FURUNO

Driving the Digitalization of Navigation

ENVISION

FURUNO ENVISION
A revolutionary solution
Designed for the future of navigation

AR Navigation System

ENVISION

—*Beyond Reality*—

The FURUNO ENVISION series is our all-new advanced "AR Navigation System" (Augmented Reality Navigation System) that provides an advanced navigation support tool, using the power of AR to go beyond reality.

Thanks to a camera pointed forward of the vessel, an image of the front view projects on a display and all the necessary navigation information is superimposed over this live video imagery by our AR technology. Even in adverse weather or visibility conditions, you can clearly view other vessels' routes and critical information, as well as own ship data, allowing you stress-free maneuvering and navigation. This very intuitive way to display and share the information between the captain and the bridge team provides enhanced situational awareness, crew confidence, watchman support, and allows for better coordination of crew members.

The FURUNO ENVISION series aims to contribute to the safety and security of the voyage by offering visual support to maneuvering and navigation during any operation, a further technological step towards autonomous navigation.

※AR navigation is an auxiliary tool designed to improve the navigation comfort for safer navigation.
In no case should AR navigation replace Radar, ECDIS etc. and other required instruments for danger avoidance.

Go Beyond What The Eye Can See

AR information overlaying the screen is particularly useful in poor visibility conditions.

AR Navigation ON/OFF Comparison in bad weather conditions

OFF

ON
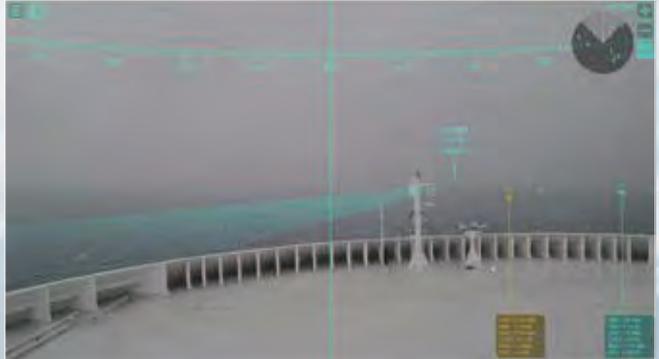
AR Navigation ON/OFF Comparison during nighttime navigation

OFF

ON
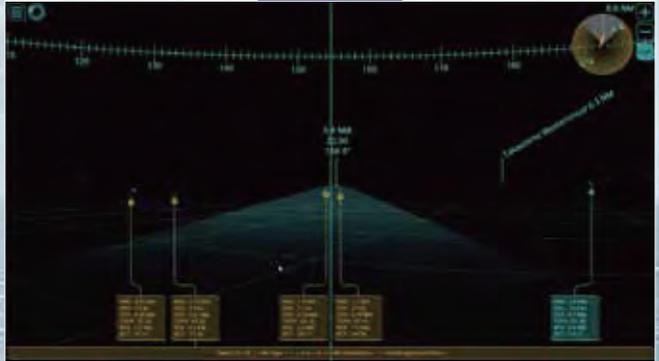
* By using a surveillance video camera and overlaying AR information on the display, our AR Navigation system allows for quick and intuitive situational awareness.

Go Beyond What The Eye Can See

AR OVERLAY

- Azimuth ● AIS ● Heading ● Radar Target Tracking (TT)
- Route ● Waypoint ● User chart & ENC symbols

MENU

Azimuth scale

Azimuth (Heading)

TVI (Top View Indicator):
Display TT/AIS Information in 360° (own ship as center)

Waypoint
(Distance, TTG, Course)
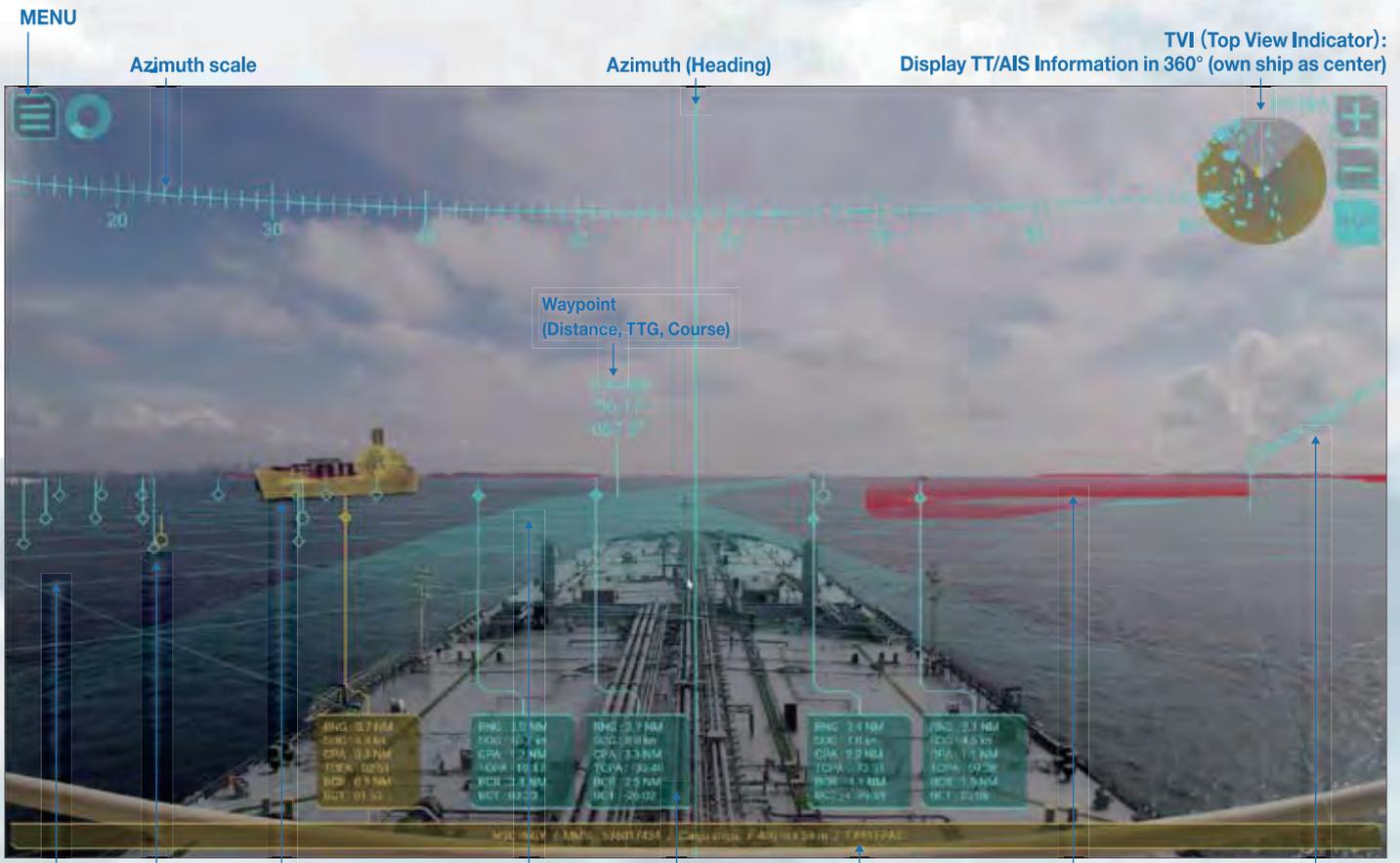
Selection marker:
Click to display TT
or AIS information

Target shape:
Digital representation
on AIS target

Target Information box

User chart information:
No-go area

Grid:
Own coordinates or World coordinates

Navigation route (Planned route):
Route synchronized with ECIDS

Additional target information

User chart information:
Label
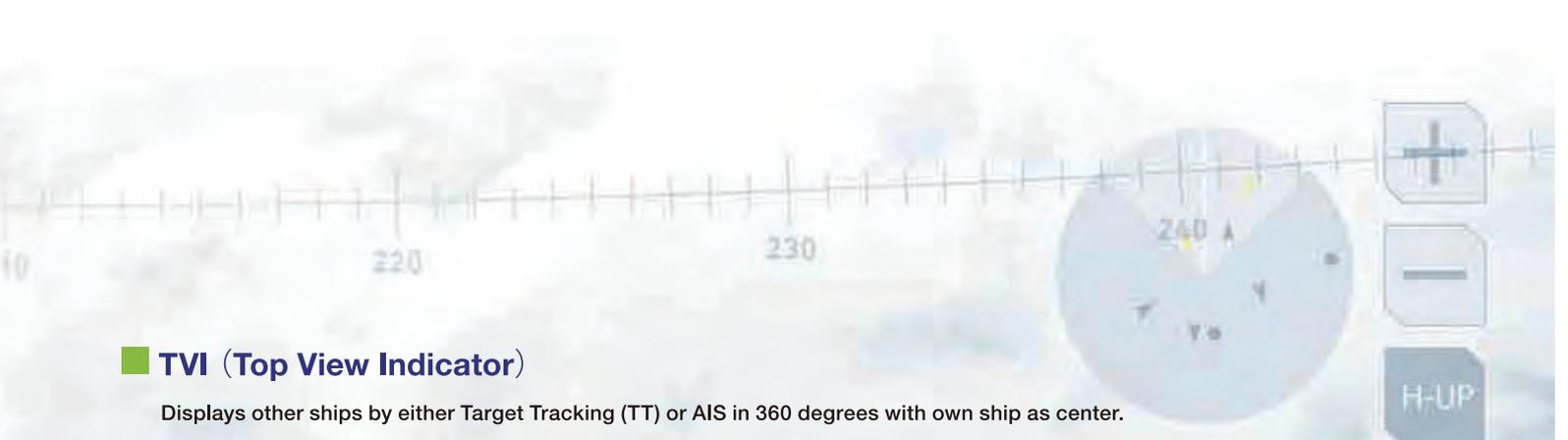
■ TVI (Top View Indicator)

Displays other ships by either Target Tracking (TT) or AIS in 360 degrees with own ship as center.

Camera view angle
Display range
Range Switch

Display modes

| H-UP | Head-up mode |
| N-UP | North-up mode |

Own ship position
TT/AIS targets
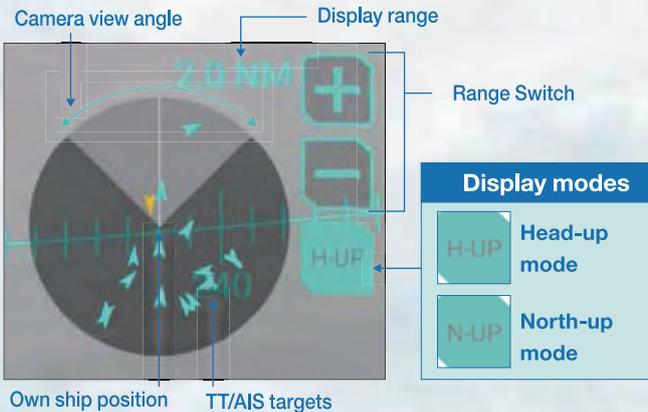
	HDG / COG off	HDG / COG on
AIS	●	◀ (HDG > COG)
TT	●	◀ (COG)

■ Intuitive color-coded display for targets*

Based on CPA/TCPA value, TT and AIS targets will be displayed in different colors according to their threat level. (TVI, selection marker, target information frame, target)

* Colors adjustable (Yellow, Orange and Red are available)
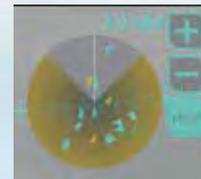
When a hazardous target is out of the camera view angle, the TVI will blink to alert the user.

■ Selection marker and Target information box

Other ship information are collected by either TT or AIS are indicated with specific marks. When a mark is clicked, a box containing the information will open.

AIS marker   TT marker

■ Target shape

By superimposing the graphical virtual shape over AIS targets (virtual buoy, buoy, boat, tanker), it becomes easy to visually grasp the location of dangerous targets and their directions.
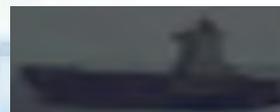
Target Shape OFF   Target Shape ON

RNG: 1.9NM
SPD: 12.1 kn
DCPA: 1.3 NM
TCPA: 17:58
BCR: 1.5NM
BCT: -11:12

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SPD: 12.1 kn
DCPA: 1.3 NM
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For additional information AR Navigation features, scan to visit our YouTube channel.
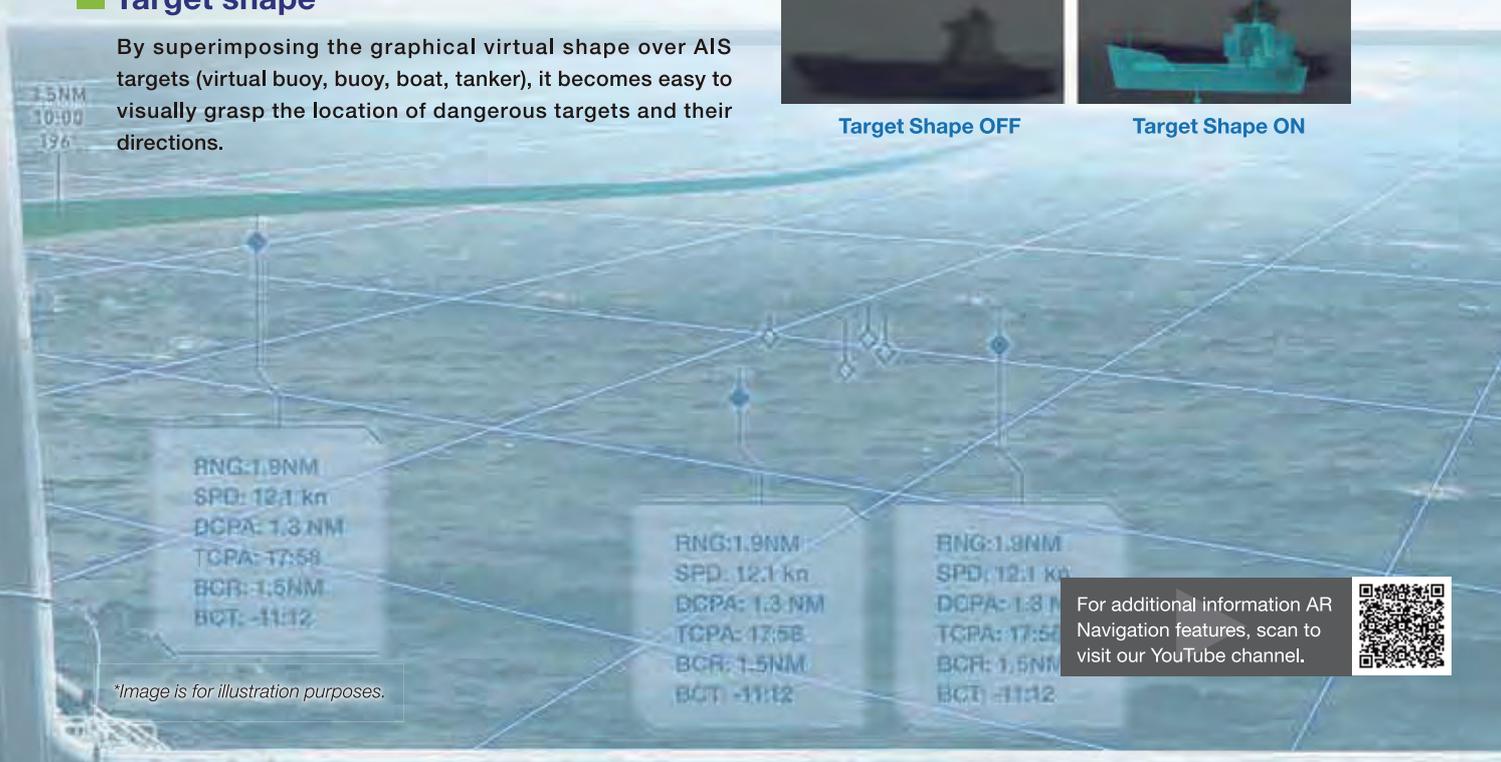
*Image is for illustration purposes.

ENVISION

Product name	AR Navigation System
Model name	AR-100M

Processor

Type	Black box
Display mode	Target Tracking (TT)、AIS, Azimuth, User chart, ENC chart symbol
Power Supply	100-240 VAC
Interface	Ethernet 2 ports
	USB USB2.0：4 ports、USB3.0：2 ports
	HDMI 1 port

IP camera

Resolution	1920 x 1080
Frame rate	25 fps
Video Compressio	H.264 codec
Horizontal angle	99°
Networking	Ethernet
Source	PoE Adapter

PoE Adapter

Networking	Ethernet
Power Supply	100-240 VAC, 50/60 Hz

Monitor

Resolution	1920 x 1080

Standard Equipment list

1.Processor   2. IP camera（Visible light camera）   3. PoE Adapter   4. Trackball mouse   5. ENC dongle*   6. Installation materials
（HDMI cable 5 m, LAN cable 10 m x2 /2 m, USB cable 5 m x2, Processor mount kit, IP camera bracket, Screws for bracket・
Washer, Aseismic mat for installing POE Adapter）

* ENC dongle provided
Separately from the box

PoE Adapter

Processor

IP Camera

IP Camera Bracket
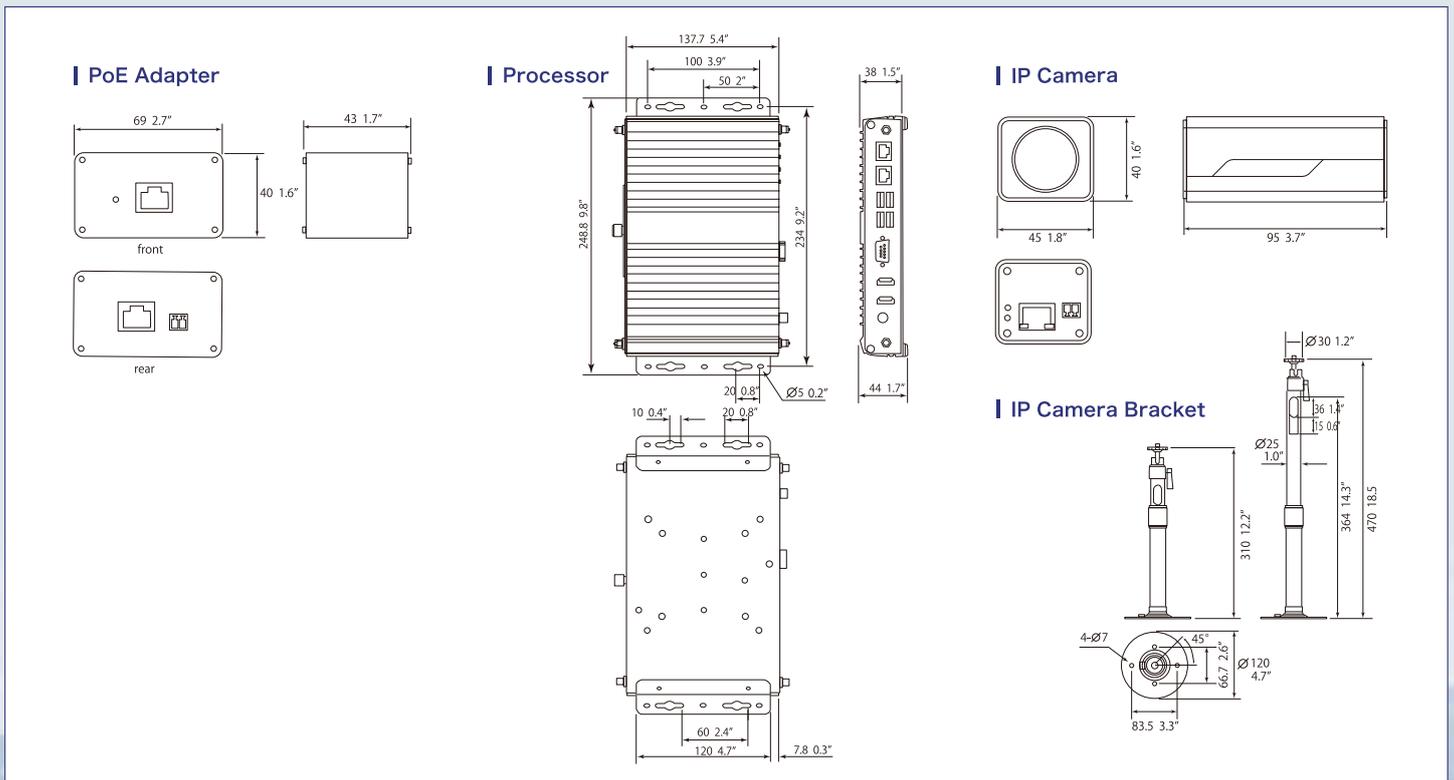
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