

**SPECIFICATIONS OF COLOR SCANNING SONAR
FSV-25/25S MARK-2**

1 GENERAL

1.1 Scanning method Full digital beam forming

1.2 Frequency 20 kHz

1.3 Range

FSV-25 MARK-2

Basic range (m)	Range (m)	
	Off-center 'OFF'	Off-center 'ON'
60	0-60	0-96
100	0-100	0-160
150	0-150	0-240
200	0-200	0-320
300	0-300	0-480
400	0-400	0-640
500	0-500	0-800
600	0-600	0-960
800	0-800	0-1280

Basic range (m)	Range (m)	
	Off-center 'OFF'	Off-center 'ON'
1000	0-1000	0-1600
1200	0-1200	0-1920
1600	0-1600	0-2560
2000	0-2000	0-3200
2500	0-2500	0-4000
3000	0-3000	0-4800
3500	0-3500	0-5000
4000	0-4000	0-5000
5000	0-5000	0-5000

FSV-25S MARK2

Basic range (m)	Range (m)	
	Off-center 'OFF'	Off-center 'ON'
60	0-60	0-96
100	0-100	0-160
150	0-150	0-240
200	0-200	0-320
300	0-300	0-480
400	0-400	0-640
500	0-500	0-800
600	0-600	0-960
800	0-800	0-1280
1000	0-1000	0-1600
1200	0-1200	0-1920
1600	0-1600	0-2560

Basic range (m)	Range (m)	
	Off-center 'OFF'	Off-center 'ON'
2000	0-2000	0-3200
2500	0-2500	0-4000
3000	0-3000	0-4800
3500	0-3500	0-5600
4000	0-4000	0-6400
5000	0-5000	0-8000
6000	0-6000	0-9600
7000	0-7000	0-10000
8000	0-8000	0-10000
9000	0-9000	0-10000
10000	0-10000	0-10000

1.4 Audio search 30°, 60°, 90°, 180°, 330° selectable

1.5 Audio output Audio terminal

2 PROCESSOR UNIT

2.1 Picture color 32 colors (sonar picture), 6 colors (marks)

2.2 Resolution 1280 x 1024 (SXGA), 1600 x 1200 (UXGA), 1920 x 1200 (WUXGA)

2.3 Orientation Head-up, North-up*, Course up* and True motion*

*: sensor required

- 2.4 Presentation mode Horizontal, Horizontal combination, Vertical 1 combination, Vertical 2 combination
- 2.5 Features Custom mode, Interference rejecter, After-glow, Noise limiter, Signal level, Auto-tilt, Automatic target tracking (target lock), Fish alarm, AGC, Reverberation suppression, Noise suppression, Transducer stop location control, Over-voltage warning, Unretracted transducer warning

3 TRANSCEIVER UNIT

- 3.1 Transmitter PDM half-bridge
- 3.2 Receiving method Straight amplifier, full digital beam forming
- 3.3 H-mode beam-width TX: 360° x 7°, RX: 12° x 10° (-3 dB full width)
TX: 360° x 10°, RX: 16° x 14° (-6 dB full width)
- 3.4 V-mode beam-width TX: 360° x 29°, RX: 12° x 10° (-3 dB full width)
TX: 360° x 47°, RX: 18° x 13° (-6 dB full width)
- 3.5 Tilt angle -5° to 60° (downward)
- 3.6 Vertical search range 0° to 60° (downward)

4 HULL UNIT

- 4.1 Raise/lower period (full projection)
 - FSV-253-MK2 (1200 mm travel) 12 s
 - FSV-254-MK2 (1600 mm travel) 16 s

4.2 Ship's speed allowance

Projection of transducer (mm)	Stable	Raise/lower operation
1100 or less	20 kn	14.5 kn
1100 to 1300	18 kn	13.5 kn
Over 1300	16 kn	12 kn

5 INTERFACE

- 5.1 Number of port
 - Video output 2 ports, HDMI, SXGA
 - NMEA0183 5 ports (V1.5/2.0/3.0/4.0/4.1)
 - External KP 1 port, current loop or contact signal (input: 5-15V, output: 12V)
 - Audio output 1 port, 10W, 4 ohms, monaural
 - Gyrocompass 1 port, AD-10
 - Echo sounder (input) 1 port, VI-1100A (analog)
 - Contact signal 1 port, for external switch
 - USB 4 ports (USB2.0: 2, USB3.0: 2)
 - LAN 2 ports, Ethernet 1000Base-T
- 5.2 I/O sentences
 - Input CUR, DBS, DBT, DPT, GGA, GLL, GNS, HDG, HDM, HDT, MDA, MTW, MWV, RMC, VBW*¹, VDR, VHW, VTG, VWR, VWT, ZDA
 - Output TLL

*¹: Fore-aft and port-stbd speeds required.
- 5.3 Output proprietary sentences
 - PFEC evt, fkv, fmg, fvc, pidat, sht, tfm, tlm, tqm

6 POWER SUPPLY

- 6.1 Processor unit 12-24 VDC: 4.0-2.0 A
- 6.2 Power supply unit 100/110/115/220/230 VAC: 14 A max, 1 phase, 50/60 Hz
Output for transceiver unit: 200 VAC, 1 phase, 50/60 Hz
- 6.3 Raise/lower control box 200-220 VAC: 16 A max, 3 phase, 50/60 Hz
- 6.4 AC/DC power supply unit (option)
PR-241 100-230 VAC, 1 phase, 50-60 Hz

7 ENVIRONMENTAL CONDITIONS

- 7.1 Ambient temperature
 - Processor/ Control unit -15°C to +55°C
 - Transducer -5°C to +35°C
 - Others 0°C to +50°C
- 7.2 Relative humidity 93% or less at +40°C
- 7.3 Degree of protection
 - Control unit IP22 (panel), IP20 (chassis)
 - Processor/Transceiver unit IP22
 - Remote control unit IPX4
 - Power supply unit/ Junction box IP22
 - Hull unit IPX2
 - Transducer IPX8
- 7.4 Vibration IEC 60945 Ed.4

8 UNIT COLOR

- 8.1 Processor unit/ Transceiver unit/ Power supply unit N2.5
- 8.2 Control unit N2.5 (chassis), N1.0 (key)
- 8.3 Hull unit/ Raise lower control box/ Control box extension box/ Junction box 2.5G7/2