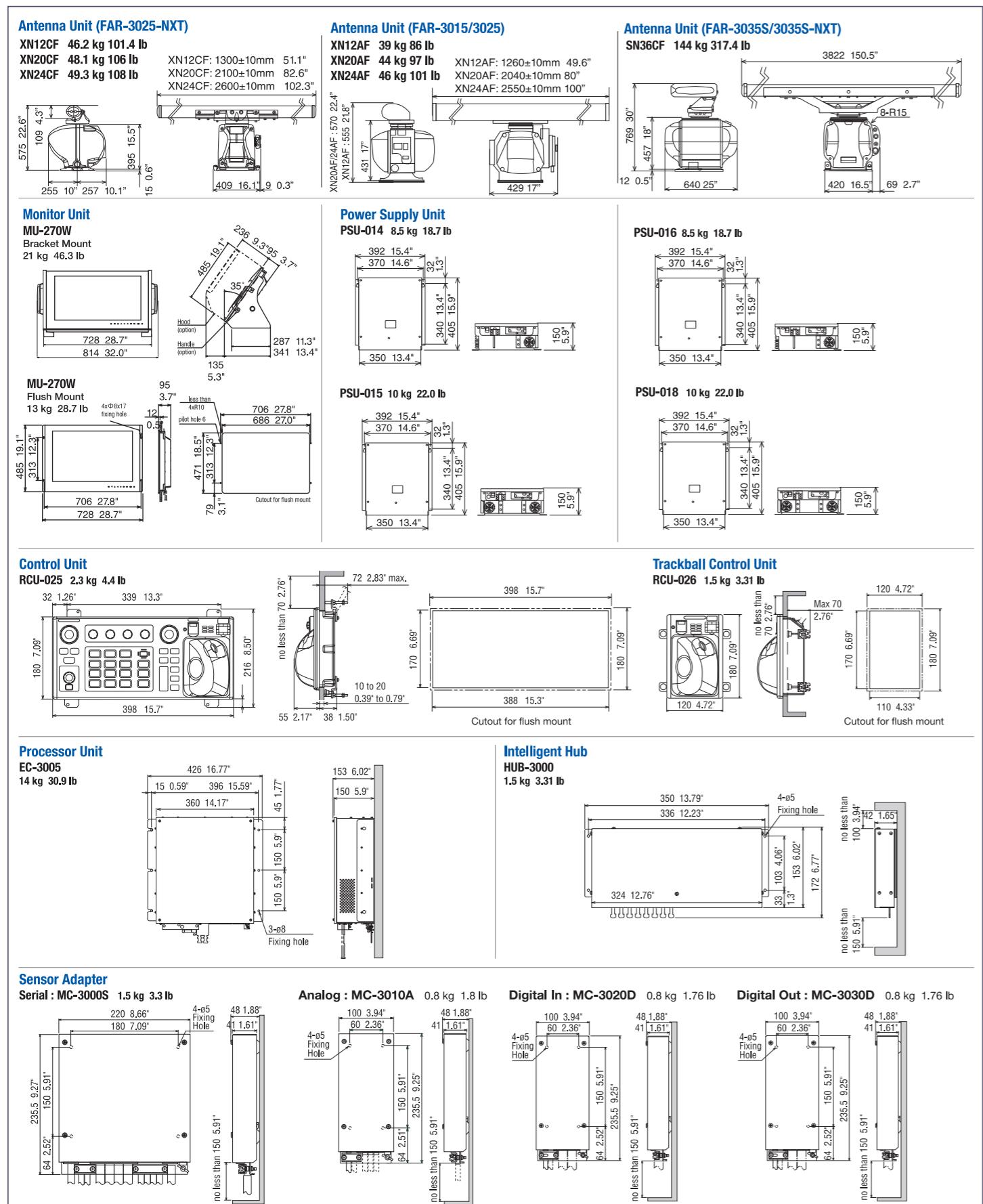


CHART RADAR



Beware of similar products

All brand and product names are registered trademarks, trademarks or service marks of their respective holders.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



Models:
FAR-3005 series

FURUNO FAR-3005 Series Chart Radar offers reliable situational awareness and navigation safety through greatly enhanced target detection

Newly developed antennas with enhanced high durability and reliability



► Newly designed antenna scanners to suppress the aerodynamic drag and prevent a spike in temperature

► Less maintenance required through use of the DC brushless motor

► Ethernet network link between antenna unit and below deck processor unit

The analog signals are converted into the digital signals within the antenna unit and sent to the below deck processor unit via Ethernet network. This network technology eliminates loss of signal gain between antenna unit and processor unit that may be seen in conventional Radar system.

► Optional LAN Signal Converter enables users to extend the cable between antenna unit and processor unit or to utilize the existing cables when retrofitting

Solid State Radar model - NXT - specializes in target detection and maintainability

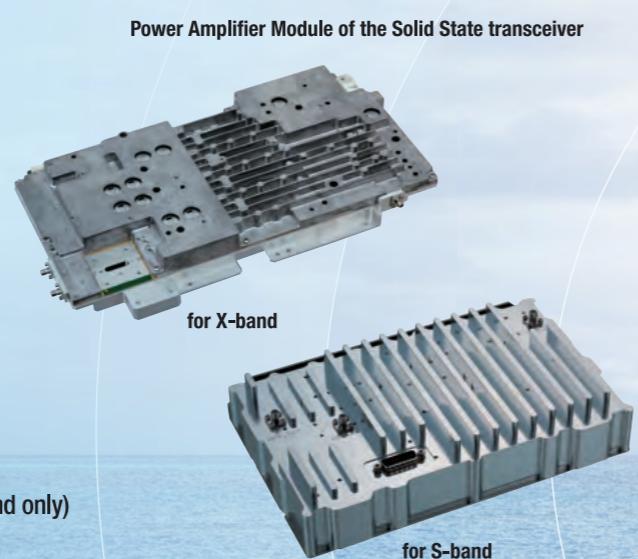
Compared to the traditional Magnetron Radar, the Solid State Radar NXT Series provide highly reliable target detection while requiring low power.

► Clear images

Furuno Solid State Radar technology generates clear echo images, which allows users to obtain a clear picture of the area around their vessel, including weaker echoes from small crafts.

► Reducing the time and cost for maintenance

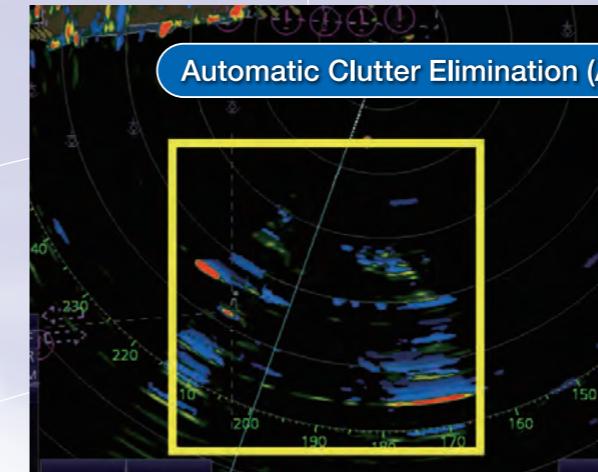
- No need to replace the magnetron
- Removal of the consumable parts thanks to a fan-less antenna (S-band only)



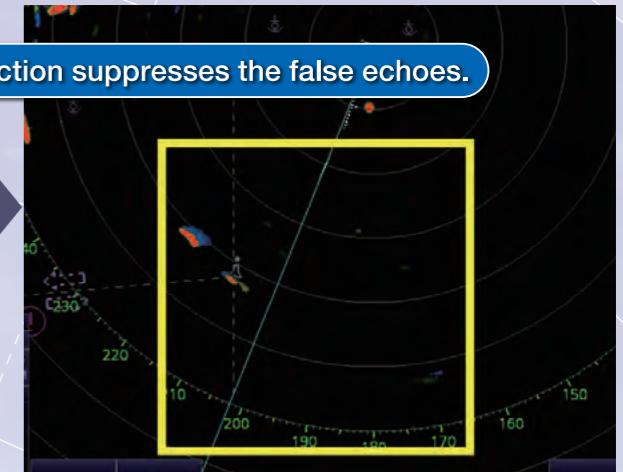
► Automatic Clutter Elimination (ACE) function provides clear echoes

Users can quickly adjust the radar image with a single action. When Automatic Clutter Elimination (ACE) function is activated, the system automatically adjusts the clutter reduction filter and gain control according to the sea and weather conditions selected (Calm/Rough Sea/Hard Rain).

Our advanced echo averaging architecture is also incorporated into Automatic Clutter Elimination (ACE) function. Users can avoid complicated adjustment processes, resulting in clear echo images.



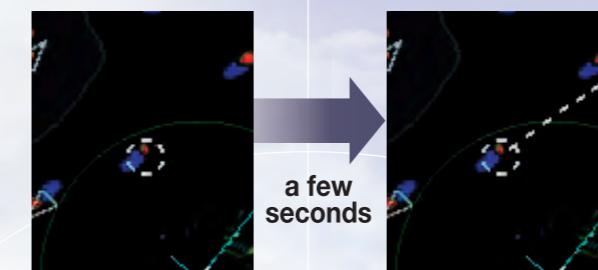
Automatic Clutter Elimination (ACE)
OFF



Automatic Clutter Elimination (ACE)
ON

► Improved Target Tracking (TT) function

- Target acquisition takes only a few seconds

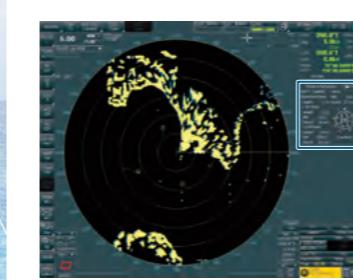


- Acquired target does not jump to adjacent target
- Reliable and stable tracking of high-speed and rapidly maneuvering vessels

Advanced technologies for safer and optimal navigation in all kinds of situations (option)

Wave Analyzer Software *

- Allows real-time monitoring and analysis of wave echoes
- Ensures safety at sea even at night

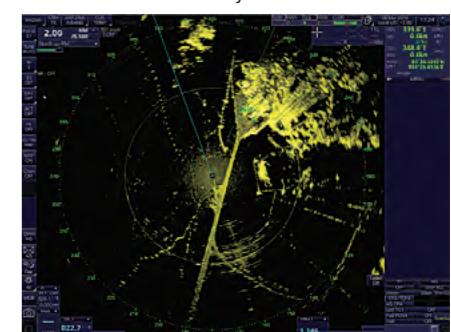


Wave Information	
ANT-1 X-BAND	Wind
Significant Wave	DIR 324.3°
Height	1.7 m Speed 22.2 m/s
▲ 1st Wave	
Height	1.2 m
DIR	122.2°
Period	9.6 sec
▲ 2nd Wave	
Height	0.8 m
DIR	039.2°
Period	9.4 sec

*More details on the Wave Analyzer brochure

Ice Mode ** (X-band magnetron only)

- Find the best route through ice
- Observe ice conditions by Radar



**Please contact your local distributor for more details

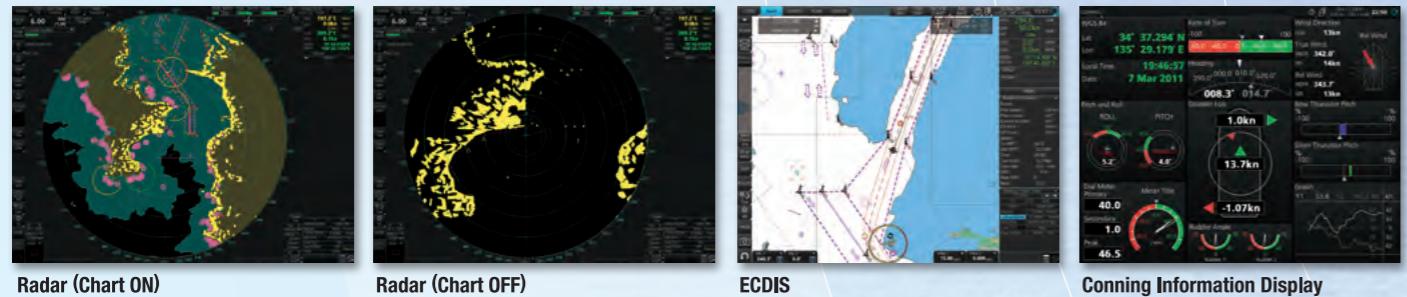
FURUNO's new user interface delivers straightforward operation



Multi Function Display (MFD) capability*

Furuno proposes workstations that combine flexibility and redundancy. Users may easily select ECDIS, Chart Radar, Conning display or Alert Management System at any multi-function display. Navigators will enjoy reduced workload and significant freedom to move about the bridge. All necessary information is available on a variety of displays and at locations that may be altered as required.

*MFD capability is to be implemented as software upgrade



Sensor Adapter

► Common sensor adaptor makes installation and maintenance easy

The Sensor Adapter acts as a central medium to gather all of the sensor data and collectively feed it to all FAR-3005 Chart Radar and FMD-3200/3300 ECDIS in the network. Since the sensor adapter can be extended to interface with all the sensors within the network, individual cable connections in the sensor-to-Chart Radar/ECDIS interface can be greatly reduced.



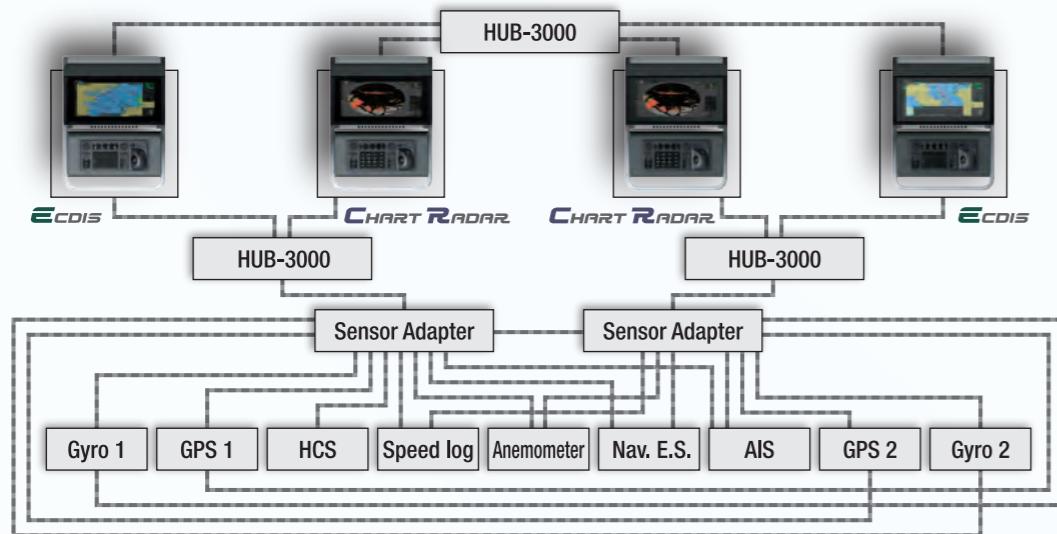
Navigation sensors can be directly interfaced with the processor's 8 serial I/O ports.
Sensor adapters are required under the following conditions:

- The sensor data is to be shared amongst multiple networked Chart Radar and ECDIS systems,
- The number of sensors interfaced is more than the number of the ports the processor has (8 serial I/O ports, 1 digital IN and 6 digital OUT), and/or
- The networked sensors include analog sensors.

In order to integrate onboard sensors into the navigation network, the sensor adapter may be interfaced with the Intelligent Hub HUB-3000 from which distribution of the sensor data throughout the network is possible. Alternatively, multiple sensor adapters may be interfaced via Ethernet to integrate onboard sensors for use in the shipboard network.

System diagram for the new Chart Radar

Model: FAR-3005



Unique & smart operation tool – “Status bar” and “InstantAccess bar™”

The user interface of the Radar utilizes carefully organized operational tools: the Status bar and the InstantAccess bar™. These operational tools deliver straightforward, task-based operation by which the operator can quickly perform tasks without having to navigate an intricate menu tree.

Status bar

Status bar contains information about the operating status, i.e., MFD operating mode, main tasks assigned to each MFD operating mode.



InstantAccess bar™

InstantAccess bar™ contains all the tasks (functions or actions) corresponding to the operation mode currently selected so that quick access to necessary functions/actions can be made.

Stress-free operation with the well-designed control unit



Intuitive operation

All operations can be controlled with the trackball.

Contextual menu
The context menu contains all the available actions related to the selected icon or area, it provides quick access to tasks.



SPECIFICATIONS

PRODUCT NAME

MARINE RADAR

GENERAL

Range Scales and Ring Intervals

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

ANTENNA UNIT

Radiator Type Slotted waveguide array

Beamwidth and Sidelobe

Antenna Type	X band					S band	
XN12CF	XN20CF	XN24CF	XN12AF	XN20AF	XN24AF		SN36CF
130 / 4.2	210 / 7	260 / 8.5	126 / 4	204 / 6.7	255 / 8.3		383 / 12.6
Horizontal beam	1.9°	1.23°	0.95°	1.9°	1.23°	0.95°	1.8°
Vertical beam	20°		20°		25°		
Side lobe ($\pm 10^\circ$ or below)	-24 dB	-28 dB	-28 dB	-24 dB	-28 dB	-28 dB	-24 dB
Side lobe ($\pm 10^\circ$ or above)	-30 dB	-32 dB	-32 dB	-30 dB	-32 dB	-32 dB	-30 dB

TRANSCEIVER UNIT

Frequency and radio wave type

X band (Magnetron)	9410 MHz ± 30 MHz, PON
S band (Magnetron)	3050 MHz ± 30 MHz, PON
X band (Solid-state)	CH1 PON: 9403.75 MHz/Q0N: 9423.75 MHz ± 5 MHz CH2 PON: 9413.75 MHz/Q0N: 9433.75 MHz ± 5 MHz
S band (Solid-state)	CH1 PON: 3043.75 MHz/Q0N: 3063.75 MHz ± 5 MHz CH2 PON: 3053.75 MHz/Q0N: 3073.75 MHz ± 5 MHz

Peak Output

FAR-3015	12 kW
FAR-3025	25 kW
FAR-3025-NXT	600 W
FAR-3035S	30 kW
FAR-3035S-NXT	250 W

Range scale, Pulse Repetition Rate and Pulselength

Magnetron radar: FAR-3015/3025/3035S

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		

*: 500 Hz on 96 NM range.

Solid state radar: FAR-3025-NXT

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

Solid state radar: FAR-3035S-NXT

PRR (Hz approx.)	Range scale (NM)											
	0.125	0.25	0.5	0.75	1.5	3	6	12	24	48	96	
2400			S1									
2000						S2						
1500							M1					
1060								M2				
1000								M3				
600									L			

PROCESSOR UNIT

Chart Materials	IMO/IHO S57 edition-3 ENC vectorized material (IHO S-63 ENC data protection scheme), C-MAP and CM-93 vectorized materials
Data Presentation	Own ship's mark and numeral position in lat/lon, speed and course
Target Data(TT: ARPA, AIS)	Range, bearing, speed, course, CPA/TCPA, BCR/BCT Target information from AIS (waypoint, ship's hull and status)
Position Calculation	Navigation by result from external position sensor Dead reckoning with gyro and log data from gyro, log, and position sensors to be fed to mathematical filter to generate highly accurate position and speed
Navigation Planning	Planning by rhumb line, great circle
Route Monitoring	Off-track display, waypoint arrival alarm, shallow depth alarm
User Chart	User chart creation and display
Notes Data	Create and display notes data
MOB (Man Overboard)	Position, and other data at time of man overboard are recorded MOB mark is displayed on the screen

DISPLAY UNIT

Screen type	MU-270W
Resolution	27-inch color LCD, 1920 x 1200 (WUXGA)
Brightness	400 cd/m ² typical
Visible distance	1.02 m nominal
Effective diameter	349 mm

INTERFACE

Processor Unit

DVI	2 ports, DVI-D (Video signal from DVI-1 and DVI-2 is identical)
LAN	1 port, DVI-I Ver. 1.1 (RGB for VDR)
USB	2 ports, Ethernet 1000 Base-T (for Interswitch and Sensor Adapter)
COM	1 port, 100 Base-TX (for Radar sensor)
Serial I/O	4 ports, USB 2.0 type-A
	2 ports, RS232C/RS-485 (for brilliance control)
	8 ports
Sentences Input	IEC61162-1/2 (2 ports), IEC61162-1 (6 ports)

Output	ABK, ACN (ACM), ALC
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