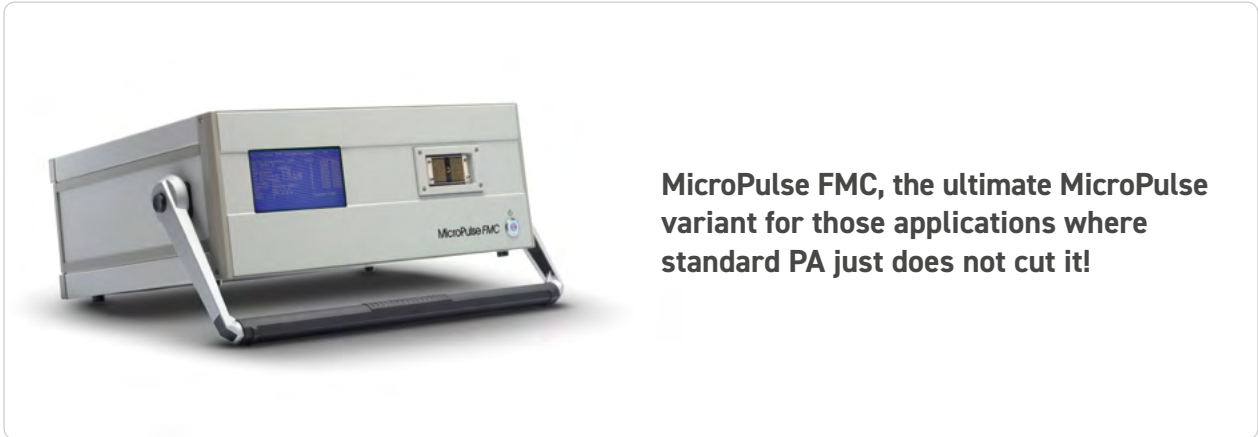


MicroPulse FMC

Product Features



MicroPulse FMC, the ultimate MicroPulse variant for those applications where standard PA just does not cut it!

Overview

The MicroPulse family was developed as a flexible ultrasonic inspection platform, originally for use in the power and nuclear sector. It connects to the PC via Gigabit Ethernet with data transfer rates of up to 120 Megabytes per second achievable in 8-, 10-, 12- or 16-bit data output modes. The architecture of this variant is targeted at shifting FMC data rapidly. To this end an additional memory card replaces the conventional channels. The standard size enclosure accommodates up to 128 phased array channels, all of which may be used for beam forming, and may be used to acquire PA as well as FMC data.

Software Platforms

Still in its infancy, FMC and TFM imaging, there is no standard software. Supplied in the box, Peak NDT's ArrayGen software will get you started with acquiring data. Beyond that it's up to you. For some, TWI's Crystal FMC software, or for others Bristol University's Brain software or UTEX's offerings may meet their needs, but for research, with the transparent data formats and standard windows sockets, the option offering the ultimate flexibility has to be to write your own, from MatLab, to LabView to various flavours of C and Delphi.

Features

- Scalable parallel architecture
- Multiple units can be linked for a channel count of up to 512
- Any combination of channels may be used independently in Tx and Rx
- In FMC mode all programmed receive channels are received simultaneously. No need to multiplex
- Open data format
- Highest performance
- Fast acquisition speed allowing collection of FMC data on the fly
- Simple reliable communication over Ethernet

Applications

- Advanced focusing methods
- Research and development
- Inspections where no other solution will work

Full Information available at www.peakndt.com

MicroPulse FMC Specification

	Parameter	Range	Step Size
Configurations		32/32, 64/64, 128/128, 256/256, 512/512	
Pulser	Pulser Type	Negative square wave	-
	Pulser Voltage	50 to 200Volts	50Volt
	Pulser Rise Time	<5ns	-
	Pulser Width	20nsec to 500nsec	2nsec
	Pulser Output Impedance	<10Ω	-
	Pulser Damping	50Ω	-
	Pulse Repetition Frequency	1Hz to 20kHz	1Hz
	Parallel Firing	Yes	-
	Phased Array Pulser Delay	0 to 25000nsec	1nsec
	Number of Tx Focal Laws	Up to 2048	-
Tx Voltage Apodistion	Yes	-	
Receiver	Gain	70dB	0.25dB
	Input Noise	2nV/√Hz typical	-
	Gain Linearity	Better than 0.25dB	-
	Input Impedance	50Ω	-
	Bandwidth	0.75MHz to 20MHz (-3dB)	-
	Analogue Filters	0.75MHz to 5MHz (-3dB) Bandpass	discrete selection
		5MHz to 10MHz (-3dB) Bandpass	
		2MHz to 10MHz (-3dB) Bandpass	
	Digital Filters	Programmable high and low pass	User definable
	Phased Array Receiver Delay	0 to 25000nsec	1nsec
Number of Rx Focal Laws	Up to 2048	-	
Dynamic Depth Focusing	At 100MHz realtime	-	
Channel Crosstalk	>60dB between channels at 2MHz	-	
Distance Amplitude Correction	DAC Dynamic Range	0 to 40dB	0.25dB
	DAC Trigger	Transmit pulse or material interface echo	Selectable
	No of DAC curves	2048 utilising up to 64kbytes	N/A
	DAC update	40dB/μsec	N/A
	DAC Clock	0.78125MHz, 1.5625MHz, 3.125MHz, 6.25MHz, 12.5MHz and 25MHz selectable	6 settings (selectable)
	Water path DAC	0 to 40dB. Note total DAC + water path DAC < 40dB	0.25dB
Digitiser and Digital Processing	ADC Resolution	12 bits	N/A
	Amplitude Resolution	16 bits	-
	Sample Rate	10, 25, 50 and 100MHz	Selectable
	Number of ADC's	One per channel	-
	Element Summing	Up to 256 channels, N/A for FMC	N/A
	Acquisition Gate Delay	64k sample points from trigger or I/F echo	1 sample point
	Acquisition Gate	Up 32K sample points (onventional PA)	1 sample point
		In FMC up to 8K samples points (over 3K achieved by multiple firings)	
	Rectification	No Rectification	Selectable
		Fullwave	
+ve halfwave -ve halfwave			
Smoothing	None and 7 selectable settings	N/A	
Hardware Gates	4 gates utilising up to 32K samples each (Conventional PA)	-	
Interface Echo	Hardware interface trigger for gate and DAC	-	
Hardware Peak Processing	For each gate up to 80 peaks (N + largest), first peak, largest peak, threshold crossing (N/A for FMC)	-	

Parameter	Range	Step Size
Output Options	Peak processed data and/or full digitised waveform	
Threshold	10 to 4095	1
Averaging	2 to 256 realtime	
Gain Reduced Firing	1 element, n elements or summed waveform (N/A for FMC)	

General Specifications

Interfaces	Communication Interface	Gigabit Ethernet capable of up to 120MB/s
	Inter-system Master Slave	High speed LVDS (6 pipes @ 800MBits/sec + TTL sync) allowing for expansion of element count by connection of two MicroPulse systems
	Output Data Buffer	3.8Gigabytes
	FMC Acquisition Buffer	Additional 16GB (4GB per 32 channels)
Connectors	Digital Encoders	4 axes of differential 32-bit encoder inputs accepting 5Volt encoders at rate of up to 700kHz
	Digital I/O	8 inputs and 8 outputs (5Volt TTL compatible)
	Analogue Outputs	N/A for FMC
	UT Connectors	1 x 160-pin female connector. Hypertronics™ HLMYJPAPF 1600
Physical	Ethernet Connector	Industrial RJ45 / 9-pin D-type
	LVDS Master/Slave	1 x high speed EQDP connector
	Encoder Connector	Lemo 4B.330
	I/O Connector	Lemo 4B.324
	Power Connector	Switched IEC Inlet
	Analogue O/P Connectors	3 x 50Ω BNC
	Case Size (H x W X D)	170mm x 450mm x 380mm
Power Supply	90-260 VAC at 45-100Hz	
Power Consumption	350W Max	
Weight	15 to 18 Kgs depending on configuration	
Environmental	Operating / Storage Conditions	Operating Temperature: 0 to 45°C Storage Temperature: -10 to 55°C Relative Humidity: less than 85% non-condensing
	EMC	EN61326
	Safety	EN61010