

**INTRODUCTION**

Metravi DDS-1025/1060 Series function/arbitrary Waveform Generator adopts DDS technique into its design and is capable of generating accurate and stable waveforms with the resolution down to 1µHz. It is a type of function / arbitrary waveform generator with high performance-price ratio and multiple functions packed just into one instrument. The output is accurate, stable and pure with minimum distortion. The square wave offered is high in frequency and has a very fast rising and falling edges. Superb technical specifications, easy-to-use operating panel and humanized graphic display are all perfectly combined into DDS 1025/1060 model, making it possible to get your work done faster and more efficiently, and it is a versatile solution for your needs at present and in the future.



**GENERAL SPECIFICATIONS**

- 60 MHz ( or 25 MHz) sinewave out, down to 1µHz resolution for full frequency range.
- 25 MHz (or 5 MHz) pulse waveform with adjustable rise & fall time and duty cycle.
- 250MSa/s (or 125Msa/s) sample rate and 14-bit vertical resolution.
- 6-digit high precision meter that is compatible with TTL level signal
- Standard dual channels with independent output mode
- 1M (or 8K) arbitrary wave form memory and 48 waveforms non-volatile storage.
- Multiple modulation types : AM, FM, PM, ASK, FSK, PSK, PWM.
- Powerful software available to use in PC.
- 4.3 inch high-resolution TFT color display
- Standard Interfaces : USB Host, USB Device, optinal Lan.
- Dual channels can be applied at the same time or independently : internal/external modulation, internal/external.manual trigger.
- Support frequency sweep and burst output
- Ease-of-use multipurpose knob and numeric keypad

**Note :** Metravi DDS-1025/1060 in not equipped with LAN port.

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Type	DDS - 1060	DDS - 1025
Channel	Dual	Dual
Max. Frequency	60MHz	25MHz
Sample Rate	250MSa/s	125MSa/s
Waveforms	Sine, Square, Pulse, Ramp, Noise, DC, Arbitrary	
Working Modes	Gated, Continuous, Modulation, Sweep, Burst	
Modulation Types	AM, FM, PM, ASK, FSK, PSK, PWM	

### Waveform Characteristics

#### Sine Wave

Frequency Range	1μHz~60MHz	1μHz~25MHz
Resolution	1μHz	
Accuracy	90 days: ±50ppm, 1 year: ±100ppm (18°C~28°C)	
Harmonic Distortion (Typical Value)	Test Condition: utput power 0dBm	
	DC ~ 20kHz -70dBc	DC ~ 100kHz - 60dBc
	20kHz ~ 100kHz - 65dBc	100kHz ~ 1MHz - 50dBc
	100kHz ~ 1MHz - 50dBc	1MHz ~ 25MHz - 35dBc
Harmonic Distortion (Typical Value)	1MHz ~ 20MHz - 40dBc	
	20MHz ~ 60MHz - 35dBc	
Total Harmonic Distortin (Typical)	DC ~ 20kHz, 1Vpp<0.2%	
Spurious Signal (Non-Harmonic Typical)	DC ~ 10MHz, <-70dBc	DC ~ 1MHz, <-70dBc
	10MHz ~ 60MHz < -70dBc+6dB/octave	1MHz ~ 5MHz, <-40dBc
		5MHz ~ 25MHz, <-50dBc
Phase Noise (Typical)	1kHz Offset : -105dBc/Hz	
	10kHz Offset : -115dBc/Hz	
	100kHz Offset : -125dBc/Hz	

#### Square

Frequency Range	1μHz ~ 25MHz	1μHz ~ 5MHz
Resolution	1μHz	
Rise / Fall Time	< 13ns (typical value, 1kHz, 1Vpp)	< 24ns (typical value, 1kHz, 1Vpp)
Overshoot (Typical)	< 2%	
Symmetry (below 50% Duty Cycle)	1% of period +4ns	
Jitter (Typical)	1ns+ 100ppm of period	

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**Ramp**

Frequency Range	1 $\mu$ Hz ~ 400kHz	
Resolution	1 $\mu$ Hz	
None - linearity	<0.1% of Peak out (Typical, 1kHz, 1Vpp, 100% Symmetry)	
Symmetry	0.0% to 100.0%	

**Pulse**

Frequency Range	500 $\mu$ Hz ~ 52MHz	500 $\mu$ Hz ~ 5MHz
Resolution	1 $\mu$ Hz	
Pulse Width	20ns ~ 2000s	40ns ~2000s
Lead / Tail Time	12ns ~ 2ms	20ns ~ 2ms (typical 24ns)
Overshoot (Typical)	2%	
Jittering (Typical Value)	1ns+ 100ppm of period	

**Gaussian Noise**

Bandwidth	60MHz (-3dB), Typical	Bandwith 25MHz (03dB) Typical Value
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**DC Offset**

Range (Peak Value AC+DC)	$\pm$ 5V 50 $\Omega$	
	$\pm$ 10V (High Impedance)	
Offset Precision	$\pm$ (1% of offset setting +0.5% of ampltide +5mV)	

**Arbitrary Waveform Characteristics**

Frequency Range	1 $\mu$ Hz ~ 12MHz	1 $\mu$ Hz ~ 5MHz
Resolution	1 $\mu$ Hz	
Waveform Length	2 ~ 1M point	2 ~ 8k point
Vertical Resolution	14bits (including Sign)	
Sample Rate	250MSa/s	215MSa/s
Min. Rise / Fall Time	35ns, Typical	
Jitter (RMS, Typical)	6ns+30ppm	15ns+100ppm
Non-volatile Memory	48 waveform	

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Output Characteristics		
Amplitude Range	0 ~ 1MHz : 1mVpp ~ 10Vpp: 10MHz ~ 60MHz : 1mVpp ~ 5Vpp (50Ω)	
	0 ~ 10MHz : 2mVpp ~ 20Vpp: 10MHz ~ 60MHz : 2mVpp ~ 10Vpp (High Impedance)	
Accuracy (1kHz Sinewave)	±(1% of amplitude setting value ±2 mVpp)	
Amplitude Flatness (Relative to 1kHz Sine, 1Vpp/50Ω)	<200kHz    0.1dB	<100kHz    0.1dB
	200kHz ~ 60MHz    0.2dB	100kHz ~ 25MHz    0.2dB

Waveform Output	
Impedance	50Ω Typical
Insulation	Max.42Vpk to earth
Protection	Short-circuit Protection, All Front BNC Output Only

Modulation Type	
<b>AM</b>	
Carrier Waveforms	Sine, Square, Ramp, Arbitrary
Source	Internal / External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arbitrary
Modulating Frequency	2mHz ~ 50kHz
Modulating Depth	0% ~ 120%

FM		
Carrier Wave	Sine, Square, Ramp, Arbitrary	
Source	Internal / External	
Modulating Waveforms	Sine Wave, Square Wave, Ramp Wave, Noise, Arbitrary Wave	
Modulating Frequency	2mHz ~ 50kHz	
Frequency Deviation	1μHz ~ 30MHz	1μHz ~ 12.5MHz

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<b>PM</b>	
Carrier Waveforms	Sine, Square, Ramp, Arbitrary
Source	Internal / External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arbitrary
Modulation Frequency	2mHz ~ 50kHz
Phase Offset	0° ~ 360°

<b>ASK</b>	
Carrier Waveforms	Sine, Square, Ramp, Arbitrary
Source	Internal / External
Modulating Waveforms	Square Wave of 50% duty cycle
Modulation Frequency	2mHz~100kHz

<b>FSK</b>	
Carrier Waveforms	Sine, Square, Ramp, Arbitrary
Source	Internal / External
Modulating Waveforms	Square Wave of 50% duty cycle
Modulation Frequency	2mHz ~ 100kHz

<b>PWM</b>	
Carrier Waveforms	Pulse
Source	Internal / External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arbitrary
Modulation Frequency	2mHz ~ 50kHz
Phase width Deviation	0% ~ 49.99% of pulse width

<b>Frequency Sweep</b>	
Carrier Waveforms	Sine, Square, Ramp, Arbitrary
Mode	Linear, Logarithmic
Sweep Time	1ms ~ 500s ±0.1%
Trigger Source	Internal / External / Manual

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Burst	
Waveforms	Sine, Square, Ramp, Pulse, Noise, Arbitrary
Type	Conuted (1 ~ 50000 Cycle), Infinite, Gated
Start Phase	-360° ~ +360°
Internal Period	1us ~ 500s ±1%
Gated Source	External Trigger
Trigger Source	Internal, External, Manual

Sync Output	
Output Level	TTL-Compatible
Output Frequency	1uHz ~ 60MHz   1uHz ~ 25MHz
Output Impedance	50Ω, Typical
Coupling	DC

Connectors on the Rear Panel	
Modulation Input	±5Vpk full scale
	20kΩ Input Impedance
10MHz Input/Output Frequency Rang	10MHz ±500Mz
10MHz Input/Output Level Rang	TTL Compatible
10MHz Input/Output Impedance	10KΩ (input) / 50Ω (output), Typical, input DC Coupling, output AC coupling   10KΩ (input) / 50Ω (output), Typical, input DC Coupling, output AC coupling
Lock Time	<2s, Typical
External Trigger	TTL - Compatible

Trigger Input	
Input Level	TTL - Compatible
Slope	Rise or Fall, selectable
Pulse Width	>100ns
Input Impedance	>10KΩ, DC-Coupled
Latency	Sweep < 500us, Typical
	Sweep < 500us, Typical

Trigger Ouput	
Level	TTL - Compatible to 50Ω
Pulse Width	>400ns, Typical
Ouput Impedance	50Ω, Typical
Max. Frequency	1MHz

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Frequency Meter	
Input Level	TTL-Compatible
Input Frequency Range	100mHz ~ 200MHz
Accuracy	±51ppm
Resolution	6bit/s
Coupling	DC, AC

General Specifications	
<b>Display</b>	
Display Type	4.3inch, TFT color LCD
Display Resolution	480 Horizontal x 272 Vertical
<b>Power</b>	
Power Voltage	100 ~ 240 VAC, 45 ~ 440 Hz, CAT II
Power Consumption	<50W <40W
Fuse	2A, T-Level, 250V

Environment	
Temperature Range	Operation: 10°C ~ +40°C
	Non Operating: -20°C ~ +60°C
Cooling Method	Forced Fan cooling
Humidity Range	+35°C : ≤90% relative humidity
	+35°C ~ +40°C, ≤60% relative humidity
Altitude	Operation: Up to 3000 meters
	Non Operating: Up to 15000 meters

Machine Specifications	
Size	305mm × 230mm × 93mm
Net Weight	3.10kg (Packing not include)
	4.10kg (Packing Include)

**ACCESSORIES:-**

Type	DDS - 1025/1060(Dual Channels)
Standard Accessories	Power cable (applicable for the country/region of destination), 1pc
	USB cable, 1pc
	BNC cable (1 meter) 2pcs
	Users manual, 1pc
	CD disk, 1pc
Optional	LAN port for DDS - 1025/1060

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