

•Outline of soft keys

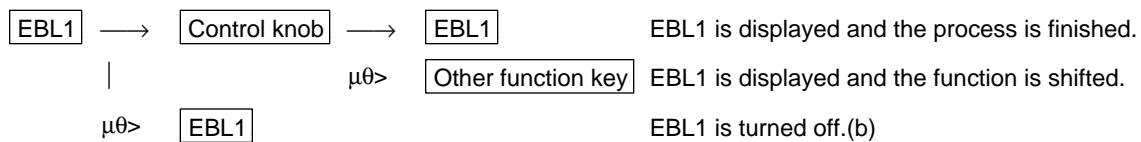
Any function can be optionally allocated to the key upon which numbers 1-7 are indicated. A maximum of 4 groups of functions can be allocated to each soft key, and switching between those functions is conducted by the "NEXT" key.

5.4.1 Bearing measurement (EBL1)

(a) Bearing measurement by EBL1

- (1) When "EBL1" key is pressed, electric bearing line (EBL1) appears and the angle from the direction of the ship's head which is set at 0 °will appear in a reverse display at the lower left of the screen(Note).
- (2) Use the control knob to place the direction cursor on the target, and read the angle.
- (3) After the setting
 - i) If "EBL1" key is pressed, the setting is completed.
 - ii) If "other function" key is pressed, the function will be shifted to that of the pressed key with the setting condition still in effect.

note: 1 xxx.x φ indicates EBL1.



(b) To turn off the EBL1

When the "EBL1" key is pressed twice, EBL1 disappears. (EBL1 OFF)

Note: Refer to "5.5.1.1 Bearing measurement (EBL1)".

5.4.2 Bearing measurement (EBL2)

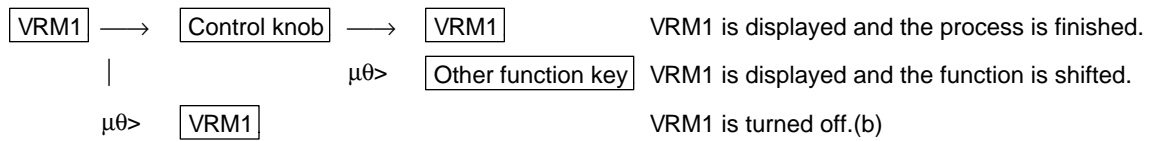
The operation is the same as EBL1. Refer to the EBL1 operation. The "EBL2" will appear in a reverse display at the lower right of the screen

5.4.3 Distance measurement (VRM1)

(a) Distance measurement by VRM1

- (1) When "VRM1" key is pressed, variable range marker (VRM1) appears and the distance in a reverse display appears at the lower left of the screen.
- (2) Place the marker on the front edge of the target with the control knob and read the distance.
- (3) After the setting
 - i) If "VRM1" key is pressed, the setting is completed.
 - ii) If "other function" key is pressed, the function will be shifted to that of the pressed key with the setting condition still in effect.

note: 1 xxx.x NM indicates VRM1.



(b) To turn off the VRM1

When the "VRM1" key is pressed twice, VRM1 disappears. (VRM1 OFF)

Note: Refer to "5.5.1.2 Determining the distance (VRM1)".

5.4.4 Distance measurement (VRM2)

The operation is the same as VRM1, refer to VRM1 operation. The "VRM2" will appear in a reverse display at the lower right of the screen

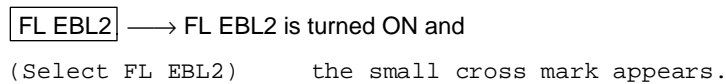
5.4.5 Measuring the angle between two points (FL EBL2)

Note: VRM2 and EBL2 do not follow the OFF-C function while floating.

Note: Refer to "5.5.1.5 Measuring the distance or angle between two points (FL EBL2, FL VRM2)".

(a) Setting a reference point for measurement of the angle.

(1) Press "FL EBL2" key. "SET START POINT" is displayed and a small cross mark appears.



(2) Use the left-right and up-down cursor keys to place the small cross mark on one of the two echoes whose angle will be measured, and press the "ENT" key.



(b). Measuring

Perform the operations in the above mentioned and "measuring the angle(EBL2)", and place the EBL2 on another echo.

EBL2 is displayed on the screen based on the placed fixed cross cursor.

"2 xxx.x°" which is displayed at the lower right will be the angle between the two points.

5.4.6 Measuring the distance between two points (FL VRM2)

Note: Refer to "5.5.1.5 Measuring the distance or angle between two points (FL EBL2, FL VRM2)".

(a) Setting a reference point for measurement of the angle.

(1) Press "FL VRM2" key. "SET START POINT" is displayed and a small cross mark appears.

→ FL VRM2 is turned ON and
 (Select FL VRM2) the small cross mark appears.

(2) Use the left-right and up-down cursor keys to place the small cross mark on one of the two echoes whose angle will be measured, and press the "ENT" key.

& → ----- Criterion of the reference point is set.
 (Place the cross cursor on an echo)

(b) Measuring

Perform the operations in the above mentioned and "measuring the distance(VRM2)", and place the VRM2 on another echo.

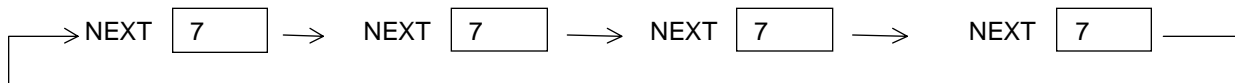
VRM2 is displayed on the screen based on the placed fixed cross cursor.

" xx. xNM" which is displayed at the lower right will be the distance between the two points.

5.4.7 Changing the group of Soft Keys (NEXT)

Any function can be optionally allocated to the key upon which numbers 1-7 are indicated. A maximum of 4 groups of functions can be allocated to each soft key, and switching between those functions is conducted by the "NEXT" key.

The "NEXT" key switches between allocated function groups on the soft key which numbers 1-7 are indicated.



Επιερψ τιμε πρεσσιγγ τηε ∇NEET∇ κερ, function groups changes to another groups included pressing "NEXT" key. The function groups can also be changed at the "KEY ASSIGNMENT" function in the "CUSTOM" menu of the "SETUP" with left-right cursor key.

Operation

| Soft Key Setting Example | | | |
|--|--|--|--|
| SET1 | SET2 | SET3 | SET4 |
| EBL1 <input type="text" value="1"/> | EBL2 <input type="text" value="1"/> | RINGS <input type="text" value="1"/> | PPI <input type="text" value="1"/> |
| VRM1 <input type="text" value="2"/> | VRM2 <input type="text" value="2"/> | TUNE <input type="text" value="2"/> | PPI / 3D <input type="text" value="2"/> |
| VAR RNG <input type="text" value="3"/> | FL EBL2 <input type="text" value="3"/> | ST <input type="text" value="3"/> | PPI / PP <input type="text" value="3"/> |
| TRACK <input type="text" value="4"/> | FL <input type="text" value="4"/> | ZOOM <input type="text" value="4"/> | PPI / NAV <input type="text" value="4"/> |
| TARGE <input type="text" value="5"/> | GZ <input type="text" value="5"/> | SLEEP <input type="text" value="5"/> | ALL <input type="text" value="5"/> |
| SEL WIN <input type="text" value="6"/> | OFF-C <input type="text" value="6"/> | PICTURE <input type="text" value="6"/> | ALL <input type="text" value="6"/> |
| NEXT <input type="text" value="7"/> | NEXT <input type="text" value="7"/> | NEXT <input type="text" value="7"/> | NEXT <input type="text" value="7"/> |

The function can be changed at the "KEY ASSIGNMENT" function in the "CUSTOM" menu of the "SETUP".

5.4.8 Erasing heading maker temporarily (HDG OFF)

Press the "HDG OFF" key. The heading marker is not displayed as long as you hold it down.

5.4.9 Using parallel cursors (///CSR)

Press the "///CSR" key. Parallel cursors will appear on the screen. As you move EBL, the parallel cursors also move.

To cancel the "///CSR" function, press "///CSR" key once more.

Note: Refer to "5.5.1.8 Using parallel cursors (///CSR)".

5.4.10 Establishment of the indication of the RANGE RINGS (RINGS)

Press the "RINGS" key. Range Rings will appear on the screen. To cancel the "RINGS" function, press "RINGS" key once more.

Note: Refer to "5.5.1.9 Establishment of the indication of the RANGE RINGS (RINGS)".

5.4.11 ON/OFF of variable range function (VAR RNG)

Usually the range changes in steps as 0.5--0.75--1.5--3.0--....., but using this function will enable a consecutive change such as 0.5--0.6--0.7--0.8--..... .

Press the "VAR RNG" key. The VAR RNG function becomes valid and **VAR** will be displayed at the upper left of the screen (beside MODE). To cancel the "VAR RNG" function, press "VAR RNG" key once more.

The range changes continuously with the up-down cursor while the VAR RNG function is on, and it changes in steps with the "RANGE UP" or "RANGE DOWN" keys.

If pressing other keys, return to the normal state from continuously range change state.

5.4.12 Changing display modes (MODE)

- (1) Select MODE from the pull-down display items using the up-down cursor keys, and press the "ENT" key.
- (2) When the HU/HS/NU/CU/TM sign is displayed beside the MODE item, select display mode with the up-down cursor keys and press the "ENT" key.
- (3) The setting will be completed when the "ENT" key is pressed after the selection. (NOTE1,2)

Press the "MODE" key, the display mode will change on every pressing to HU, HS, NU, CU, TM in order. The mode select at the upper of the screen is indicated. However, a setting will be needed for the ship's speed if TM is selected. Also, a heading or a course information is necessary for NU, CU and TM.

note: TM is παλιό ονλνσ ον ΠΠΠ σχρεεν. Τησ μοδε ωιλλ χηανγε το NY ον τησ οτηερ σχρεεν αυτοματιχαλλσ.

Note: Refer to "5.5.2.1 Changing display mode (MODE)".

5.4.13 Guard Zone (GZ)

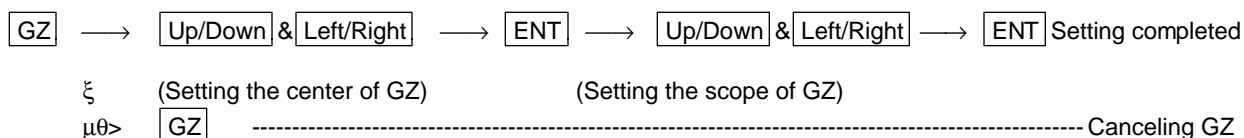
A function that sets a guard zone of any distance and any angle range, creating alarm tone when either echoes above a certain level exist (IN MODE) or no echoes exist(OUT MODE).

When GZ is operated with soft keys, guard zone settings and ON/OFF settings can be conducted, but the mode (IN or OUT) is to be set in the menu.

Note: Refer to "5.5.2.2 Guard Zone (GZ)".

- (1) When the "GZ" key is pressed, the present mode setting will be displayed on the left side of the screen as GZ IN. A small cross cursor for setting the guard zone will be displayed at the screen center while "SET CENTER POINT" is displayed at the bottom, activating a guard zone setting state.
- (2) Use the up-down/left-right cursor keys to move the cross cursor to the center of the warning zone to be set, and press the "ENT" key.
- (3) From the cross cursor position set in (2) above as the center, expand the guard zone in the direction of the distance with the up cursor key and in the direction of the angle with the right cursor key, thus making the form of a fan. To make the warning zone smaller, operate the down cursor key (in the direction of the distance) and the left cursor key (in the direction of the angle).
- (4) After the setting the guard zone, finish by pressing the "ENT" key.

Press the GZ key twice to cancel the guard zone function.



•Stop the alarm tone

Press the "MENU" key or "ENT" key during the alarm tone sounds, alarm tone will stop.

NOTE: Set the mode (IN or OUT) at the "GZ MODE" of the "PRESET2" function in the "CUSTOM" menu of the "SETUP"

Set the alarm level (IN or OUT) at the "GZ LVL" of the "PRESET2" function in the "CUSTOM" menu of the "SETUP"

5.4.14 Off Center (OFF-C)

Displaying the location specified by the cross cursor as the ship's location

Note: Refer to "5.5.2.3 Shifting display in specific direction (OFF-C)".

- (1) When the "OFF-C" key is pressed, OFF-C is displayed at the upper right and "SET OFF CENTER POINT" at the bottom of the screen, and setting is ready to be entered.
- (2) Move the cross cursor with the cursor keys to move the ship to the intended location, and press the "ENT" key. The ship's location will be displayed as the cursor's location. OFF-C is displayed at the upper right, which indicates that the "OFF-C" state is entered.
- (3) To cancel "OFF-C" function, press the "OFF-C" key.

- (a) To conduct the setting

OFF-C → **Up/Down & Left/Right** → **ENT** ----- Conduct Off Center to exit the adjustment state.

Note: VRM2 and EBL2 do not follow the OFF-C function while floating.
The function operates on PPI screen only.

(b) To cancel the setting

OFF-C -----The "OFF-C" display at the upper right disappears and function returns to the ordinary state from the Off Center state.

5.4.15 Setting of the SLEEP function(SLEEP)

This function sends a 30-second-transmissions during pre-fixed hours. After a transmission, a power-saving mode is entered with the screen in ST'BY state (the scanner-OFF state) and the LCD backlight turned off. This action is repeatedly executed.

Usage example, set a guard zone and have the warning signal automatically confirmed every prefixed period.

Press the "SLEEP" key. Every pressing the key, "SLEEP" function will be set as 5-minutes, 10-minutes, 15-minutes, or off.

When a transmission is conducted after setting a SLEEP mode, a ST'BY state is entered and the backlight turns off after a 30-second-transmission. (Power-saving mode). Two minutes before the fixed time the backlight turns on and the 2-minute timer starts. Then, at the fixed time another 30-second-transmission begins. This series of actions are repeated. If any one key is pressed during the course of this action, the SLEEP function will be canceled.

Note: Refer to "5.5.2.4 Setting of the SLEEP function(SLEEP)".

(1) Setting procedure

| | | | | | |
|--------------|-------------------|--------------|---|--------------|---|
| SLEEP | → (Select 5min.) | → ENT | → | POWER | -----→ 30-second-transmission every 5 min. μ transmission ON |
| SLEEP | → (Select 10min.) | → ENT | → | POWER | -----→30-second-transmission every 10 min. μ transmission ON |
| SLEEP | →(Select 15min.) | → ENT | → | POWER | -----→30-second-transmission every 15 min. μ transmission ON |
| SLEEP | →(Select OFF) | ----- | | | SLEEP function is turned OFF |

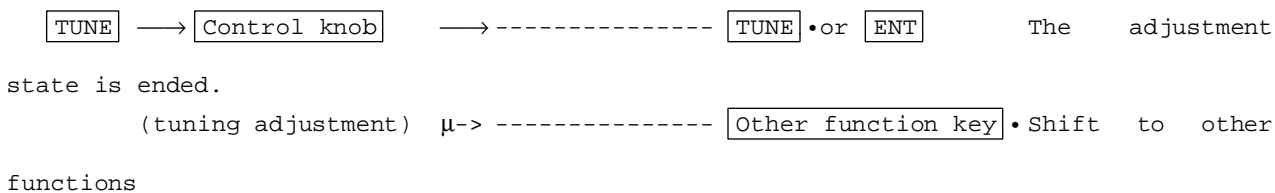
Setting completed

5.4.16 Tuning adjustment (TUNE)

- (1) When the "TUNE" key is pressed, the TUNE display on the upper-right side of the screen will be reversed as **35** and the adjustable state will be entered.
- (2) When the control knob is turned, the figure will be shifted within a range of 0 and

99, and the receiver tuning can be manually adjusted.

- (3) After the adjustment is finished, press the "ENT" key to exit from the adjustment state. If some other function key is pressed, shift to that function will take place.



Note: Use the "MENU" to return auto-tuning state.

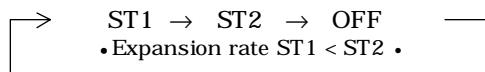
Note: Refer to "5.5.3.4 Adjusting receiver tuning (TUNE)".

5.4.17 Echo expansion (ST)

Expanding the echo to the direction of the distance.

When the "ST" key is pressed, "ST1" is displayed on the left side of the screen and the state of echo expansion is entered. This changes the picture to display echoes expanding in the direction of the distance. Two types of echo expansion exist, which are alternated as follows, every time this key is pressed.

Note: Refer to "5.5.3.5 Echo expansion (ST)".



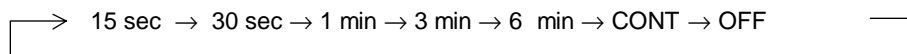
Note: The "OFF" state is not displayed on the screen and the "ST2" display disappears.

5.4.18 Displaying locus of target (TRACK)

When the "TRACK" key is pressed, "TK 15SEC" is displayed on the left side of the screen and track mode is entered. 15S indicates the length of the track, and displays a maximum of 15-second-long sailing track.

Note: Refer to "5.5.3.6 Displaying locus of target (TRACK)".

Every time this key is pressed, the course length switches as follows.



Note: The "OFF" state will not displayed on the screen and the "TK xx " display will disappear.

5.4.19 Enlarging selected areas (ZOOM)

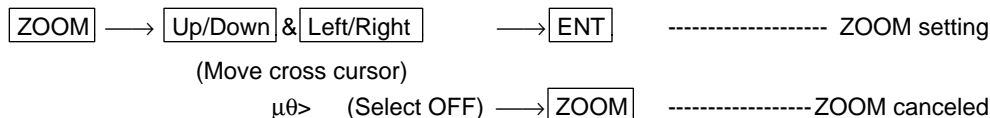
The video image centering around the cross cursor is doubled as it is displayed on the screen.

Press the "ZOOM" key to "ZOOM" ON. A small cross cursor for setting and "SET ZOOM POINT" are displayed at the screen center and at the bottom respectively, and the magnification point is to be set. Use cursor keys to move the cross cursor to the point to be magnified, press

the "ENT" key and the setting is completed. The area around the cross cursor is displayed in 2x magnification, with blinking "ZOOM" displayed at the screen upper right, indicating that a ZOOM display is being conducted.

To cancel the ZOOM function, press the "ZOOM" key again or change the range scale.

Note: Refer to "5.5.3.7 Enlarging selected areas (ZOOM)".



Note1: VRM2 and EBL2 do not follow the ZOOM function during a floating state.

Note2: Normal screen returns when you change the range scale.

Note3: ZOOM function is unusable in 3D/PPI screen.

Note4: ZOOM function is unusable in OFF-C.

Note5: Center of ZOOM can be set any desired position within the set range.

5.4.20 Increasing sensitivity (S/L)

The pulse width is automatically changed as you change the range. However, if you want to increase sensitivity, you can choose sensitivity from two pulse lengths. The short pulse (SHORT) gives you sharp images with high distance resolution. The long pulse (LONG) provides high sensitivity and shows targets in large size for easy identification although distance resolution is reduced.

Press the "S/L" key to select the Pulse length(LONG or SHORT). The pulse length changes L(Long) and S(Short) alternately.

Note: Refer to "5.5.3.8 Increasing sensitivity (S/L)".



5.4.21 Switching the screen (SEL WIN)

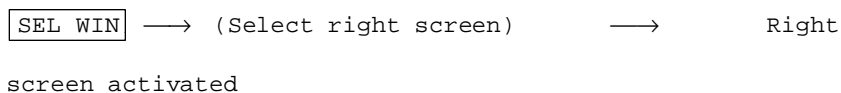
Switching to the desired screen for activation on a 2-screen display(PPI+PPI).

When change the range, or adjust the GAIN, STC, or FTC, or control the VRM, EBL, select the desired screen first.

ex.) To be used for switching the range on the PPI+PPI screen.

When the "SEL WIN" key is pressed, the range of the selected screen will be displayed in reverse, indicating that the screen is active.

Note: Refer to "5.5.4.2 Switching screens on PPI/PPI screen (SEL WIN)".



μθ> or (Select left screen) → Left
 screen activated

If VRM1 is controlled on the screen that is oposit from current VRM1 displayed screen, VRM1 is moved and displayed to activated screen. The EBL1, EBL2, and VRM2 is the same manner.

5.4.22 Changing the color of screen (PICTURE)

The LCD display is affected by weather and day / night environment conditions. In some cases, you may find the LCD display is easier to view when the entire color of screen is changed.

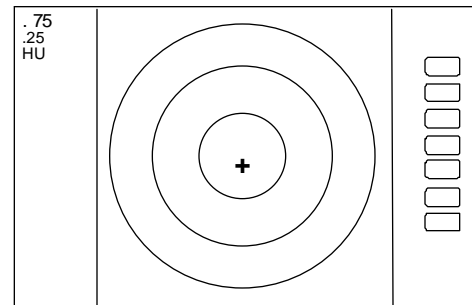
Press the "PICTURE " key, a day display will appear if night display has been selected, and a night display if day display selected.

Note: Refer to "5.5.4.3 Changing the color of screen (PICTURE)".

5.4.23 Change to PPI screen (PPI)

Press the "PPI" key, the screen will change to PPI screen.

Use to change the screen from other modes to PPI.



PPI screen

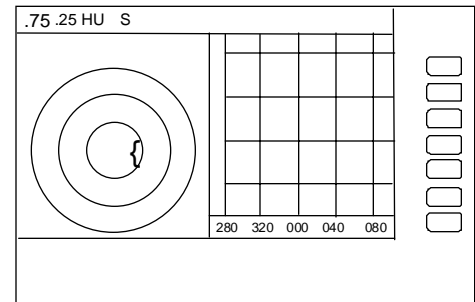
5.4.24 Change to SEMI3D/PPI screen (SEMI3D)

Press the "SEMI3D" key, the screen will change to SEMI3D/PPI screen.

Use to change the screen from other modes to SEMI3D/PPI.

Note: All controls, such as EBLs, VRMs effects both screen.

The ZOOM, OFF-C, FL EBL2, and FL VRM2 could not be used on this mode. The "SEMI3D" screen displays the center as ship's heading always.



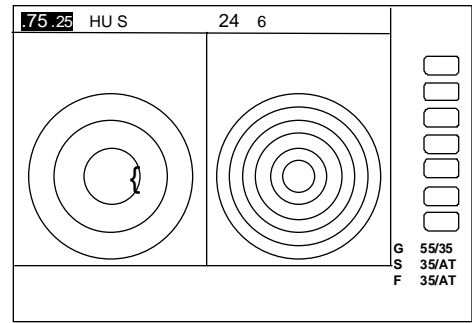
SEMI3D/PPI screen

5.4.25 Change to PPI/PPI screen (PPI/PPI)

Press the "PPI/PPI" key, the screen will change to PPI/PPI screen. Use to change the screen from other modes to PPI/PPI.

Note:

(1) The radar picture is refreshed with two scanning interval for each screen. Right screen picture is holded during refreshing left screen, left screen holded during refreshing right screen.



PPI/PPI screen

LEFT screen /-----/*****/-----/*****/-----/***** time→
 RIGHT screen *****/-----/*****/-----/*****/-----/

- (2) The ZOOM, OFF-C, FL EBL2, and FL VRM2 could not be used on this mode.
- (3) The range, GAIN, STC, FTC, GZ can be used independently for selected window with "SEL WIN".
- Selected window is that the range displayed in reverse character. Please refer to "SEL WIN".
- (4) The cross cursor can be controlled on selected window.

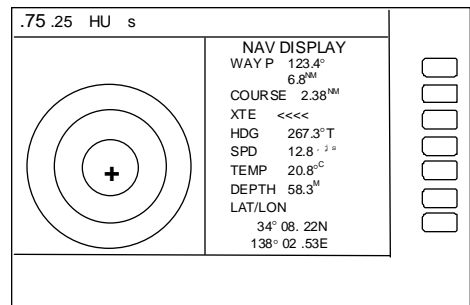
5.4.26 Change to PPI/NAV screen (PPI/NAV)

Press the "PPI/NAV" key, the screen will change to PPI/NAV screen.

Use to change the screen from other modes to PPI/NAV.

Note:

The ZOOM, OFF-C, FL EBL2, and FL VRM2 can not be used on this mode.



PPI/NAV screen

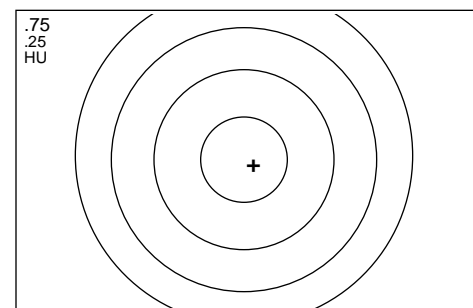
5.4.27 Change to ALL PPI screen (ALL PPI)

Press the "ALL PPI" key, the screen will change to ALL PPI screen.

Use to change the screen from other modes to ALL PPI.

Note:

- (1) The range, rings interval, display mode are displayed on the upper left of the screen. refreshing radar picture
- (2) Return to PPI screen mode pressing a key except MENU, range UP or DOWN, or POWER key



ALL PPI screen

5.4.28 Change to ALL PPI/PPI screen (ALL PPI2) holding previous picture

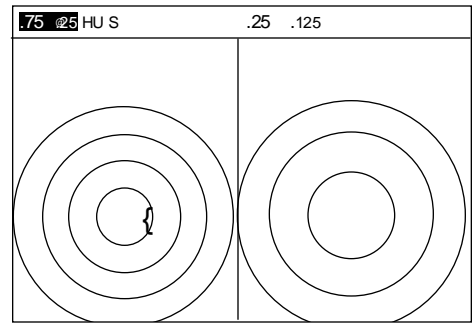
Press the "ALL PPI2" key, the screen will change to ALL PPI/PPI screen.

Use to change the screen from other modes to ALL PPI/PPI.

Note:

- (1) The range, rings interval, display mode are displayed on the upper left of each screen.
- (2) Return to PPI/PPI screen mode pressing a key except MENU, range UP or DOWN, or POWER key.

(3) The radar picture is refreshed with two scanning interval for each screen. Right screen picture is holded during refreshing left screen, left screen holded during refreshing right screen. When your ship navigates in high speed, use PPI screen to get fast refreshing picture.



ALL PPI/PPI screen