

K **KNUDSEN**
ENGINEERING LIMITED

320M Jr

ECHOSOUNDER

Low Cost Single Channel Version of the Proven 320M



Rugged, Full-featured Echosounder
Splashproof Operation, Waterproof Transit
Roller Wheels with Extendable Handle
Aircraft Carry-on
Ideal for Use in Open-Boat Conditions
Hydrographic Survey / Pre & Post Dredge
Single Frequency, 3.5 kHz to 250 kHz
Automatic or Manual Control
High Resolution, 32 Greyscale Printer
Software Flexibility
Interface - GPS, Heave, Datalogger
Optional - SCSI, Windows®

The newest member of the classic KEL 320 series of single beam echosounders, the 320MJr is a single channel junior brother to the dual-channel 320M and 320MP. A sophisticated, fully digital echosounder with the high-end features of more highly priced products, but in a low cost single frequency package. The 320MJr can be configured for any single frequency between 3.5 kHz and 250 kHz. It produces a high resolution record accurately depicting bottom profiles and shallow sediment layers (if configured for low frequency) with 32 shades of grey. The thermal printer uses easily loaded 21.6cm (8.5") plastic film for permanent, high-quality records. The annotated depth grid is printed with reverse shading for clarity.

Digitized water depth is shown on a large 4-digit LCD, visible in direct sunlight and backlit for night operation. Serial RS-232 depth data is continuously available in NMEA and other industry formats as well as user-defined string formats, and in operator-selectable time and position tagged formats.

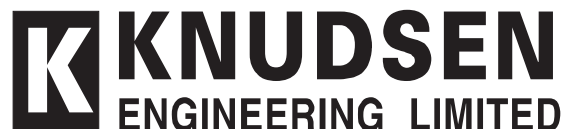
An LCD menu display with simple 2-button control provides access to parameters such as sound velocity, draft, TX blanking, serial port assignment, time and date setting, and others, as well as a variety of self-test, communication and configuration features. All settings are retained in non-volatile memory and recalled on power-up.

Three RS-232 ports support communication with personal computers, NMEA input and output devices, GPS receivers, sound velocity sensors, heave sensors, remote depth displays and survey data loggers.

The standard 320MJr firmware includes drivers for these devices. Field-upgradeable software ensures systems remain current.

In addition to traditional "hands-on" operation, an optional SCSI interface is available with KEL's SounderSuite Windows application software. This option provides total real-time control of the echosounder and all of its features from a Windows graphical user interface, a real-time colour/greyscale scrolling display, logging of the echogram image data in industry standard SEG-Y format, a direct, seamless interface to HYPACK (if installed) on the same Windows PC. Previously recorded echogram data can be printed on a standard Windows printer using SounderSuite's PostSurvey feature.

Printed in Canada
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Technical Specifications *(subject to change without notice):*

Main Ranges:	Metres, Feet or Fathoms
	10 Scale: 1 : 50
	20 1 : 100
	50 1 : 250
	100 1 : 500
	200 1 : 1000
	500 1 : 2500
	1000 1 : 5000
	2000 1 : 10000
Phased Ranges:	Multiple 50% overlapped phases of each range (20% overlap optional), manual or automatic selection.
Paper Speed:	7 settings.
Frequencies:	3.5 kHz to 250 kHz. Standard frequencies include - 3.5, 12, 24, 28, 30, 33, 50, 200, 210 kHz.
Depth Display:	Large backlit 4-digit LCD display.
Power:	4 selectable levels up to 1 kW
Resolution:	1 cm (0-99.99), 1 dm (100-999.9), 1 m (>1000) 1/100 ft (0-99.99), 1/10 ft (100-999.9), 1 ft (>1000) 1/100 fm (0-99.99), 1/10 fm (100-999.9), 1 fm (>1000)
Record width:	20 cm (7.9") Paper width: 21.6 cm (8.5").
Sound Velocity:	1300 - 1700 m/s Resolution: 1 m/s 4265 - 5577 ft/s Resolution: 1 ft/s 710 - 929 fm/s Resolution: 1 fm/s
Clock	Internal battery backed time and date clock.
Draft:	0 - 100 m Resolution: 1 cm 0 - 328.08 ft Resolution: 0.01 ft 0 - 54.68 fm Resolution: 0.01 fm
Annotation:	Internal: date, time, GPS position. External: from RS-232 port.
Pulse Length:	Automatically selected, with operator override.
Printer:	Self-test, manual or automatic contrast, high resolution of 1600 pixels per line in a 32 step grey scale, LED status indicators, paper advance control.
Gain Controls:	AGC, TVG and manual receive gain for each frequency.
TX Blanking:	0 - 300 m. Resolution: 0.1 m 0 - 984.3 ft. Resolution: 0.1 ft 0 - 164.0 fm Resolution: 0.1 fm
Serial Ports:	Three RS-232 ports, 300-38,400 baud, optional RS-422.
SCSI Port:	Optional, 50 pin Micro D (Includes SounderSuite Windows application software) <i>Note: Contact manufacturer for PC requirements.</i>
Heave:	TSS and Seatex compatible.
Position:	Compatible with all popular GPS receivers.
Power Supply:	12 to 36 VDC. 85 - 240 VAC adaptor available.
Dimensions:	21"w x 14"h x 9"d
Weight:	13 kg. (29 lb)
Units:	Metres, Feet or Fathoms
Options:	SCSI Interface with SounderSuite Software Transducers (many are available) Transducer 'over the side' mounting brackets Remote Display On-site training/installation