

### 3151/3151A+ to 3151B Specification Comparison

Spec Category	Specification	3151/3151A+	3151B
Amplitude Characteristics	Amplitude Range/Accuracy (50 Ω)	R1: 1.6 V to 16 Vp-p: $\pm(1\% + 20 \text{ mV})$	R1: 1.6 V to 16 Vp-p: $\pm(1\% + 50 \text{ mV})$
		R2: 160 mV to 1.599 Vp-p: $\pm(1\% + 2 \text{ mV})$	R2: 160 mV to 1.599 Vp-p: $\pm(1\% + 20 \text{ mV})$
		R3: 10 mV to 159.9 mVp-p: $\pm(1\% + 200 \mu\text{V})$	R3: 10 mV to 159.9 mVp-p: $\pm(1\% + 5 \text{ mV})$
	Amplitude Accuracy (open ckt.)	Not specified	$\pm 3\%$
	DC offset Range: Accuracy	R1: $\pm(1\% + 1\%$ of amplitude +20 mV)	R1: $\pm(1\% \pm 1\%$ from Amplitude $\pm 5 \text{ mV})$
		R2: $\pm(1\% + 1\%$ of amplitude +2 mV)	R2: $\pm(1\% \pm 1\%$ from Amplitude $\pm 5 \text{ mV})$
R3: $\pm(1\% + 1\%$ of amplitude +200 $\mu\text{V})$		R3: $\pm(1\% \pm 1\%$ from Amplitude $\pm 5 \text{ mV})$	
Standard Waveforms	Sine Frequency Range	100 $\mu\text{Hz}$ to 50 MHz	100 $\mu\text{Hz}$ to 100 MHz
	Sine Frequency Resolution	7 digits	11 digits
	Sine Distortion (Audio THD)	< 0.1%, below 100 kHz (4k pts min)	0.1% to 100 kHz, STD and CW (4k pts min)
	Sine Harmonics	<10 MHz, $\leq 10 \text{ Vp-p}$ , 40 dBc	<10 MHz, <10 Vp-p, 40 dBc
		<50 MHz, $\leq 10 \text{ Vp-p}$ , 28 dBc	<50 MHz, <10 Vp-p, 35dBc
	Sine Flatness	2% to 1 MHz	2% to 1 MHz
		5% to 10 MHz	5% to 10 MHz
		15% to 50 MHz	10% to 50 MHz
	Filters	20 MHz 7-pole Gaussian	25 MHz, Bessel, 50 MHz Bessel
		25 MHz 7-pole elliptic	60 MHz Elliptic (due to different top sine frequency)
		50 MHz 7-pole elliptic	120 MHz Elliptic (due to different top sine frequency)
	Square Frequency Range	100 $\mu\text{Hz}$ to 50 MHz	100 $\mu\text{Hz}$ to 100 MHz
	Square Rise/Fall Time	7 ns (6 ns typical)	6 ns (5 ns typical)
Square Aberration (10Vp-p)	<5%	<5%	
Other Waveforms	100 $\mu\text{Hz}$ to 1 MHz	100 $\mu\text{Hz}$ to 16 MHz	
Arbitrary Waveforms	Memory Size	64 k or 512 k	1 M (512 k for legacy compliance) or 4M
	Number of Segments	1 to 4 k	1 to 16 k
	Minimum Segment Size	10	10 (FORM:INST LEG); 16 (FORM:INST MOD)
	Vertical Resolution	12-bits	16-bits (FORM:INST MOD); 12-bits (FORM:INST LEG)
	Waveform Size Increment	2 points	2 points (FORM:INST LEG); 4 points (FORM:INST MOD)
	Sample Clock Range	100 mS/s to 100 MS/s	100 mS/s to 250 MS/s
	Waveform Creation Software	WaveCAD	WaveCAD or ArbConnection
Sequenced Waveforms	Mode(s)	Automatic Advance	Automatic, Stepped, Single, Mixed Sequence Advance
	Sample Clock Range	100 mS/s to 100 MS/s	100 mS/s to 250 MS/s
	Sequencer Steps	1 to 4096	1 to 4096
	Segment Loops	1 to 1Meg	1 to 1Meg
	Minimum Segment Duration	100 ns	500 ns

**3152A & 3152B Specification Comparison Rev. B (continued)**

<b>Spec Category</b>	<b>Specification</b>	<b>3152A</b>	<b>3152B</b>
<b>Sample Clock</b>	Range	100 mHz to 100 MHz	100 mHz to 250 MHz
	Resolution	7 digits	11 digits
	Reference	Internal ref (optional), CLK10	Internal ref (standard), external ref (if configured), CLK10
	Source	Internal, external	Internal, external (FORM:INST MOD for legacy compatibility)
		Fine: 10%, typical	
<b>Triggering Characteristics</b>	Trigger Input Imp/Range/Res.	10 k $\Omega$ /±10 V/10 mV (100 mV sensitivity)	10 k $\Omega$ /±10 V/10 mV (100 mV sensitivity)
	Trigger Input (max)	30 V rms	30 V rms
	Minimum Pulse Width	20 ns	10 ns
	Internal Trigger Timer	15 $\mu$ s to 1000 s	1 $\mu$ s to 20 s
	System Delay	150ns + (2 ± 1) sample clock periods	150 ns + 6 clock periods
<b>Sync Output</b>	Sync Type	BIT, LCOM, HCL, PULSE	BIT, LCOM, HCL, PULSE, ZCROSS
	Width Range (points)	2 to 500	2 to n-4 (FORM:INST LEG); 4 to n-8 (FORM:INST MOD)
	Position	0 to segment size	0 to segment size
	Resolution	2 points	2 points (FORM:INST LEG); 4 points (FORM:INST MOD)
<b>Multi-module Synchronization</b>	Lock Type	Backplane using ECLTrg0 and TTLTrg0	Backplane using ECLTrg0 and TTLTrg0 or VXI LBUS
	Standard Waveform Range	up to 33 MHz	1.5 kHz to 100 MHz
	Arbitrary Waveform Range	up to 67 Ms/s	2.5 MS/s to 150 MS/s
	Phase Resolution	12.5 ns maximum (depends on SCLK)	20 ns