

SPECIFICATIONS OF MARINE RADAR FAR-2218

1 ANTENNA RADIATOR

- 1.1 Type Slotted waveguide array
- 1.2 Radiator length 4 ft (XN12CF), 6.5 ft (XN20CF), 8 ft (XN24CF)
- 1.3 Horizontal beam width 1.9° (XN12CF), 1.23° (XN20CF), 0.95° (XN24CF)
- 1.4 Vertical beam width 20°
- 1.5 Sidelobe attenuation
 - XN12CF -24 dB (within ±10° of main-lobe)
 - XN20CF/24CF -28 dB (within ±10° of main-lobe)
- 1.6 Polarization Horizontal
- 1.7 Rotation 24 rpm or 42 rpm (for high speed craft)
- 1.8 Wind load 100 kn relative
- 1.9 De-icer (option) On: when temperature goes down to 0°C
 Off: when temperature goes up to +5°C

2 TRANSCEIVER

- 2.1 TX Frequency and modulation 9410 MHz±30 MHz, P0N
- 2.2 Output power 12 kW
- 2.3 Range scale, Pulse Repetition Rate and Pulselength

PRR (Hz approx.)	Range scale (NM)											
	0.125	0.25	0.5	0.75	1.5	3	6	12	24	48	96	
3000*	S1											
3000*			S2									
1500				M1								
1200					M2							
1000						M3						
600**								L				

*: 2200 Hz with TT range on 48 NM. **: 500 Hz on 96 NM range

3 PROCESSOR UNIT

- 3.1 Minimum range 22 m
- 3.2 Range discrimination 26 m
- 3.3 Range accuracy 1% of the maximum range of the scale in use or 10 m,
whichever is the greater
- 3.4 Bearing discrimination 2.1° (XN12CF), 1.5° (XN20CF), 1.2° (XN24CF)
- 3.5 Bearing accuracy ±1°
- 3.6 Range scale and Range ring interval (RI)

Range (NM)	0.125	0.25	0.5	0.75	1.5	3	6	12	16	24	48	96
RI (NM)	0.025	0.05	0.1	0.25	0.25	0.5	1	2	4	4	8	16
Number of rings	5	5	5	3	6	6	6	6	4	6	6	6

- 3.7 Warm-up time 3 min. approx.
- 3.8 Presentation mode Head-up, STAB head-up, Course-up, North-up (RM/TM), Stern-up
- 3.9 Marks Cursor, Range ring, Heading mark, North mark, Bearing mark,
Target trail, VRM, EBL, Acquisition zone
- 3.10 Target tracking (TT) Auto or manual acquisition: 100 targets in 24 NM
Auto tracking on all acquired targets,
Tracking: 5/10 pts on all activated targets

- 3.11 AIS
 - Vector time: Off, 30 s, 1-60 min
 - Display capacity: 350 targets,
 - Tracking: 5/10 pts on all activated targets
 - Vector time: Off, 30 s, 1-60 min
- 3.12 Radar map 20,000 pts
- 3.13 Acquisition zone 2 zones
- 3.14 Interswitch function Selectable from menu

4 MONITOR UNIT

- 4.1 Screen type 19-inch color LCD, 1280 x 1024 (SXGA)
- 4.2 Brightness 450 cd/m² typical
- 4.3 Visible distance 1.02 m nominal
- 4.4 Radar effective diameter 282 mm

5 INTERFACE

- 5.1 Number of port (processor unit)
 - Serial 7 ports (IEC61162-1/2: 2 ports, IEC61162-1: 4 ports, AD-10: 1 port)
 - Alarm output 6 ports: contact signal, load current 250mA
(Normal close/ open: 4, System fail: 1, Power fail: 1)
 - DVI output 2 ports: DVI-D, DVI-I or RGB picture data (for VDR)
(RGB resolution 1280x1024 (SXGA), 60.0Hz or 1440x900 (WXGA+), 59.9Hz)
 - LAN 2 ports: Ethernet 100Base-TX
 - RS-232C 1 port: brilliance control
 - Sub display (for ECDIS) 2 ports: HD, BP, Trigger and Video signal
- 5.2 Data sentences (IEC61162-1/2)
 - Input ABK, ACK, ACN, ALR, BWC, BWR, CUR, DBK*¹, DBS*¹, DBT, DDC, DPT, DTM, GGA, GLL, GNS, HBT, HDT*¹, MTW, MWV, OSD, RAQ, RMB, RMC, ROT, RTE, THS, VBW, VDM, VDO, VDR, VHW, VSD, VTG, VWR*¹, VWT*¹, WPL, ZDA
 - Output ABM, ACK, AIQ, ALC, ALF, ALR, ARC, BBM, DDC, EVE, HBT, OSD, RSD, TLB, TTD, TTM, VSD

*¹: for retrofit
- 5.3 Ethernet interface for IEC61162-450
 - Port (LAN2) 100Base-TX, IPv4, 8P8C connector
 - Data sentences Same as 5.2 sentences
 - IEC61162-450 transmission group
 - Input MISC, TGTD, SATD, NAVD, TIME, PROP
 - Output Arbitrary (default: TGTD)
 - Multicast address 239.192.0.1 to 239.192.0.16
 - Destination port 60001 to 60016
 - Re-transmittable binary image transfer
 - Multicast address 239.192.0.26 to 239.192.0.30
 - Destination port 60026 to 60030
 - Other network function excepted IEC61162-450
 - SNMP, HTTP, Syslog, Furuno Management Protocol (FMP)
- 5.4 Output port on antenna unit
 - Sub display (for radar) 1 port: HD, BP, Trigger and Video signal

6 POWER SUPPLY

- 6.1 Processor unit (w/ antenna unit)
 - 100-230 VAC: 2.2-1.1 (2.8-1.4) A, 1 phase, 50-60 Hz
 - (): 42 rpm
- 6.2 Monitor unit 100-230 VAC: 0.7-0.4 A, 1 phase, 50-60 Hz
- 6.3 HUB (option) 100-230 VAC: 0.1 A max. 1 phase, 50/60 Hz
- 6.4 De-icer (option) 100-115/220-230 VAC: 2.6/1.3 A, 1 phase, 50-60 Hz

7 ENVIRONMENTAL CONDITIONS

- 7.1 Ambient temperature
 - Antenna unit -25°C to +55°C (storage: -25°C to +70°C)
 - Indoor units -15°C to +55°C (storage: -20°C to +70°C)
- 7.2 Relative humidity 95% or less at +40°C
- 7.3 Degree of protection
 - Antenna unit IP56
 - Processor/ monitor unit IP22
 - Control unit IP20
 - HUB IP20 (HUB-100), IP22 (HUB-3000)
- 7.4 Vibration IEC 60945 Ed.4

8 UNIT COLOR

- 8.1 Antenna unit N9.5
- 8.2 Processor unit N2.5
- 8.3 Control/ monitor unit N2.5
- 8.4 HUB N3.0 (HUB-100), N2.5 (HUB-3000)
- 8.5 Radar console 2.5GY5/1.5 (standard), 7.5BG7/2, 2.5G7/2, N7.5

9 PERFORMANCE MONITOR (PM-32A)

- 9.1 Frequency range 9380 to 9440 MHz
- 9.2 Input power +18 dBm to +30 dBm
- 9.3 Output power -21 dBm (1st pulse max. output), -41 dBm (1st pulse min. output)
- 9.4 Step level 8 to 12 dB (1st pulse to last pulse)