

# DAEYANG

## NAVAL & DEFENCE 2015

DAEYANG ELECTRIC COMPANY

[www.daeyang.co.kr](http://www.daeyang.co.kr)



The background of the entire page is a photograph of two large naval ships, likely destroyers, at sea. The ship on the right is in the foreground, showing its bow and the number '972' on its hull. The ship on the left is slightly behind and to the side. The sky is a deep blue with some light clouds, and the water is dark. The overall tone is professional and military-oriented.

 **DAEYANG**

# Technology developments and maximizing people's abilities are at the core of our philosophy and vision

We believe the purpose of company's existence is to support its members and society by producing continuous values with help of technology and human resources. Our employees are the best resources we can rely on, so we value the talented upbringing of our workers. Since the foundation of company we have implemented this philosophy and we will continue to put forth all our effort to achieve our goals through expanding technology and maximizing our employees' abilities.

## Organization



## Major Products

### Lighting

- Indoor Lighting
- Outdoor Lighting
- Navigation Light & Signal Light
- Hazardous Area Lighting
- Receptacle & Switch
- Reefer Container Receptacle
- Lighting Architecture
- LED Lighting

### Communication & Navigation

- Integrated Communication System (ICS)
- Refrigerated Container Monitoring System (RCMS)
- Power Cable Transmission System
- Integrated Navigation System (INS)
- Electro-Magnetic Speed Logs (EM-LOG)
- Degaussing/Depurging System
- Ship Shore Communication Link System (SSCLS)

### Panel & Switchboard

- Main Switchboard
- Emergency Switchboard
- Power Distribution Panel
- Engine Control Console
- Bridge Control Console
- Switchboard for Train

### Nautical Instrument

- Anemometer & Anemoscope
- Rudder Angle Indicator
- Weather Information System (WIS)
- Whistle

### Sensor

- Temperature Sensor
- Pressure Sensor
- Weather sensor

### Underwater Vehicle

- Remotely Operated Vehicle (ROV)
- Autonomous Underwater Vehicle (AUV)
- Deep Sea Unmanned Underwater Vehicle (UUV)
- Mine Disposal Vehicle (MDV)

## ► DVR-08 / DVR-16

### Digital Voice Recorder



► DVR-08B2 / DVR-16C

#### Hardware specification

- 7" TFT LCD with touch screen and on-screen display control
- 3 USB ports
- Built-in speaker 1W
- Voice level indicating and Volume & Channel control
- Status monitoring for recording and controller
- 19" standard 3U height
- IP 23 protection class
- Standard COMExpress dual core CPU board
- 2.5" Single/Dual Hard Disk or Solid State Disk as an option
- Remote control by Ethernet as an option
- Provide interface signals such as Ready, Start/Stop
- Isolated interface with ICS (ADICS, FOCON, etc)
- Isolated audio interface (balanced 0dBm 600ohm)
- Input power 110/220 VAC with 24 VDC emergency operation
- Front audio connector for line input/output (ICS headset can be connected)
- Meet MIL standard MIL-STD-461F(EMC) as an option
- Meet MIL standard MIL-STD-167-1A(Vibration), and MIL-S-901D (Shock) within the specially designed rack as an option
- Weight : about 9.6 kg

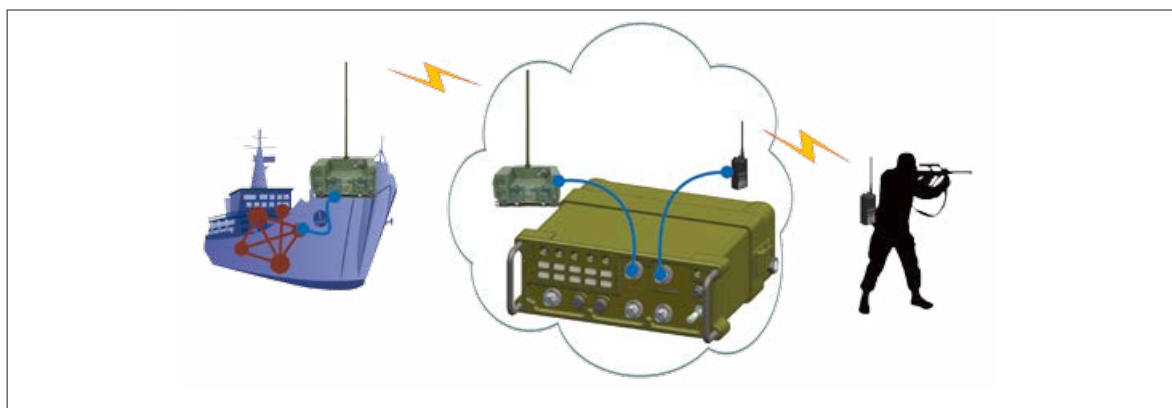
#### Software specification

- Windows 7 embedded or equivalent
- Up to 7/15 voice recording channels
- 1 play channel
- Over 1 week recording per channel
- Backup to USB memory
- Backup to external DVD/CD recorder (option)
- Login password and User account management
- Track recorded voice data and record information with tag
- Voice convert to encrypted file by customer selection

# ▶ RWR-04

## Portable Radio Wireless Repeater

- Up to 2 user groups with 4 interface channels for mobile radios and analog equipment
- Can be interfaced with portable VHF tactical radios such as VRC-946K
- Adapt MIL-DTL-55116/10 standard connectors
- A connector for handset for voice communication or debugging/updating
- Available functions
  - VOX PTT and adjustable VOX level
  - Selectable one of two user groups
  - Adjustable audio I/O levels on the internal control board
  - PTT indications on the front panel
- Provides portable backpack
- Operation with standard battery up to 20 hours estimated On 9:1(Standby:Relay) duty cycle



▶ RWR-04 application example

## Equipment Configuration

- Portable Radio Wireless Repeater type RWR-04P
- Sealed lead calcium battery(6Ah) or Lithium battery(option)
- Power supply and battery charger
- Handset or Headset(option)
- Backpack(carrying bag)
- Interface cable assemblies according to mobile radios (optional items)

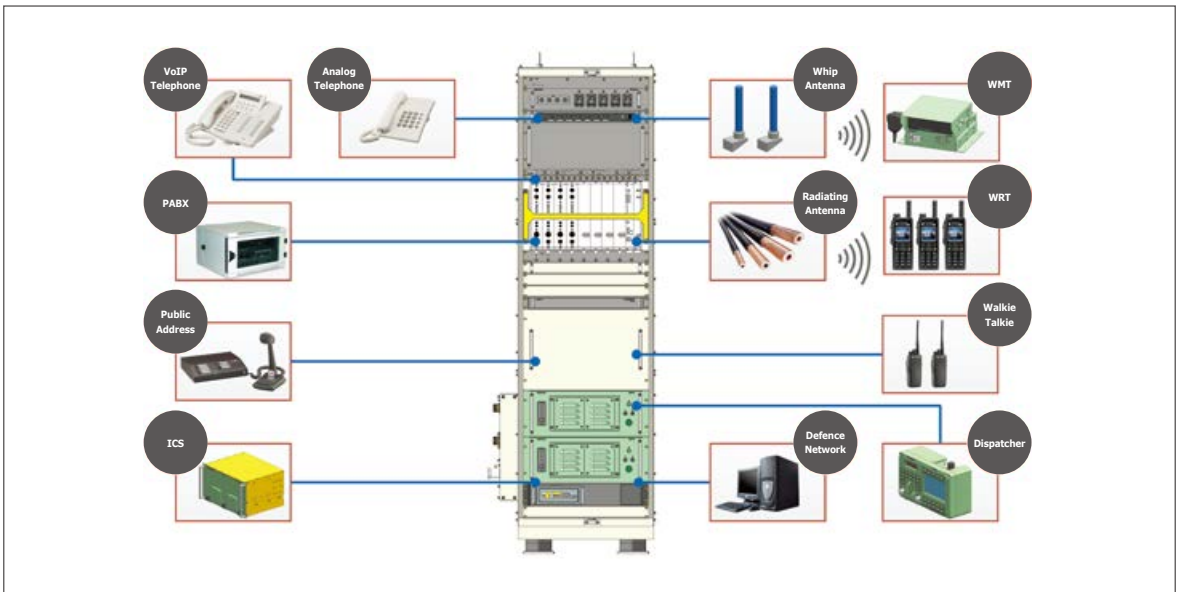




# WIRAS-III

## Digitalized Wireless Interior Communication System(WICS)

- Designed with TETRA (Terrestrial Trunked Radio) technology of the digital trunked radio standard and VoIP (Voice over Internet Protocol) network technology to communicate between users anywhere in the interior or exterior of naval ship.
- Configured with 15 user channels simultaneously by using four TETRA transceivers.
- Supports
  - Integrated management using NMS (Network Management Station)
  - The central control and the direct connection by using one or two dispatchers
- Provides various accessories depending on the user's requirements and necessities.
- Provides backup battery unit to enable the emergency operation(TETRA) for over 8 hour in case of main power malfunctions.



### Hardware specification

- Individual and Group Call
- Dynamic Group Allocation
- Emergency Beep and Call
- Monitor and Control through Dispatcher
- SMS Transmission/Reception
- Interface with Integrated Communication System
- Interface with PBX through Gateway
- VoIP through the SIP protocol standard
- RoIP Interface
- Call ID Display
- Selective Priority Call
- WICS Trunked Rack(WTR-21B)
- WICS Dispatcher Terminal(WDT-16)
- WICS Network Management station(WNM-10)
- WICS Portable Radio Terminal(WRT-D1)
- WICS VoIP Telephone(WTP-V1)
- WICS Analog Dial Telephone(WTP-A1)
- WICS Mobile Station(WMT-8A)

### Function of Dispatcher

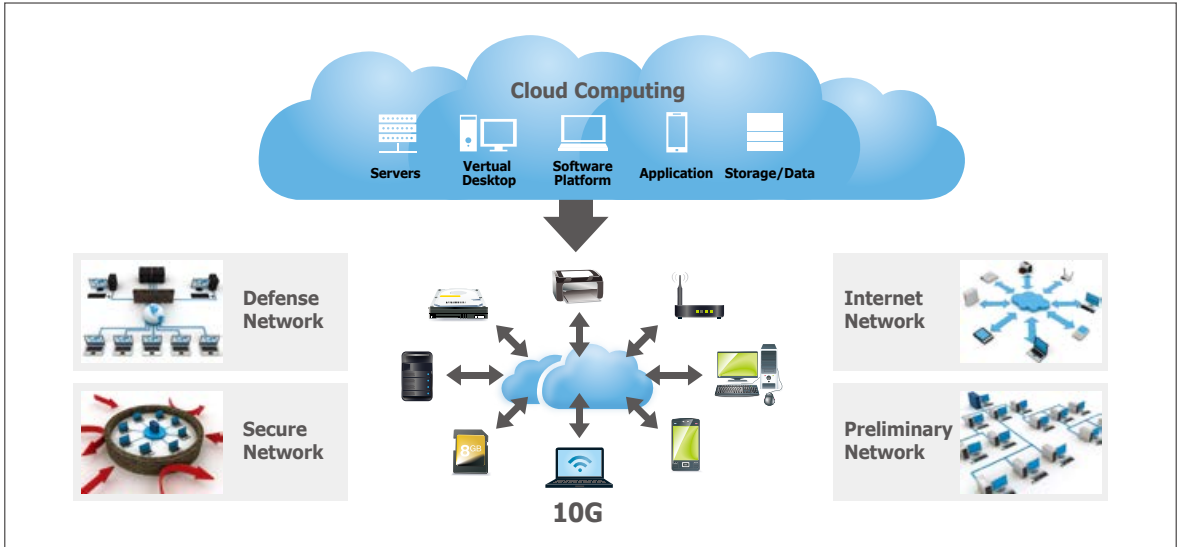
- Monitoring and Controlling for all kind of available calls through the remote dispatcher



## SDN-21 CLOUD

### Shipboard Data Network(SDN) for Cloud Computing

**SDN-21 Cloud is an integrated shipboard data network system** with the high speed 10Gb optical back-bone and the dual redundancy configuration. This system provides various sub-network systems to integrate and exchange secure information.



SDN-21 Cloud has been designed as the naval shipboard network, internet network, secure data network, and preliminary network to maximize accessibility and secure the data exchange.

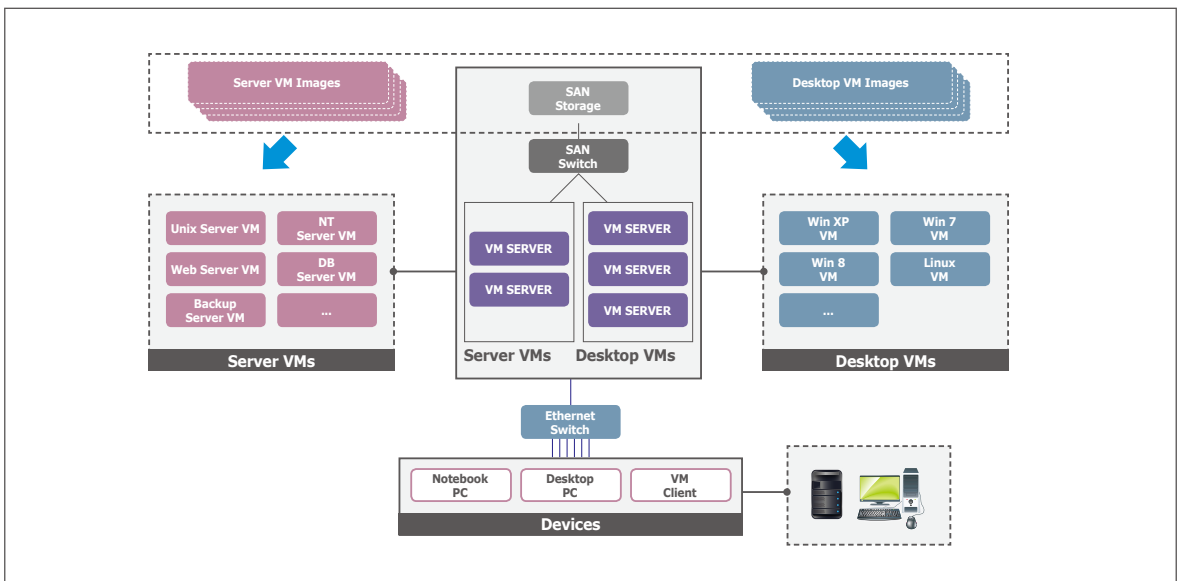
This system is physically configured as a fully independent network by the secured routing system.

In addition, a dual backup system supports to store lots of information safely.

#### Providing network integration with :

- VoIP telephone system
- CCTV system
- Integrated engine control system
- Voyage information distribution system
- Video conference system
- Others systems using Ethernet access
- RFID identification and access control

### Cloud Computing Configuration



## ▶ NSIIS-11

### Naval Ship Integrated Information Service (NSIIS)

NSIIS is a web-based secure and management information system, which is an interactive system with real-time queries and reports that provide naval crew members a wealth of information.

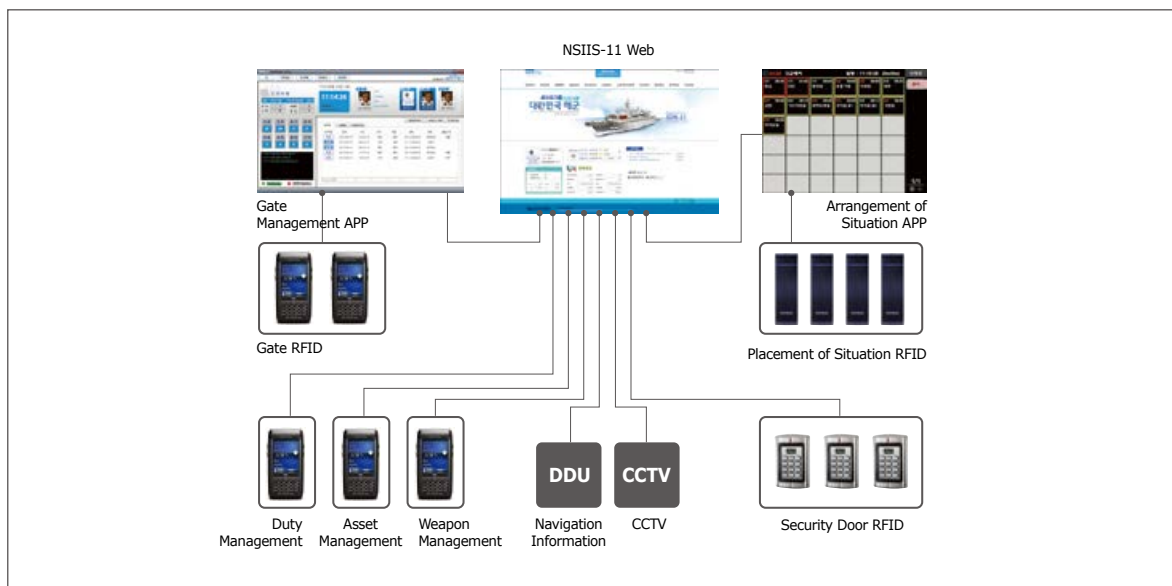
SDN-21



#### Providing network integration with

- Exchange information by intranet and RFID devices
- Display information of DDU and Engine Control System, etc
- Manage small arms and munitions management with RFID tags
- Manage general assets and electronic devices
- Status monitoring of loaded devices onboard
- Interface with video conference system(VTC)
- Interface with satellite communications(MOSCOS, SATCOM)
- Information sharing and storing using intranet
- Control the access into the secure area by RFID tags
- Interface with closed circuit television system(CCTV)
- Manage patrol task by RFID tags

### System Configuration



## Military Power Supply Unit

3U 19" standard rack mounted Power Supply Unit (PSU-82B) for military purpose has been developed to supply 24VDC power to the intercom main units of Integrated Communication System such as DCU-32 and DCU-12, and it is designed to be compact and to minimize acoustic noise.



► PSU-82B

### Specification

- Input power : 85~265 VAC and/or 24VDC (automatic exchange)
- Output : dual 4 ports 24VDC, up to 2 x 1000W, 2 ports as an option for VRC-946K series
- Available to send the monitored data through serial communication
- Very low acoustic noise (under 30 dBA)
- Military Specification: MIL-STD-461F, MIL-STD-801G, MIL-S-901D and MIL-STD-167-1A within the specially designed rack
- Dimension :  
Panel mount type 483 x 133 x 414 (WxHxD mm)
- Weight : about 21 kg

## ► HDM-320

### High Quality Data Modem (HDM)

**HDM-320 modem family is a microprocessor based signal converter installed into 19" rack with slide-in unit for a military data communication purpose.**

It provides a modulator function in transmission and a demodulator function in reception independently with the interface circuit to connect with Integrated Communication System(ICS). This unit get powered by 85-264VAC and/or 24VDC supply on the rear panel. A keypad, a VFD character display and a front speaker for audio monitoring are equipped on the front panel.

The waveform signals and data exchange signal links use a conventional standard connection types.

The modem can be mounted in a 19" standard rack using the installation kit. HDM-320 is basically performed to convert between the serial data and waveform data according to the selected algorithm.



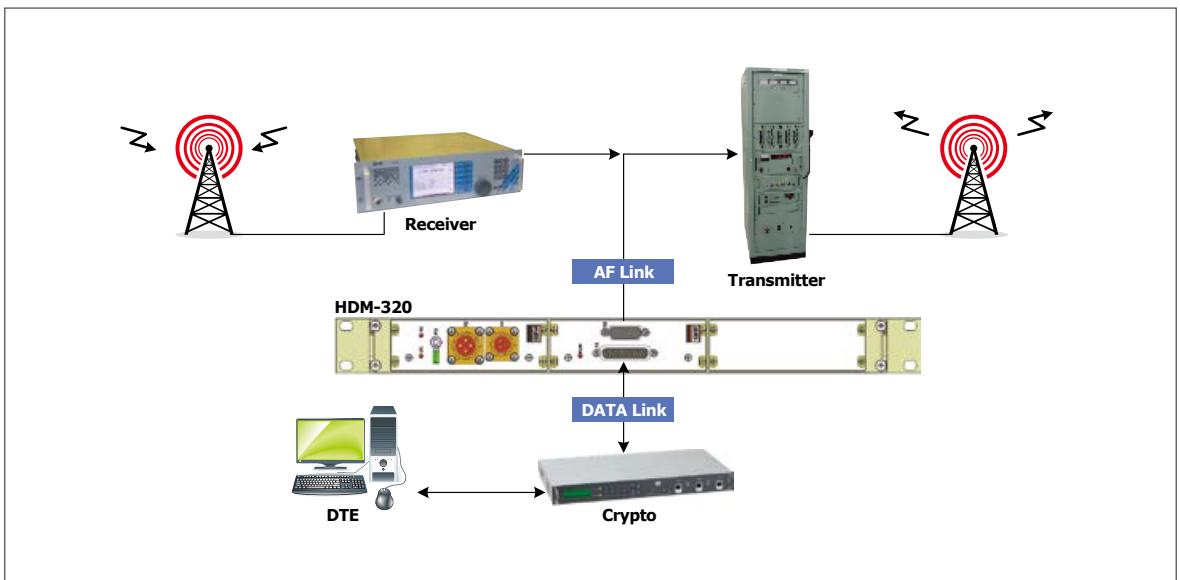
► HDM-320 A/B

#### Specification

- Supports FSK and PSK (MIL-STD-188-110A as an option) waveforms : other waveforms are available on request
- Supports high/low signal conversion to shift frequency
- Supports legacy interface (current loop communication)
- Various interface RS-232/422
- Built-in audio monitoring speaker
- Selectable monitoring audio line(Tx, Rx, combine Tx/Rx)
- Available automatic input power change from AC supply to DC supply
- Adjustable gain of waveform(Tx and Rx)
- Various PTT interfaces(local automatic and manual, serial remote, by-pass)
- Dimension : 482.6 x 44 x 289(WxHxDmm)
- Weight : about 4.1 kg

\* Meet military standards (MIL-STD-461F, MIL-STD-810G, MIL-S-901D and MIL-STD-167-1A with in 19' inch rack)

#### Interface example





▶ SEA LANCER™ 400

Mine Disposal Vehicle

MDV is an equipment for searching, identification and processing under-water mines



▶ SEA LANCER™ 400

Specification

Dimensions(LxΦ)	3.650(m)x0.55(m)
Weight	about 437 kg
Material	AL6061, FRP
Sea State	Wave height : below 2.5m
Max. operating depth	400m
Max. speed	7 knots
Max. operating time	7 knots : over 1.5 hours 3.5 knots : over 4 hours
Thrusters	For./Rev(2), Ver.(2), Lat(2)
Telemetry	Fiber Optic / Coaxial / RF
Telemetry cable	Fiber Optic : over 2,000m Coaxial : over 500m
Power	Lithium Polymer Battery
Sensors	USBL, GPS, DVL, Multi-beamSonar, Forward-looking.Sonar Altitude Sonar, Camera/Light Pressure sensor, Compass, ...



## ▶ LIGHTING FOR MARINE USE

### LED NAVIGATION LIGHT

- MASTHEAD (NVG COMPATIBLE, JUNCTION BOX TYPE)

#### A2L-M1055NVG-I



#### Application

Vessels of 20M and above in length in compliance with COLREG1972

**Visibility** 6nm minimum

**Protection degree** IP 67

**Equipment**

- LED : 1 W x 6
- Cable gland : M24
- 70% Illuminance drop detection

**Option**

- 1) Anti-icing (applied transparent heater)
- 2) NVG compatible
- 3) Self-checking alarm system

**Electrical**

- AC 100~240 V, 50/60 Hz
- Ambient Temperature Range : -52 °C~45 °C (applied transparent heater)



### LED NAVIGATION LIGHT

- STARBOARD (NVG COMPATIBLE, JUNCTION BOX TYPE)

#### A2L-T0655NVG-I



#### Application

Vessels of 20M and above in length in compliance with COLREG1972

**Visibility** 3nm minimum

**Protection degree** IP67

**Equipment**

- LED : 1 W x 3
- Cable gland : M24
- 70% Illuminance drop detection

**Option**

- 1) Anti-icing (applied transparent heater)
- 2) NVG compatible
- 3) Self-checking alarm system

**Electrical**

- AC 100~240 V, 50/60 Hz
- Ambient Temperature Range : -52 °C~45 °C (applied transparent heater)



### LED NAVIGATION LIGHT

- PORT (NVG COMPATIBLE, JUNCTION BOX TYPE)

#### A2L-P0655NVG-I



#### Application

Vessels of 20M and above in length in compliance with COLREG1972

**Visibility** 3nm minimum

**Protection degree** IP 67

**Equipment**

- LED : 1 W x 3
- Cable gland : M24
- 70% Illuminance drop detection

**Option**

- 1) Anti-icing (applied transparent heater)
- 2) NVG compatible
- 3) Self-checking alarm system

**Electrical**

- AC 100~240 V, 50/60 Hz
- Ambient Temperature Range : -52 °C~45 °C (applied transparent heater)



## LED NAVIGATION LIGHT - N.U.C (NVG COMPATIBLE, JUNCTION BOX TYPE)

### A2L-R0655NVG-I



#### Application

Vessels of 20M and above in length in compliance with COLREG1972

**Visibility** 3nm minimum

**Protection degree** IP 67

**Equipment**

- LED : 1 W x 3
- Cable gland : M24
- 70% Illuminance drop detection

**Option**

- 1) Anti-icing (applied transparent heater)
- 2) NVG compatible
- 3) Self-checking alarm system

**Electrical**

- AC 100~240 V, 50/60 Hz
- Ambient Temperature Range : -52 °C~45 °C (applied transparent heater)



## WATERTIGHT LED SURFACE CEILING LIGHT (NVG COMPATIBLE)

### LEB125WS-0550UWNM4w16C50NVG



#### Application

Engine room, hold, laundry, store, weather deck, outside passage way

**Protection degree** IP 67

**Equipment**

- LED : 25 W
- Cable gland : M24
- Option : NVG compatible

**Electrical** AC 100~240 V, 50/60 Hz  
Ambient Temperature Range : -30 °C ~ 45 °C

**Luminous Flux** 1900 [lm]



## WATERTIGHT LED SURFACE CEILING LIGHT

### LEB125WS-0550UWNM2WBu



#### Application

Engine room, hold, laundry, store, weather deck, outside passage way

**Protection degree** IP 67

**Equipment**

- LED : 25 W
- Cable gland : M24

**Electrical**

- AC 100~240 V, 50/60 Hz
- Ambient Temperature Range : -30 °C~45 °C
- Emergency duration : 1.5 h or 3 h

**Luminous Flux** 1900 [lm]



## LED RECESSED DAMPA CEILING LIGHT

### LEB212NF-0550DBdC50L-B0A



#### Application

Accommodation area, saloon, dining hall

**Protection degree** IP 20

**Equipment**

- LED : 24 W
- Cable gland : M24
- Option : Low Intensity (Red)

**Electrical**

- AC 100~240 V, 50/60 Hz
- Ambient Temperature Range : -30 °C~45 °C
- Emergency duration 1.5 h or 3 h

**Luminous Flux** 2300 [lm]



## 50W LED FLOOD LIGHT (NVG COMPATIBLE, ANTI-ICING)

### PF50L-550UWCFNVG-I



#### Application

Deck and hold, Chemical processing and industrial area

**Protection degree** IP 66 / IP 67

**Equipment**

- LED : 50 W
- Cable gland : M24
- Vertical adjust : Up 40°, Down 80°
- Option : 1) NVG compatible 2) Anti-icing

**Electrical**

- AC 100~240 V, 50/60 Hz
- Operating Temperature Range : -30 °C~45 °C
- Lifetime Expectancy : 30,000 h~50,000 h

**Luminous Flux** 4400 [lm]



## 해군용 12인치 LED 신호용 탐조등

### N/PS60L



#### Application

Bridge wing

**Protection degree** IP 56

**Equipment**

- LED : 60 W (Indirect method with reflector)
- Cable gland : JIS20(PF3/4")

**Electrical**

- AC 100~240 V, 50/60 Hz
- Operating Temperature Range : -30 °C~45 °C
- Lifetime Expectancy : 30,000 h~50,000 h

**Peak intensity** 600,000 [cd]



## 28W 일반 격실등

## LEA214WV

**Application**

General light of the submarine compartments

**Protection degree** IP 56

**Equipment**

- LED: 28 W (14 Wx2)
- Cable gland : M16

**Electrical** AC 100~240 V, 50/60 Hz & DC 100~240 V

**Luminous flux** 2,000 [lm]

**Housing material** Aluminum alloy



## 14W 일반 격실등

## LEA114WV

**Application**

General light of the submarine compartments

**Protection degree** IP 56

**Equipment**

- LED: 18 W
- Cable gland : M16

**Electrical** AC 100~240 V, 50/60 Hz & DC 100~240 V

**Luminous flux** 1,000 [lm]

**Housing material** Aluminum alloy



## 10W 다운라이트

## LEB110WF

**Application**

Use the submarine galley or lavatory

**Protection degree** IP 56

**Equipment**

- LED: 10 W
- Cable gland : M16

**Electrical** AC 100~240 V, 50/60 Hz & DC 100~240 V

**Luminous flux** 600 [lm]

**Housing material** Aluminum alloy



## 28W 방폭등

## EXLED128WV

**Application**

Hazardous where flammable vapor, corrosive gases or moisture are present

**Protection degree** IP 56

**Explosion degree** Ex d e mb IIC T4 Gb

**Equipment**

- LED: 28 W
- Cable gland : M18

**Electrical** AC 100~240 V, 50/60 Hz & DC 100~240 V

**Luminous flux** 2000 [lm]

**Housing material** Aluminum alloy





## 홍등

### LEA1\*\*WV



#### Application

Local light for submarine

**Protection degree** IP 56

**Equipment**

- LED: 7 W
- Cable gland : M16

**Electrical** AC 100~240 V, 50/60 Hz & DC 100~240 V

**Housing material** Aluminum alloy



## 거울등

### LEA1\*\*WN



#### Application

Mirror light for submarine

**Protection degree** IP 56

**Equipment**

- LED: 7 W
- Cable gland : M16

**Electrical** AC 100~240 V, 50/60 Hz & DC 100~240 V

**Housing material** Aluminum alloy



## 침대등

### LEA1\*\*WS



#### Application

Berth light for submarine

**Protection degree** IP 56

**Equipment**

- LED: 7 W
- Cable gland : M16

**Electrical** AC 100~240 V, 50/60 Hz & DC 100~240 V

**Housing material** Aluminum alloy



## 책상등

### LEA1\*\*WS



#### Application

Desk light for submarine

**Protection degree** IP 56

**Equipment**

- LED: 7 W
- Cable gland : M16

**Electrical** AC 100~240 V, 50/60 Hz & DC 100~240 V

**Housing material** Aluminum alloy



## 디머 스위치

### 디머 스위치



#### Application

Dimmer switch for submarine

**Protection degree** IP 56

**Electrical** AC 100~240 V, 50/60 Hz & DC 100~240 V

**Housing material** Aluminum alloy



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