TECHNICAL DATA SHEET

VX Instruments
the test solutions provider

PXA(e)72xx
Arbitrary Waveform Generator Family



PXI
VXI
LAN
cPCI
PXIe
GPIB
USB
RS232
485
external
PCIe

Features

- Output voltages up to +30 V or ±15 V
- Up to 200 MS/s with 16 Bit resolution
- Fully isolated design with up to two independent channels
- Complex waveform sequencing
- Multiple instrument and channel synchronization possibilities
- High configurable trigger engine
- On the fly amplitude and offset changing
- Two additional marker outputs
- Wide range of sample rates due to programmable internal PLL
- High bandwidth
- Available with PXI or PXI Express interface
- Based on VX Instruments FlexCPeP for easy custom design

Product Information

Flexible Configurable PXI(e) Platform

This family of Arbitrary Function Generators is based on the "Flexible Configurable PXI(e) Platform" (FlexCPeP). This platform allows many variations of customer configured Arbitrary Function Generators.

High speed, high resolution arbitrary waveform generator

The PXA(e)72xx ArbGen family features up to two simultaneously working channels with up to 200 MS/s, 16 Bit resolution and an output voltage up to +30 V or ±15 V.
Every channel is equipped with up to 16 MB memory. The whole amount of up to 8 million samples can be partitioned into one or more waveform segments.
Depending on the number of channels and the floating option, the Arbitrary Function Generators are built into a compact 3U PXI(e) device for 1 or 2 slots.

Built-in waveform functions

Predefined waveforms (DC, sine, square, triangle, sawtooth) can be configured via software driver. Furthermore it is possible to load a user-created waveform.

Fully independent channels

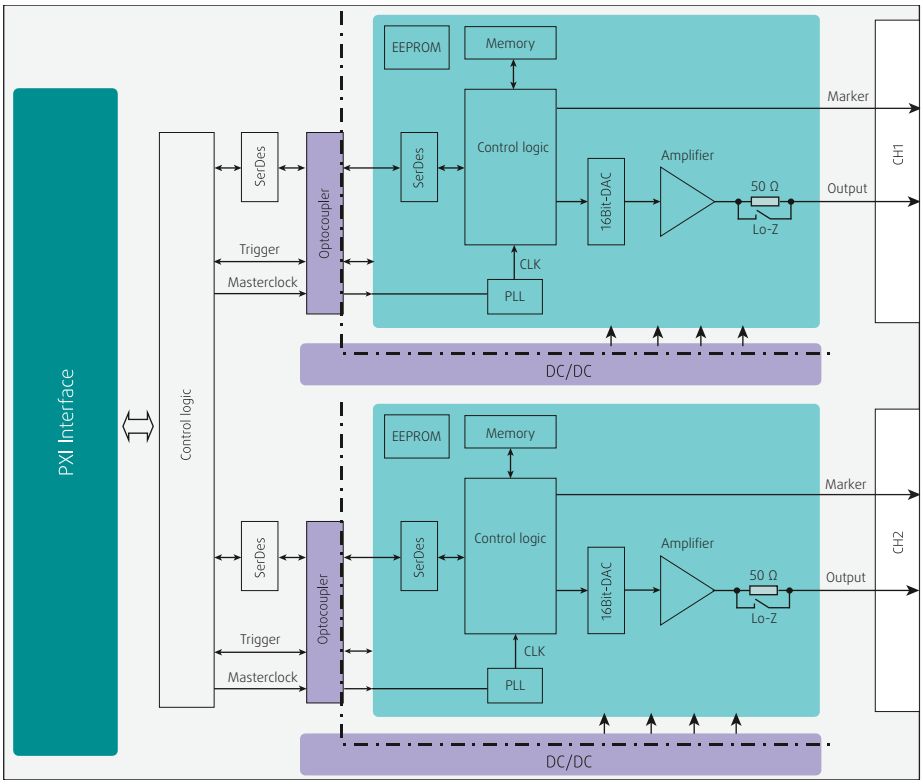
Each channel has its own clock-PLL, memory and state machine for START, STOP, TRIGGER, SAMPLING and SEQUENCING. This guarantees the two channels to work completely independent. The great amount of trigger capabilities results in multiple sophisticated instrument and channel synchronization possibilities.

Complex waveforms without memory reloading

Arbitrary waveforms can be loaded via data files into the on-board memories for up to 8 MS waveform data and 512 sequences. The memory can be segmented and sequenced in any desired order.
Furthermore, amplitude and offset can be changed on the fly without writing new data into the memory.

High output voltages allows easy stimulation

The standard output voltage is ±15 V (30 Vpp). With an optional extension the output stage can be switched to achieve output voltages up to +30 V into high impedance load. This allows high voltage waveform stimulation without additional signal conditioning.



General Specification

General	Specification	Comment
Module size	1 slot, 3U 2 slots, 3U	PXA(e)72x1, PXA(e)72x2, PXA(e)72x3 PXA(e)72x4
Module weight	<0.4 kg <0.6 kg	PXA(e)72x1, PXA(e)72x2, PXA(e)72x3 PXA(e)72x4
Front connector type	SMA	
Operating temperature	0 ... 40°C	
Operating altitude	<2 000 m	
Relative humidity	Up to 85% at 35°C	
Storage temperature range	-25 ... 70°C	
Electrical safety	According EN61010-1	
Isolation output to PE	60 V CAT I, Pollution Degree 2	

Electrical Specification

Waveform	Specification	Comment
Output voltage resolution	16 Bit	
Output impedance	50 Ω or Lo-Z (≈10 Ω)	$R_{out;}$ Software selectable
Output voltage ranges		Software selectable
Range 1	±2.5 V	
Range 2	±5.0 V	
Range 3	±10 V	
Range 4	±15 V	
Range 5	0 ... 10 V	Additionally with option EXTVOLT
Range 6	0 ... 20 V	Additionally with option EXTVOLT
Range 7	0 ... 30 V	Additionally with option EXTVOLT
Max. output current		
Range 1 ... 3	100 mA_p	
All other ranges	30 mA_p	
AC bandwidth[1]		
Range 1+2	40 MHz (3 dB)	R_{load}= 50 Ω; R_{out}= 50 Ω or Lo-Z
All other ranges	10 MHz (3 dB)	R_{load}= 1 kΩ
Slew rate	>200 V/µs	For all ranges; into Hi-Z
DC accuracy		For all ranges; into Hi-Z
DC Offset	<0.2% of full scale	
DC Gain	<0.2% of value	
Waveform memory	2 MB, 1 MS	Standard
	4 MB, 2 MS	With option MEM 4MB
	8 MB, 4 MS	With option MEM 8MB
	16 MB, 8 MS	With option MEM 16MB

Time Base	Specification	Comment
Accuracy	50 ppm, 1 ppm with option TCXO	In operating temperature range
Aging per year	5 ppm, 1 ppm with option TCXO	
Sampling frequency	0.10 S/s ... 100 MS/s 0.10 S/s ... 200 MS/s	PXA(e)722x PXA(e)724x
Output frequency resolution	100 ppm	Of programmed value (frequency)

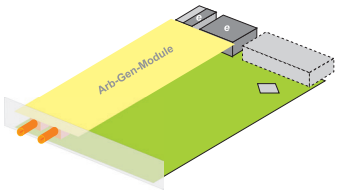
[1] At 50% amplitude of chosen range.

Notes: All product data are specified for 1 year at an ambient temperature of 23°C ±5°C (after 1hour warm-up time).
Product specification and description in this document are subject to change without notice.

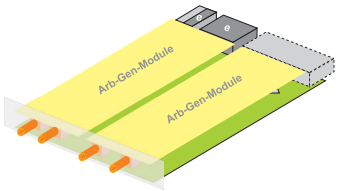
Trigger System	Specification	Comment
Input from		
Internal function module	One function module can trigger the other channel	E. g. trigger on marker-bit
Software	Via software command	
PXI trigger	Trigger 0 ... 7 and star trigger	From the PXI backplane
Output to		
Internal function module	Output to the other channel	E. g. marker-bit
PXI trigger	Output of each channel trigger source to the trigger lines of the PXI backplane	
System delay	Max. 1 sample clock + 120 ns	Trigger to waveform output

Marker Output	Specification	Comment
Output voltage	TTL	TTL output via SMA front connector
Output current (low state)	25 mA	
Output current (high state)	25 mA	

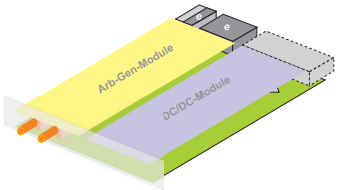
PXI Capabilities	Specification	Comment
PXI 10 MHz usage	On request	Then time base accuracy depends on PXI rack
PXI trigger usage	Supported	PXI trigger 0 ... 7; input and output
PXI star trigger usage	Supported	Input only



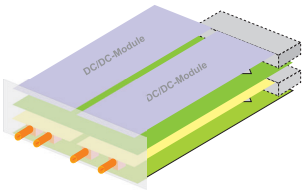
PXA(e)72x1
1 channel non-isolated ArbGen in 1 slot



PXA(e)72x2
2 channel non-isolated ArbGen in 1 slot



PXA(e)72x3
1 channel isolated ArbGen in 1 slot



PXA(e)72x4
2 channel isolated ArbGen in 2 slots

Ordering Information

Ordering Option	Comment
PXAe722x	100 MS/s, PXI Express interface
PXAe724x	200 MS/s, PXI Express interface
PXA722x	100 MS/s
PXA724x	200 MS/s
Option MEM 4MB	4 MB Memory

Ordering Option	Comment
Option MEM 8MB	8 MB Memory
Option MEM 16MB	16 MB Memory
Option EXTVOLT	Extended output voltage range
Option TCXO	Temperature compensated crystal oscillator

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