



Krautkramer USM Vision+: the versatility you need every day.

Technical Data - Krautkramer USM Vision+

1. Configurations

Phased array configuration	16/128	number of simultaneously controlled channels and number of available channels
Conventional channel	1	Pulse/Echo or Dual mode

2. General features

Size, WxHxD	367 x 250 x 100 mm	14.4 x 9.8 x 3.9 inch	
Weight	4.6 kg	10.1 lb	with one battery
Display size	10.4 inch		
Display resolution	1024 x 768 pixel		TFT with LED backlight
Power supply, input voltage	100 - 240 VAC		
Power supply, output voltage	15 VDC		
Maximum power consumption	45 W		
Battery operational time	3 h		hot swap possible
Number of batteries	2		Li-Ion
Operating temperature range	0 to 45 °C	32 to 113°F	Actual operating temperature range depending on environmental conditions. Expanded temperature models available on request.
Storage temperature range	-20 to -70 °C	-4 to -94°F	
Pulse repetition frequency (PRF)	0.015 to 10 kHz		depending on settings
Protection grade	IP 54		
Available measurement units	mm, inch		

3. Input/output connectors

Phased array probe	Tyco		
Conventional probe	Lemo00 coax and triax		
Interface I/O	Lemo 2B 14 pin		encoder (quadrature, 5 V), SAP; s. manual
VGA	Lemo 0 9 pin		
Ethernet	RJ 45		1 Gb/s
USB 2.0	3 VDC		type A
Power connector	Lemo 0S 4 pin		

4. Display

Range of sound velocities	100 to 15000 m/s		
Time base: Delay	0 - 10000 mm		in steel long, IP delay
Width	6 - 10000 mm		in steel long
Available views	A, B, C, D, E, S		
Screen refresh rate for A-scan presentations	50 Hz		depending on setting

5. Beam forming

Max. number of channels active simultaneously	16		different configurations
Maximum number of delay laws	512		individual cycles
Maximum delay	20 us		
Step	5 ns		

6. Phased array transmitter

Number of transmitters available simultaneously	16		depending on configuration
Shape of transmitter pulse	negative unipolar		
Transmitter voltage	10 - 150 V		in 10 V steps, supply voltage 200 V
Fall time	<10 ns		
Duration	20 - 1200 ns		20 ns steps
Maximum time delay	0 to 20000 ns		
Time delay resolution	5 ns		

7. Conventional transmitter

Shape of transmitter pulse	negative unipolar		
Transmitter voltage	10 - 180 V		
Fall time	<10 ns		
Duration	20 - 1200 ns		20 ns steps

8. Phased array receiver

Number of receivers available simultaneously	16	
Input voltage at full screen height (FSH)	0.5 Vpp	800 % of FSH available for post processing
Maximum input voltage	4 Vpp	
Linearity of vertical display	± 2 %	
Frequency response	0.5 - 15 MHz	-3 dB without digital filter
Digital filters	8	
Dead time after transmitter pulse	<5 us	
Dynamic range	0 to 90 dB	digital gain, 0,1 dB step
Maximum time delay	0 to 20000 ns	
Time delay resolution	5 ns	
Time corrected gain	90 dB	16 points/90 dB in 20 ns steps, 90 dB/80 ns slope, 220 ns delay of start
Linearity of time delays	<1 %	of full range
Gain linearity	± 2 dB	of full range
Channel gain variation	3 dB	
Maximum digitisation frequency without processing	50 MHz	
Digitisation frequency with processing	200 MHz	with interpolation
Digitiser vertical resolution	20/24 bit	20/channel, 24 on formed beam
Display start mode	IP, IF Start display	display start depending on interface echo in gate I, gate A and B also triggered with interface echo

9. Conventional receiver

Number of receivers	1	
Input voltage at full screen height (FSH)	0.5 Vpp	800% of FSH available for post processing
Maximum input voltage	4 Vpp	
Linearity of vertical display	± 2 %	
Linearity of the vertical display	± 2 %	
Frequency response	0.5 - 15 MHz	-3 dB without digital filter
Digital filters	8	
Dynamic range	0 to 90 dB	digital gain, 0,1 dB step
Time corrected gain	90 dB	16 points/90 dB in 20 ns steps, 90 dB/80 ns slope, 220 ns delay of start
Maximum digitisation frequency without processing	100 MHz	
Digitisation frequency with processing	200 MHz	with interpolation
Digitiser vertical resolution	20 bit	
Display start mode	IP	

10. Data acquisition

Maximum number of A-scans stored per second	4000	A-scan 512 points with 16 bit amplitude
Maximum number of samples per A-scan	1024	16 bit amplitude

11. Gates

Number of gates	3	incl. IF (A, B, I)
Type of detection	2	coincidence or anticoincidence
Measurement mode	3	flank, J-flank, peak
Synchronisation of gates	2	initial pulse or with interface echo in gate I
Characteristics of gates:	Threshold	0 - 95 %
	Start	0 to 4000 mm
	Width	0.1 to 4000 mm
	Resolution of TOF measurements	5 ns
	Resolution of Amp measurements	1 bit
Start mode	IP, IF start display	16 bit signed

12. Processing

Rectification	4	pos, neg, RF, full
Averaging	1, 2, 4, 8, 16	TOFD: max. depth 500 mm in steel
Envelope, EchoMax	on/off	
Scan mode	pulse on position	
Video filter	on/off	phased array mode

13. PC

PC Module	1	COM Express compact, 1.6 GHz
SSD	64 GB	SLC, SATA
Input devices	4	2 track balls, keypad, touch screen