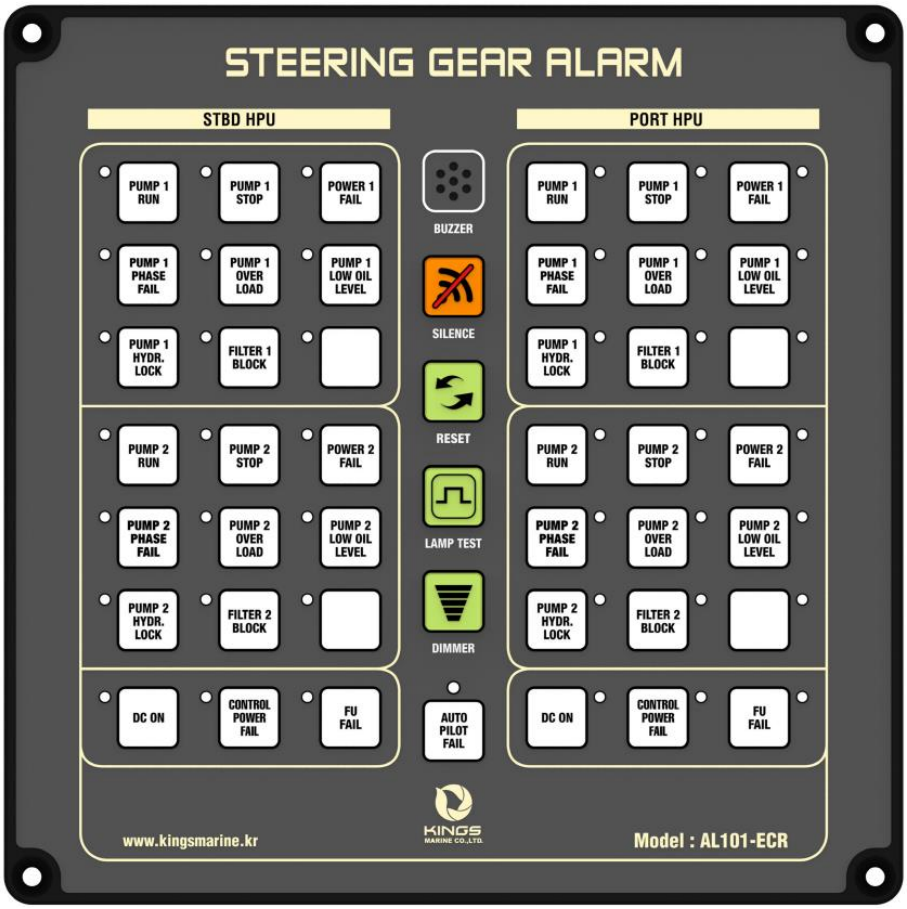
Steering Gear Alarm System

AL-101

Maunual



SEWHACNM
주식회사 세화씨엔엠

AL101 Steering Gear Alarm System

Chapter 0

Factory Default

1. ECR / FWD / AFT

1.1 Dip Switch

Switch	ON	OFF	Default
1	Operation Mode	Test Mode	ON
2	DC ON lamp blink (Red / Green)	DC ON lamp ON (Red)	ON
3	Full Relay output Mode	Half relay output Mode	ON
4	NC	NC	-
5	NC	NC	-
6	Firmware download	Normal mode	OFF

1.2 Resistor Termination ON/OFF switch: OFF

2. VDR

2.1 Dip Switch

Switch	ON	OFF	Default
1	Operation Mode	Test Mode	ON
2	Full Relay output Mode	Half relay output Mode	ON
3	NC	NC	-
4	NC	NC	-
5	NC	NC	-
6	Firmware download	Normal mode	ON

2.2 Resistor Termination ON/OFF switch: OFF

CAUTION!

*ECR / FWD / AFT Relay output mode(Full / Half) run independently.

Chapter 1

ECR / FWD / AFT / VDR Operation

AL101 Steering Gear Alarm System
ECR / FWD / AFT / VDR

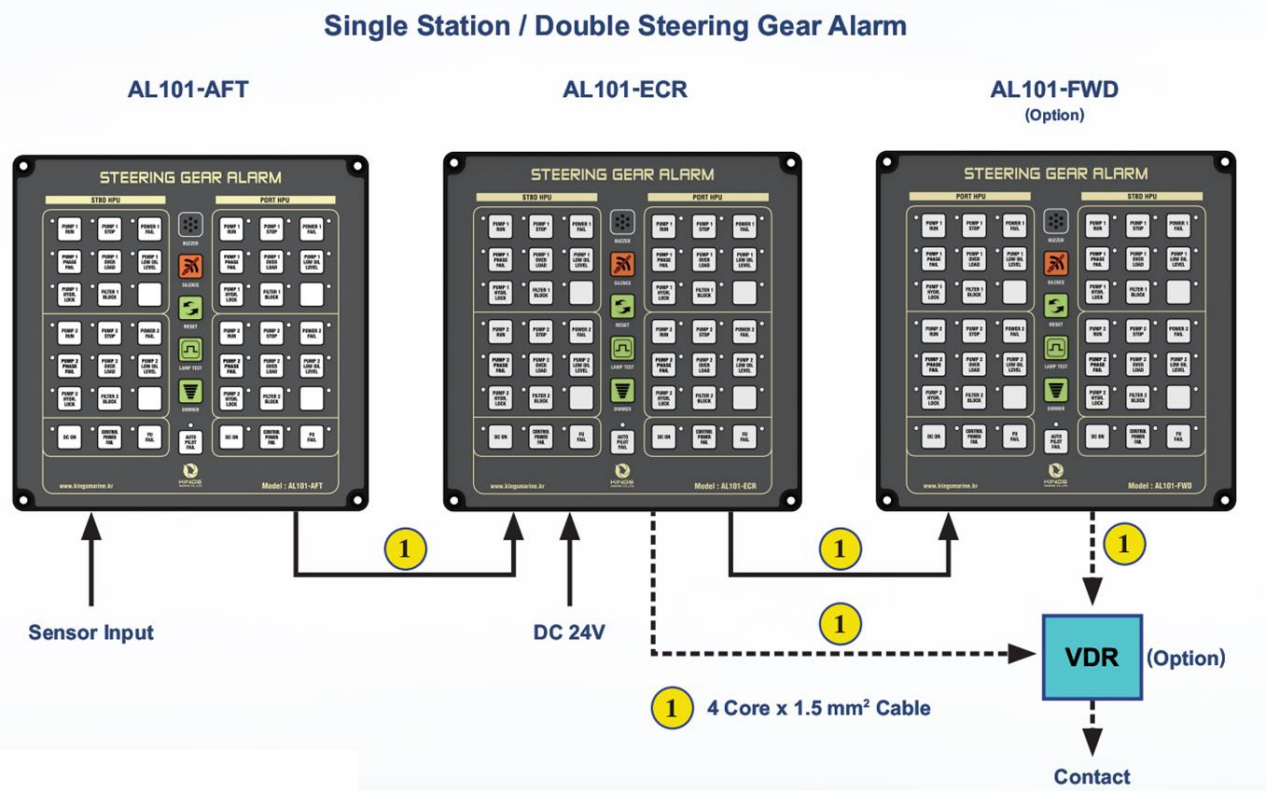
General Specification

- Voltage: DC 24V
- Current: 1.6A(38A)
- Communication: CAN BUS / RS485 / NMEA018(RS422)

Features

- Compact size, with easy access to wiring on rear connector.
- 4 wires CAN BUS data transmission
- Software utilizing 20 years experiences in control system
- Big square dial keypad for easy access to function button
- Self-test, feed-back system internal utilizing.
- NMEA0183 protocol available with AL101-VDR unit.
- DIMMER Key available to adjust L.E.D brightness(5 step)
- Permanent and durable L.E.D implement
- Low current power and high brightness L.E.D built in back light
- Monitoring system optimization on comfortable display
- Monitor SGR DC supply
- PUMP RUN relay output available
- Autopilot Fail Alarm connection

System Configuration

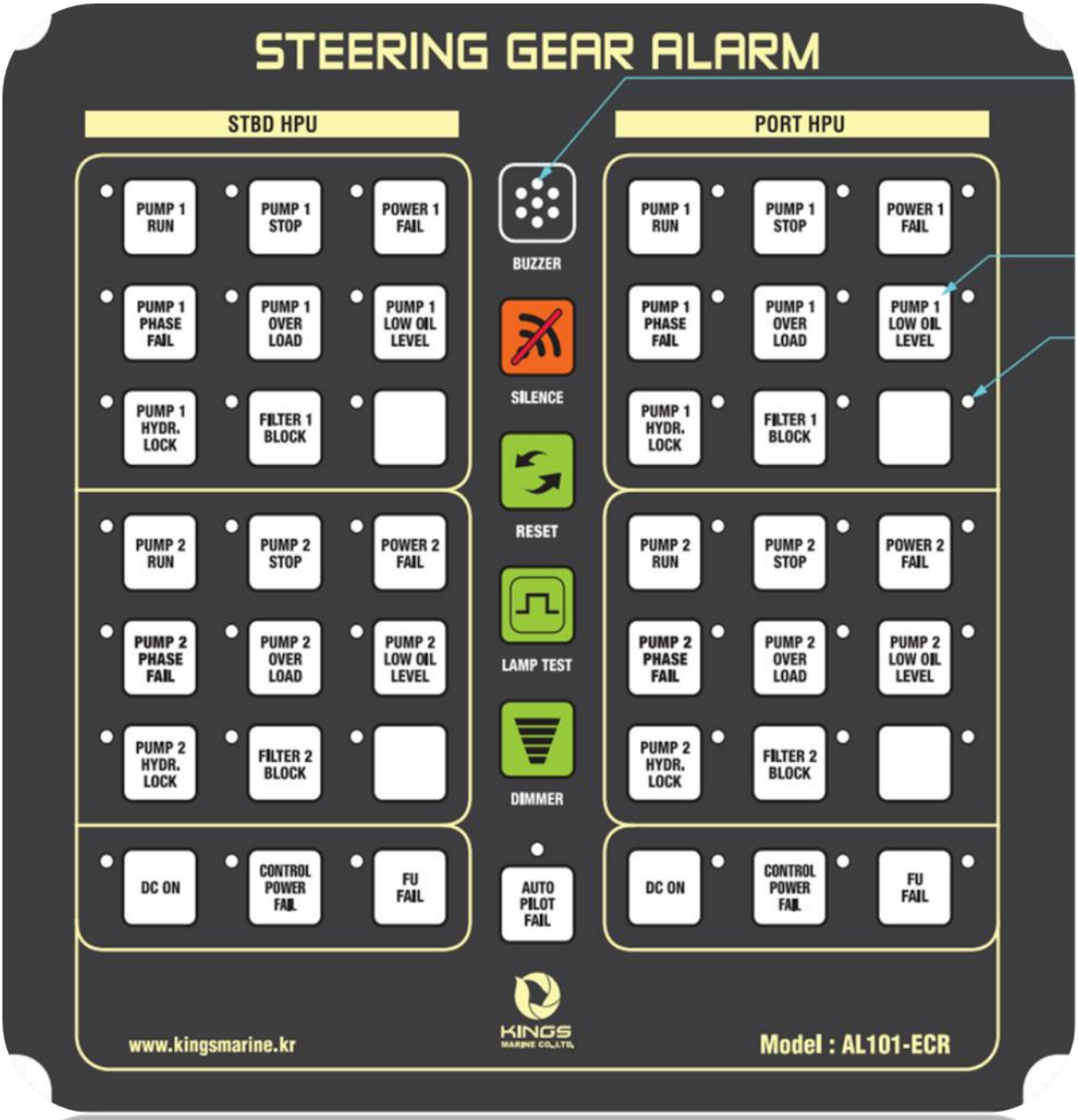


CAUTION!

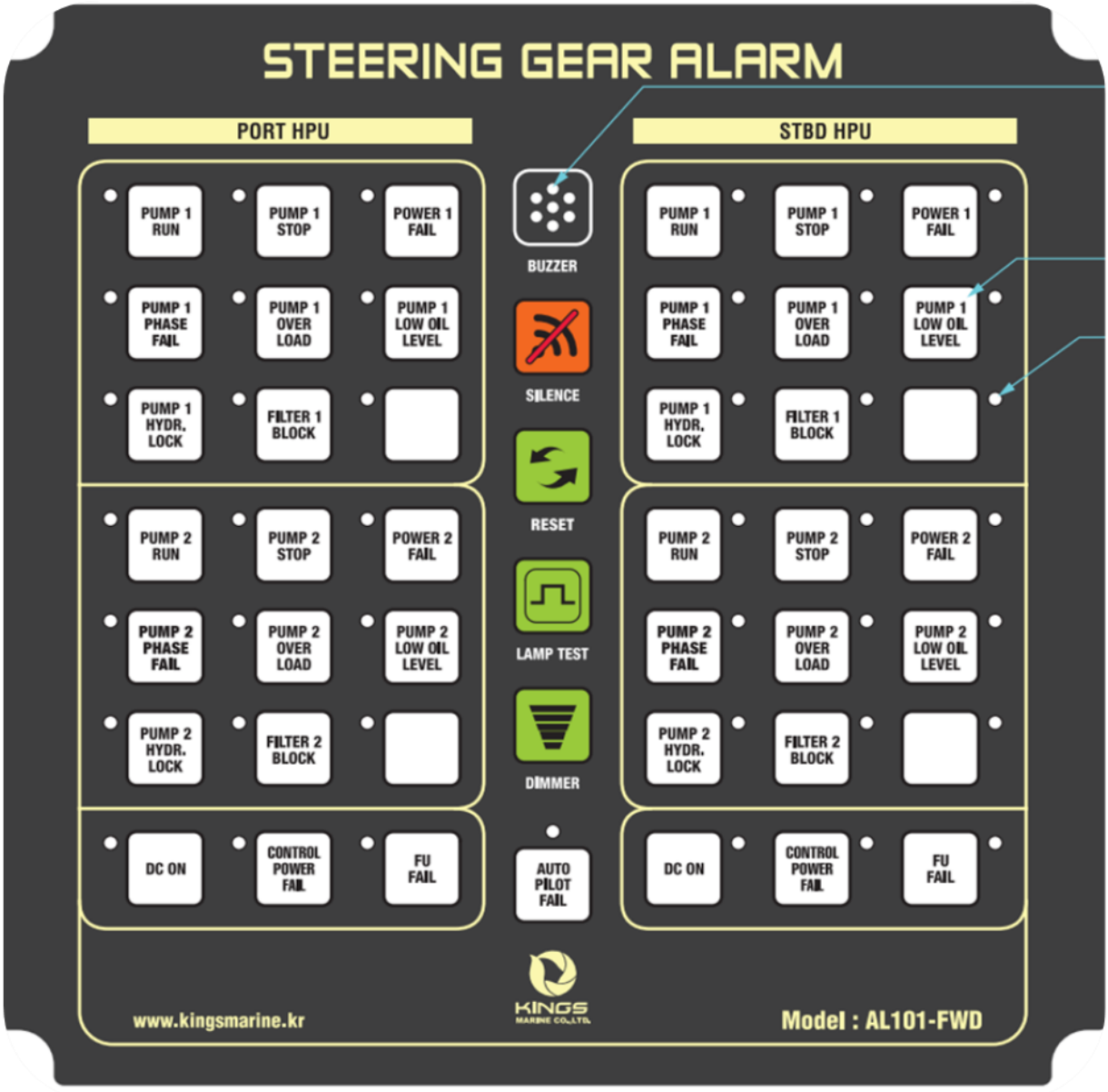
ECR to FWD are the main line RxTx unit, meaning wiring **MUST** be firstly from ECR to FWD then to either AFT to VDR or vice versa or anyone. If FWD to AFT data line is broken then ECR to FWD will still be operational.

Frontal Face

AL101-ECR



AL101-FWD


STEERING GEAR ALARM
PORT HPU
STBD HPU
PUMP 1 RUN
PUMP 1 STOP
POWER 1 FAIL
PUMP 1 PHASE FAIL
PUMP 1 OVER LOAD
PUMP 1 LOW OIL LEVEL
PUMP 1 HYDR. LOCK
FILTER 1 BLOCK
PUMP 2 RUN
PUMP 2 STOP
POWER 2 FAIL
PUMP 2 PHASE FAIL
PUMP 2 OVER LOAD
PUMP 2 LOW OIL LEVEL
PUMP 2 HYDR. LOCK
FILTER 2 BLOCK
DC ON
CONTROL POWER FAIL
FU FAIL
BUZZER
SILENCE
RESET
LAMP TEST
DIMMER
AUTO PILOT FAIL
KINGS
MARINE CO.,LTD.
www.kingsmarine.kr
Model : AL101-FWD

AL101-AFT


STEERING GEAR ALARM
STBD HPU
PORT HPU
PUMP 1 RUN
PUMP 1 STOP
POWER 1 FAIL
PUMP 1 PHASE FAIL
PUMP 1 OVER LOAD
PUMP 1 LOW OIL LEVEL
PUMP 1 HYDR. LOCK
FILTER 1 BLOCK
PUMP 2 RUN
PUMP 2 STOP
POWER 2 FAIL
PUMP 2 PHASE FAIL
PUMP 2 OVER LOAD
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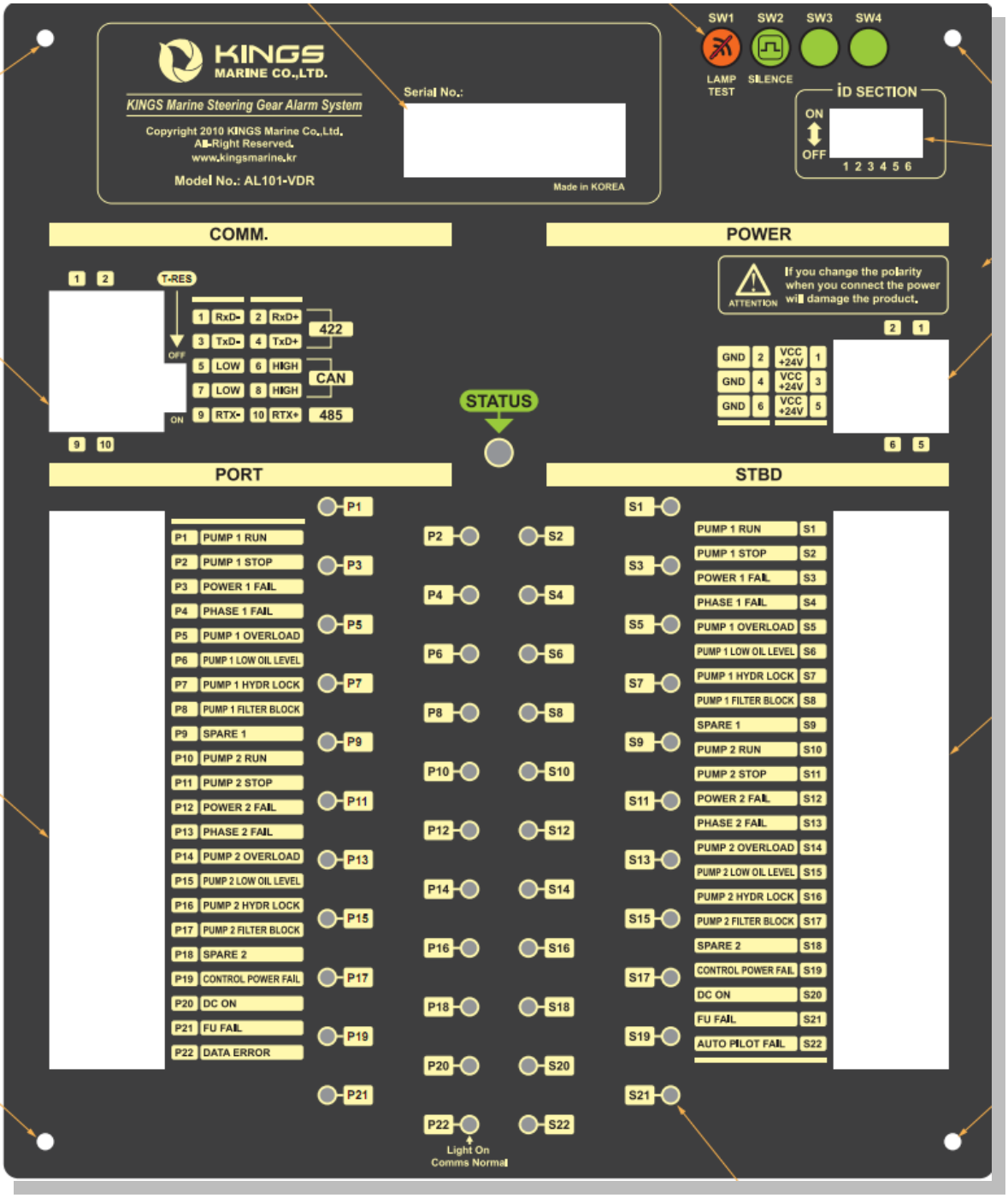
PUMP 2 HYDR. LOCK
FILTER 2 BLOCK
DC ON
CONTROL POWER FAIL
FU FAIL
BUZZER
SILENCE
RESET
LAMP TEST
DIMMER
AUTO PILOT FAIL
KINGS MARINE CO.,LTD.
www.kingsmarine.kr
Model : AL101-AFT

AL101-VDR


KINGS
MARINE CO.,LTD.
KINGS Marine Steering Gear Alarm System
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www.kingsmarine.kr
Model No.: AL101-VDR
Serial No.:
Made in KOREA
SW1
SW2
SW3
SW4
LAMP TEST
SILENCE
ID SECTION
ON
OFF
1 2 3 4 5 6
COMM.
POWER
T-RES
OFF
ON
1 RxD- 2 RxD+
3 TxD- 4 TxD+
422
5 LOW 6 HIGH
7 LOW 8 HIGH
CAN
9 RTX- 10 RTX+
485
ATTENTION
If you change the polarity when you connect the power will damage the product.
GND 2 VCC +24V 1
GND 4 VCC +24V 3
GND 6 VCC +24V 5
STATUS
PORT
STBD
P1 PUMP 1 RUN
P2 PUMP 1 STOP
P3 POWER 1 FAIL
P4 PHASE 1 FAIL
P5 PUMP 1 OVERLOAD
P6 PUMP 1 LOW OIL LEVEL
P7 PUMP 1 HYDR LOCK
P8 PUMP 1 FILTER BLOCK
P9 SPARE 1
P10 PUMP 2 RUN
P11 PUMP 2 STOP
P12 POWER 2 FAIL
P13 PHASE 2 FAIL
P14 PUMP 2 OVERLOAD
P15 PUMP 2 LOW OIL LEVEL
P16 PUMP 2 HYDR LOCK
P17 PUMP 2 FILTER BLOCK
P18 SPARE 2
P19 CONTROL POWER FAIL
P20 DC ON
P21 FU FAIL
P22 DATA ERROR
PUMP 1 RUN S1
PUMP 1 STOP S2
POWER 1 FAIL S3
PHASE 1 FAIL S4
PUMP 1 OVERLOAD S5
PUMP 1 LOW OIL LEVEL S6
PUMP 1 HYDR LOCK S7
PUMP 1 FILTER BLOCK S8
SPARE 1 S9
PUMP 2 RUN S10
PUMP 2 STOP S11
POWER 2 FAIL S12
PHASE 2 FAIL S13
PUMP 2 OVERLOAD S14
PUMP 2 LOW OIL LEVEL S15
PUMP 2 HYDR LOCK S16
PUMP 2 FILTER BLOCK S17
SPARE 2 S18
CONTROL POWER FAIL S19
DC ON S20
FU FAIL S21
AUTO PILOT FAIL S22
Light On
Comms Normal

Description of AL101-ECR/FWD/AFT/VDR Keypad

1) SILENCE Key

This key able to maintain to each lamp′s activation or deactivation
After buzzer has activation, this key able to stop to buzzer sound

CAUTION!

If setting Dip Switch “2” setting done ON, relay output will be working full mode.
Meanwhile if setting Dip switch “2” OFF relay output will be working half mode

2) RESET Key

This key able to re-boot to all lamp′s activation and deactivation.
Press this key then press SILENCE Key again to maintain to each lamp′s activation and deactivation. Or check buzzer sound activation

3) LAMP TEST Key

This key able to all LAMP ON even each lamp has activation or deactivation
This key check to LAMP itself working.
If on pressing this key both of activation and deactivation lamp ON at once.
Then if release this key the deactivation lamp will be OFF

4) DIMMER Key

This key able to adjust to LAMP brightness
Brightness has total 5 steps.

Description of AL101-ECR/FWD/AFT LAMP

1) **FU FAIL LAMP**
   Input signal “1” second later LAMP activate

2) **PUMP HYDR. LOCK LAMP**
   Input signal “1” second later LAMP activate

3) **PHASE FAIL LAMP**
   Input signal “2” second later LAMP activate

4) **PUMP LOW OIL LEVEL LAMP**
   Input signal “3” second later LAMP activate

5) **DC ON LAMP**
   Depend on input signal LAMP will be activate to “RED” or “GREEN”
   (Please see the chapter 3 Input & output signal terminal)

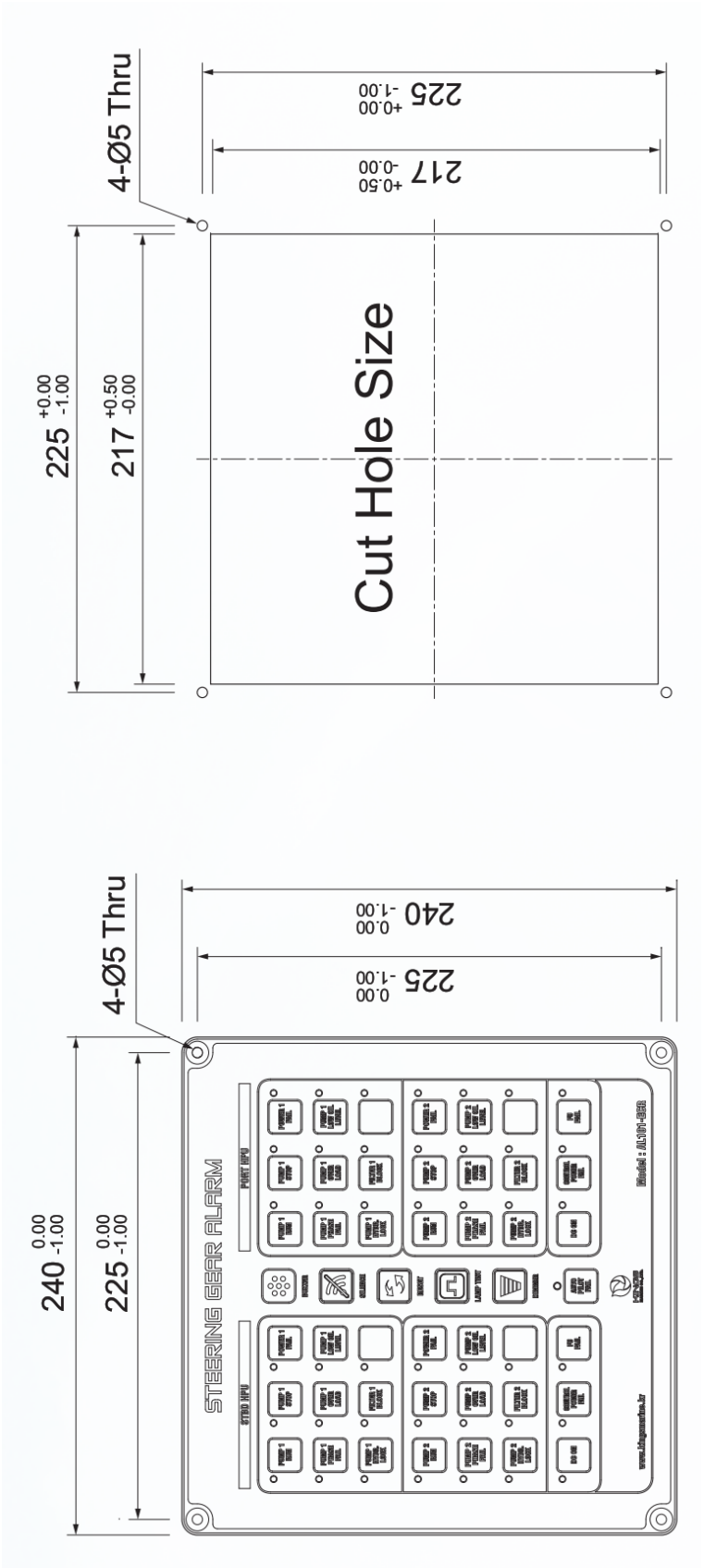
CAUTION!

Except above FU FAIL / PUMP HYDR. LOCK / PHASE FAIL / PUMP LOW OIL LEVEL these “4” kind LAMP, the other LAMP will be activate once it has input signal.

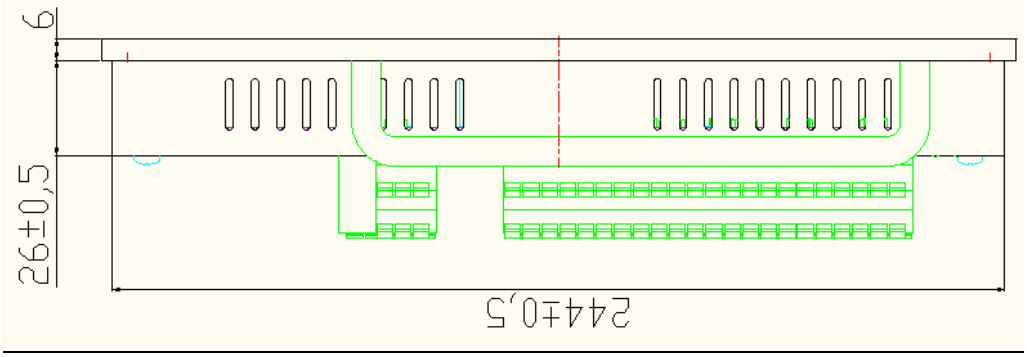
Chapter 2

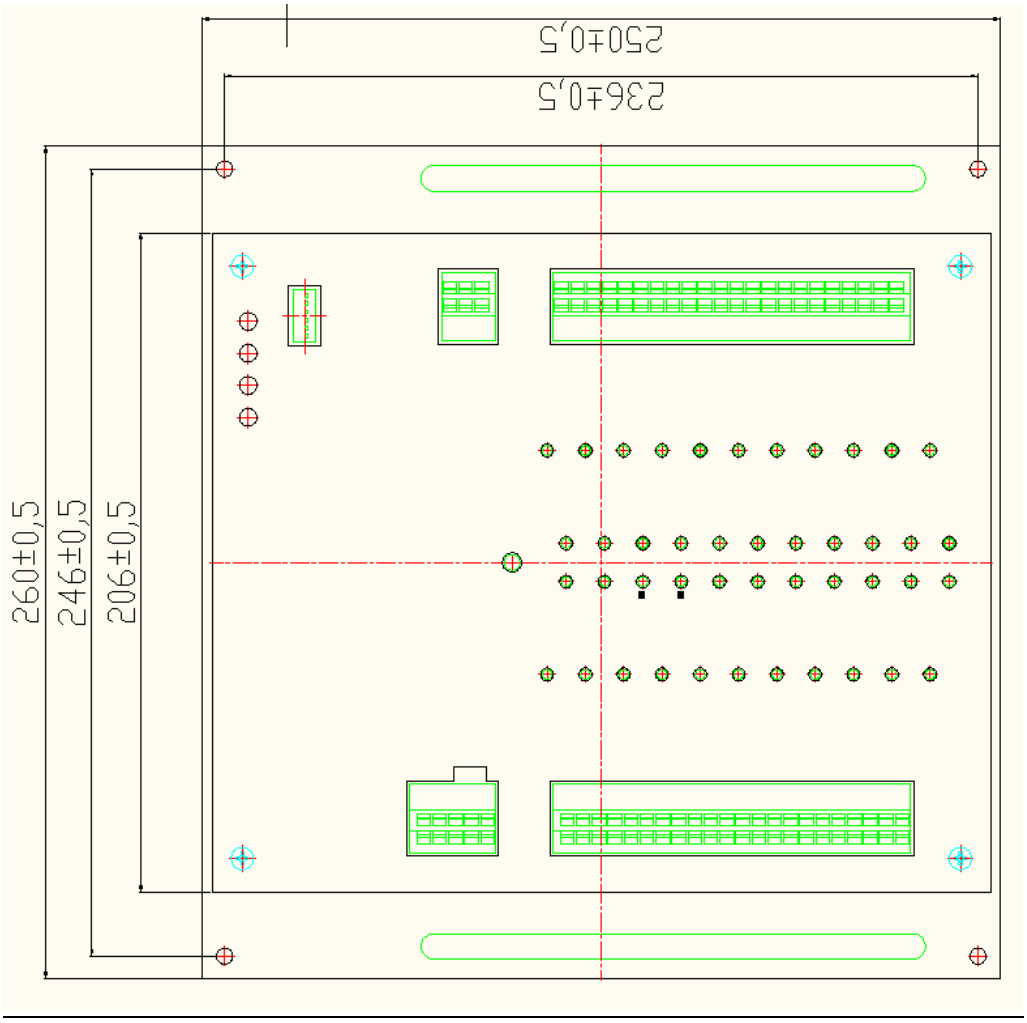
ECR / FWD / AFT Dimension

ECR / FWD / AFT


4-Ø5 Thru
225 +0.00 -1.00
217 +0.50 -0.00
Cut Hole Size
225 +0.00 -1.00
217 +0.50 -0.00
4-Ø5 Thru
240 0.00 -1.00
225 0.00 -1.00
240 0.00 -1.00
225 0.00 -1.00
STEERING GEAR ALARM

VDR

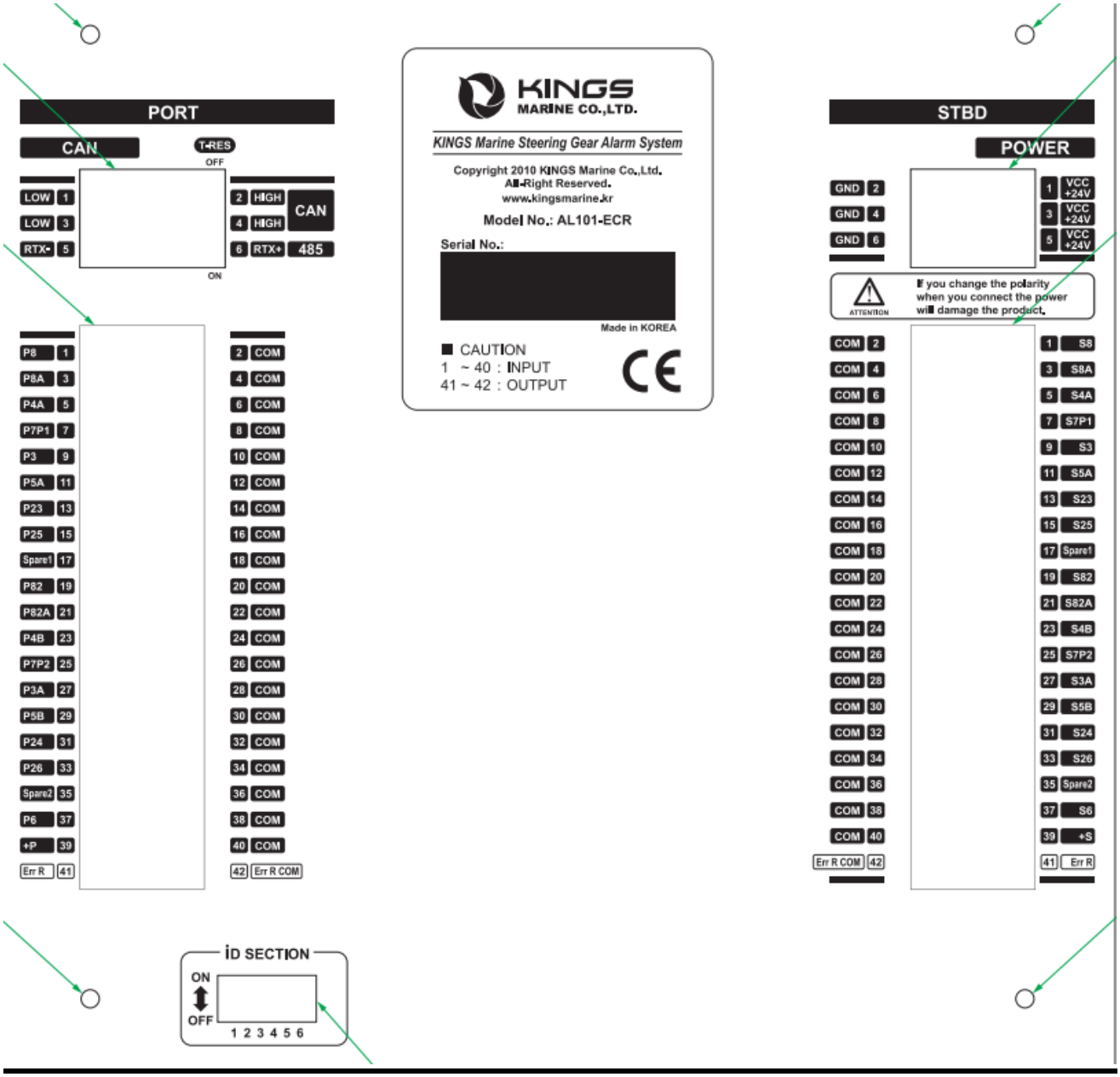




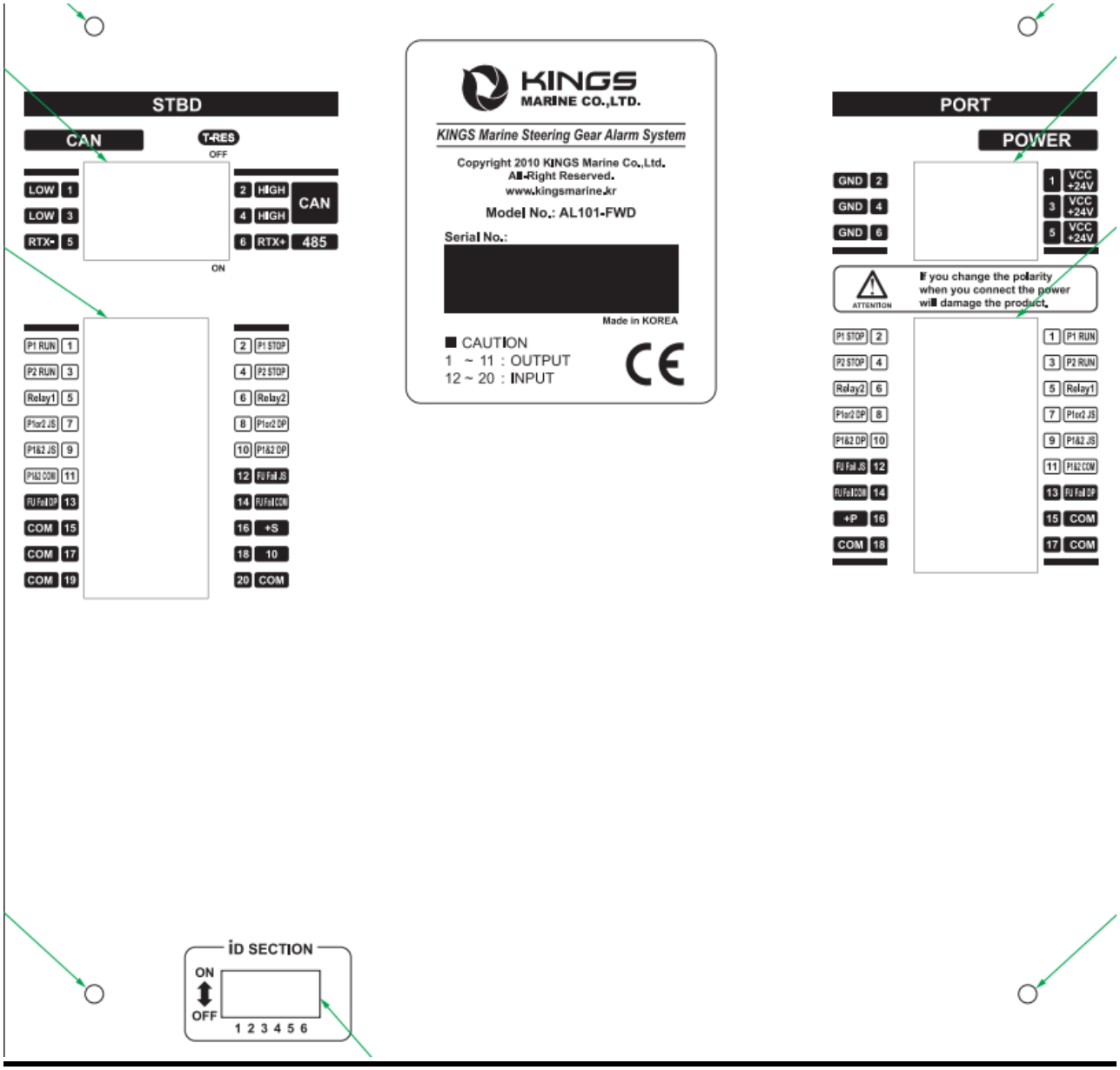
Chapter 3

ECR / FWD / AFT / VDR
Input & output signal terminal

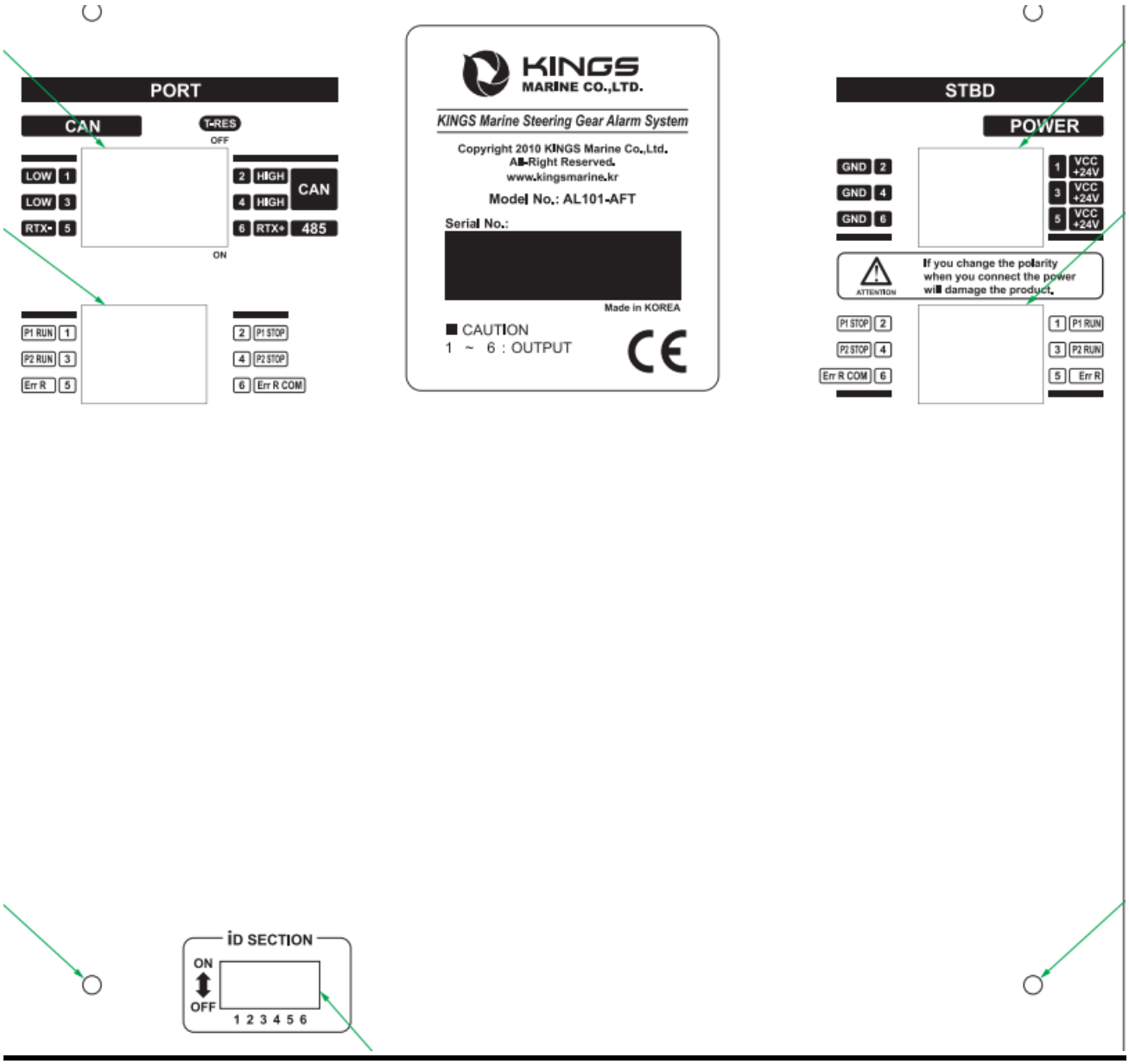
ECR input & output signal terminal



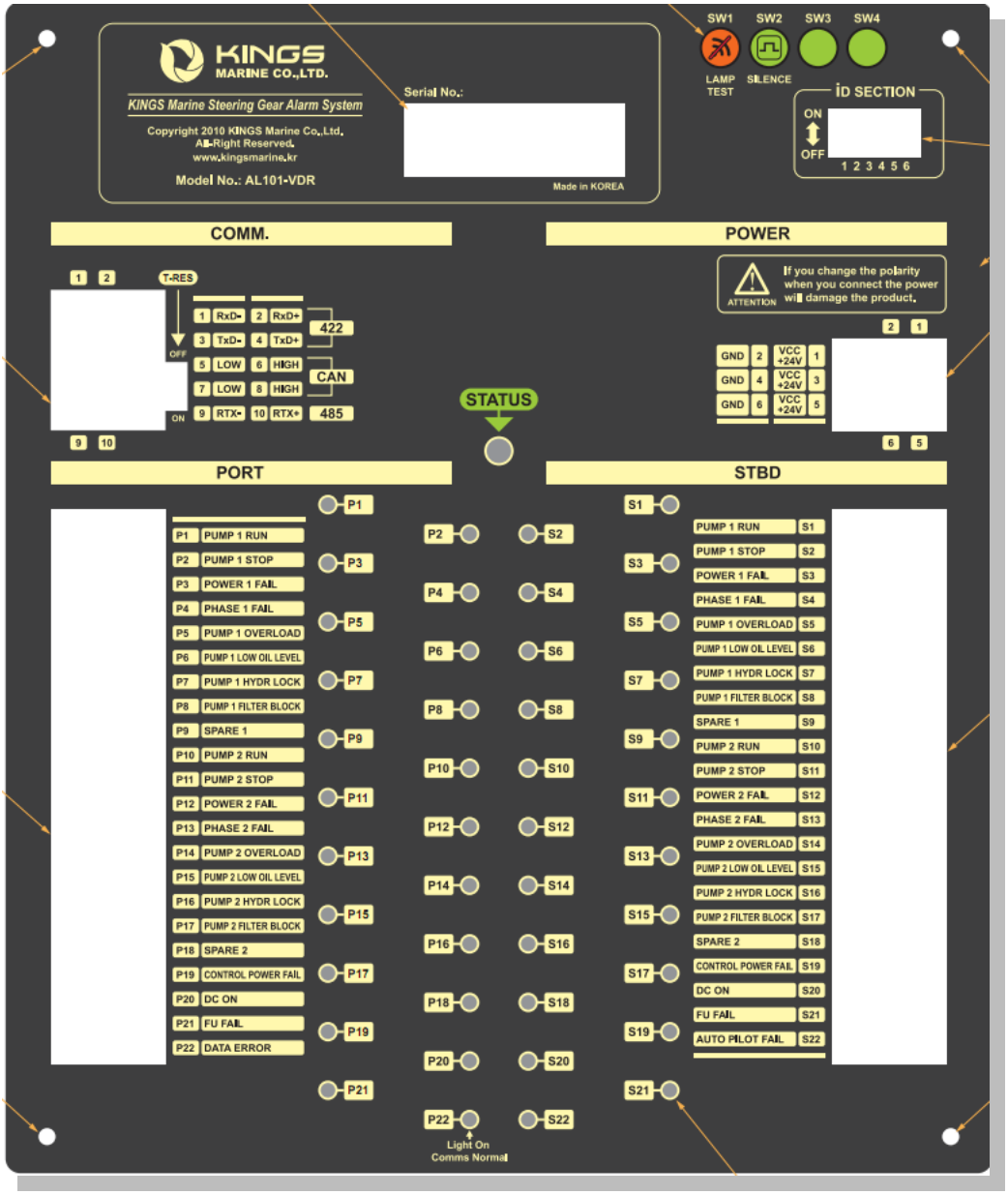
FWD input & output signal terminal



AFT input & output signal terminal



VDR output signal terminal



Chapter 4

Test flow

4.1 Purpose

: This alarm testing procedure is to check and confirm that the alarm system is working and meet the design requirement.

4.2 Testing Procedure

4.2.1 Connect the FWD, AFT & ECR panel as single line drawing.

4.2.2 Connect ECR panel to external alarm signals. The alarm signal can be turned off And on by a toggle switch. The signal is +24V DC. Put the switches in off position for all the alarm signals before testing.

4.3Lamp test: Press the lamp test button, all the lamps on the panel should be on.

4.4Dimmer test: When the lamp test button is pressed, press the dimmer button and the brightness will change accordingly.

4.5 Individual alarms and indications test

DC ON

Step 1: Provide +24V DC at the FWD alarm panel input terminal P+.
Step 2: DC ON indicator Green light is on at port side for all the panels.
Step 3: No alarm activated.
Step 4: Provide +24VDC at the FWD alarm panel input terminal S+
Step 5: DC ON indicator Green light is on at STBD side for all the panels.
Step 6: No alarm activated.
Step 7: Remove the input signal at P+ or S+.
Step 8: The indicator light color changes to Red and alarm activated.
Step 9: check output signal to other equipment at ECR panel when alarm activated

AUTOPILOT FAIL

Step 1: Close AUTOPILOT FAIL contact at the FWD panel input.
Step 2: Autopilot fail indicator Red light is blinking for all the panels.
Step 3: Buzzer sound.
Step 4: Press the Silence button, the autopilot fail indicator light is steady in Red and Buzzer is off.
Step 5: Press the alarm reset button, the buzzer sound again and indicator is blinking again
Step 6: Repeat Step 4.
Step 7: Cut off the AUTOPILOT FAIL contact, the autopilot fail indicator is still on
Step 8: Press alarm reset button again, the Autopilot alarm indicator light off.
Step 9: Check out signal to other equipment at ECT panel when alarm activated.

FU FAIL

Step 1: Close FU FAIL contact at the FWD panel input
Step 2: FU FAIL indicator light is blinking for all the panels.
Step 3: Buzzer sound.
Step 4: Press the silence button, the FU FAIL indicator light is steady and buzzer is off.
Step 5: Press the alarm reset button, the buzzer sound again and indication is blinking
Step 6: Repeat Step 4 .
Step 7: Cut off the FU FAIL contact, the autopilot fail indicator is still on.
Step 8: Press alarm reset button again, the alarm indicator light off
Step 9: Check out signal to other equipment at ECR panel when alarm activated

PUMP 1 RUN

Step 1: Close PUMP 1 RUN switch
Step 2: PUMP 1 RUN indicator light ON
Step 3: Buzzer not on.
Step 4: Open the PUMP 1 RUN switch
Step 5: Indicator light off

PUMP 1 STOP

Step 1: Close PUMP 1 STOP switch
Step 2: PUMP 1 STOP indicator light on
Step 3: Buzzer not on.
Step 4: Open the PUMP 1 STOP switch
Step 5: Indicator light off

PUMP 2 RUN & STOP

-To repeat PUMP 1 RUN & STOP test.

POWER 1 FAIL

Step 1: Provide + 24V DC to the ECR input terminal at P4A
Step 2: POWER 1 FAIL indicator light is blinking for all the panels.
Step 3: Buzzer sound.
Step 4: Press the silence button, the POWER 1 FAIL indicator light is steady and buzzer is off
Step 5: Press the alarm reset button, the buzzer sound again and indicator is blinking again
Step 6: Repeat Step 4.
Step 7: Stop supply +24V DC to the terminal input, the power 1 fail indicator is still on.
Step 8: Press alarm reset button again, the alarm indicator light off.
Step 9: Check out signal to other equipment at ECR panel when alarm activated.

*All the other alarm testing has the same testing procedure as POWER 1 FAIL testing Procedure.

TIME DELAY TEST

LOW OIL LEVEL : **3 second**
HYDRAULC LOCK: **1 second**
PHASE FAIL: **2 second**
FU FAIL: **1 second**
*The testing steps are same as POWER 1 FAIL.

Step 1: Provide alarm input signal to the respect alarm input terminal.
Step 2: Count the time between signal input and alarm activate.
Step 3: Compare the time between the setting an count.
Step 4: The time delay setting and count should follow the setting time

4.6 Testing for signal output to other equipment

FWD & AFT alarm panel relay Signal output

	Input Signal	Input Location	Output Signal (FWD & AFT panels)	Output Qty Each Panel	Remark
PORT	PUMP 1 RUN	ECR	+24VDC	1	No alarm
	PUMP 1 STOP	ECR	+24VDC	1	No alarm
	PUMP 2 RUN	ECR	+24VDC	1	No alarm
	PUMP 2 STOP	ECR	+24VDC	1	No alarm
STBD	PUMP 1 RUN	ECR	+24VDC	1	No alarm
	PUMP 1 STOP	ECR	+24VDC	1	No alarm
	PUMP 2 RUN	ECR	+24VDC	1	No alarm
	PUMP 2 STOP	ECR	+24VDC	1	No alarm
PORT	PUMP 1 or PUMP 2 RUN	ECR	+24VDC	2	No alarm
STBD	PUMP 1 or PUMP 2 RUN	ECR	+24VDC	2	No alarm
PORT	PUMP 1 & PUMP 2 RUN	ECR	+24VDC	3	No alarm
STBD	PUMP 1 & PUMP 2 RUN	ECR	+24VDC	3	No alarm

4.7 Testing for signals output to VDR

Every indicator light will have a respect +24V DC output at VDR option or data output for NMEA protocol option.

WARRANTEE CERTIFICATION

This product is passed “Sewhacnm”s strict quality test.

If there is defect of manufacturing or abnormal detection within warrantee period, please contact our Agent or Distributor with this Warrantee Certification.

WARRANTEE CLAUSE

1. The Warrantee period, we can guarantee, is one(1) year from your purchasing date

2. Warrantee Exception Clause

- Warrantee period is expired.
- Any kinds of Mal-function or defection caused by Modification or Repair without Sewhacnm’s permission.
- Any kinds of Mal-function, Defection, or External damage, caused by operator
- Any kinds of Mal-function, Defection, caused by using spare part from Non-Authorized Distributor or Agent.
- Any kinds of Mal-function, Defection, caused by not following Warnings or Cautions mentioned on this manual.
- Any kinds of Mal-function, Defection caused by “Force Majeur”, like Fire, Flood.
- Without presentation of this “Warrantee Certification”.

3. Other

- Any kinds of “Warrantee Certification” without authorized Signature is out of validity

Manufacturer

Manufacturer : SEWHACNM Co.,Ltd.
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http://www.sewhacnm.co.kr
Made in KOREA

Product	AL101 Steering Gear Alarm System
Model	ECR / FWD / AFT / VDR
AUTHORIZED SIGNATURE	Sewha CNM Co.,Ltd