

FURUNO

CHART RADAR



Models:
FAR-3000 series

FURUNO FAR-3000 Chart Radar offers the r and navigation safety by greatly enhanced t

Newly developed antennas with enhanced high durability and reliability



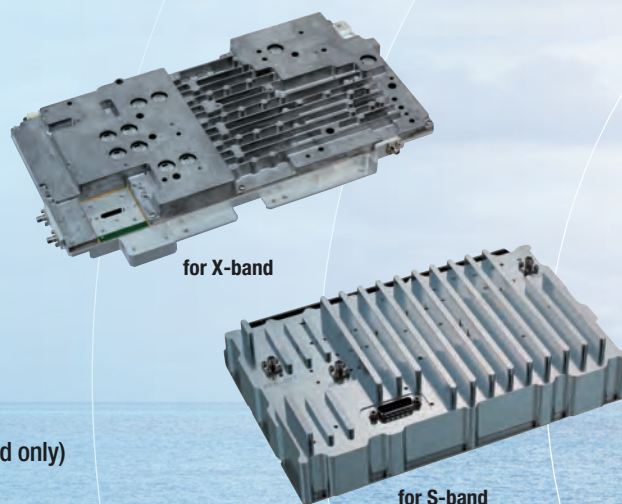
- ▶ **Newly designed antenna scanners to suppress the aerodynamic drag and prevent a spike in temperature**
- ▶ **Less maintenance required through use of the DC brushless motor**
- ▶ **Ethernet network link between antenna unit and below deck processor unit**
The analog signals are converted into the 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)

Power Amplifier Module of the Solid State transceiver

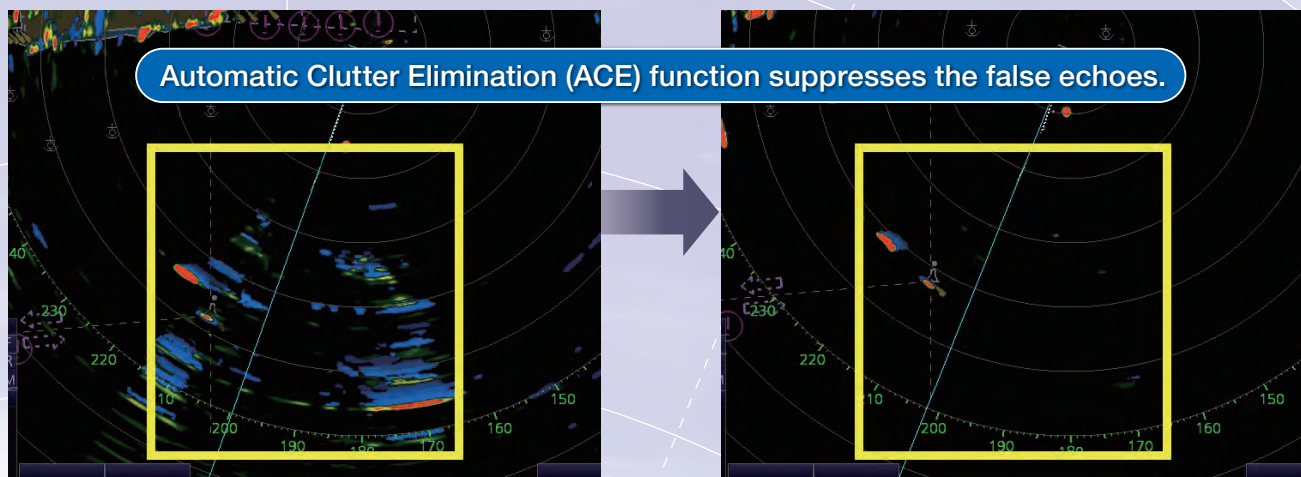


Reliable situation awareness target detection

► 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

► High performance Radar with Cat.1 and Cat.2 support

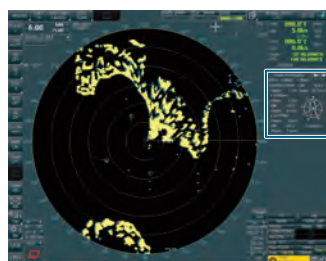
► Complies with the following regulations:

- IEC 60945 Ed. 4.0
- IEC 61162-1 Ed. 5.0
- IEC 61162-2 Ed. 1.0
- IEC 61162-450 Ed. 2.0
- IEC 61174 Ed. 4.0
- IEC 62288 Ed. 2.0
- IEC 62388 Ed. 2.0
- IEC 62923-1
- IEC 62923-2

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

Wave Analyzer Software *

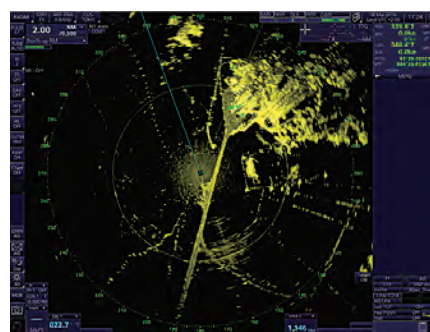
- Allows real-time monitoring and analysis of wave echoes
- Ensures safety at sea even at night



*More details on the Wave Analyzer brochure

Ice Mode ** (X-band magnetron only)

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

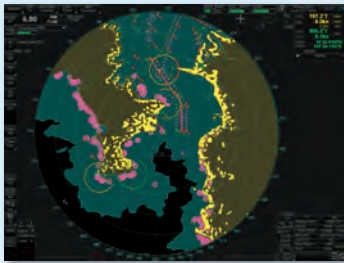


**Please contact your local distributor for more details

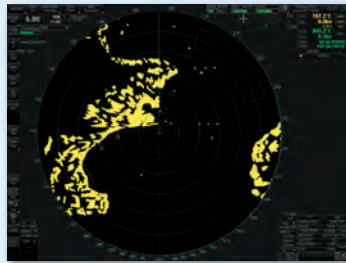
Multi Function Display (MFD) capability*

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



Radar (Chart ON)



Radar (Chart OFF)



ECDIS



Conning Information Display

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-3000 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.

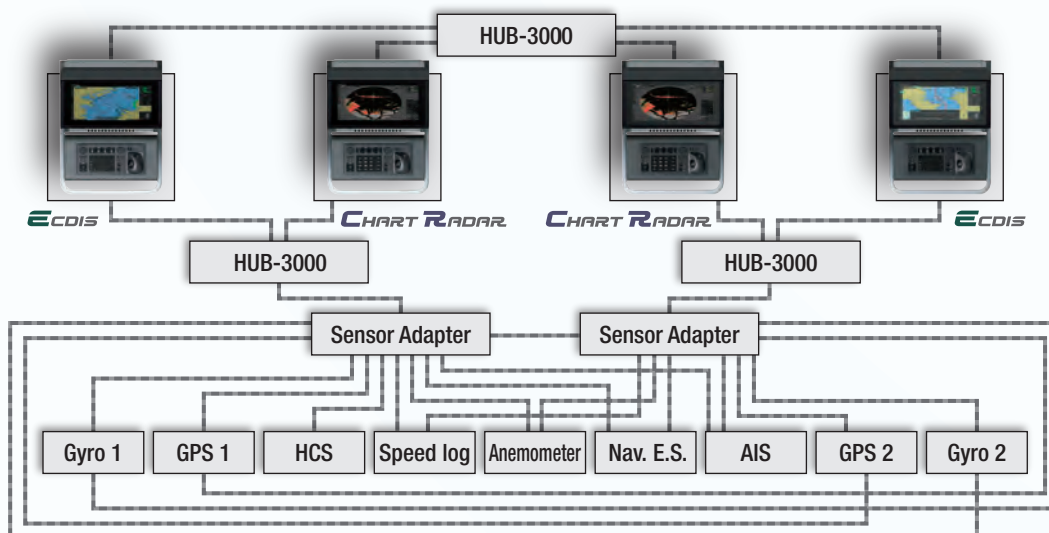
Sensor adapters are required under the following conditions:

- 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-3000



FURUNO's new user interface delivers straightforward operation

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.

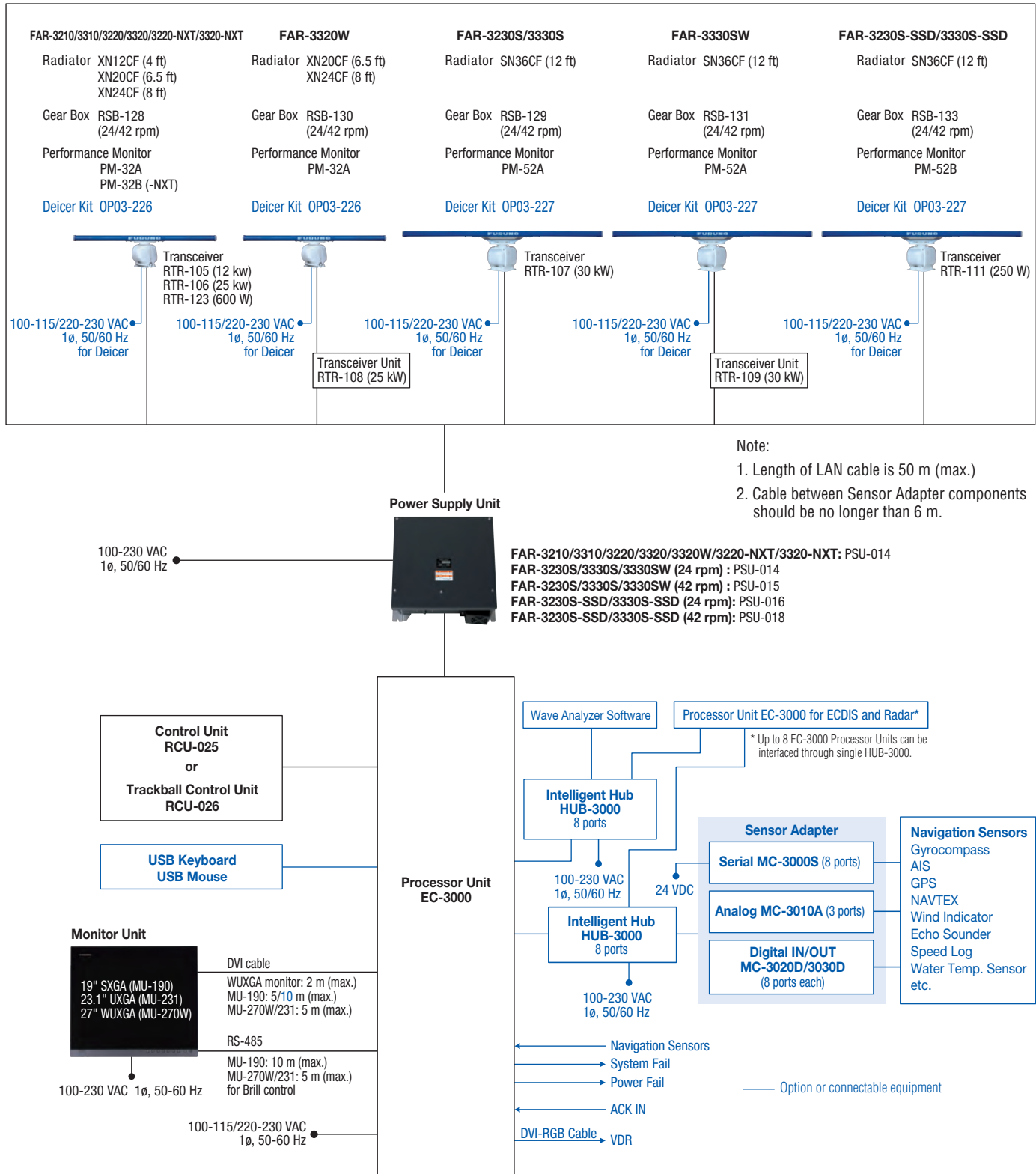
Contextual menu

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



WaveAnalyzer Software WAV 100/WAV 1000

INTERCONNECTION DIAGRAM



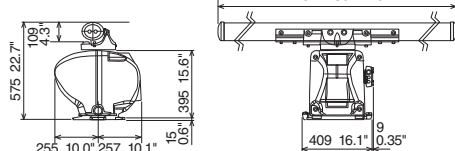
Model	Output Power	Transceiver Unit	Gear Box	Radiator Length	Rotation	Power Supply Unit		Display Unit	
						24 rpm	42 rpm		
FAR-3210	X band 12 kW	RTR-105	RSB-128	4 ft (XN12CF)	24/42° rpm	PSU-014		19.0" SXGA (MU-190)	
FAR-3310		RTR-106		6.5 ft (XN20CF)				27" WUXGA (MU-270W) or 23.1" UXGA (MU-231)	
FAR-3220				8 ft (XN24CF)				19.0" SXGA (MU-190)	
FAR-3320		RTR-108		RSB-130				6.5 ft (XN20CF)	27" WUXGA (MU-270W) or 23.1" UXGA (MU-231)
FAR-3320W	8 ft (XN24CF)		27" WUXGA (MU-270W) or 23.1" UXGA (MU-231)						
FAR-3220-NXT	X band 600 W	RTR-123	RSB-128	4 ft (XN12CF)				19.0" SXGA (MU-190)	
FAR-3320-NXT				6.5 ft (XN20CF)		27" WUXGA (MU-270W) or 23.1" UXGA (MU-231)			
FAR-3230S	S band 30 kW	RTR-107	RSB-129	12 ft (SN36CF)		PSU-014	PSU-015	19.0" SXGA (MU-190)	
FAR-3330S		RTR-109	RSB-131					27" WUXGA (MU-270W) or 23.1" UXGA (MU-231)	
FAR-3330SW									
FAR-3230S-SSD	S band 250 W	RTR-111	RSB-133	PSU-016				PSU-018	19.0" SXGA (MU-190)
FAR-3330S-SSD									27" WUXGA (MU-270W) or 23.1" UXGA (MU-231)

* Except for XN24CF

Antenna Unit for FAR-3210/3310/3220/3320/3320W/3220-NXT/3320-NXT

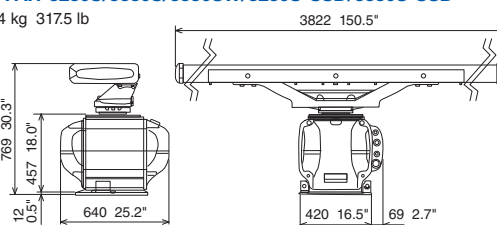
Radiator XN12CF 46.2 kg 101.9 lb
XN20CF 48.1 kg 106.1 lb
XN24CF 49.3 kg 108.7 lb

XN12CF: 1297 51.1"
XN20CF: 2097 82.6"
XN24CF: 2597 102.2"



Antenna Unit for FAR-3230S/3330S/3330SW/3230S-SSD/3330S-SSD

Radiator SN36CF 144 kg 317.5 lb



Monitor Unit

MU-190

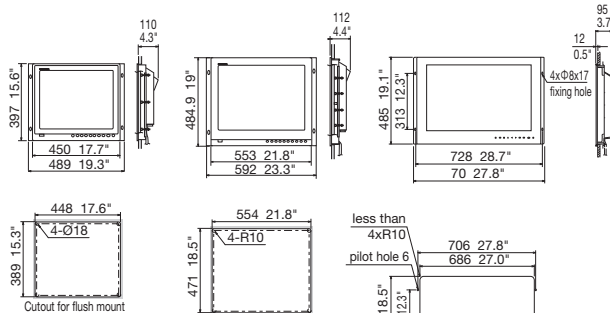
8.8 kg 19.4 lb

MU-231

12.8 kg 28.2 lb

MU-270W

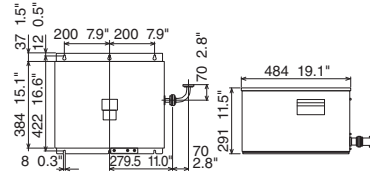
13 kg 28.7 lb



Transceiver Unit for FAR-3320W

RTR-108

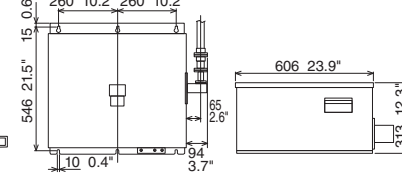
17 kg 37.5 lb



Transceiver Unit for FAR-3330SW

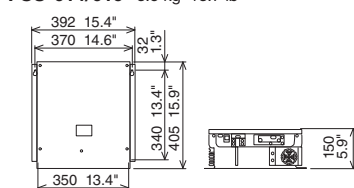
RTR-109

22 kg 48.5 lb

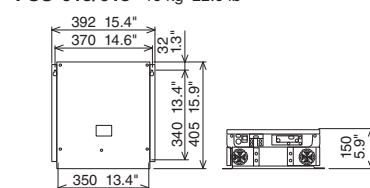


Power Supply Unit

PSU-014/016 8.5 kg 18.7 lb

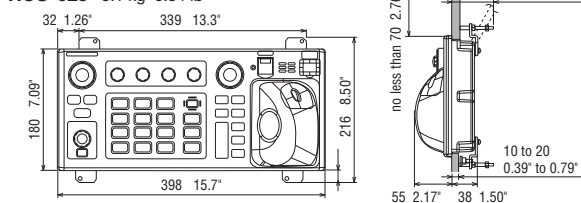


PSU-015/018 10 kg 22.0 lb



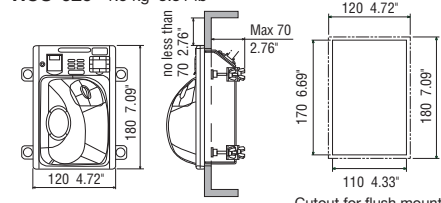
Control Unit

RCU-025 3.1 kg 6.84 lb



Trackball Control Unit

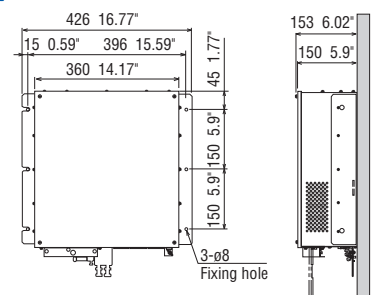
RCU-026 1.5 kg 3.31 lb



Processor Unit

EC-3000

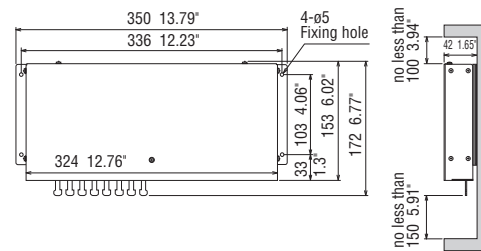
14 kg 30.9 lb



Intelligent Hub

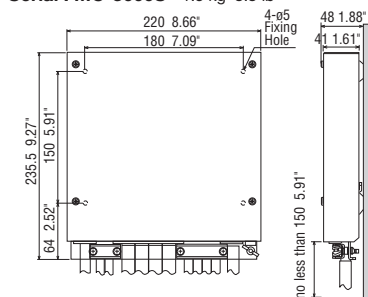
HUB-3000

1.5 kg 3.31 lb

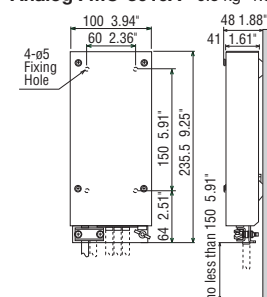


Sensor Adapter

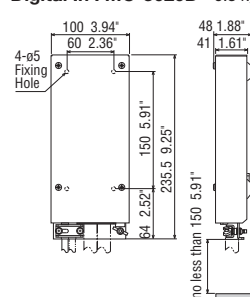
Serial : MC-3000S 1.5 kg 3.3 lb



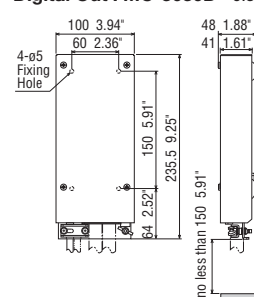
Analog : MC-3010A 0.8 kg 1.8 lb



Digital In : MC-3020D 0.8 kg 1.76 lb



Digital Out : MC-3030D 0.8 kg 1.76 lb



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