KNUDSEN DUAL FREQUENCY ECHO SOUNDER

GENERAL DESCRIPTION

The 320M Marine Echosounder was developed to meet demanding requirements of field work. Its low maintenance modular construction, together with advanced features and easy configuration, make the 320M the most flexible sounder available.

Using either the high or low frequency channel, or both simultaneously, the 320M produces a high resolution record accurately depicting bottom profiles and sediment layers 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 two large 4-digit LCD displays, visible in direct sunlight and backlit for night operation. Serial RS232 depth data is continuously available in NMEA format 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 many more, 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 RS232 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 320M firmware includes drivers for all the devices above and can be field upgraded where firmware can be downloaded through a serial port into “flash” program memory.

In addition to traditional “hands-on” operation, an optional upgrade allows the 320M to be operated remotely through the built in SCSI interface and Windows application software.
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TECHNICAL SPECIFICATIONS

Main Ranges:
- 10 Metres, 50 Feet
- 20 Metres, 100 Feet
- 50 Metres, 250 Feet
- 100 Metres, 500 Feet
- 200 Metres, 1,000 Feet
- 500 Metres, 2,500 Feet
- 1,000 Metres, 5,000 Feet
- 2,000 Metres, 10,000 Feet
- 5,000 Metres (available via SCSI and serial only)

Phased Array:
- 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 - LF 12, 24, 26, 28, 30, 33, 38, 40, 41 or 50 kHz, - HF 100, 120, 150, 200, 208, or 210 kHz

Depth Display:
- Two LCD (backlit) 4-digit displays for high and low frequency

Power:
- 4 selectable levels for each frequency, maximum 1,000 watts RMS into 50 ohms

Resolution:
- 1cm (0-99.99), 1dm (100-999.9), 1m (>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:
- 20cm Paper width: 21.6cm

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:
- 0-100m 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: 0.1m
- 0-984.3 ft Resolution: 0.1ft
- 0-164.0 fm Resolution: 0.1fm

Serial Ports:
- Three RS 232 ports, 300-38, 400 baud, optional RS422

SCSI Port:
- Standard. (Advanced Windows application software optional)

Heave:
- TSS and Seatex compatible

Postion:
- Compatible with all popular GPS receivers

Power Supply:
- 9 to 36 VDC, 60 watts maximum (12 or 24VDC nominal)
- 85-240 VAC adaptor available

Installation:
- Bulkhead or 19” rack mountable. Includes custom Hardigg case.

Dimensions:
- W 432 x H 355 x D 241 mm

Weight:
- 19kg

Units:
- Metres, Feet or Fathoms

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