

## SPECIFICATIONS OF DOPPLER SONAR DS-60

### 1 GENERAL

- |     |                         |  |
|-----|-------------------------|--|
| 1.1 | Transmit frequency      | 320 kHz  |
| 1.2 | Number of beams         | 3 beams  |
| 1.3 | Ship's speed range      | Fore-aft: -10.00 to +40.00 kn<br>Port-stbd (fore/stern): -9.99 to 9.99 kn  |
| 1.4 | Working depth*          | SOG: 1 to 200 m below hull bottom<br>STW: 0.5 to 25 m layer range, the area of sea as below;<br>Ground tracking mode: 3 m depth or more<br>Water tracking mode: 40 m depth or more   |
| 1.5 | Total distance run      | 0 to 999999.99 NM  |
| 1.6 | Accuracy                | Ground tracking: ±1% or 0.1 kn, whichever is greater<br>Within ±1 kn<br>-Fore/aft and bow port/stbd speed: ±2% or 0.01 m/s, whichever is greater<br>-Port/stbd speed at stern (bow installation of transducer with DS-670): ±2% or 0.04 m/s, whichever is greater<br>Water tracking: ±1% or 0.1 kn, whichever is greater |
| 1.7 | Current direction/speed | 0.00 to 9.99 kn, 360° (clearance required 10 m or more)  |

\*: Working depth is influenced by conditions of installation and sea water. Water tracking accuracy may lower at the sea-bed depth 40 m or less.

### 2 DISPLAY UNIT

- |     |                   |   |
|-----|-------------------|---|
| 2.1 | Main display unit | LCD, 640 x 480 dot (VGA)                                  |
| 2.2 | Brilliance        | 0.2 to 500 cd/m <sup>2</sup>                              |
| 2.3 | View angle        | Up/down/left/right: 75° or more (color is not considered) |
| 2.4 | Dimmer            | External dimmer control available                         |
| 2.5 | Backlight life    | 30,000 hrs approx. (+55°C)                                |

### 3 INTERFACE

- |     |               |  |
|-----|---------------|--|
| 3.1 | Input signal  | Navigation data (IEC61162): 3 ports<br>External keying pulse: 1 port<br>Alarm ACK (contact signal): 1 port   |
| 3.2 | Output signal | Ship's speed (IEC61162): 5 ports<br>Ship's speed (analog): 4 ports<br>Distance signal (200 P/NM): 4 ports<br>Keying pulse: 1 port<br>Alarm output (contact closure): 4 ports<br>- Power failure, System failure, Echo failure, Limit of speed<br>Local ACK (contact closure): 1 port |

- 3.3 Input sentences           ACK, ACN, DBT, DPT, GGA, GLL, GNS, HBT, HDG, HDT, MWV, RMC, ROT, THS, VTG, ZDA
- 3.4 Output sentences        ALC, ALF, ALR, ARC, HBT, VBW, VDR, VHW, VLW, VTG

## 4 RATE-OF-TURN GYRO CONVERTER (OPTION)

- 4.1 Method                    Optical fiber
- 4.2 Measurement range      Within  $\pm 5^\circ/\text{s}$
- 4.3 Light emitter's life     17,000 hrs approx. (+55°C)
- 4.4 Source                    100-240 VAC: 0.15 A max, 1 phase, 50/60Hz

## 5 POWER SUPPLY

100-240 VAC: 1.6- 0.9 A, 1 phase, 50/60Hz

## 6 ENVIRONMENTAL CONDITION

- 6.1 Ambient temperature
  - Main display unit        -25°C to +55°C
  - Others                    -15°C to +55°C
- 6.2 Relative humidity       93% or less at +40°C
- 6.3 Degree of protection
  - Main display unit        IP56 (front panel)
  - Transceiver unit/ Junction box    IP44
  - Distributor               IP22
- 6.4 Vibration                IEC 60945

## 7 COATING COLOR

N2.5