NBW-1000

BRIDGE NAVIGATIONAL WATCH ALARM SYSTEM

（BNWAS）

USER’S MANUAL

NEW SUNRISE

NBW-1000 OM.E 20130604-03

NOTICE TO USERS

- **Thanks for your purchasing this product NBW-1000 BNWAS.**

- **Please read this manual carefully to ensure proper use before installation and use of the NBW-1000.**

- **NSR will assume no responsibility for the damage caused by improper use or modification of the product or claims of loss of profit by a third party.**

- **Software version in your product may be some different from that described as in this manual. Such difference will not affect the performance of the product. NSR reserves the right of continuous improvement on products both in software and in hardware without any prior notice.**

- **The copyright of this manual is owned by the manufacturer, NSR. Prior written permission is required for copying or reproducing the manual or part of the manual.**

- **Please keep the manual for your future reference.**

Amendment Record

AMENDMENT No.	INCORP. BY	DATE	PAGE(S)	VERSION	REASON FOR CHANGE
1	Q/A	2013/3/3	5,11,22	02	1. AC/DC added. 2. 2nd stage alarms separated 3. Automatic mode added
2	Q/A	2013/6/4	5.20,23	03	1. 2nd stage alarms separated or combined. 2. Instruction for PIR added

TABLE OF CONTENTS

1. SYSTEM DESCRIPTION

1.1 SYSTEM FUNCTIONS

The purpose of a bridge navigational watch alarm system (BNWAS) is to monitor bridge activity and detect operator disability which could lead to marine accidents. The system monitors the awareness of the Officer of the Watch (OOW) and automatically alerts the Master or another qualified OOW if for any reason the OOW becomes incapable of performing the OOW's duties. This purpose is achieved by a series of indications and alarms to alert first the OOW and, if he is not responding, then to alert the Master or another qualified OOW.
Additionally, the BNWAS also provide the OOW with a means of calling for immediate assistance if required. The BNWAS is operational whenever the ship's heading or track control system is engaged, unless inhibited by the Master.
The main functions of NBW-1000 include:

- Duty watch & alarms
- Emergency calls
- Alarm tests
- ON/OFF record

1.2 SYSTEM COMPONENTS

The system consists of Control Unit, Reset Units (bridge panel), Alarm Units (cabin panel), Junction Unit and PIR Sensors.

1.2.1 CONTROL UNIT

As the core of BNWAS system, Control Unit is installed in bridge. Control Unit contains 5.7 inch LCD, small keypad, CPU and interface circuits.

Control Unit has the functions as below:

- Duty watch clock
- Setting and menu operation
- Visual and first audible alarm
- Reset the alarms
- Initiate an emergency call
- Carry out regular tests
- Record ON/OFF/MODE log

1.2.2 RESET UNIT (BRIDGE PANEL)

Reset Unit (bridge panel) can be two types: indoor type and outdoor watertight type.
The Reset Unit (bridge panel) also covers the visual and first audible alarm. The unit consists of:

- A reset button
- An LED indicator for visual Alarm
- A buzzer for 1st audible alarm

Indoor type

Outdoor type

1.2.3 ALARM UNIT (CABIN PANEL)

Alarm Unit (cabin panel) has two functions: duty watch alarm and emergency alarm. Alarm Units (cabin panel) are used for 2nd stage alarm or 3rd stage alarm. For 2nd stage alarm, the Alarm Units (cabin panel) are installed in Captain's and other Cabins' rooms. Usually 4 Alarm Units (cabin panel) are installed for 2nd stage alarm, while one unit or several units can be selected one time from Control Unit. For 3rd stage alarm, the Alarm Units (cabin panel) are installed in crew's rooms and public areas. For small vessels, the 2nd stage alarm and 3rd stage alarm can be set as one stage. The setting is done in the Control Unit.

1.2.4 JUNCTION UNIT

Junction Unit is used by the Control Unit to connect with Reset Units (bridge panel) and Alarm Units (cabin panel).
Power supply of BNWAS system is applied to Junction Unit.

1.2.5 PIR SENSOR

PIR (Passive Infrared Radiation) Sensor is to detect the moving action of humans. The detection signal will reset the duty watch clock.

1.3 EQUIPMENT LIST

STANDARD		
1. CONTROL UNIT	NBW-1000	1 unit
2. JUNCTION UNIT	NBW-1050J	1 unit
3. RESET UNIT (BRIDGE PANEL)	NBW-1090R	1-4 units
4. ALARM UNIT (CABIN PANEL)	NBW-1010A	1-10 units
5. CABLES & MOUNTING MATERIALS		1 set
OPTIONS		
- RESET UNIT (BRIDGE PANEL) (watertight)	NBW-1090RW	
- PIR SENSOR	NBW-1090P	

1.4 SPECIFICATIONS

Reset Inputs	Control Unit	Press any key on panel.
	RESET UNITs (BRIDGE PANEL)	Max 4 CH
	PIRs	Max 4 CH
	Spare reset	Max 4 CH
	Auto-pilot input	1 CH
	GPS input	1 CH (depending on speed)
Alarm Outputs	Visual Alarm	Control Unit, Reset Units (bridge panel)
	1st Audible Alarm	Control Unit, Reset Units (bridge panel)
	2nd Audible Alarm	Max 4 Alarm Units (cabin panel)
	3rd Audible Alarm	Alarm Units (cabin panel)
Input/output	GPS (input)	NMEA 0183
	VDR (output)	NMEA 0183
	System alarm output	Close/open signal
System Alarms	AC failure	
	DC failure	
	System failure	
IP grade	NBW-1000/Control Unit	IP20
	NBW-1050J/JUNCTION UNIT	IP20
	NBW-1090R/RESET UNIT (BRIDGE PANEL)	IP20
	NBW-1010A/ALARM UNIT (CABIN PANEL)	IP20
	NBW-1090RW/RESET UNIT (BRIDGE PANEL)	IP65
	NBW-1090P/PIR SENSOR	IP20
POWER SUPPLY	DC24V / AC 220V	

Additionally, the BNWAS provides an interface according to IEC 61162-1, ALR sentence, with the following message content:

– hhmmss.ss: This part may be left blank if the BNWAS does not include UTC time information.

– xxx: Designation of source of alarm or source of reset command. The automatic mode is designated as "000".

– A: A = Dormant period exceeded;
V = Dormant period not exceeded.

– A: A = Alarm acknowledged;
V = Alarm unacknowledged.

– c - - c: BNWAS mode : c1; c2; c3.
c1 = AUT or MAN or OFF;
c2 = Dormant period in min, (03 – 12);
c3 = Alarm stage: 1, 2 or 3.

Example: $BNALR,000,A,V,C1=AUT;C2=03;C3=1*hh<CR><LF>

2. MENU OPERATION

2.1 KEY FUNCTIONS

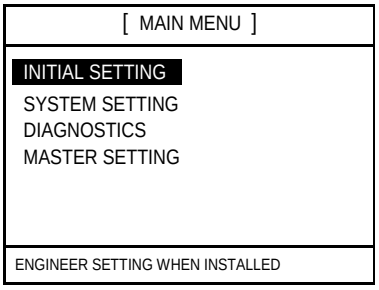
KEY	DESCRIPTION
MENU	Enter MAIN MENU or escape.
△ ◁ ▷ ▽	Move the cursor.
ENT	Confirm the entering.
EMG	Press and hold for 3 seconds to initiate an emergency call.
ESC	Escape to previous menu.
DIM	Change the brightness of LCD and keys in 12 levels.
MODE	Select an operation mode.
TEST	Execute the test procedure.

Note:
Any key operation is regarded as a reset to duty watch clock. If no key operation is detected within 30 seconds, LCD screen will return to default duty watch screen and the clock will count down from the preset dormant time. If test is underway, the screen will stay at test screen even no key operation is detected.

2.2 MAIN MENU

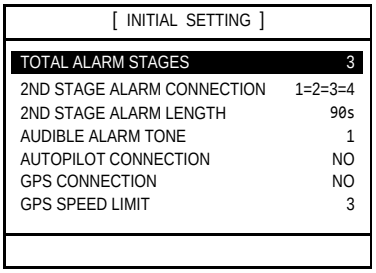
Press the MENU key to enter MAIN MENU.
Four sub-menu items are included:
- INITIAL SETTING
- SYSTEM SETTING
- DIAGNOSTICS
- MASTER SETTING

Move the cursor with arrow keys to select an item and press the ENT key to enter.



2.3 INITIAL SETTING

The engineer has to set the certain parameters when installing the system. Password is required for such settings.
Move the cursor to select the setting items.



2.3.1 Set the TOTAL ALARM STAGES

Normally, three stages are defined for alarms. For some small vessels, two stages are enough, in which case, the third stage is omitted.

2.3.2 Set the 2ND STAGE ALARM CONNECTION

Maximum 4 pieces of Alarm Units used for 2nd stage alarm can be connected in two ways.

When "1=2=3=4" is selected, the four Alarm Units can be connected together at Junction Unit and work simultaneously.

When "1 2 3 4" is selected, the four Alarm Units can be connected separately at Junction Unit. In this case, one of four Alarm Units can be selected as 2nd alarm in MASTER SETTING. Please refer to 2.6.

2.3.3 Set the 2RD STAGE ALARM LENGTH

The default value for 2RD STAGE ALARM is 90 seconds. For some large vessels, the value could be large enough for the crew to have enough time to reach the bridge. The value can be setting between 90s and 180s.

2.3.4 Set the AUDIBLE ALARM TONE

Totally four alarm tones are provided in the system. The vessel can choose one favorite tone.

2.3.5 Enable the Autopilot Connection

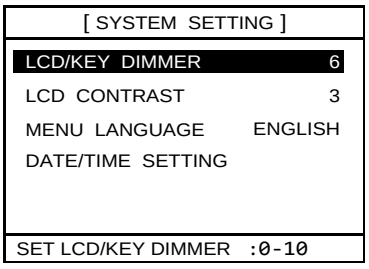
When Autopilot is connected to BNWAS, the "AUTOPILOT CONNECTION" in the Initial Setting sub-menu should be set YES. The default setting is NO.

2.3.6 Enable the GPS Connection

When GPS is connected to BNWAS, the "GPS CONNECTION" in the INITIAL SETTING sub-menu should be set YES. The default setting is NO. "GPS SPPED LIMIT" can be set between 1-10 kts. The default limit is 4kts. Only the current speed exceeds the set limit will duty-watch timer on BNWAS works, otherwise the timer stops.

Note: GPS data can be monitoring in "NMEA IN MONITORING" of DIAGNOSTICS.

2.4 SYSTEM SETTING



Four items are included in SYSTEM SETTING.

- **LCD brightness/KEY backlight**

The LCD brightness and key backlight can be adjusted by 12 steps. Also, this function can be executed by pressing the DIM key on the keypad. Select **[LCD/KEY BRIGHTNESS]** item at the

[SYSTEM SETTING]. Press the ENT key continuously until a satisfactory brightness is reached.

- **LCD CONTRAST**

The LCD contrast can be adjusted by 16 steps. Select **[LCD CONTRAST]** item at the **[SYSTEM SETTING]**. Press the ENT key continuously until a satisfactory contrast.

- **MENU LANGUAGE**

Menu language can be in English or Chinese.
Select **[MENU LANGUAGE]** item at the **[SYSTEM SETTING]**. Press the ENT key to select between **[中文]** and **[ENGLISH]**.

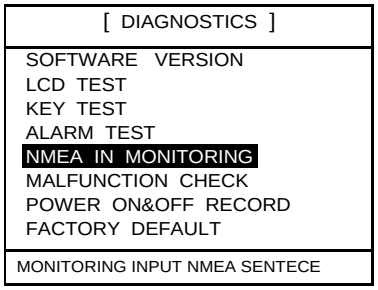
- **DATE/TIME**

Select **[DATE/TIME]** item at the **[SYSTEM SETTING]**. Press the ENT key to set the current date and time.

> **NOTE:**
> Initial time and date setting is important, otherwise Power ON/OFF can not be recorded correctly.

2.5 DIAGNOSTICS

Select **[4.DIAGNOSTICS]** item at the **[MAIN MENU]**. Press the ENT key to enter the **[DIAGNOSTICS]**.

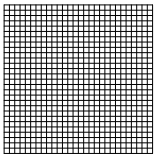


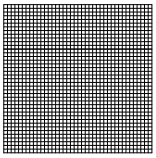
① **SOFTWARE VERSION**

Select **[SOFTWARE VERSION]** item at the [DIAGNOSTICS] menu. Press the ENT key to display software version.

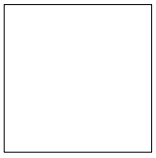
② **LCD TEST**

Select **[LCD TEST]** item at **[DIAGNOSTIC]**. Press the ENT key to enter the following screen.
Press the ENT key continuously to test the LCD in 4 steps.
The testing screens are shown as below.


- The first time-


- The second time-


- The third time -


- The fourth time-

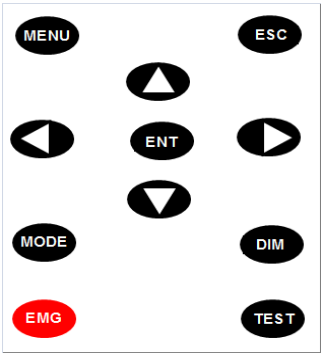
③ KEY TEST

All keys can be tested.

Select **[KEY TEST]** item at the **[DIAGNOSTICS]** menu. Press the ENT key to start the test.

When the key test begins, the screen of **[KEY TEST]** appears as below.

If one of keys is pressed, relevant key's color changes so that the status can be confirmed. For example, when the DIM key is pressed twice, the color changes as DIM → DIM → DIM .



④ ALARM TEST

[ALARM TEST] is to check whether buzzers in Reset Unit (bridge panel) and Alarm Unit (cabin panel) are normal.

Select **[ALARM TEST]** item at the **[DIAGNOSTICS]** menu. Press the ENT key to start the test. Choose the test item and press ENT key to execute the test. Press the ENT key again to stop the test. (Press the TEST key on Control Unit to initiate the test procedure).

⑤ NMEA IN MONITORING

Monitor the data received on the NMEA IN port.

⑥ MALFUNCTION CHECK

[MALFUNCTION CHECK] is to check the current failure alarm records.

Select **[MALFUNCTION CHECK]** item at the **[DIAGNOSTICS]** menu. Press the ENT key will list the current failure alarm.

⑦ POWER ON/OFF RECORD

[POWER ON/OFF RECORD] is to check the history record of BNWAS operation. Latest 20 times of power ON/OFF change and "MANUAL OFF" operation will be stored.

Select **[POWER ON/OFFRECORD]** item at the **[DIAGNOSTICS]** menu. Press the ENT key to check the stored logs.

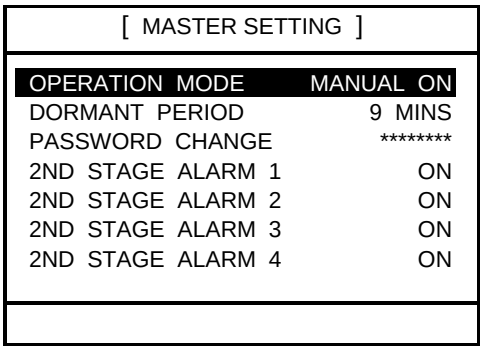
⑧ FACTORY DEFAULT

[FACTORY DEFAULT] is to return the system to factory default setting.

Select **[FACTORY DEFAULT]** item at the **[DIAGNOSTICS]** menu. Press the ENT key to restore the factory default settings.

2.6 MASTER SETTING

MASTER SETTING is designed for captain use. A special password is required for the settings.



- **OPERATION MODE**

Select **[OPERATION MODE]** item at **[MASTER SETTING]** and Press the ENT key. Use the arrow keys to change the modes among **AUTOMATIC**, **MANUAL ON** and **MANUAL OFF**, and enter ENT to confirm a selection.

- **AUTOMATIC:** Used with autopilot or GPS. See 3.3.
- **MANUAL ON:** In operation constantly.
- **MANUAL OFF:** Does not operate under any circumstances.

> **NOTE:**
> There is a short-cut key MODE on control unit panel, which plays the same role as the menu operation. Password is required too.

- **DORMANT PERIOD**

Select **[DORMANT PERIOD]** item at **[MASTER SETTING]** and Press the ENT key. Use the arrow keys to change the value between 3 and 12 minutes. Enter the ENT key to confirm the selection.

- **PASSWORD CHANGE**

Select **[PASSWORD CHANGE]** item at **[MASTER SETTING]** and press the ENT key. Use the arrow keys to reset the password. Enter the ENT key to confirm the change. The password can be combination of 8 arrows and each can be one of Up, Down, Left and Right.

> **Caution:**
> Don't forget the password, otherwise you cannot enter **[MASTER SETTING]**. There is a default password for all products before delivery. It's suggested the captain set his own password after the system is installed.

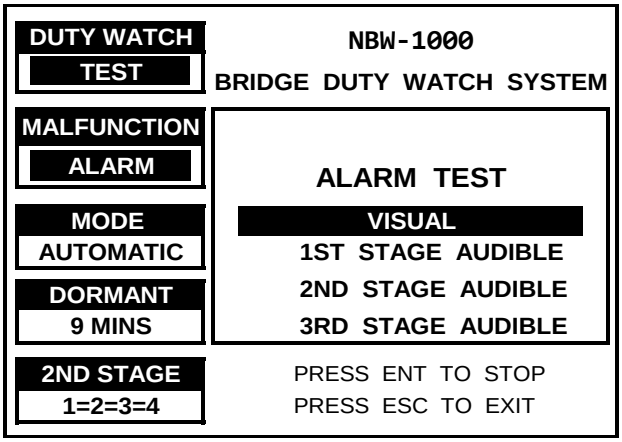
- **2ND STAGE ALARM 1/2/3/4**

If 2nd STAGE ALARM CONNECTION is set as "1 2 3 4", the individual 1～4 Alarm Units can be set as ON or OFF.
If 2nd STAGE ALARM CONNECTION is set as "1=2=3=4", all four Alarm Units are fixed as ON.

2.7 ALARM TEST

To keep the system in right conditions, regular tests are important to find any problems in advance.
Press the TEST key on Control Unit to initiate the test procedure.
Choose the test item and press the ENT key to execute the test. Press the ENT key again to stop the test. Use the up/down keys to select the test item. Different from a real duty watch alarm, the alarm test only initiate an action on the selected item. For example, if 2ND STAGE AUDIBLE ALARM is chosen and tested, only the buzzers on 2ND Stage Alarm Unit (cabin panel) will sound while the buzzers on Reset Unit (bridge panel) and Control Unit will keep silent.

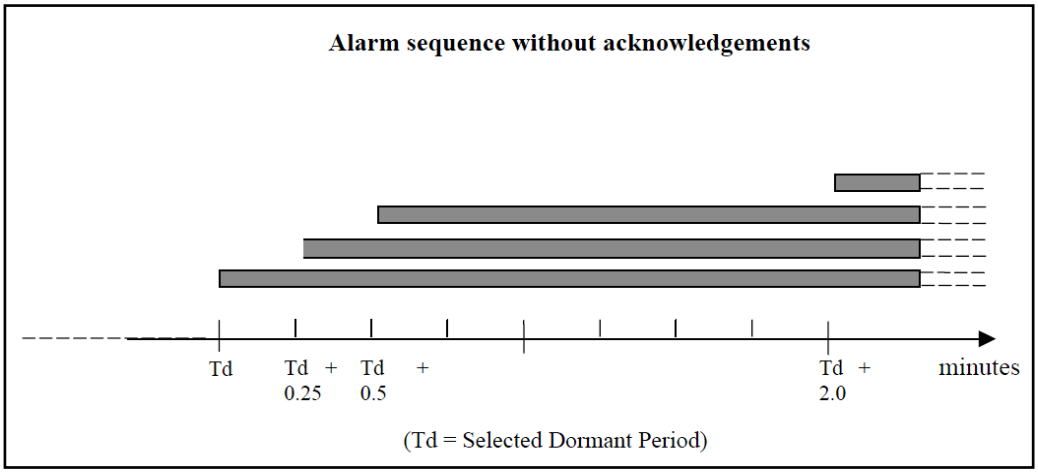
When ALARM TEST, a sound with " TEST" Morse code can be heard: **- . ... -**.



3. DUTY WATCH OPERATION

3.1 ALARM & RESET PROCEDURE

Operational sequence of indications and alarms**:**



- Once operational, the alarm system should remain dormant for a period of between 3 and 12 min (Td).
- At the end of this dormant period, the alarm system should initiate a visual indication on the bridge.
- If not reset, the BNWAS should additionally sound a first stage audible alarm on the bridge 15s after the visual indication is initiated.
- If not reset, the BNWAS should additionally sound a second stage remote audible alarm in the back-up officer's and/or Master's location 15 s after the first stage audible alarm is initiated.
- If not reset, the BNWAS should additionally sound a third stage remote audible alarm at the locations of further crew members capable of taking corrective actions 90 s after the second stage remote audible alarm is initiated.
- In vessels other than passenger vessels, the second or third stage remote audible alarms may sound in all the above locations at the same time. If the second stage audible alarm is sounded in this way, the third stage alarm may be omitted.
- In larger vessels, the delay between the second and third stage alarms may be set to a longer value on installation, up to a maximum of 3 min, to allow sufficient time for the back-up officer and/or Master to reach the bridge.

Reset function:

- The reset function should, by a single operator action, cancel the visual indication and all audible alarms and initiate a further dormant period. If the reset function is activated before the end of the dormant period, the period should be re-initiated to run for its full duration from the time of the reset.
- To initiate the reset function, an input representing a single operator action by the OOW is required. In NBW-1000, the input can be in three ways: key operation on Control Unit, a touch-press on reset button of Reset Unit (bridge

panel) and detection of moving activity by PIR sensor.

- A continuous activation of any reset device will not prolong the dormant period or cause a suppression of the sequence of indications and alarms.

3.2 ALARM OUTLINE

Alarm summary table:

ALARM STAGE	CONTROL UNIT		RESET UNIT (BRIDGE PANEL)		2ND ALARM UNIT (CABIN PANEL)		3RD ALARM UNIT (CABIN PANEL)	
	LCD	BUZZER	LED	BUZZER	LED	BUZZER	LED	BUZZER
Visual Alarm	flash		flash					
1st stage audible alarm	flash	sound	flash	sound				
2nd stage audible alarm	flash	sound	flash	sound	on	sound		
3rd stage audible alarm	flash	sound	flash	sound	on	sound	on	sound

3.3 AUTO MODE OPERATION

3.3.1 When only Autopilot is connected

- If the Autopilot is automatically operated, the duty watch timer on BNWAS works as MANUAL ON mode. The timer can be reset by Control Unit or Reset Unit (bridge panel) or PIR Unit.
- If the Autopilot is manually operated, the duty watch timer on BNWAS stops as MANUAL OFF mode.

3.3.2 When only GPS is connected

Current SOG of GPS input may display on the screen of BNWAS Control Unit. If no GPS data has been received for 10 seconds, SOG will disappear from the screen.

- When SOG exceeds the set speed limit, the duty watch timer on BNWAS works normally. The timer can be reset by Control Unit or Reset Unit (bridge panel) or PIR Unit.

  If SOG not available for 10 seconds when no GPS data is received, the duty watch timer on BNWAS works normally.
- When SOG within the set speed limit, the duty watch timer on BNWAS stops.

3.3.3 When both Autopilot and GPS are connected

- If the Autopilot is automatically operated, the duty watch timer on BNWAS works normally as MANUAL ON mode only when SOG exceeds the set speed limit. When SOG below the set speed limit, the duty watch timer on

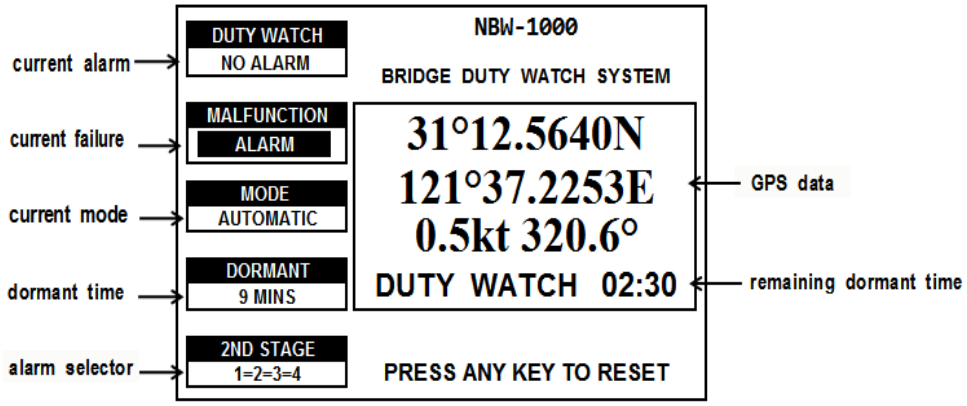
BNWAS stops. When SOG not available for 10 seconds as no GPS data is received, the duty watch timer on BNWAS works normally.

- If the Autopilot is manually operated, the duty watch timer on BNWAS stops regardless of any SOG data.

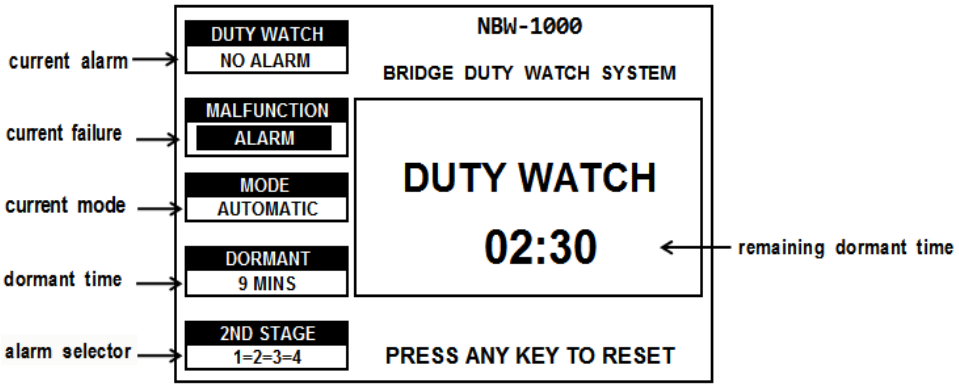
Summary for Auto Mode operation

INITIAL SETTING									
	Autopilot	**NO**	**YES**	**YES**	**NO**	**NO**	**YES**	**YES**	**YES**
	GPS	**NO**	**NO**	**NO**	**YES**	**YES**	**YES**	**YES**	**YES**
Autopilot Status		-	manual	auto	-	-	manual	auto	auto
GPS SOG (compare with set limit)		-	-	-	below	over	-	below	over
BNWAS TIMER		**RUN**	**STOP**	**RUN**	**STOP**	**RUN**	**STOP**	**STOP**	**RUN**

3.4 DEFAULT SCREEN

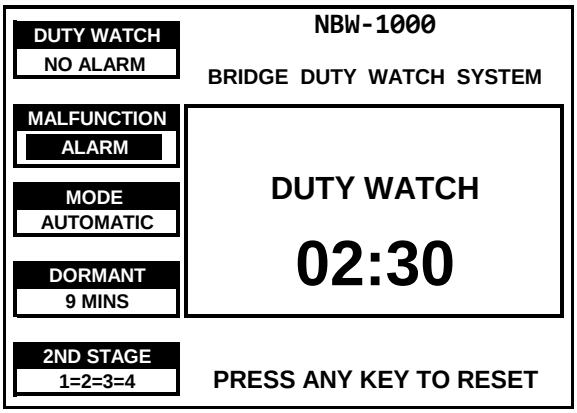


The screen is divided into two parts: left area for status indication and right main area for watch clock.



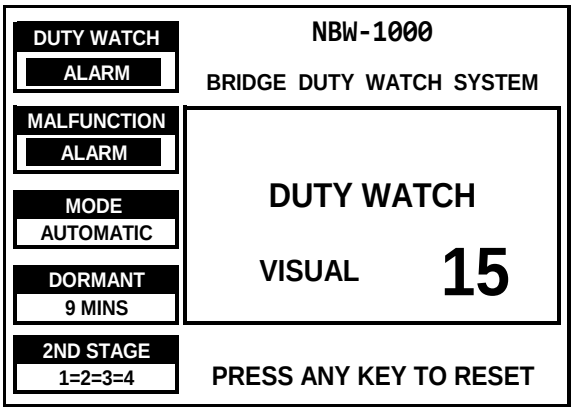
3.5 DUTY SCREEN

When the clock counts down to 0, the visual alarm will be initiated. Press any key on Control Unit or reset button on Reset Unit (bridge panel) to stop the alarm and reset the clock.

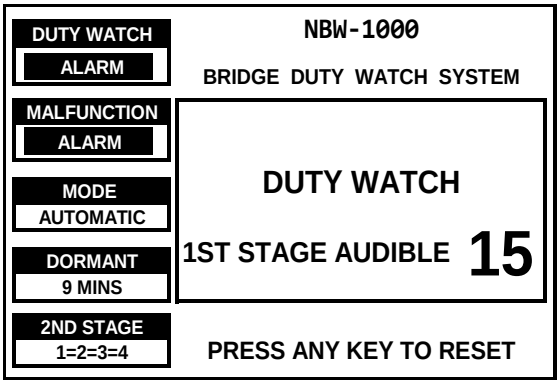


3.6 VISUAL ALARM

During the visual alarm, LCD of Control Unit will flash and LED indicator on Reset Unit (bridge panel) will flash too.
If the visual alarm is not reset in 15 seconds, the first audible will be initiated.



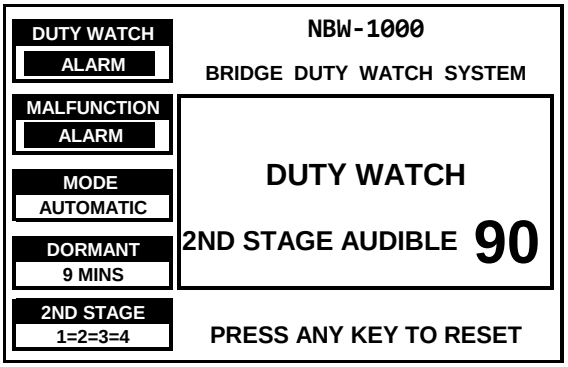
3.7 FIRST AUDIBLE ALARM



During the 1st stage audible alarm, the buzzer in the Control Unit and Reset Unit (bridge panel) will sound.
Press any key on Control Unit or reset-button on Reset Unit (bridge panel) to terminate the alarm.
If the alarm is not answered in 15 seconds, the 2nd audible alarm will be initiated.

3.8 SECOND AUDIBLE ALARM

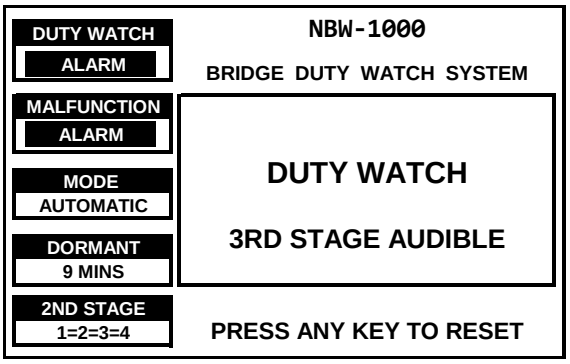
During the 2nd stage audible alarm, the buzzers in the Alarm Unit (cabin panel) in Captain or/and other officers' cabins will sound. Which Alarm Unit(s) will be activated depends on the setting status of 2nd Alarm Units in MASTER SETTING.



Press any key on Control Unit or reset-button on Reset Unit (bridge panel) to terminate the alarm.
If the alarm is not answered in preset period (90-180 seconds), the 3rd audible alarm will be initiated.

3.9 THIRD AUDIBLE ALARM

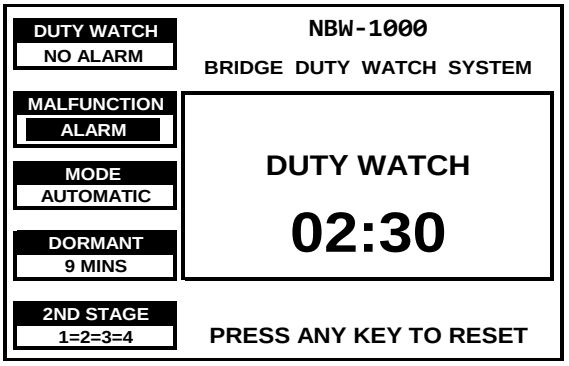
During the 3rd stage audible alarm, the buzzers in the Alarm Unit (cabin panel) in crew's cabins and public areas will sound.



Press any key on Control Unit or reset-button on Reset Unit (bridge panel) to terminate the alarm.

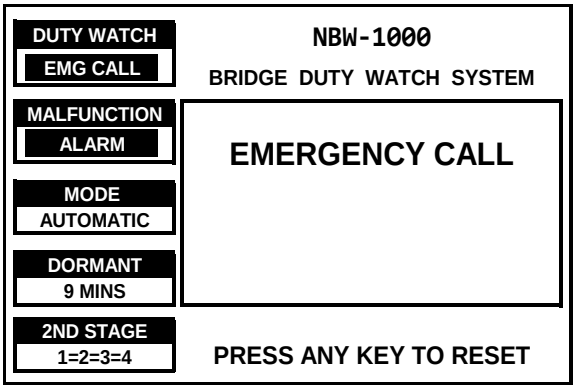
3.10 SYSTEM FAILURE

When a failure is detected in the Control Unit, an indicator will be displayed in malfunction area. To check the detailed failure, please refer to [**2.5 DIAGNOSTICS**].



4. EMERGENCY CALL

Press the EMG key and hold for 3 seconds to initiate an emergency call. Different from duty watch, the emergency call will be transferred to all Alarm Unit (cabin panel) simultaneously, while the buzzers on Reset Unit (bridge panel) will keep silent.



Press any key on Control Unit to terminate the call.

5. INSTALLATION

Please refer to the installation drawings.

5.1 INSTALLATION OF CONTROL UNIT

The control unit can be installed on a table-top, on the overhead, or in a panel (optional flush mounting brackets required). Refer to the outline drawings at the end of this manual for installation instructions. When selecting a mounting location, keep in mind the following points:

- Locate the unit away from exhaust pipes and vents.
- The mounting location should be well ventilated.
- Mount the unit where shock and vibration are minimal.
- Locate the unit away from equipment which generates electromagnetic fields such as a motor or generator.
- Allow sufficient maintenance space at the sides and rear of the unit and leave sufficient slack in cables, to facilitate maintenance and servicing.
- Observe the following compass safe distances to prevent deviation of a magnetic compass. Standard compass, 0.55 m, Steering compass, 0.36m.

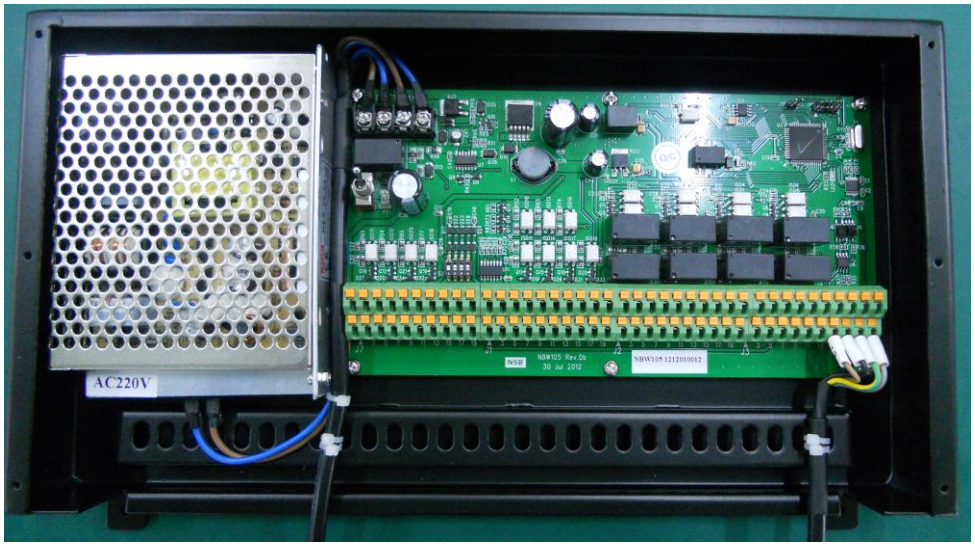
5.2 INSTALLATION OF RESET UNIT (BRIDGE PANEL)

There are four types of Reset Unit (bridge panel): Reset Unit (bridge panel) (wall type), Reset Unit (bridge panel) (flush type), Reset Unit (bridge panel) (watertight), PIR Sensor.

5.3 INSTALLATION OF ALARM UNIT (CABIN PANEL)

The 2nd stage Alarm Unit (cabin panel) are installed in captain's and officers' room, while the 3rd stage Alarm Unit (cabin panel) are installed in crew's room or public areas.

5.4 WIRING OF JUNCTION UNIT



5.4.1 Connection with power supply

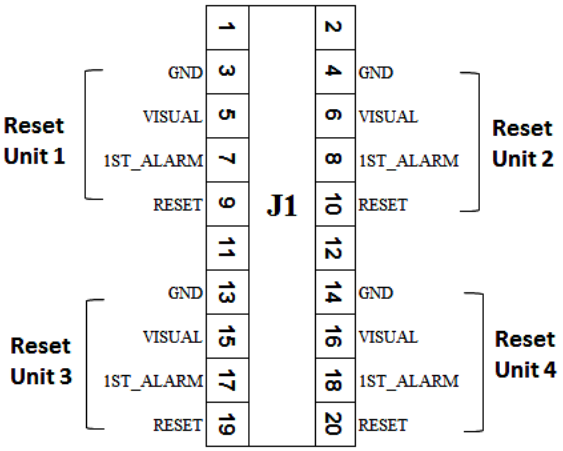
One is from ship's emergency power and the other is from ship's main power source.

Description	Connection
DC24V	Ship's emergency power
DC0V	
AC220V	Ship's main power source
AC220V	

5.4.2 Connection with Control Unit

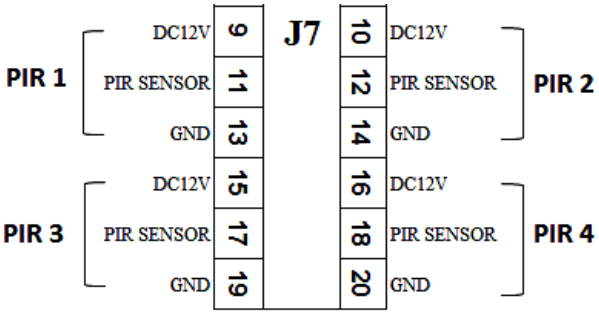
A connection cable is supplied for the connection between the Junction Unit and the Control Unit.

5.4.3 Connection with Reset Unit (bridge panel)



Up to four Reset Unit (bridge panel) can be connected to the Junction Unit.

5.4.4 Connection with PIR



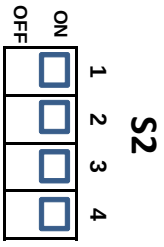
The junction unit can be connected with up to four PIR sensors.

NOTE:

When PIR sensors are connected to the junction unit, S2 inside the Junction Unit should be set. There are four dip switches on S2. Default setting ON, while no PIR connected.

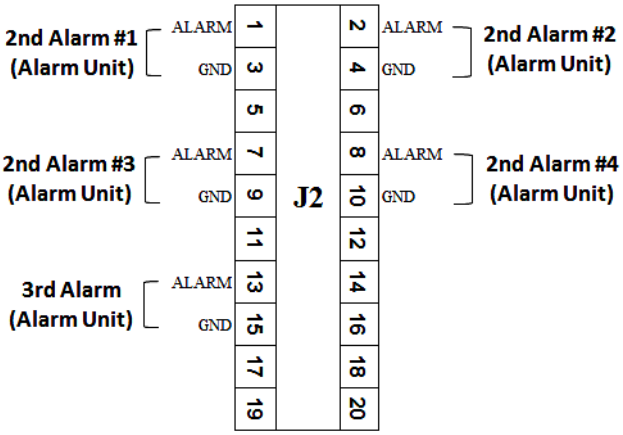
If a PIR is connected, set the switch OFF.

For example, if PIR 1 is connected, S2:1 is set OFF. All switches S2:1-4 are left ON when no PIRs are connected.



Please refer to Appendix 1 for detailed instruction.

5.4.5 Connection with 2nd and 3rd Alarm Unit (cabin panel)



Dip Switch

The 2nd stage Alarm Unit (cabin panel) and 3rd stage Alarm Unit (cabin panel) are connected to J2 of Junction Unit.

The sound level of Alarm Units can be set by built-in dip-switch as below table:

DIP 1	DIP 2	SOUND LEVEL
ON	OFF	Middle
ON	ON	High
OFF	ON	High
OFF	OFF	Low

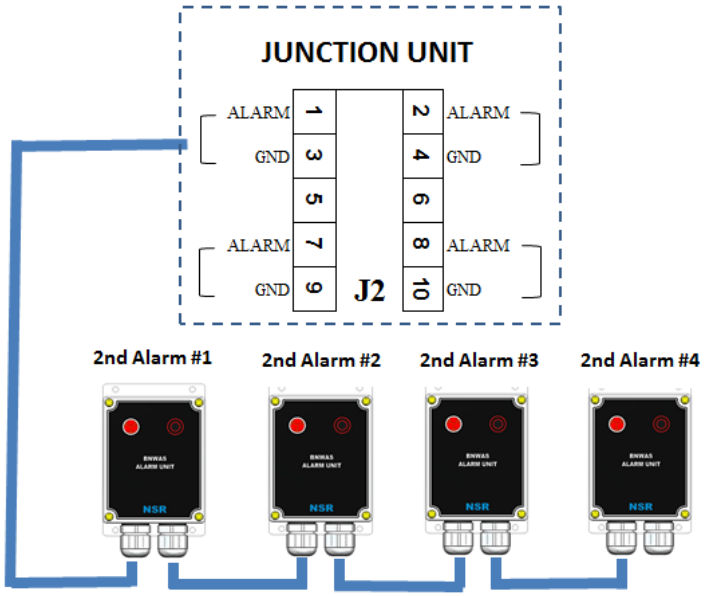
5.4.6 Connection with 2nd Alarm Units in two ways

The 2nd stage Alarm Units can be connected and operated in two different ways:

- **Connect and Operate together**
  In this case, all Alarm Units in 2nd stage alarm will sound simultaneously.
- **Connect and Operate separately.**
  In this case, only selected Alarm Unit in 2nd stage alarm will sound.

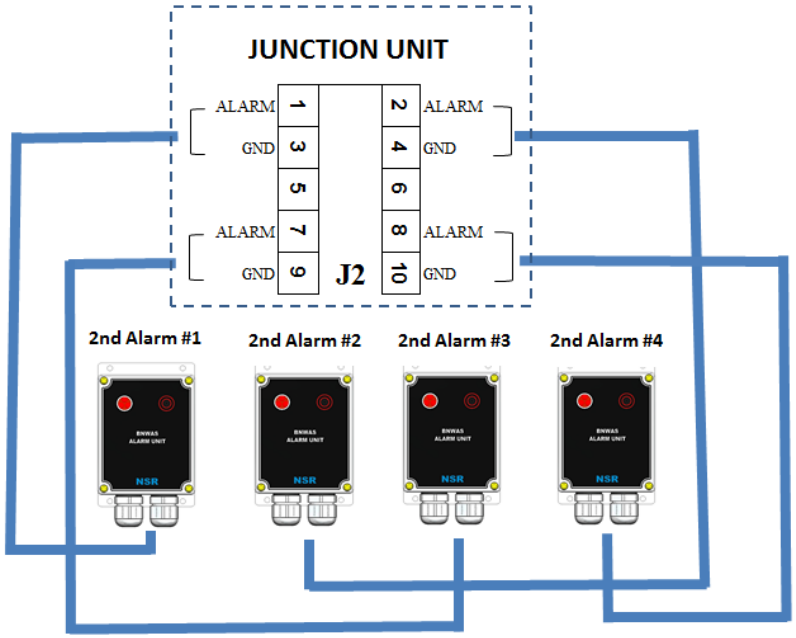
5.4.6.1 Connect Together

Four Alarm Units can be connected to one port, for example, 2nd Alarm #1. In this case, 2ND Alarm Unit Connection in INITIAL SETTING should be set as "1=2=3=4".



5.4.6.2 Connect Separately

Four Alarm Units can also be connected separately to port #1, #2, #3, #4. In this case 2ND Alarm Unit Connection in INITIAL SETTING should be set as "1 2 3 4".



5.4.7 Autopilot Connection

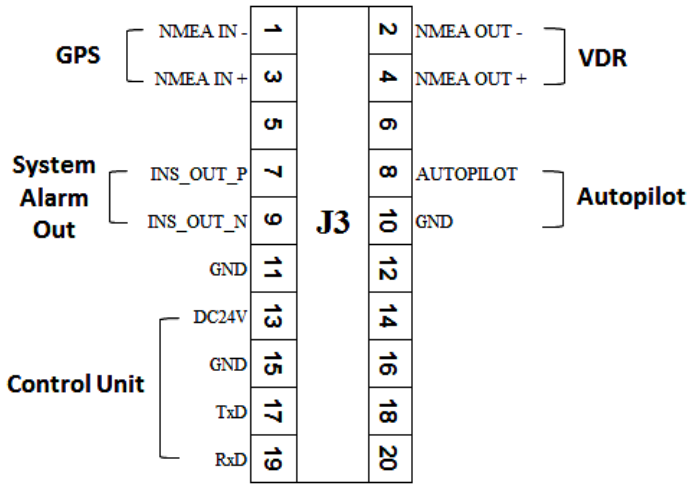
Autopilot output is connected to **Pin 8 & 10 on J3** of BNWAS Junction Unit.

5.4.8 GPS Connection

External GPS input is connected to **Pin 1 & 3 of J3** (NMEA IN) of BNWAS Junction Unit. It's NMEA data at 4800bps. The accepted GPS sentences include RMC and VTG.

5.4.9 VDR Connection

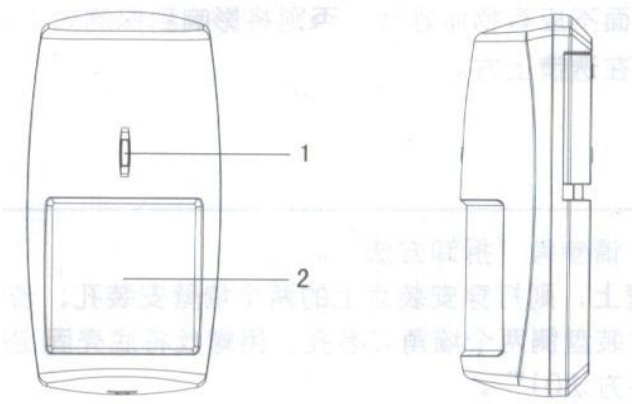
VDR is connected to **Pin 2 & 4 of J3** (NMEA OUT) of BNWAS Junction Unit. It's NMEA data at 4800bps.



Appendix 1 Instructions on Passive Infrared Sensor (PIR)

PIR is used to sensor the moving of human in bridge. The detection signal will reset the duty watch clock.

1. PRODUCT LAYOUT

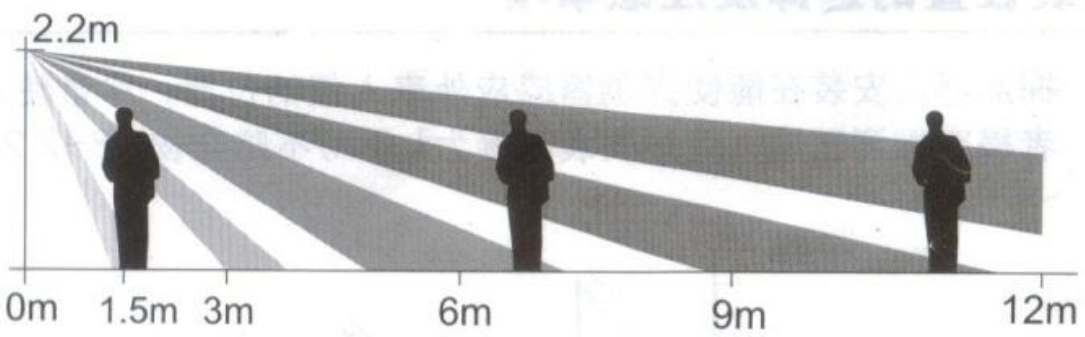


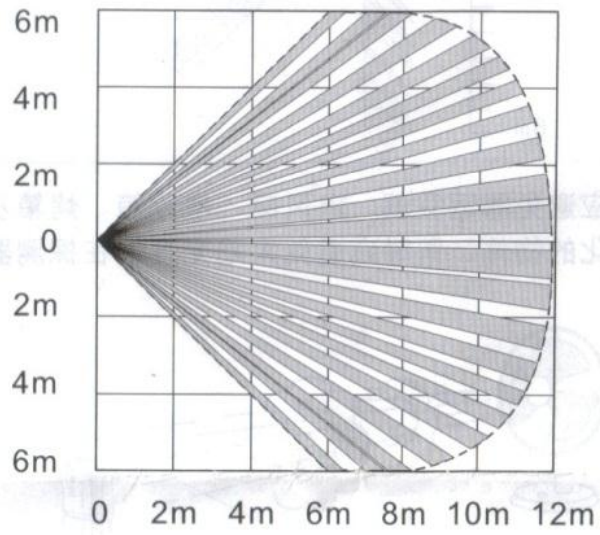
1—LED indicator 2--LENS

2. TECHNICAL SPECIFICATIONS

Power supply:	DC9V-16V
Current:	≤22mA (DC12V)
Detecting range:	12m
Detecting sector:	90°
Mounting type:	Wall
Mount height:	1.8～2.2m
Operating temp:	-10℃～+50℃
Size:	106mmX54mmX36mm

3. DETECTING AREA



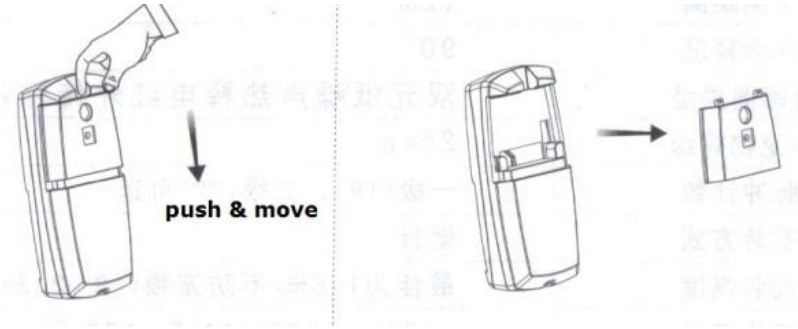


4. OPERATION

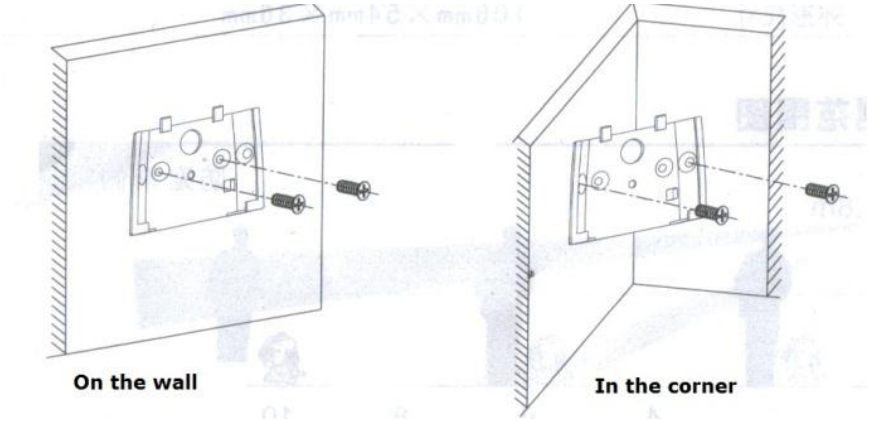
1. When powered on, the red LED in PIR will flash. The PIR is working in self-test status for 60s. The PIR enters normal monitoring status as the LED off.
2. If an object is moving in the detection area, LED will show ON. The PIR returns to normal monitoring status as the LED off.

5. INSTALLATION

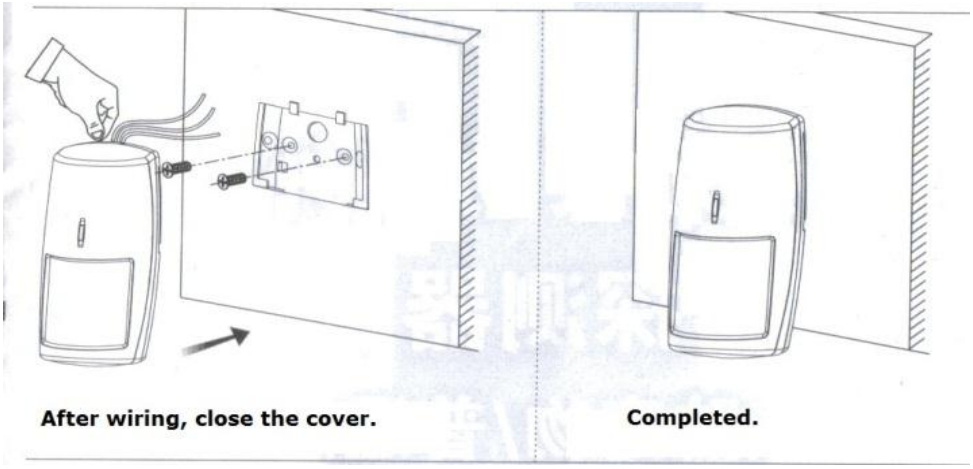
5.1 Take off the rear cover.



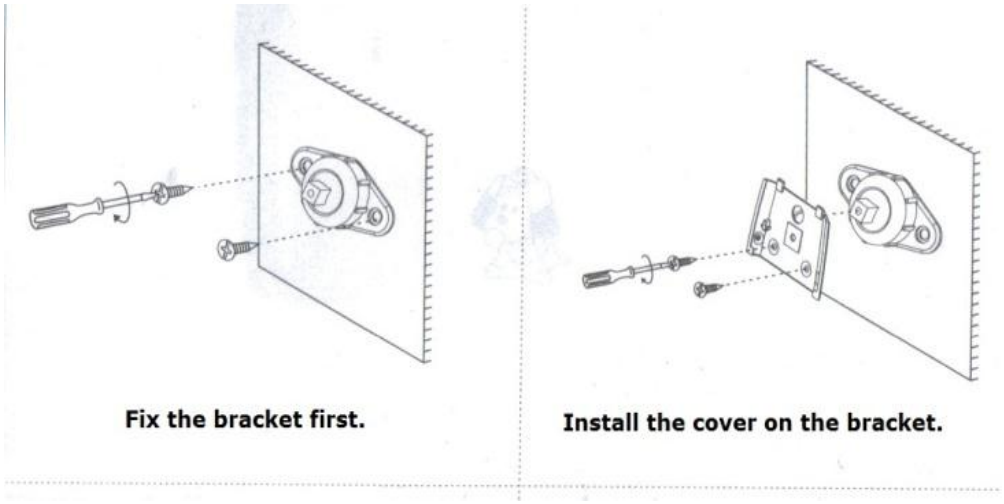
5.2 Make two holes on the rear cover. Fix the rear cover on the wall with two screws.



5.3 Wiring the cable and mount the PIR on the cover.



5.4 You may also fix the cover on a bracket first. The bracket is supplied with the product.

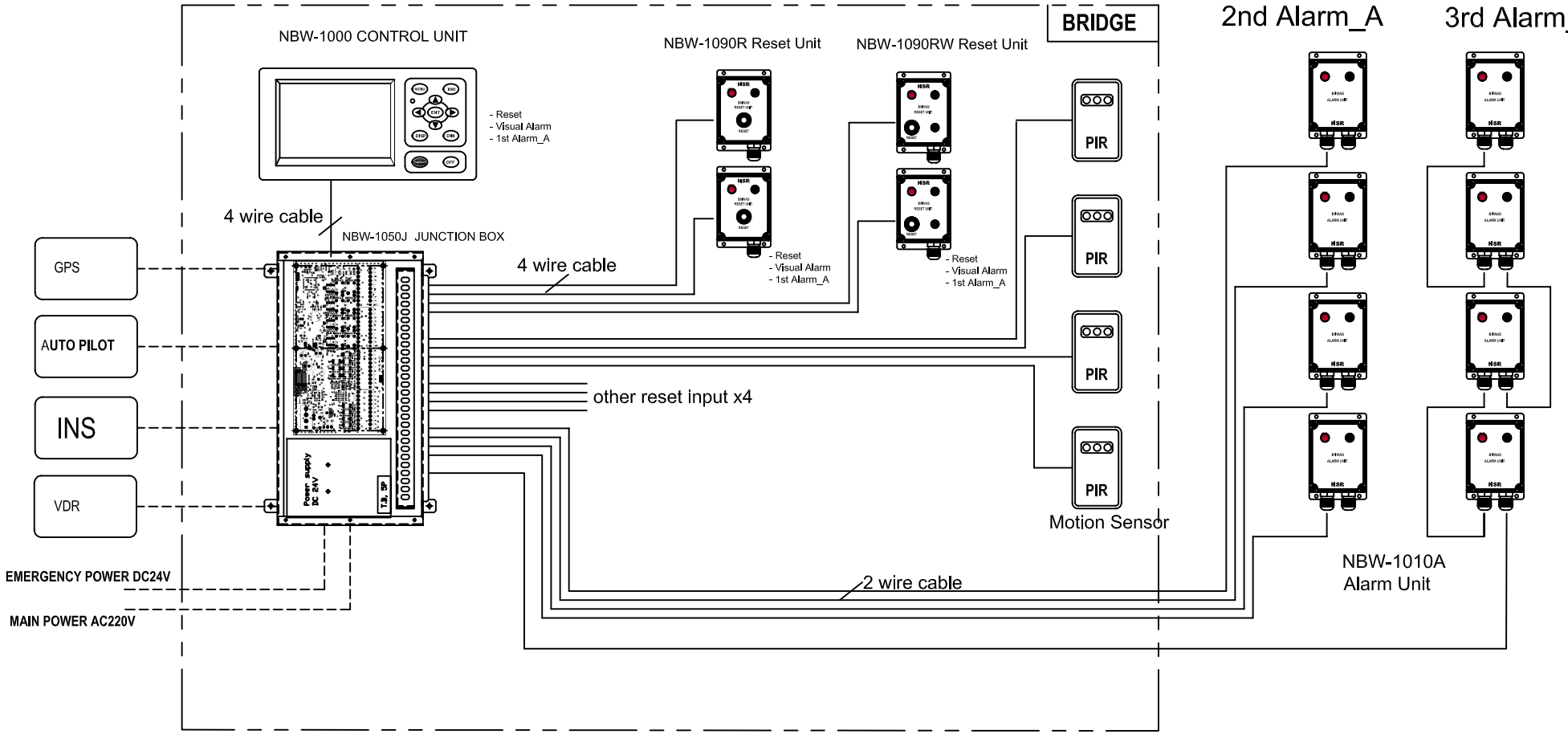


5.5 Cable wiring

PIR PIN	BNWAS JUNCTION BOX
Alarm	PIR SENSOR
GND	Not connected
GND	GND
12V	DC12V
SPARE	Not connected
SPARE	Not connected

Appendix 2 INSTALLATION DRAWINGS

NBW-1000 BNWAS SYSTEM BLOCK DIAGRAM
(DRAWING NO.: NBW1000-SB-000)



4 wire cable: 4x0.3mm2

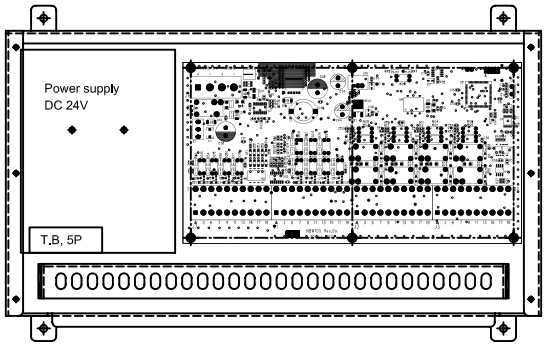
2 wire cable: 2x1.0mm2

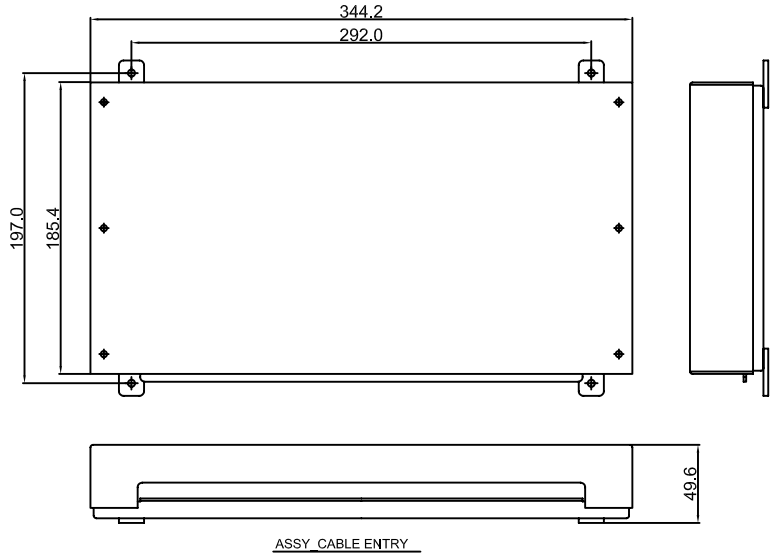
NO.	DESCRIPTION	MATERIAL	QUANTITY	WEIGHT	REMARK'S	PART CODE

APPLICATION NBW-1000 BNWAS SYSTEM BLOCK DIAGRAM

DATE	2012.10.20	ITEM	NBW-1000 BNWAS SIZE N/S
APPROVAL		SCALE N/S	UNIT mm PROJECTION ▽▽▽0.8S ▽▽6.3S ▽12S ▽100S
CHECKED			
DRAWING		NSR NEW SUNRISE CO., LTD.	
DWG NO.	NBW1000-SB-000		

⚠					



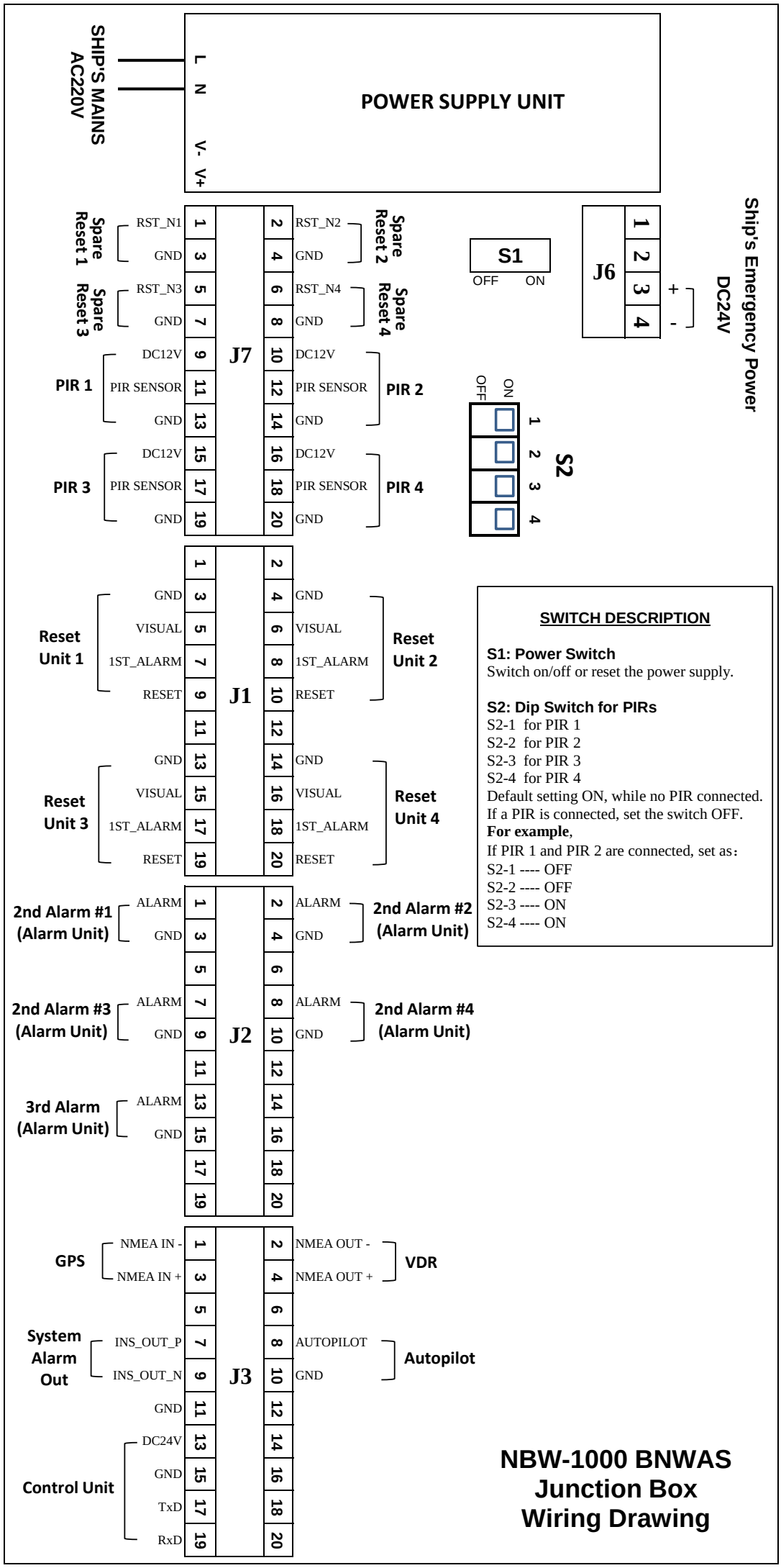


NOTE

IP20

NO.	DESCRIPTION	MATERIAL	QUANTITY	WEIGHT	REMARK'S	PART CODE
APPLICATION	BNWAS JUNCTION BOX SIZE DIMMENSION					

DATE	2012. 08. 16	ITEM	NBW-1000 BNWAS	SIZE	N/S
APPROVAL		SCALE	N/S	UNIT	mm
CHECKED		PRO-JECTION		▽▽▽▽0.8S ▽▽▽6.3S ▽▽12S ▽100S	
DRAWING		NSR	NEW SUNRISE CO., LTD		
DWG NO.	NBW1000-DW-12				



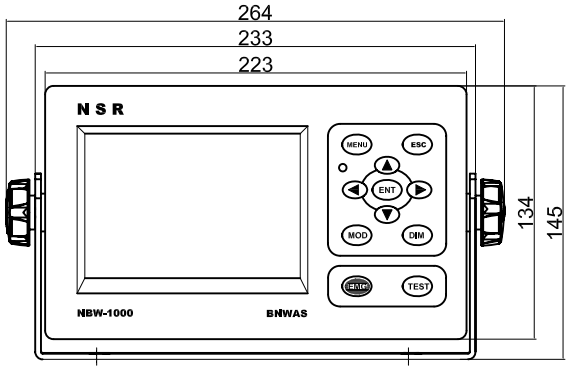
SWITCH DESCRIPTION

S1: Power Switch
Switch on/off or reset the power supply.

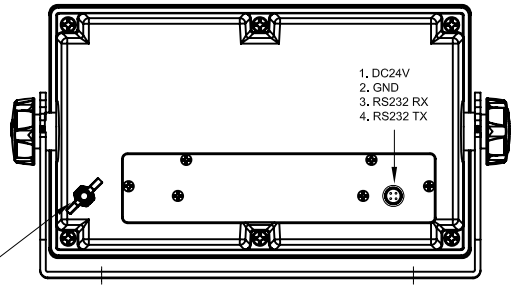
S2: Dip Switch for PIRs
S2-1 for PIR 1
S2-2 for PIR 2
S2-3 for PIR 3
S2-4 for PIR 4
Default setting ON, while no PIR connected.
If a PIR is connected, set the switch OFF.
For example,
If PIR 1 and PIR 2 are connected, set as:
S2-1 ---- OFF
S2-2 ---- OFF
S2-3 ---- ON
S2-4 ---- ON

NBW-1000 BNWAS Junction Box Wiring Drawing

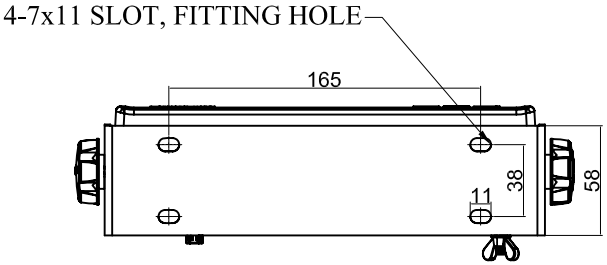
NO.	DATE	REVISION & DESCRIPTION	REVIEWED	CHECKED
0			SIGNATURE	



FRONT VIEW



REAR VIEW



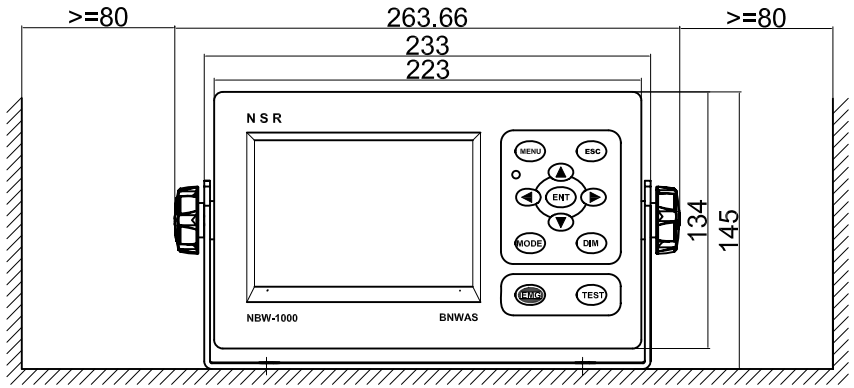
BOTTOM VIEW

NOTE

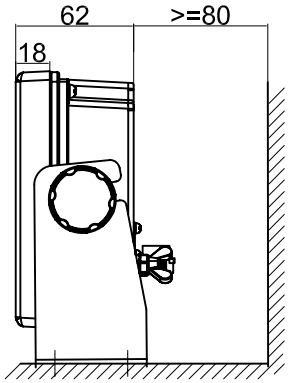
1. FITTING HOLE SIZE= 165*38-7ø SLOT HOLE
2. IP 20

APPLICATION	BNWAS CONTROL UNIT DIMENSION DRAWING				
DATE	2012.08.21	ITEM	NBW-1000 BNMWAS	SIZE	A4
APPROVAL		SCALE	N/S	UNIT	mm
CHECKED		PROJECTION			
DRAWING		NSR	NEW SUNRISE CO., LTD.		
DWG NO.	NBW1000-DW-001				

NO.	DATE	REVISION & DESCRIPTION	REVIEWED / CHECKED SIGNATURE
1			



FRONT VIEW



SIDE VIEW

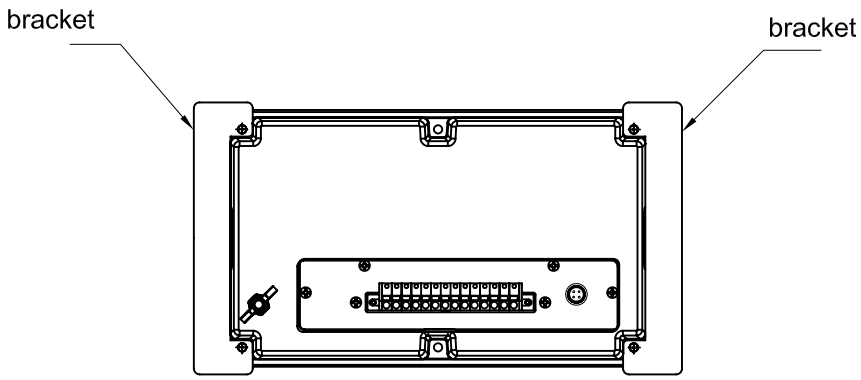
NOTE

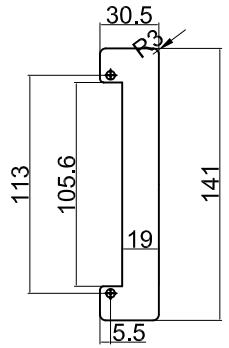
1. USE SELF-TAPPING SCREWS M5X20 FOR FIXING THE UNIT
2. 80MM IS MINIMUM SPACE FOR OPERATION AND CABLING.

APPLICATION
NBW-1000 CONTROL UNIT MOUNT DRAWING (TABLE TYPE)

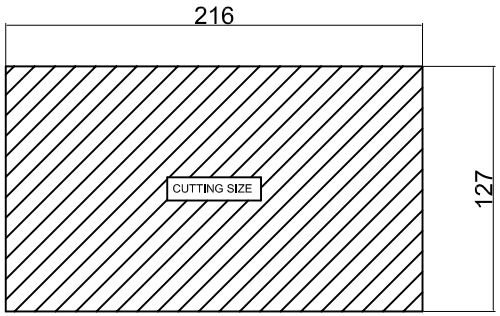
DATE	MAR 10TH 2012	ITEM	NBW-1000 BNWAS	SIZE	A4
APPROVAL		SCALE	N/S	UNIT	mm
CHECKED		PROJECTION			
DRAWING		NSR	NEW SUNRISE CO., LTD.		
DWG NO.	NBW1000-ID-002				

NO.	DATE	REVISION & DESCRIPTION	REVIEWED	CHECKED SIGNATURE
1				





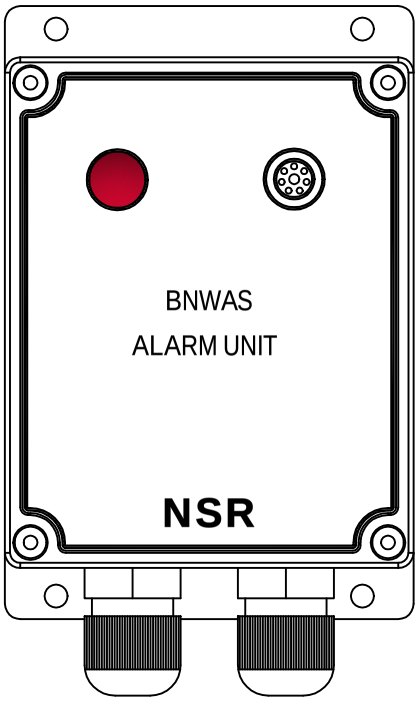
flush mount bracket



NOTE:

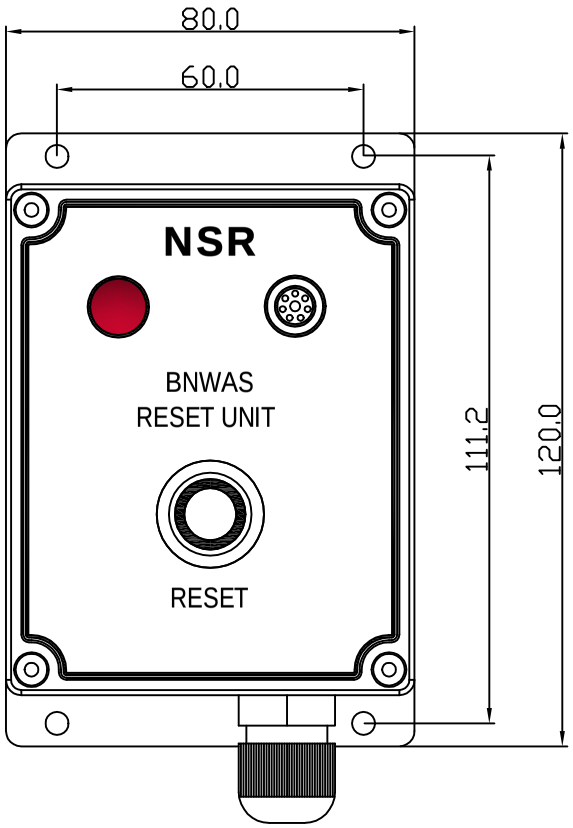
FLUSH MOUNT TYPE

APPLICATION	NBW-1000 CONTROL UNIT MOUNT DRAWING (FLUSH TYPE)						
DATE	MAR 10TH 2012	ITEM	NBW-1000 BNWAS			SIZE	A4
APPROVAL		SCALE	N/S	UNIT	mm	PRO-JECTION	▽▽▽▽0.8S ▽▽▽6.3S ▽▽12S ▽100S
CHECKED		NSR	NEW SUNRISE CO., LTD.				
DRAWING							
DWG NO.	NBW1000-ID-003						



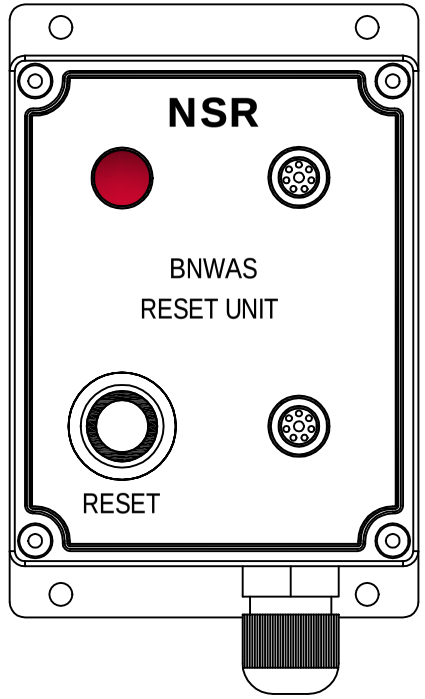
ALARM UNIT (NBW-1010A)

IP 20



RESET UNIT (NBW-1090R)

IP 20



RESET UNIT (NBW-1090RW)

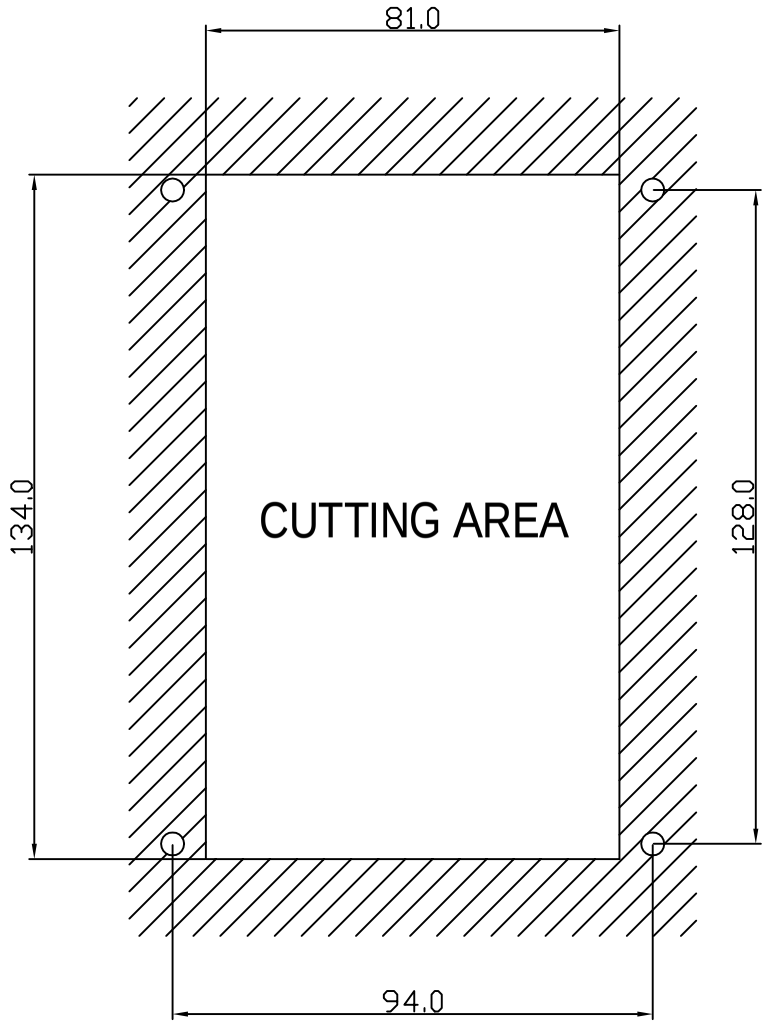
IP 65

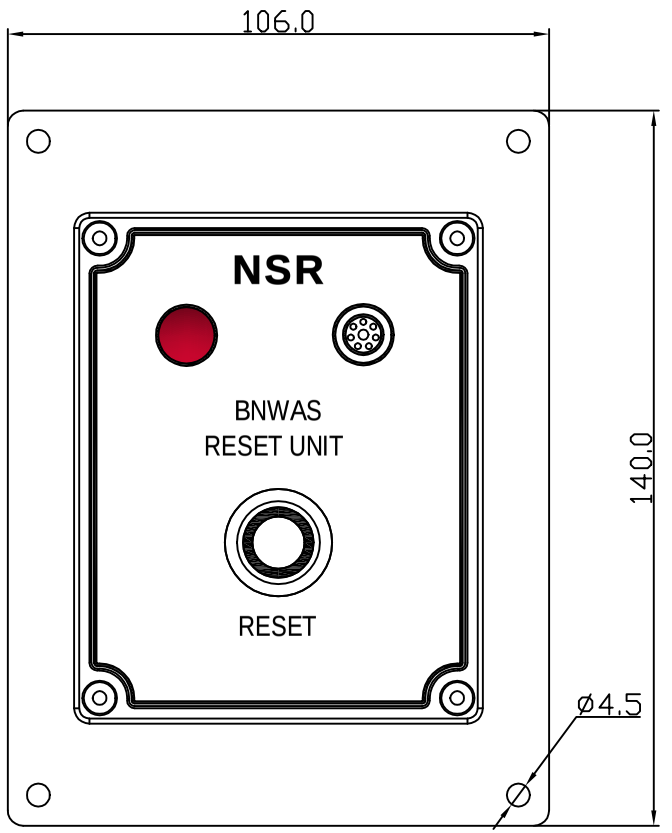
NO.	DESCRIPTION	MATERIAL	QUANTITY	WEIGHT	REMARK'S	PART CODE

APPLICATION: BNWAS ALARM/RESET UNIT DIMENSION DRAWING

DATE	2012. 09. 18	ITEM	NBW-1000 BNMWAS	SIZE	N/S
APPROVAL		SCALE	N/S	UNIT	mm
CHECKED		PROJECTION			
DRAWING					
DWG NO.	NBW1000-DW-004				

NSR NEW SUNRISE CO., LTD.





ALARM UNIT/RESET UNIT
(flush mount type)

NO.	DESCRIPTION	MATERIAL	QUANTITY	WEIGHT	REMARK'S	PART CODE

APPLICATION: BNWAS ALARM/RESET UNIT FLUSH MOUNT DRAWING

DATE	2013. 08. 18	ITEM	NBW-1000 BNMWAS	SIZE	N/S
APPROVAL		SCALE	N/S	UNIT	mm
CHECKED		PROJECTION			
DRAWING		▽▽▽0.8S ▽▽6.3S ▽12S ▽100S			
DWG NO.	NBW1000-DW-005	NEW SUNRISE CO., LTD.			