







## OR-X DDS FUNCTION - ARBITRARY GENERATORS

MODEL	OR-X 325	OR-X 350	OR-X 630	OR-X 640	OR-X 660	OR-X 662
						
<b>SPECIFICATIONS</b>						
Description	Function Direct Digital Synthesis Graphic LCD	Function and Arbitrary Direct Digital Synthesis Graphic LCD	Function and Arbitrary Direct Digital Synthesis Graphic LCD	Function and Arbitrary Direct Digital Synthesis Graphic LCD	Function and Arbitrary Direct Digital Synthesis Graphic LCD	Dual-channel Version of OR-X 660
<b>Frequency Characteristics</b>						
Sine and Square	<b>0.01Hz ÷ 15 MHz</b>	<b>0.01Hz ÷ 20 MHz</b>	<b>10 uHz ÷ 31 MHz</b>	<b>1 uHz ÷ 40 MHz</b>	<b>1 uHz ÷ 50 MHz</b>	<b>1 uHz ÷ 50 MHz</b>
Triangle and Ramp	0.01Hz ÷ 2MHz	0.01Hz ÷ 2MHz	10 uHz ÷ 500 kHz	1 uHz ÷ 5 MHz	1 uHz ÷ 5 MHz	1 uHz ÷ 5 MHz
Pulse	-	-	0.5 mHz ÷ 10 MHz	0.5 mHz ÷ 5 MHz	0.5 mHz ÷ 25 MHz	0.5 mHz ÷ 25 MHz
Resolution	5 digits	6 digits	10 digits	12 digits	12 digits	12 digits
Accuracy	0.005%	0.005%	0.002%	0.001%	0.001%	0.001%
<b>Arbitrary Characteristics</b>						
Waveform Length	-	<b>2 ÷ 1,000 points</b>	<b>2 ÷ 500,000 points</b>	<b>2 ÷ 1,000,000 points</b>	<b>2 ÷ 4,000,000 points</b>	<b>2 ÷ 4,000,000 points</b>
Vertical Resolution	-	12 bits	12 bits	14 bits	14 bits	14 bits
Sample Rate	-	20 ns ÷ 50 s	20 ns ÷ 50 s	12.5 ns ÷ 100 s	8 ns ÷ 100 s	8 ns ÷ 100 s
Max. Sampling Frequency	-	50 MHz	50 MHz	80 MHz	125 MHz	125 MHz
<b>Operating Modes</b>						
Continuous	Repetitive	Repetitive	Repetitive	Repetitive	Repetitive	Repetitive
Triggered - Gated	2MHz	10MHz in ARB, 3MHz in DDS	10MHz in ARB, 5MHz in DDS	20MHz in ARB, 10MHz in DDS	20MHz in ARB, 10MHz in DDS	20MHz in ARB, 10MHz in DDS
Burst	-	2-65,635 cycles	2-99,999 cycles	2-999,999 cycles	2-999,999 cycles	2-999,999 cycles
Variable Phase	-	-	-360° ÷ 360°, 0.1° resolution	-360° ÷ 360°, 0.1° resolution	-360° ÷ 360°, 0.1° resolution	-360° ÷ 360°, 0.1° resolution
<b>Output Characteristics</b>						
Amplitude Range (50 ohm)	10 mV - 10 V p-p	10 mV - 10 V p-p	10 mV - 10 V p-p	10 mV - 10 V p-p	10 mV ÷ 10 V p-p	10 mV ÷ 10 V p-p
Units	Volts p-p	Volts p-p	Volts p-p	Vp-p, Vrms, dBm	Vp-p, Vrms, dBm	Vp-p, Vrms, dBm
Offset Range	± 4.5 V	± 4.5 V	± 4.5 V	± 5 V	± 5 V	± 5 V
<b>Waveform Characteristics</b>						
Harmonic Distortion	-50 dBc, DC ÷ 20kHz -45 dBc, 20kHz ÷ 100kHz	-55 dBc, DC ÷ 20kHz -50 dBc, 20kHz ÷ 100kHz	-60 dBc, DC ÷ 100kHz -45 dBc, 100kHz ÷ 1MHz	-65 dBc, DC ÷ 20kHz -60 dBc, 20kHz ÷ 100kHz	-65 dBc, DC ÷ 20kHz -60 dBc, 20kHz ÷ 100kHz	-65 dBc, DC ÷ 20kHz -60 dBc, 20kHz ÷ 100kHz
Spurious	-40dBc, 100kHz ÷ 1MHz -30dBc, 1MHz ÷ 20MHz	-40dBc, 100kHz ÷ 1MHz -30dBc, 1MHz ÷ 20MHz	-35dBc, 1MHz ÷ 15MHz -25dBc, 15MHz ÷ 31MHz	-45dBc, 100kHz ÷ 5MHz -30dBc, 5MHz ÷ 40MHz	-45dBc, 100kHz ÷ 5MHz -30dBc, 5MHz ÷ 50MHz	-45dBc, 100kHz ÷ 5MHz -30dBc, 5MHz ÷ 50MHz
Square Rise/Fall times	<-60 dBc, DC ÷ 1 MHz < 25 ns	<-60 dBc, DC ÷ 1 MHz < 20 ns	<-60 dBc, DC ÷ 1 MHz < 12 ns	<-60 dBc, DC ÷ 1 MHz < 8 ns	<-60 dBc, DC ÷ 1 MHz < 6 ns	<-60 dBc, DC ÷ 1 MHz < 6 ns
Variable Duty Cycle	20% ÷ 80%, to 2 MHz	20% ÷ 80%, to 2 MHz	20% ÷ 80%, to 5 MHz 40% ÷ 60% to 20 MHz	20% ÷ 80%, to 10 MHz 40% ÷ 60% to 30 MHz	20% ÷ 80%, to 10 MHz 40% ÷ 60% to 30 MHz	20% ÷ 80%, to 10 MHz 40% ÷ 60% to 30 MHz

**Modulation Characteristics**

AM	0 ÷ 100%	0 ÷ 100%	0 ÷ 100%	0 ÷ 100%	0 ÷ 100%	0 ÷ 100%
FM	< 100% deviation	< 100% deviation	< 100% deviation	< 100% deviation	< 100% deviation	< 100% deviation
FSK	-	-	0.02 Hz ÷ 1 MHz	0.01 Hz ÷ 1 MHz	0.01 Hz ÷ 1 MHz	0.01 Hz ÷ 1 MHz
Modulating Waveform	Sine, Square, Triangle	Sine, Square, Triangle	Sine, Square, Triangle	Sine, Square, Triangle	Sine, Square, Triangle	Sine, Square, Triangle
Internal Modulation Frequency	400, 800, 1000, 3000 Hz	0.1 Hz ÷ 20 kHz	0.01 Hz ÷ 20 kHz	0.01 Hz ÷ 20 kHz	0.01 Hz ÷ 20 kHz	0.01 Hz ÷ 20 kHz
External Frequency	DC ÷ 20 kHz	DC ÷ 20 kHz	DC ÷ 20 kHz	DC ÷ 20 kHz	DC ÷ 20 kHz	DC ÷ 20 kHz

**Sweep Characteristics**

Sweep Shape	Linear and Logarithmic	Linear and Logarithmic	Linear and Logarithmic	Linear and Logarithmic	Linear and Logarithmic	Linear and Logarithmic
Sweep Time	10 ms ÷ 50 s	20 ms ÷ 100 s	20 ms ÷ 500 s	10 ms ÷ 500 s	10 ms ÷ 500 s	10 ms ÷ 500 s
Sweep Trigger	-	Int, Ext, Cont or Burst	Int, Ext, Cont or Burst	Int, Ext, Cont or Burst	Int, Ext, Cont or Burst	Int, Ext, Cont or Burst

**Inputs and Outputs**

Sync Outout	TTL pulse, 50 Ω	TTL pulse, 50 Ω	TTL pulse, 50 Ω	TTL pulse, 50 Ω	TTL pulse, 50 Ω	TTL pulse, 50 Ω
Trigger Input	TTL, 1kΩ	TTL, 1kΩ	TTL, 1kΩ	TTL, 10kΩ	TTL, 10kΩ	TTL, 10kΩ
Modulation Input	5Vp-p for 100% modulation	5Vp-p for 100% modulation	5Vp-p for 100% modulation	5Vp-p for 100% modulation	5Vp-p for 100% modulation	5Vp-p for 100% modulation
Reference Input-Output	-	-	10 MHz, TTL levels	10 MHz, TTL levels	10 MHz, TTL levels	10 MHz, TTL levels
ARB Marker Output	-	-	-	TTL Levels	TTL Levels	TTL Levels
External Summing Input	-	-	-	5Vp-p for full output	5Vp-p for full output	5Vp-p for full output

**General**

Interface	RS-232	RS-232	GPIB and RS-232	GPIB and RS-232	GPIB and RS-232	GPIB and RS-232
Power-off Store Memory	20 full instrument settings	20 full instrument settings	50 full instrument settings	50 full instrument settings	50 full instrument settings	50 full instrument settings
Power-off Arbitrary Memory	-	1,000 points	500 k points	1M points	1 M points	1 M points

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