TE-5201
100 MS/s Arbitrary Waveform Generator

Features
- 100 MS/s clock
- 10 digits resolution
- Multiple instrument synchronization
- 14-bit vertical resolution
- 2 MS memory depth
- Ultra fast waveform downloads using DMA
- Low phase noise carrier
- Internal trigger generation
- Frequency agility: FSK, ramped FSK, sweep, FM
- Sequence generator controls 128k segments

Introduction

The TE5201 is a 100MS/s, full performance, arbitrary waveform generator on a 3U PXI form factor. The single channel AWG generates waveforms with up to 2 MS in length. Clock in/clock out connector provides a synchronized platform for up to six plug-in arbitrary generators, as well as for other plug-in instruments. Built in sequencing technology links up to 4096 memory segments and repeats each segment up to 32k times.

Specifications

Number of Output Channel: 1

Multiple Instrument Synchronization
- Description: Multiple instruments can be connected together and synchronized to provide multi-channel synchronization
- Sample Clock
  - Source: From Master card to slave boards through the local bus
  - Range & Resolution: Same as Sample Clock range and resolution
  - Initial Skew:<15 ns to the first master;15 ns cumulative to additional slaves
- Sample Clock: Internal
  - Range: 50 S/Sec to 100 MS/Sec
  - Resolution: 10 digits limited by 1μHz
  - Accuracy: Same as reference
  - Stability: Same as reference
    - Standard
      System clock, > 0.01% (100 ppm)
    - Option
      System clock > 0.0001%(1 ppm TCXO) initial tolerance over a 19°C to 29°C temperature range ;1ppm/°C below 19°C and above 29°C ; 1ppm/year aging rate
    - External
      10 MHz TTL, 50% ±2% duty cycle

Sample Clock Modulation
- FM
  - Description: Sample clock can be frequency modulated by internal waveforms that are resident in internal memory (fixed waveforms)
  - Modulation Source: Internal sine square, triangle and ramp
  - Modulation Freq. Range: 2 mHz to 100 KHz
    - Resolution: 10 digits
    - Accuracy: 0.1%
  - Peak Freq. Deviation: DC 50 MHz

- Advance: Automatic, triggered, gated or software command
- Marker
  - Output and level same as SYNC output.
  - Position: Fixed at carrier frequency

FM-Downloaded Arbitrary Waveforms
- Description: Sample clock can be frequency modulated arbitrary waveforms that are downloaded by the user (user waveforms)
- Modulation Source: User waveform, any shape, 10 to 20000 waveform points
- Mod. Sample Clock Range:1mS/Sec
  - Resolution: 7 digits
  - Accuracy: 0.1%
- Peak Sample Clock Dev: DC to100 MHz
- Advance: Automatic, triggered, gated or software command
- Marker:
  - Output and Level: Same as SYNC output
  - Position: Programmable for selected sample clock frequency
- Waveform Download: 5M points per second.

FSK
- Description: Current segment is sampled continuously. External low TTL level programs carrier sample clock, external high TTL level programs shifted sample clock frequency. Sample clock changes coherently between frequencies. FSK operates in arbitrary waveforms only.
- Carrier Sample Clock Range: 50 S/Sec to 100 MS/Sec
- FSK Stimuli

- External: Front panel Trigger input BNC
- Low level =carrier sample clock
- High level =hop frequency
- Frequency: Range From 10 MHz to DC
- Internal: Same as internal trigger range
- FSK Delay: Minimum 1 waveform cycle +50 ns

Ramped FSK
- Description: Same as FSK except carrier sample clock ramps to shifted frequency at a rate defined by the ramp time parameter. External low TTL level programs carrier sample clock, external high TTL level programs shifted frequency
- Ramp Time Range 10μS to 1S, 3 digits, ±0.1%

Sweep
- Description: Sample Clock sweeps continuously from start to stop, at a rate defined by the sweep time. More complex sweep modes and types can be generated using the FM mode in conjunction with the FM composer program
- Type: Linear or logarithmic
- Direction: Up or down, depending on the start and stop setting

* All specifications are subject to change without further notice.