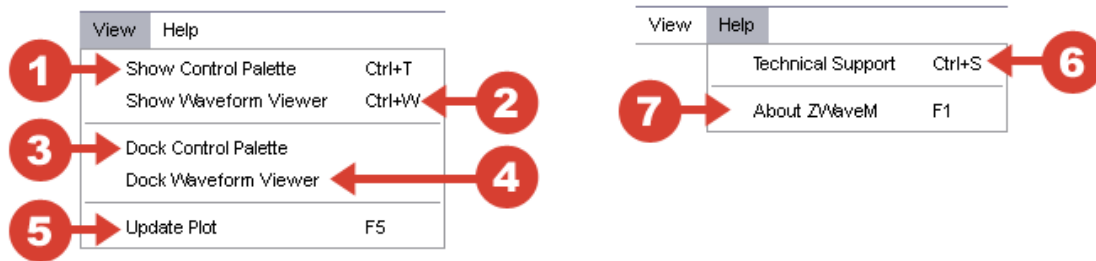


Figure 4.1: Toolbar

- 1 Show Control Palette**
Show the tabbed Control Palette.
- 2 Show Waveform Viewer**
Show the Waveform Viewer.
- 3 Dock Control Palette**
Dock the tabbed Control Palette.
- 4 Dock Waveform Viewer**
Dock the Waveform Viewer.
- 5 Update Plot**
Update the Waveform Viewer waveforms.
- 6 Technical Support**
Open the ZTEC[®] technical support site.
- 7 About**
Display additional identification and version information.



ZTEC[®] Instruments