

**SPECIFICATIONS OF DUAL-FREQUENCY SEARCHLIGHT SONAR
CH-600**

1 TRANSCIEVER UNIT

- 1.1 Frequency 60/153 kHz or 85/215 kHz, dual frequency
- 1.2 Output power 1 kW
- 1.3 Pulse length 0.2 to 20.0 ms, according to range (up to 10 ms for each frequency in dual-frequency transmission)
- 1.4 TVG Level: 100 dB max, Distance: 1000 m max.
- 1.5 Range
 - Horizontal 10 to 2400 m, 15 steps (user selectable)
 - Vertical 10 to 600 m, 15 steps (user selectable)
- 1.6 Audio output 2 W (8 ohms), Freq. 0.9 to 1.2 kHz (optional speaker required)

2 DISPLAY UNIT

- 2.1 Screen type 12.1 inch color LCD, XGA (1024 x 768)
- 2.2 Brilliance 0.5 to 950 cd/m² (selectable)
- 2.3 Echo color 32, 16 or 8 colors (selectable)
- 2.4 Back-ground color 3 colors (selectable)
- 2.5 Display mode Horizontal (Normal/Zoomed/Vertical or History combined/ Split horizontal + Vertical/A-Scope combined), Vertical scan, Echo sounder (Normal/A-Scope combined), Full-circle A-Scope (Normal/Horizontal dual) Dual horizontal (Normal/Zoomed)/ Vertical/ Echo sounder; High, low or mixed frequency mode selected from control unit
- 2.6 Echo information Range, Sensitivity, TVG, Tilt angle, Interference rejection
- 2.7 Sensor information L/L (own ship or cursor), Depth, Bearing, Ship's speed, Track, Water current vector, Water temperature (external data required)
- 2.8 Marker Range and bearing to target
- 2.9 Indication unit Meter, feet, fathom, pb, HIRO
- 2.10 Event mark 5 points
- 2.11 Echo adjustment Erase color, Clutter, Emphasis mode, Quick gain setting, Auto-filter, Reverberation suppression
- 2.12 Others Interference rejection, Menu background transparency, Target lock (three functions selected on menu)

3 HULL UNIT

- 3.1 Transducer travel 400 mm (CH-5041) or 250 mm (CH-5051)
- 3.2 Tank size (inner dia.) 8-inch
- 3.3 Raise/lower time 30 s at 400 mm travel, 20 s at 250 mm travel
- 3.4 Ship's bow setting Setting offset on menu at installation
- 3.5 Full circle scanning period (s)

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Range (m)	10	20	40	60	80	120	160	200	250	300	400	500	600	800	1000	
Step angle	6°	3.8	3.8	3.8	5.2	6.8	10.1	12.9	16.5	20.6	24.3	32.5	40.5	48.3	64.6	80.5
	15°	3.7	3.7	3.7	3.8	4.8	5.6	7.2	8.4	10.1	12.0	15.0	18.2	21.6	27.8	34.1
	24°	3.7	3.7	3.7	3.7	3.9	4.5	5.8	6.6	7.7	8.8	10.7	12.8	15.0	18.7	22.6

- 3.6 Horizontal mode control
 - Scanning angle 6° to 360°, 24° step
 - Scanning speed (step-angle) 6°, 12°, 15°, 18°, 21°, 24°

- Tilt angle -5° to +90°(vertical), 1° step
- Auto tilt setting ±2° to ±10°
- 3.7 Vertical fan mode control
 - Scanning angle 6° to 180°, 12° step
 - Scanning speed (step-angle) Normal: 3°, High speed: 6°
- 3.8 Transceiver beam width

Frequency	Horizontal (-3dB/-6dB)	Vertical (-3dB/-6dB)
60 kHz:	16°/22°	14°/20°
153 kHz:	7°/9°	5°/8°
85 kHz:	11°/15°	10°/14°
215 kHz:	5°/6°	4°/6°
- 3.9 Allowable ship's speed 20 kn or less (15 kn during raise/lower operation)
- 3.10 Stabilization Built-in motion sensor (standard supply)

4 INTERFACE

- 4.1 Number of ports
 - Video signal output 1 port, HDMI, XGA
 - NMEA0183 (IEC61162-1) 2 ports, V1.5/2.0/3.0/4.0/4.1, 4800/9600/19200/38400 bps
 - NMEA2000 1 port
 - External KP 1 port, I/O
- 4.2 Data sentences
 - Input CUR, DBS, DBT, DPT, GGA, GLL, GNS, HDG, HDM, HDT, MDA, MTW, RMC, VHW, VTG, ZDA
 - Output TLL
- 4.3 Output proprietary sentence
 - PFEC pidat
- 4.4 NMEA2000 PGN
 - Input 059392/904, 060160/416/928, 061184, 065240, 126208/720/992/996, 127250, 128259267, 129025/026/029/033/291, 130310/311/312/316/577/821
 - Output 059392/904, 060928, 061184, 126208/464/720, 126993/996/998, 130822/823/828

5 POWER SUPPLY

- 5.1 Display/ Control/ Transceiver unit 12-24 VDC: 4.7-2.3 A
- 5.2 Hull unit 12/24 VDC: 2.2/1.1 A (7.2/3.6 A: During raising)
- 5.3 Rectifier (RU-1746B-2, option) 100/110/115//220/230 VAC, 1 phase, 50/60 Hz, 13 A max.

6 ENVIRONMENTAL CONDITION

- 6.1 Ambient temperature
 - Display/ Transceiver/ Control unit -15°C to +55°C
 - Hull unit 0°C to +55°C (Transducer: 0 to +35°C)
- 6.2 Relative humidity 95% or less at +40°C
- 6.3 Degree of protection
 - Display/ Control unit IP55
 - Transceiver/ Hull unit IP22 (Raise/lower control unit: IP55)
- 6.4 Vibration IEC60945 Ed.4

7 UNIT COLOR

- 7.1 Display/ Control/ Transceiver unit N2.5