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UQN-4(V) Sonar Sounding Set - Archived 5/2008

Outlook

- Spares and maintenance market likely to remain solid for several years
- The system has potential for more international orders, but newer technology may supersede it
- No additional production is expected at this time
- Barring a surge of activity, this report will be archived in 2008

Orientation

Description. The UQN-4(V) Sonar Sounding Set (also known as EDO Model 9057) is a digital depth sounder/fathometer for measuring water depth below ships.

Sponsor

U.S. Navy
Naval Surface Warfare Center, Crane Division
300 Highway 361
Crane, IN 47522-5001
USA

Status. In operational use; however, any future production is likely to be on a limited, as-needed basis only.

Total Produced. Virtually standard equipment on every U.S. Navy, Coast Guard, and Coastal Geodetic Service vessel, as well as other world navies and research vessels. Spain ordered four units for its F-100 frigate program in 1999.

Application. Ship navigation and depth measuring.

Price Range. Current price undetermined. However, a rough estimate based on the 1999 contract to Spain put the per-unit price at about \$175,000.

Contractors

Prime

EDO Electro-Ceramic Products	http://www.edoceramic.com , 2645 S 300 W, Salt Lake City, UT 84115-2968 United States, Tel: + 1 (801) 486-7481, Fax: + 1 (801) 484-3301, Email: sales@edoceramic.com, Prime
Ocean Data Equipment Corporation	http://www.oceandata.com , 88 Royal Little Dr, Providence, RI 02904 United States, Tel: + 1 (401) 454-1810, Fax: + 1 (401) 454-1806, Second Prime



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Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

Technical Data

Design Features. The UQN-4(V) Sonar Sounding Set is a digital depth sounder (fathometer) that presents digital and graphic displays of water depth by means of a digital numeric display and a permanent strip chart recorder. The unit transmits acoustic pressure pulses into the ocean, which in turn reflect off the bottom and

back to the ship, where they are converted back to electrical energy for presentation as a measurement. The UQN-4(V) can measure water depth from 4 feet to 6,000 fathoms. It can also be used as a passive listening device.

Specifications

Transmitter/Receiver	Peak output	1,000 watts maximum into transducer
Receiver Sensitivity	600 ft	-60 dB/1 volt rms
	Fathoms (short pulse)	-100 dB/1 volt rms
	Fathoms (long pulse)	-110 dB/1 volts rms
Type Transmission	Pulsed continuous wave	
Type Reception	Pulsed continuous wave	
Operating Ranges (5)	0-600 ft	
	0-600 fathoms short pulse	
	0-600 fathoms long pulse	
	0-6,000 fathoms short pulse	
	0-6,000 fathoms long pulse	
Operating Frequencies	Transmitter	12 kHz
	Receiver	12 kHz
Operating Ambient	Temperature	-28°C to +55°C
Transducer	Active material	Lead Titanate Zirconate
	Impedance	120 ohms +20% at 12 kHz
	DC resistance	1.0 ohms typical (without cable)
	Transmitting response	162 minimum
	Receiving response	-172 dB minimum
	Beam pattern	33°C typical
	Insulation resistance	Conductor to ground is 100 megohms minimum Shield to ground is 20 megohms minimum
Transmitter/Receiver	Height	28.25 in
	Width	23.5 in
	Depth	19.04 in
	Total weight	195 lb
	Volume	7.75 cubic ft
Transducer	Dimensions	7.75 in x 14.74 in diameter
	Weight	131 lb

**UQN-4(V) Sonar Sounding Set (Fathometer)**

Source: EDO Corp.

Variants/Upgrades

UQN-1 (EDO Model 185). This is EDO Corp's earlier sonar sounding set, which was replaced by the UQN-4.

UQN-4 (EDO Model 9057). A sonar sounding set (fathometer) that has become virtually standard equipment on every U.S. Navy, Coast Guard, and research vessel, as well as on many international ships.

UQN-4A (EDO) Model 9057). This is an improved version of the UQN-4.

BQN-17. This is the U.S. Navy's submarine version of the UQN-4A.

BQN-17A. This is an enhanced version of the BQN-17.

IES-10. The IES-10 Navigation Sounder made by Ocean Data is being marketed as a more modern replacement of the UQN-4(V).

Program Review

Background. EDO Corporation is believed to have begun development of the UQN-4(V) Sonar Sounding Set (fathometer) during the 1970s. The system has had quite a successful life and is apparently standard equipment on nearly all U.S. military and research vessels, as well as on many other vessels throughout the world.

"EDO has been a key prime contractor to the U.S. Navy for underwater navigation sonar equipment, including the UQN-4A, the standard depth sounder on Navy ships and submarines. EDO also supplies all the transducers used by U.S. Navy surface ships and submarine depth sounders," said Frank A. Fariello, chairman and CEO of EDO Corporation.

In October 1997, the U.S. Navy put out a solicitation seeking proposals for a commercial off-the-shelf (COTS) replacement for the UQN-4(V), but apparently no one has been able to offer a better system under the Navy's terms.

The IES-10 Navigation Sounder, produced by Ocean Data Equipment Corporation, appears to be one of the few systems trying to challenge the UQN-4(V). The IES-10 reportedly has been marketed as a direct replacement for what it terms "old" systems (referring to the UQN-1). According to Ocean Data, one can remove and discard the older UQN-4(V) electronics/recorder unit while keeping the existing 12- kHz UQN transducer for use with the IES-10 and its matching junction box. Additionally, up to three optional RD-10 remote display units can be added to extend the IES-10 capabilities throughout the ship.

UQN-4 Considered Standard Equipment on Most U.S. Vessels

In November 1999, the U.S. Navy sought interface kits for the UQN-4(V) so the unit could be integrated with a computer-controlled ship-wide monitoring and switching network deployed on its AEGIS class warships. This move to interface the UQN-4(V) with computers on current AEGIS class vessels is a sure and

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positive sign that despite its age, the UQN-4(V) is still a top-notch system, and highly valued for the job it performs.

The Spanish Navy ordered four UQN-4(V) systems in April 1999 for its latest frigate program, the F-100 Alvaro de Bazan class multipurpose frigate. The contract was ordered by Izar shipbuilders (formerly known as Empresa Nacional Bazan). A total of four ships are scheduled to be built. The first in the class, the F-101 *Alvaro de Bazan*, was commissioned in September 2002. All four ships are scheduled to be completed and commissioned by the end of 2006.

No further sales of the UQN-4(V) have been identified at this time. According to FY05/FY06 U.S. Department

of Defense budget documents, the U.S. Navy appears to be replacing the UQN-4(V) with a system identified as the Forward Looking Fathometer.

Barring a surge of activity, this market intelligence report will be archived in the near future.

Time Table

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1970s	Initial development of UQN-4
Oct	1997	U.S. Navy solicited COTS replacements for UQN-4(V)
Apr	1999	Spanish Navy orders four UQN-4(V) units for F-100 frigate program
Nov	1999	U.S. Navy solicited interface kits to integrate UQN-4(V) with AEGIS switching networks on current warships

Worldwide Distribution/Inventories

The UQN-4(V) is reportedly in operational service with the **United States, Australia, France, South Korea, Spain, and Taiwan**. This list of users is not all inclusive and there may be other UQN-4(V) users not identified.

Forecast Rationale

No further production runs are seen for EDO Corp's UQN-4(V) Sonar Sounding Set (fathometer, depth finder). Any future activity will likely be limited to spare parts and maintenance support. No new systems are expected to be built. Instead, older units are likely

to be taken off decommissioned ships and refurbished for active duty.

Barring a sudden surge of activity, this report will be archived in 2008.

Ten-Year Outlook

No further production is forecast at this time, and thus the forecast chart has been omitted.

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