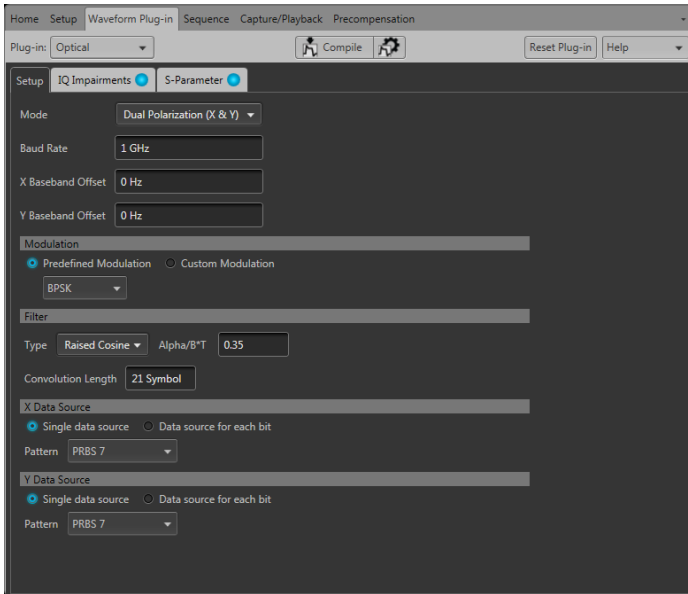# Tektronix®

Applications for AWG70000A Series and SourceXpress®

Optical Signals Datasheet

The Tektronix Optical Signals Plug-in is a waveform creation tool that is optimized for the generation of waveforms with complex modulation schemes for the purpose of testing optical communications components and other devices.

The Optical Signals Plug-in integrates into both the SourceXpress waveform creation platform and the AWG70000A series arbitrary waveform generator.

Key features

- Simple definition of single or dual polarization modulation
  - Easily define complex dual polarization modulation schemes with separately configured baseband data. Independently adjust baseband offset for both X and Y data streams.

- Pre-loaded access to commonly used modulations
  - Define optical waveforms using a variety of predefined modulation schemes such as, BPSK, QPSK, OQPSK, OOK, NRZ, up to 8 PAM, and up to QAM1024 - including QAM8.

- Support for Custom Modulation
  - Define custom constellation points (IQ Symbols/ Magnitude Phase) or modify pre-defined constellation points.

- Flexible data source selection
  - Generate data streams from variety of predefined patterns, a PRBS 31 generator, or define your own custom arbitrary data stream.

- S-Parameter emulation (requires license)
  - Scattering parameters can be directly convolved with the base pattern to recreate the channel characteristics. By applying an inverse filter, the effects of the channel can be de-embedded from the circuit. Cascading S-Parameters allows you to cascade up to six Touchstone files of the same format to emulate a cascaded channel.

- System level precompensation (requires license)
  - Compensate for the first and second Nyquist zones of the AWG. Define the LO frequency and choose to get correction coefficients for either lower side band or upper side band, as well as define the carrier frequency.
  - The pre-compensation plug-in works for a variety of modulations, waveform types, and applications including RF, IF, or IQ and NRZ signals IQ.

- Offline Mode
  - Plug-ins are designed to also run on an external PC via the SourceXpress PC application, thereby reducing the time taken to synthesize large waveforms and leaving the AWG70000A instruments free for continued testing.

- Seamless transition between design and playback
  - The easy to use graphical user interface integrates seamlessly with the Tektronix AWG70000A series user interface and the SourceXpress PC application.

- Designed for integration for automated test or manufacturing
  - The Optical Signal Plug-in has support for a Programmatic Interface, allowing for immediate integration into existing workflows.

Simplify optical signal creation

High speed telecommunications networks are moving towards faster and more complex modulated signals. The Tektronix Optical Signals Plug-in simplifies your waveform creation to reduce design iteration intervals and accelerate your solutions. Easily define single or dual polarization modulation schemes with user-defined or a variety of preloaded modulation formats including: BPSK, QPSK, OQPSK, OOK, NRZ, up to 8 PAM, QAM8 and many more. Select baseband data from a number of predefined patterns, user defined patterns or from a PRBS 31 generator. Define each N-bit word with symbols from N unique data streams.

Wide eyes, low jitter

The Optical Signals Plug-in uses both S-Parameter emulation and system-level Precompensation to deliver exceptionally clean signals with industry leading EVM numbers. S-Parameter emulation (separate software license required) allows you to de-embed your signal from any components found in your signal path. Precompensation (separate license required) compensates for the effects and roll off that occurs when working in the AWG's first and second nyquist zones to create pristine optical signals with wide eyes and low EVM figures.

Requirements

- Plug-in installed with SourceXpress on PC:
  - SourceXpress software version 5.2 or greater
  - PC operating systems: Windows 7 (64 bit), Windows 8 (64 bit), Windows 10 (64 bit)
- Plug-in installed on AWG70000A Series instrument:
  - AWG70000A firmware version 5.2 or greater

Ordering information

Models

OPTICALFL-SS01   Optical Signals plug-in with a floating license that can be reassigned to different Tektronix instruments or PCs.

OPTICALNL-SS01   Optical Signals plug-in with a node locked license tied to a single instrument or PC.

Information on the Optical Signals plug-in for SourceXpress or the AWG70000A Series along with free software download and trial licenses is available at www.tektronix.com/product-software/optical-plug-in.

An S-Parameter license is required to enable the S-Parameter feature of the Optical Signals application.

How to purchase

To purchase, visit the Tektronix web site to request a quote or contact your nearest sales representative.

Additional information

Refer to the SourceXpress web site (www.tek.com/sourcexpress) for information about:

- additional application plug-ins available for SourceXpress and the AWG70000A Series
- free software downloads and trial licenses

Licensing

Each application plug-in for SourceXpress and AWG70000A Series instruments requires the purchase of a license before they are fully functional. Some plug-ins may require additional licenses to unlock certain plug-in features. Licenses are managed within the Tektronix Asset Management System (Tek AMS). The Tek AMS web site address is www.tektronix.com/products/product-license. Product license management requires a login account.

There are two types of licenses available: node-locked (NL) and floating (FL).

- Node Locked Licenses provide your own copy of the application on your instrument or personal computer and are permanently assigned to a specific Hostid or product model/serial number.
- Floating licenses can be moved between different Hostids or product models.

Use the Tektronix Asset Management system to check in and check out floating licenses.

Certifications

Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.

Product(s) complies with IEEE Standard 488.1-1987, RS-232-C, and with Tektronix Standard Codes and Formats.

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