labZY nanoMCA-II and nanoMCA versus Ortec Digital MCA's

COMPANY	labZY	labZY	Ortec	Ortec
PRODUCT	**nanoMCA-II**	**nanoMCA**	**DSPEC-50**	**DSPEC PRO**
PULSE PROCESSING				
DIGITAL PULSE PROCESSING (DPP)	YES	YES	YES	YES
ANALOG PULSE-HEIGHT MEAUSREMENT (PHA)	YES	YES	NO	NO
OPEN PLATFORM	YES	YES	NO	NO
USER CUSTOMIZABLE	YES	YES	NO	NO
ADC Resolution	16-bit	16-bit	Not Specified	Not Specified
ADC Sampling Frequency	125 MHz	80MHz	Not Specified	Not Specified
Pulse Shaping	Trapezoidal or Custom	Trapezoidal or Custom	Trapezoidal	Trapezoidal
Shaped Pulse Rise Time (RT)	16ns to 16μs, in 8ns increments	25ns to 25μs, in 12.5ns increments	800ns to 23μs, in 200ns increments	800ns to 23μs, in 200ns increments
Shaped Pulse Flat Top (FT)	0 to 8.2μs, RT Independent	0 to 3.2μs, RT Independent	0.3 to 8.2μs	0.3 to 8.2μs
Input Pulse Polarity	Positive or negative	Positive or negative	Positive or negative	Positive or negative
Input Pulse Rise Time PHA	>150ns	>200ns	NA	NA
Coarse Gain DPP	32 steps, 1 to 215	32 steps, 1 to 215	8 steps, 1 to 128	6 steps, 1 to32
Coarse Gain PHA	1, 1,41, 2, 2.83	1, 1,41, 2, 2.83	NA	NA
Fine Gain PHA or DPP	1 to 1.2, 16-bit resolution	1 to 1.2, 16-bit resolution	0.5 to 1.11, resolution not specified	0.45 to 1.11, resolution not specified
Gain Stability (typ)	±5 ppm/°C	±5 ppm/°C	<30 ppm/°C	<30 ppm/°C
Base Line Drift PHA (typ)	< 1 ppm/°C	< 1 ppm/°C	<5 ppm/°C	<3 ppm/°C
Fast Channel Rise Time (FRT)	8ns to 2μs, in 8ns increments	12.5ns to 3.2μs, in 12.5ns increments	Not Specified	Not Specified
Fast Channel Flat Top (FFT)	8ns to 2μs, in 8ns increments	12.5ns to 3.2μs, in 12.5ns increments	Not Specified	Not Specified
Timing Signal PHA or DPP	Constant Fraction	Constant Fraction	NO	NO
Pole-Zero Adjustment DPP	25μs to ∞ (Auto/Man)	50μs to ∞ (Auto/Man)	Auto/Man	Auto/Man

MCA				
Numbers of Channels	16k	16k	16k	16k
Channel Capacity	4 bytes ($4.3 \cdot 10^9$ counts)	4 bytes ($4.3 \cdot 10^9$ counts)	Not Specified	Not Specified
Input Sensitivity DPP	±1.5V/16k chn, gain 1	±0.8V/16k chn, gain 1	Not Specified	Not Specified
Input Sensitivity PHA	±3.3V/16k chn, gain 1	±3.3V/16k chn, gain 1	NA	NA
Preset Acquisition Time	2^{32}s	2^{32}s	Not Specified	Not Specified
Acquisition Time Resolution	200ns	200ns	Not Specified	Not Specified
Timer Accuracy (MAX, over all conditions)	±10ppm	±25ppm	Not Specified	Not Specified
Coincidence/Anticoincidence	YES	YES	YES	NO
DPP Input Referred Noise RMS [channels]	See Graph Below the Table	See Graph Below the Table	Not Specified	Not Specified
Special Functions				
Automatic Thresholds PHA or DPP	YES	YES	YES	YES
Baseline Restoration PHA or DPP	1024 Settings	1024 Settings	2 settings, Auto	2 settings, Auto
Digital Pulser Noise Estimator	YES	YES	NO	NO
Enhanced Pile-Up Rejector DPP	YES	YES	NO	NO
Counting Losses Estimator DPP	Extended Pulse Width	Extended Pulse Width	Gedcke-Hale	Gedcke-Hale
True Incoming Rate Estimator DPP	Yes	Yes	Not Specified	Not Specified
Digital Trace Viewer (Oscilloscope) PHA or DPP	YES	YES	YES	YES
Automatic Pulse Polarity PHA or DPP	YES	YES	NO	NO
Gain Stabilizer	YES	YES	YES	YES
Detector Power	NO	NO	YES	YES

Connectors and Interface				
Digital Inputs/Gates	3	2	2	Multiple IO
Digital Outputs	3	2 per customer request	0	Multiple IO
Interface	USB Ethernet WiFi Bluetooth Serial Fiber Optic	USB Ethernet WiFi Bluetooth Serial Fiber Optic	USB Ethernet	USB Ethernet
Mechanical and Power				
Size	3.6” x 1.5” x 1” (92 x 38 x 25 mm)	3.6” x 1.5” x 1” (92 x 38 x 25 mm)	16.75” x 14” x 6” (425 x 355x 152mm)	3.2” x 8” x 9.8” (81 x 203 x 249mm)
Weight	<135g Enclosed	<135g Enclosed	11kg	1kg
Power Consumption	1350mW	900mW	Not Specified	Not Specified

& Includes both DPP and PHA, fully reprogrammable and customizable

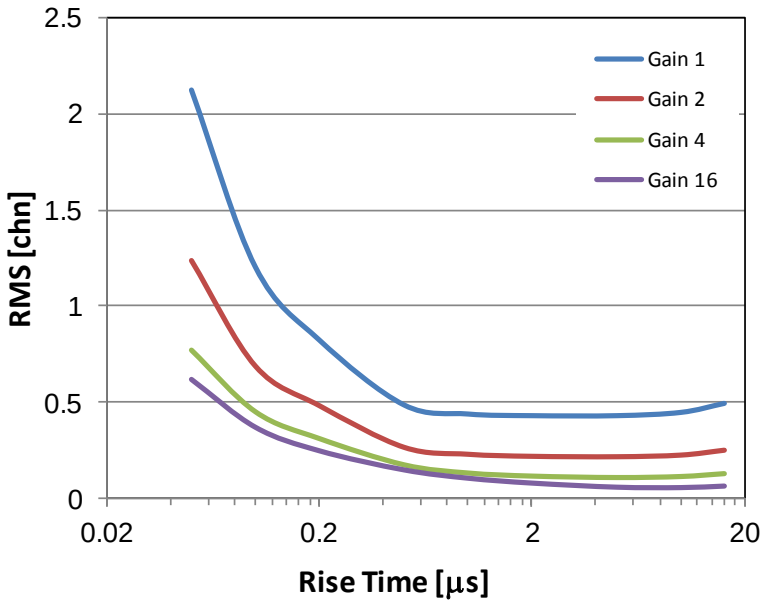
PHA only

***** DPP only

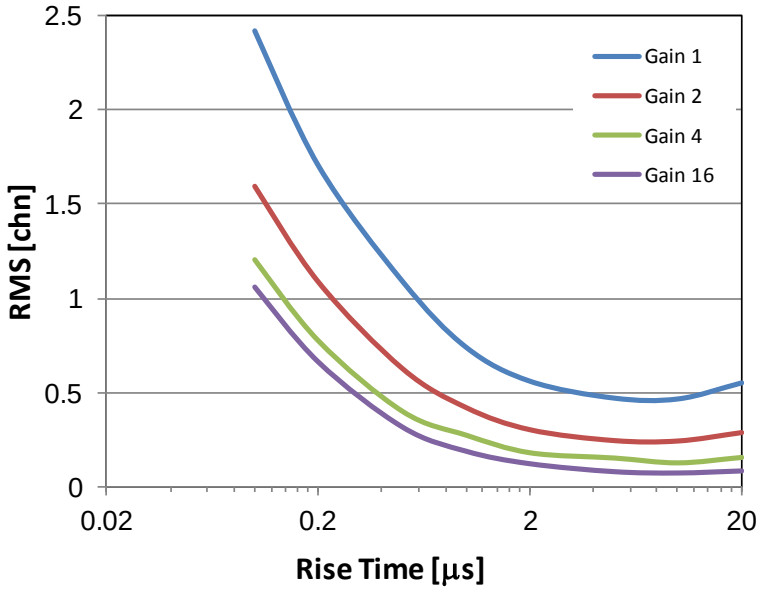
NA - Not Applicable

For specs not included in this table, please, contact ***sales@labzy.com***

Noise performance of nanoMCA-II and nanoMCA



nanoMCA - II - input referred noise for triangular shape with rise time from 50ns to 16µs, spectrum size 16k channels (DPP mode)



nanoMCA - input referred noise for triangular shape with rise time from 100ns to 20µs, spectrum size 16k channels (DPP mode)

nanoMCA-II - PHA Mode, Pulser FWHM, 16k Spectrum

Gain	1	1.4	2	2.8
FWHM [chn]	1.5	1.6	1.6	1.6

nanoMCA - PHA Mode, Pulser FWHM, 16k Spectrum

Gain	1	1.4	2	2.8
FWHM [chn]	3.8	4.0	4.2	4.4