

# MRC INTRODUCTION



Oct. 2007



*Marine Radio Co., Ltd.*

# HISTORY

❖	AUG	1961	ESTABLISHED 'BUSAN MARINE RADIO COMPANY'.
❖	JAN	1965	AUTHORIZED CLASSIFICATION RADIO SURVEY (ABS, LLOYD, DNV, BV)
❖	NOV	1967	AGREED TECHNICAL AGENCY WITH JRC CORPORATION JAPAN.
❖	MAR	1970	AGREED TECHNICAL AGENCY WITH YDK JAPAN.
❖	DEC	1975	ESTABLISHED MARINE RADIO CO., LTD.
❖	OCT	1983	MANUFACTURED DSB RADIO TELEPHONE, FREQUENCY COUNTER, 2182KHZ EPIRB.
❖	APR	1987	VHF R/TELEPHONE
❖	OCT	1988	MANUFACTURED PUBLIC ADDRESS SYSTEM
❖	OCT	1988	MANUFACTURED COMMUNAL AERIAL SYSTEM
❖	NOV	1988	MANUFACTURED TELEPHONE SYSTEM (A/T, CBT, SPT, I.S. TEL) & MARINE CLOCK SYSTEM
❖	MAY	1994	JOINED JUNGBUSAN CABLE TV CO., LTD. CONSORTIUMS.
❖	FEB	1996	AUTHORIZED CLASSIFICATION RADIO SURVEY NKK.
❖	OCT	1996	ESTABLISHED THE 2nd PLANT.
❖	DEC	1998	CERTIFIED KR ISO 9002.
❖	NOV	1999	CERTIFIED DNV ISO 9001.
❖	JUN	2004	DNV TYPE APPROVAL 'SOUND RECEPTION SYSTEM'

# ❖ PROFILE

**Company Name**

Marine Radio Co., Ltd. (MRC) (주)선박무선

**CEO**

Jang-Deug Kim

**Established**

01. Aug. 1961

**Employees**

96 Persons (October, 2007)

**Address**

Namhang-3ga 141-132, Youngdo, Busan, 606-033 KOREA

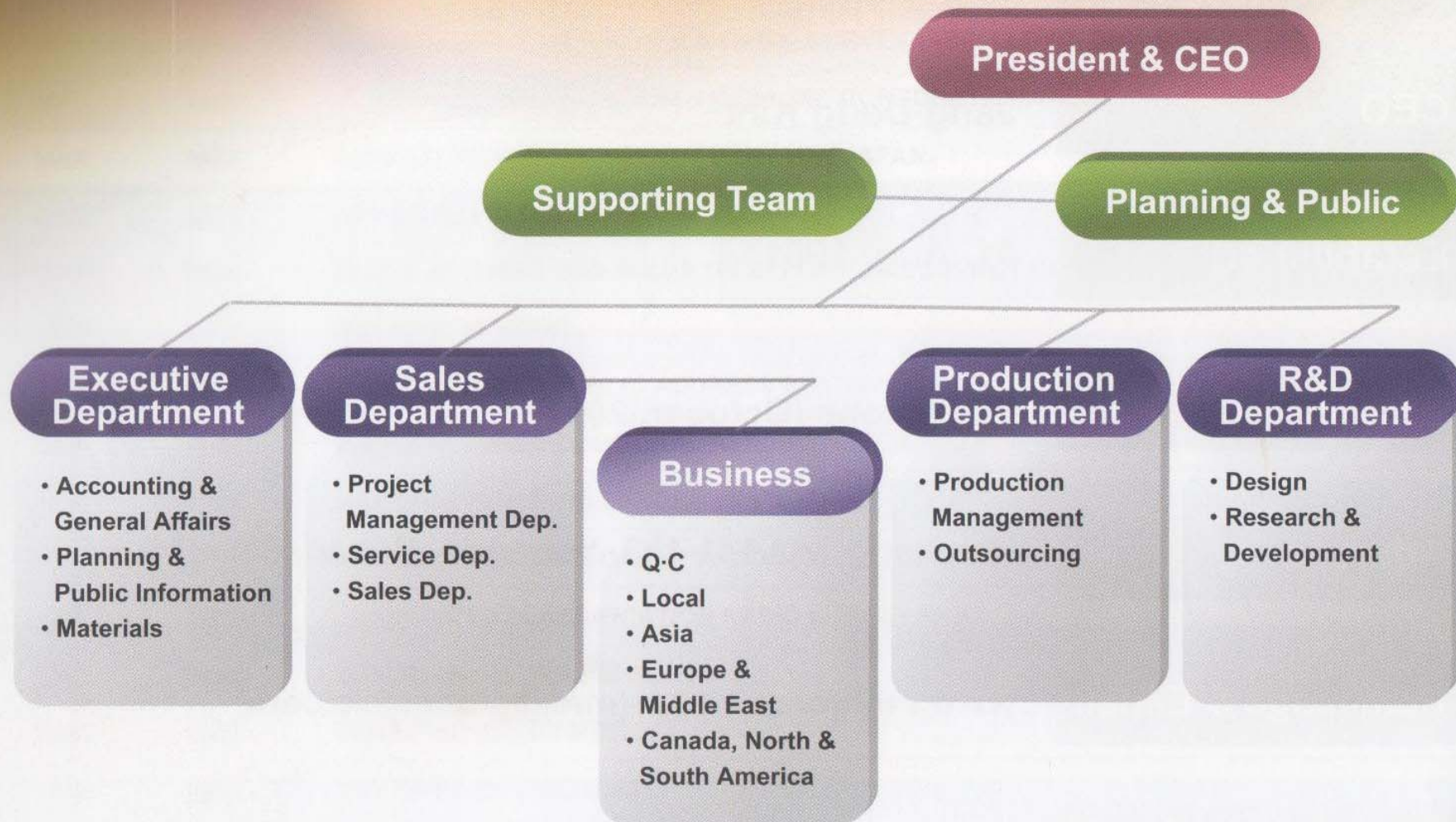
**Homepage & E-mail**

[www.mrckorea.co.kr](http://www.mrckorea.co.kr) ([mrc@globalmrc.com](mailto:mrc@globalmrc.com))

**TEL / FAX**

TEL: (+82) 51-414-7891~5 / FAX: (+82) 51-413-2604

# ❖ ORGANIZATION



# ❖ BUSINESS FIELDS

## ▣ Manufacture Equipment

We manufacture equipment of marine communication and broadcasting for vessels. Communication equipment (Satellite Communication Appliance, Digital Communication Appliance) and Navigation equipment are high value-added industries which need advanced satellite and digital technologies in maritime industries.

Marine Radio Co., LTD. succeeded in the localization of high-tech maritime equipment through enduring investments in research & development, and had the effect of tremendous import transferring and export increasing.

### ▶ Communication Equipment

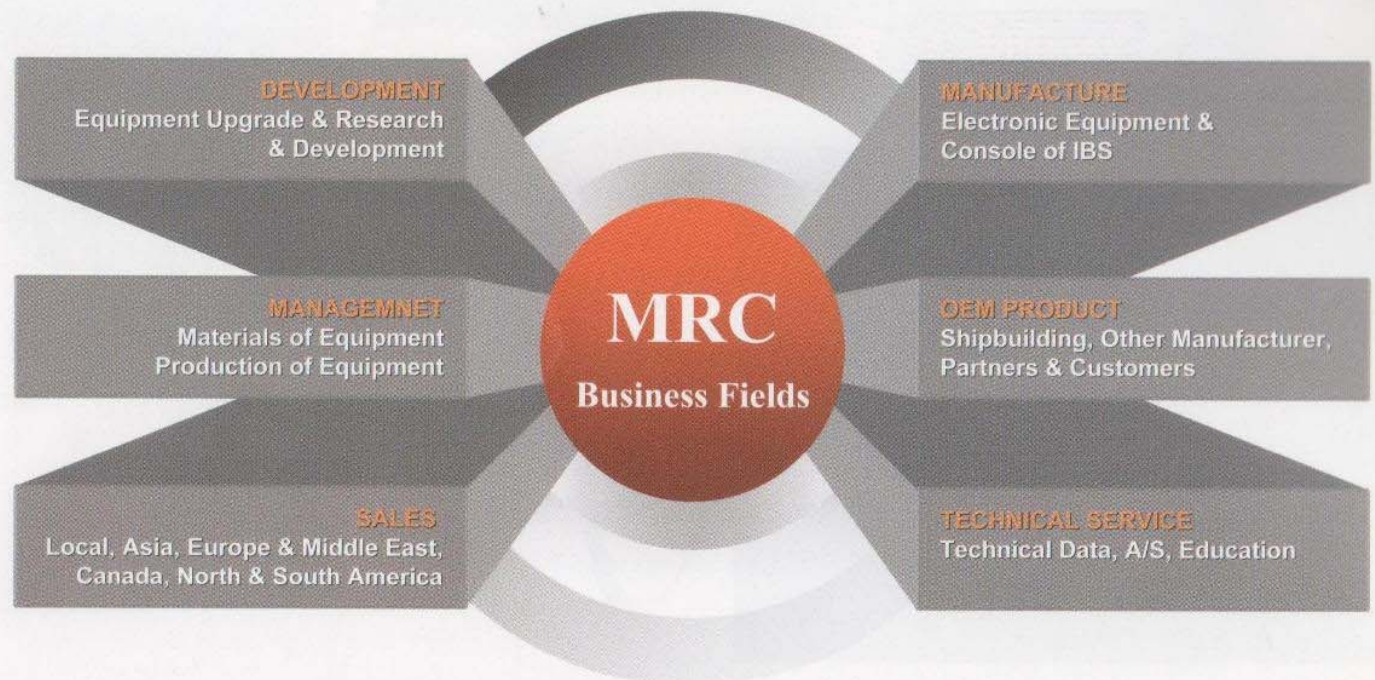
- Telephone (SPT, CBT, Automatic), Intrinsic Safety Telephone (SPT, CBT, Automatic), Automatic Telephone Exchanger
- Integrated Communication System
- Communal Aerial System
- GPS Marine Clock System

### ▶ Broadcasting Equipment

- Public Address System (PA/GA)
- Ex/EEEx Speaker (LNG Ship)

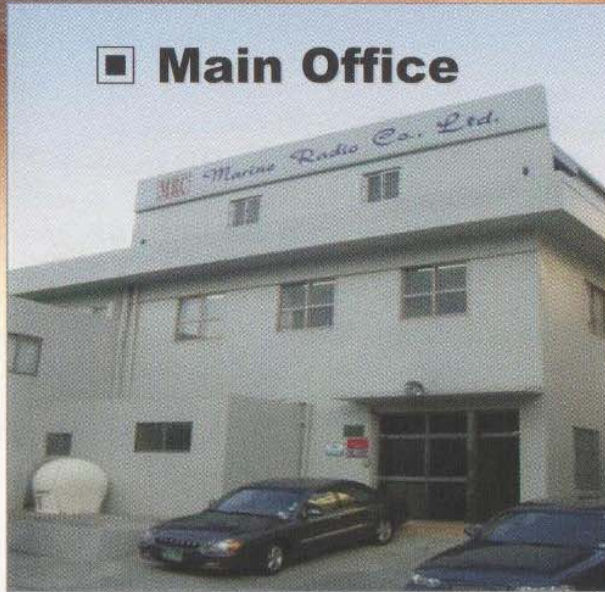
### ▶ Handling Equipment

- Air Horn, Electronic Horn
- CCTV System
- IBS Console
- UPS



# ❖ COMPANY & PLANTS

## ■ Main Office



▶ **Main Office** : Namhang-3ga 141-132, Youngdo, Busan, 606-033 Korea  
TEL : +82-51-414-7891~5 / FAX : +82-51-413-2604

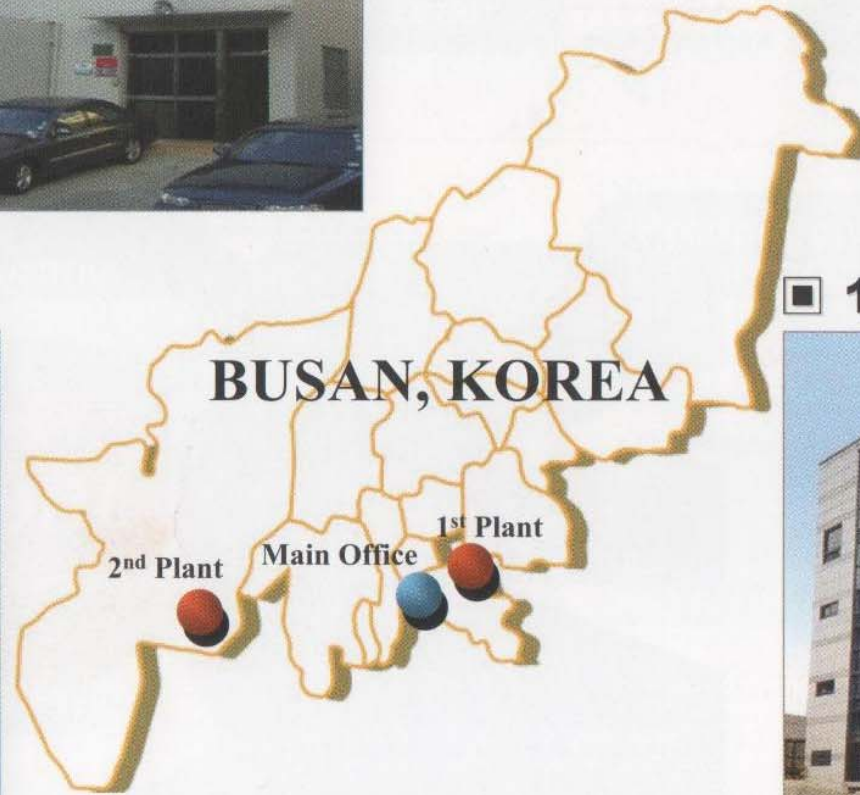
▶ **1st Plant** : Chunghak-2dong 120-74, Youngdo, Busan, 606-072 Korea  
TEL : +82-51-418-6301

▶ **2nd Plant** : Songjungdong 1610-9, Kangseo, Busan, 618-819 Korea  
TEL : +82-51-831-0591 / FAX : +82-51-831-0592

## ■ 2nd Plant in Noxan



## ■ 1st Plant in Chunghak



# GLOBAL SERVICE NETWORK

## Neue A-Tech Advanced Technology GmbH

HAMBURG GERMANY  
▷ TEL : +49-40-322926  
▷ FAX : +49-40-326904  
▷ Area : EUROPE

## MARINE RADIO CO.,LTD

KOREA  
▷ TEL : +078-341-3654  
▷ FAX : +078-361-3736  
▷ Area : KOREA, N. & S. AMERICA,  
OCEANIA, AFRICA

## SHIN-EI Electronic CO.,LTD

JAPAN  
▷ TEL : +078-341-3654  
▷ FAX : +078-361-3736  
▷ Area : JAPAN

## VIA MARINE HK COMPANY

HONG KONG  
▷ TEL : +852-2547-2629  
+852-2540-5781  
▷ FAX : +852-2547-4790  
▷ Area : HKG & CHINA

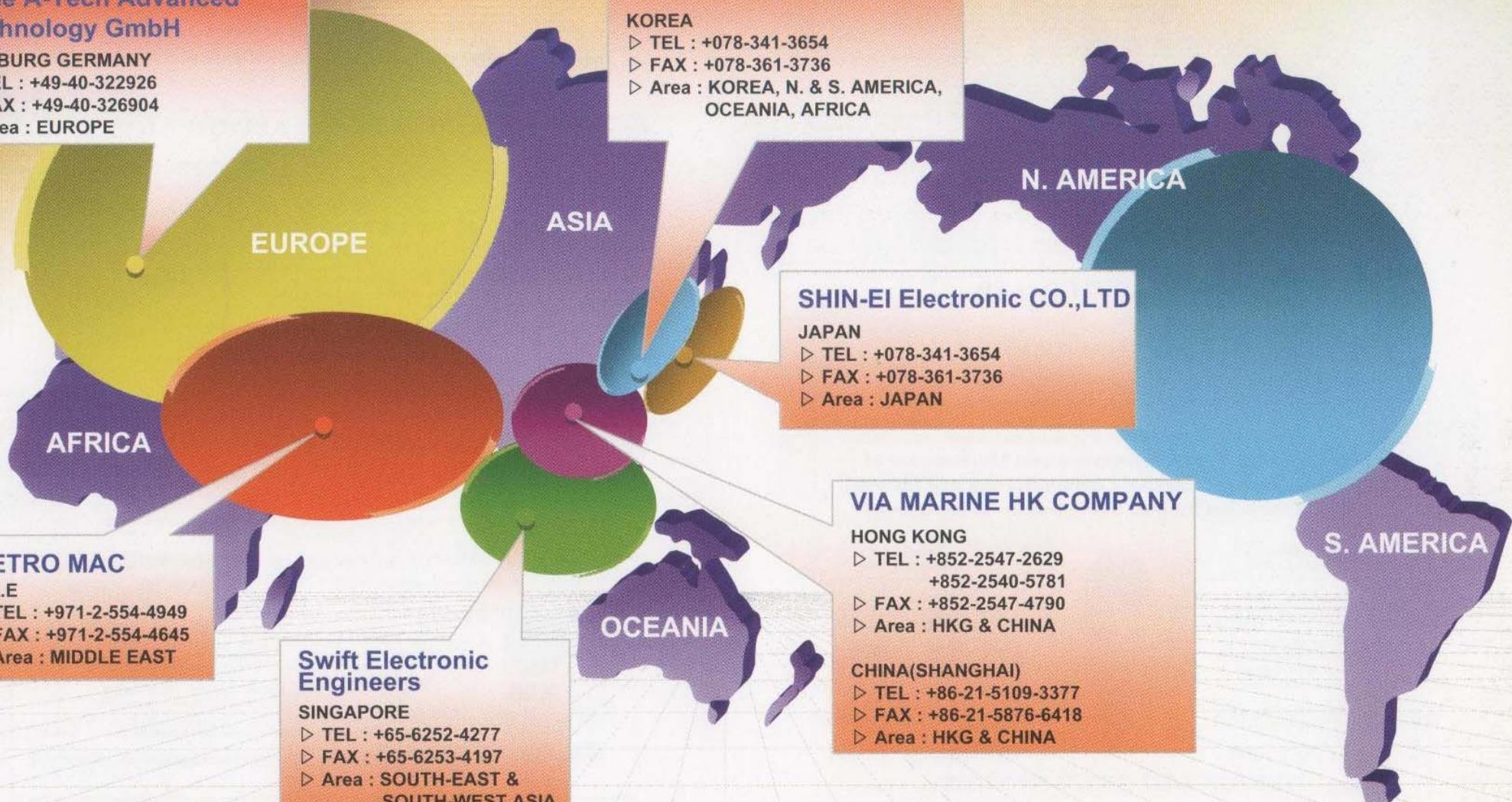
CHINA(SHANGHAI)  
▷ TEL : +86-21-5109-3377  
▷ FAX : +86-21-5876-6418  
▷ Area : HKG & CHINA

## Swift Electronic Engineers

SINGAPORE  
▷ TEL : +65-6252-4277  
▷ FAX : +65-6253-4197  
▷ Area : SOUTH-EAST &  
SOUTH-WEST ASIA

## METRO MAC

U.A.E  
▷ TEL : +971-2-554-4949  
▷ FAX : +971-2-554-4645  
▷ Area : MIDDLE EAST



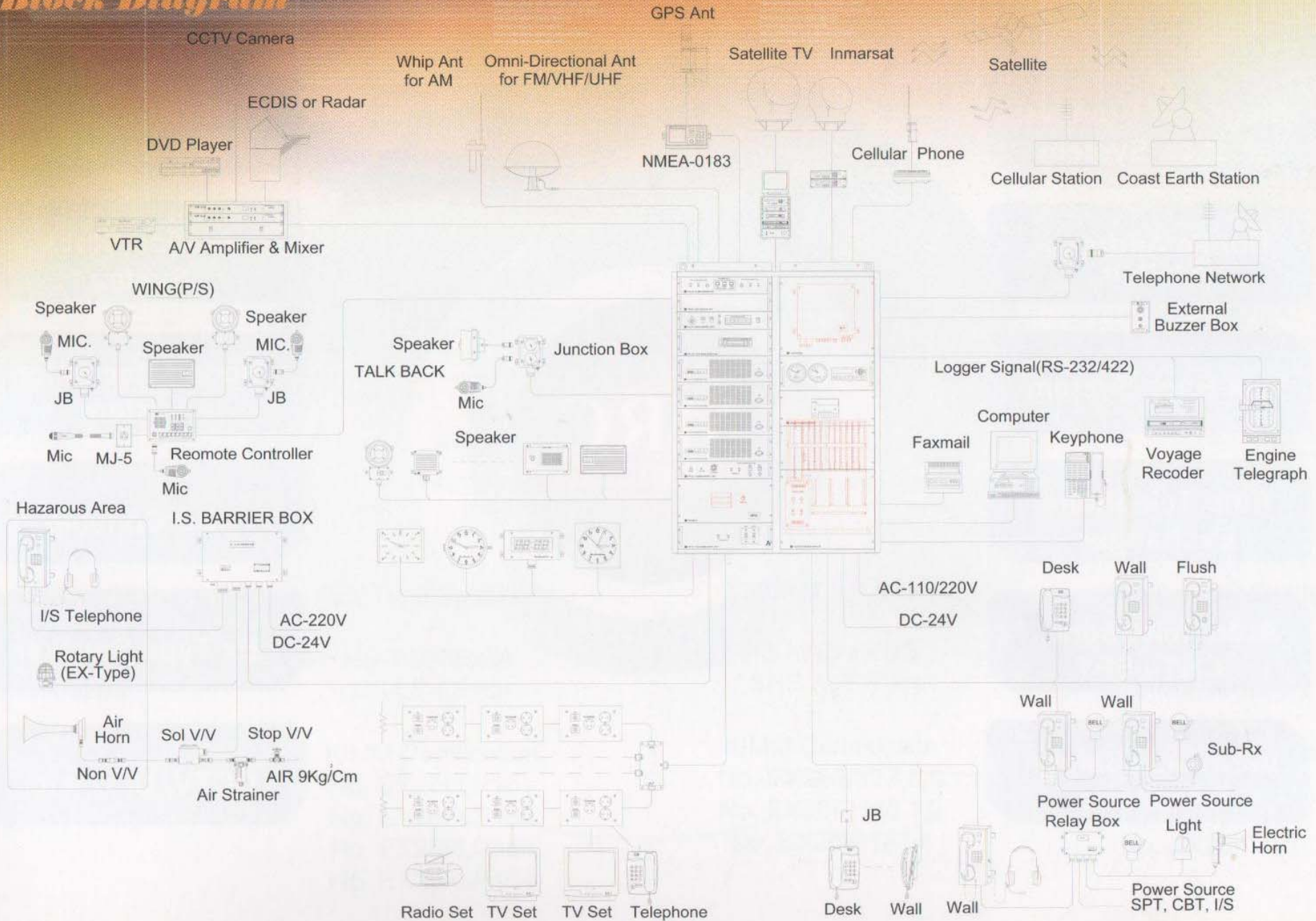
# ❖ MAIN PRODUCTS





# ❖ INTEGRATED COMMUNICATION SYSTEM

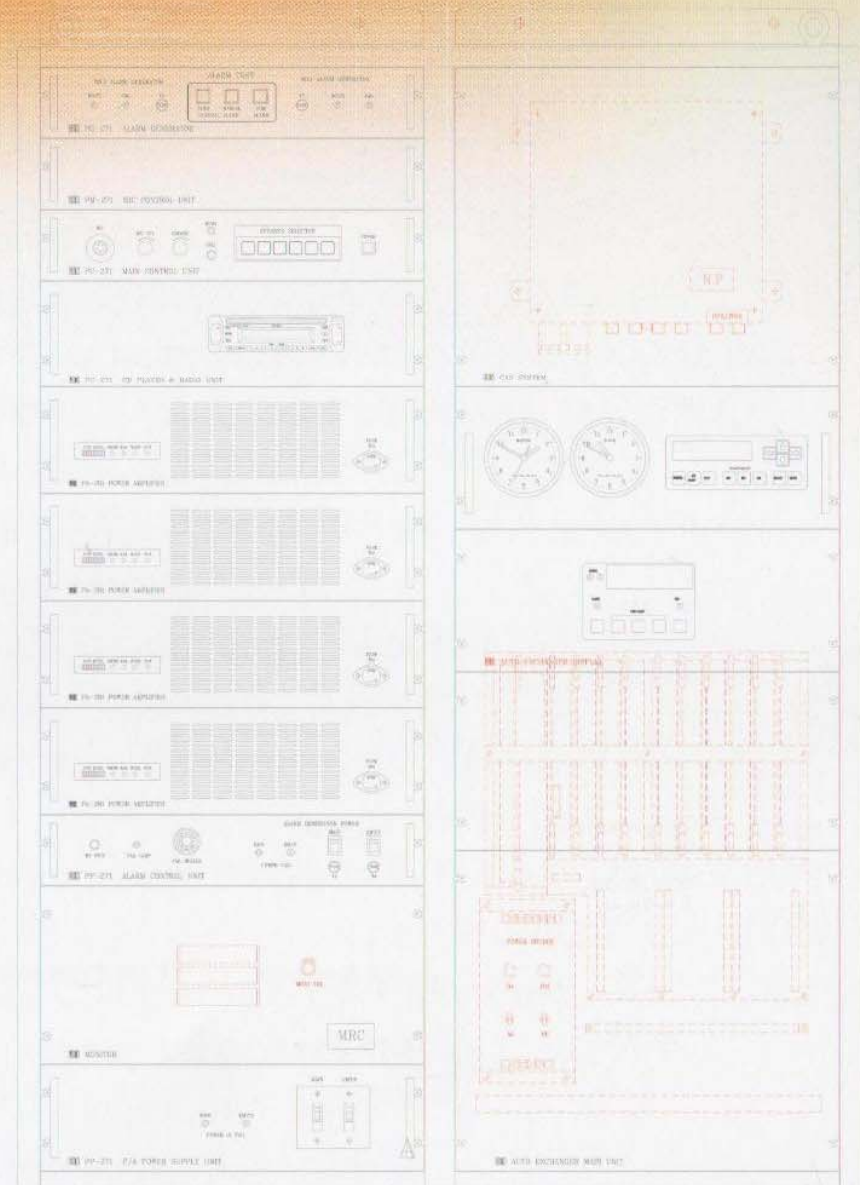
## Block Diagram



# ❖ INTEGRATED COMMUNICATION SYSTEM

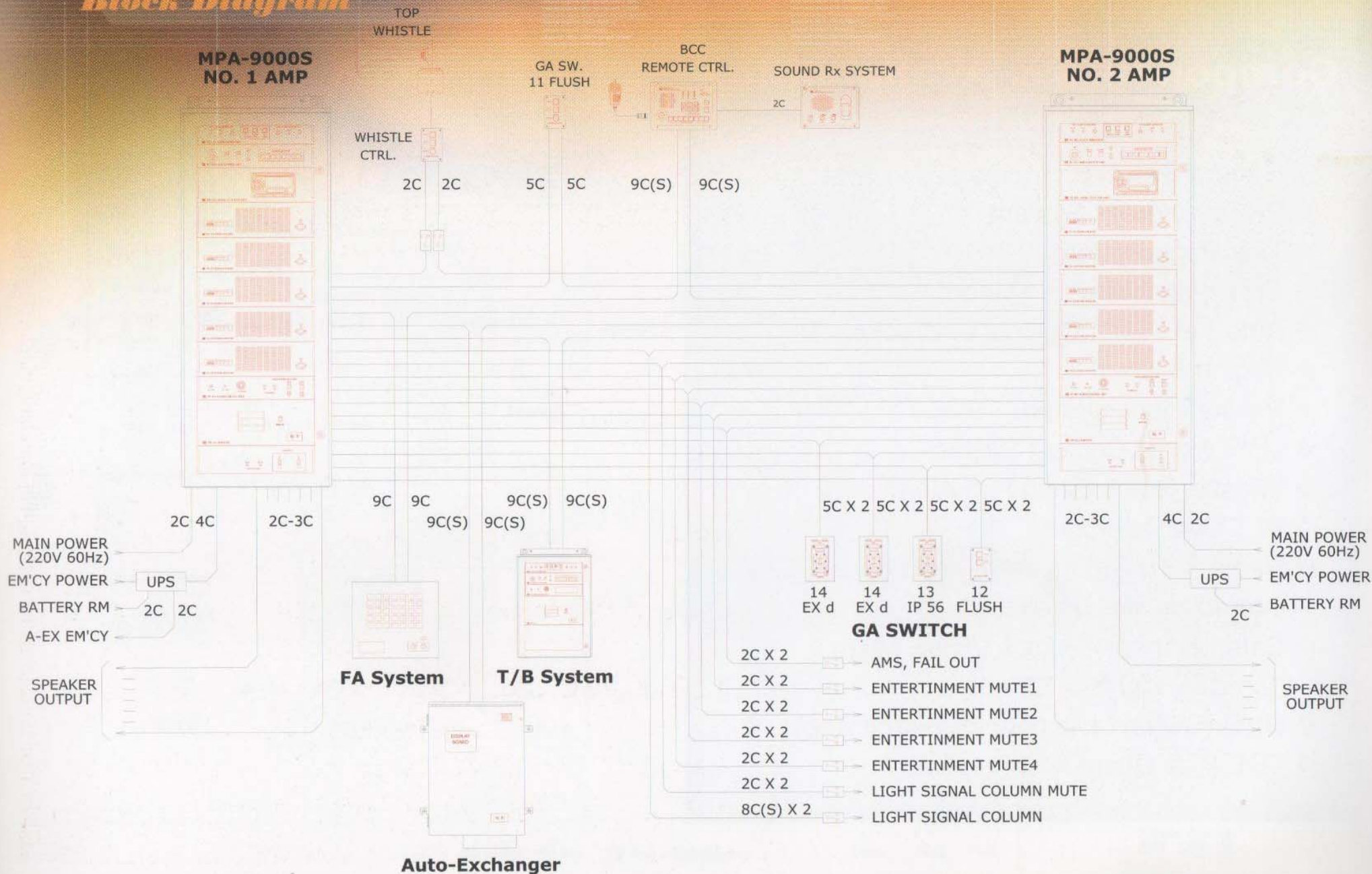
## Components & Availabilities

- ❖ General Alarm & Fire Detection System
- ❖ Public Address System
- ❖ Talk-Back System
- ❖ Crew/Fax Intercom System
- ❖ Auto-Tel., SPT, Cellular or Wireless Tel.
- ❖ Paging System
- ❖ Marine Clock System
- ❖ Light Signal Column System
- ❖ Whistle, Bell & Gong Fog Alarms
- ❖ W.T Door Intercom
- ❖ Radio & TV Broadcast, Surveillance CCTV, Interactive TV, Satellite TV
- ❖ Entertainment Audio & Video, Mixer, Karaoke, Lights & Effects
- ❖ DMB (Digital Multimedia Broadcasting)
- ❖ TDS (Tel. Diagnostic Service)



# ❖ PUBLIC ADDRESS SYSTEM

## Block Diagram



# ❖ PUBLIC ADDRESS SYSTEM



## Specifications

- ❖ Object-oriented Design
- ❖ Power Output : 200W~2500W etc, Dual PA/GA
- ❖ Frequency Characteristics : Within 70~20,000Hz 6dB
- ❖ Distortion Ratio : 1% or less(1/2 Power, 1kHz)
- ❖ S/N Ratio : 90dB or Higher
- ❖ Alarm Type : GA, FA, CO2, ESDS, etc up to 10-ea
- ❖ Speaker Line Monitor : Option
- ❖ Diagnosis for System and Power Fail
- ❖ Paging Recording Board : Option
- ❖ Source of Power, Single : AC 100V/110V/220V/230V  
(50/60Hz), DC 24V
- ❖ Power Consumption, Single : per 50A (DC24V, 500W)  
per10A (AC 220V, 500W)
- ❖ UPS/Battery Charger : 1kW – 7.5kW, etc  
(Run time set up by external battery)
- ❖ Operating Temperature Range : 0°C ~ +40°C
- ❖ Operating Humidity : 90% or less

# ❖ TALK-BACK SYSTEM



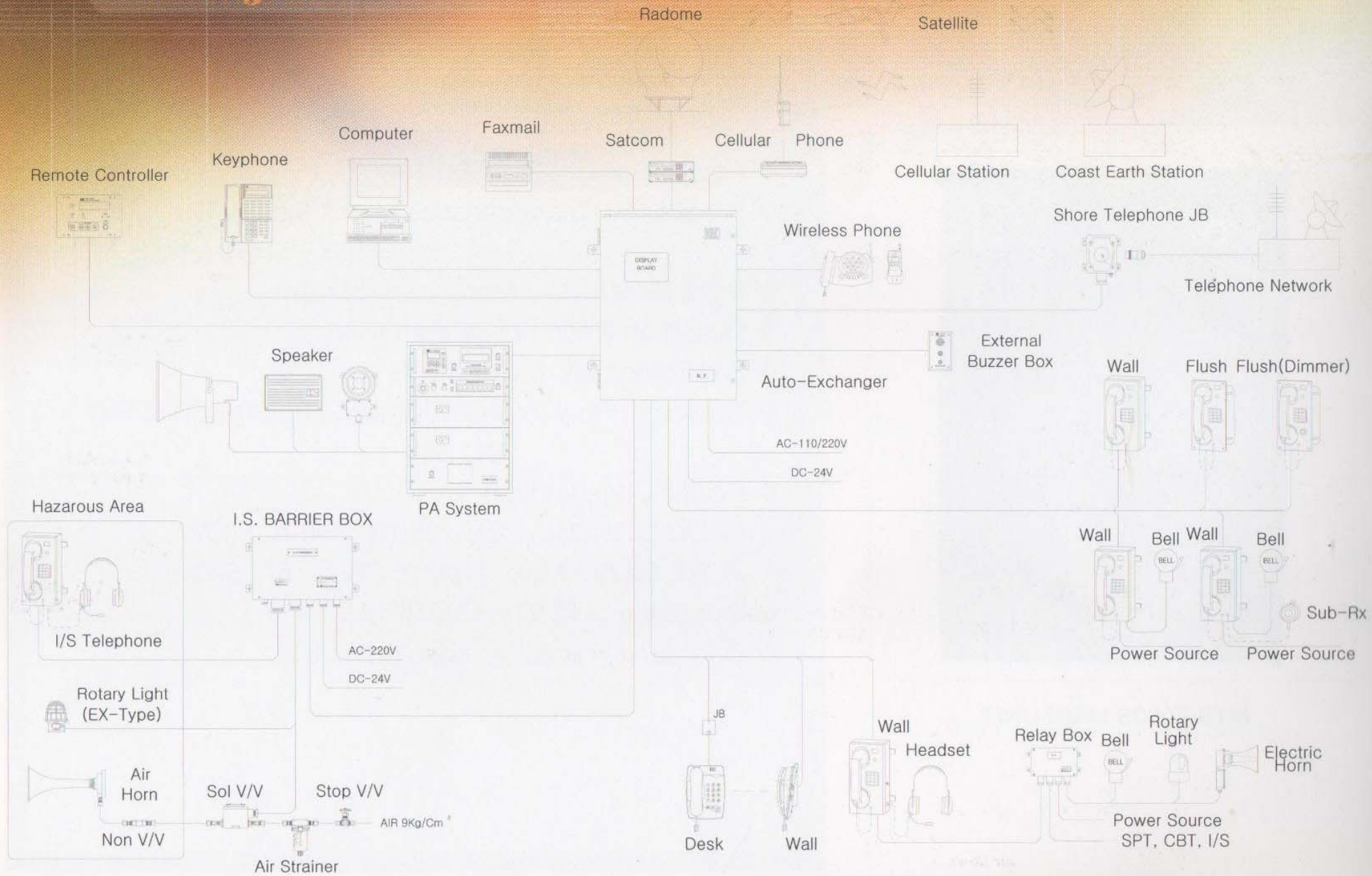
MTB-5000S MAIN UNIT

## Specifications

- ❖ Power Output : 250/500/1000W, etc
- ❖ Frequency Characteristics : Less than 6dB  
(300 ~ 5000Hz)
- ❖ Input Sensitivity : More than -36dBm
- ❖ Distortion Ratio : Less than 5%
- ❖ S/N Ratio : More than 50dB
- ❖ Source of Power : AC 100/110/220/230V(50/60Hz)  
DC 24V
- ❖ Power Consumption
  - » DC 24V : Max. 20A, 250W // 40A, 500W
  - » AC 220V : Max. 2.5A, 250W // 5A, 500W
- ❖ Operating : -15°C ~ +55°C
- ❖ Operating Humidity : Less than 90%

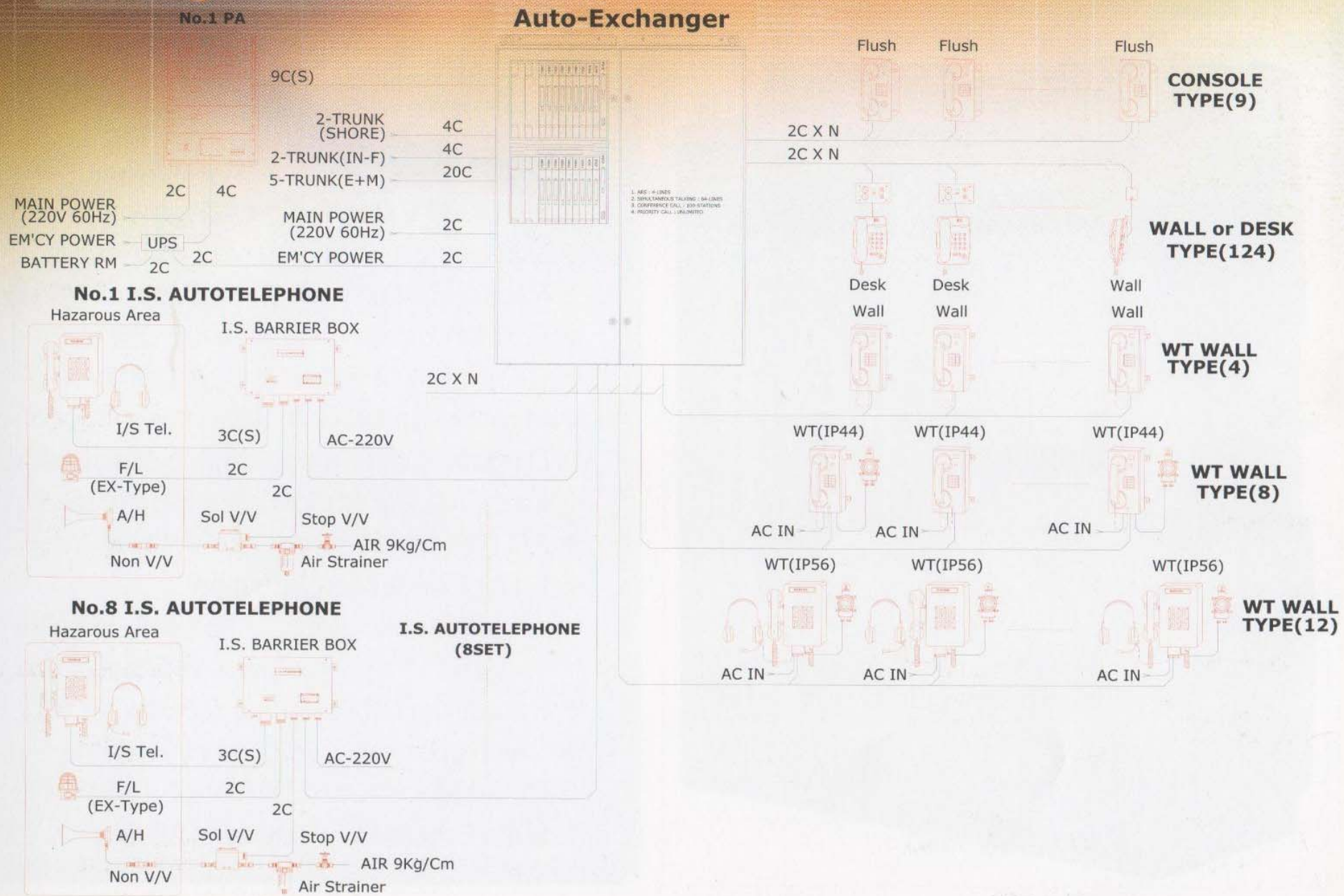
# ❖ AUTO TELEPHONE EXCHANGER

## Block Diagram



# ❖ AUTO TELEPHONE EXCHANGER

## Block Diagram



# ❖ AUTO TELEPHONE EXCHANGER



## Characteristics

- ❖ Digital Communication System
- ❖ Max. 500-Extention
- ❖ External Call (Satcom/Mini-M/V-sat etc)
- ❖ Paging Call (P/A System, Group Paging)
- ❖ Add-On Conference, Priority Call
- ❖ Restriction of External Call, Camp-on
- ❖ Morning/Group Call, ARS, Internet-phone
- ❖ Diagnosis of System, Simple Maintenance
- ❖ Easy Trouble Shooting by Simple display
- ❖ PC Remote Program by Ethernet
- ❖ ISDN Connection Function
- ❖ Variety Application : LAN, VoIP, Wireless  
Access Point,
- ❖ Printer or Call Accounting System
- ❖ Call Recording : Voice Mail System
- ❖ Smart Media Card for Data Backup
- ❖ Main/Emergency Power Available



# ❖ AUTO TELEPHONE

## Specifications

- ❖ Operation Voltage : DC 24V (Standard)
- ❖ Power Consumption : App. 0.2W, 30mA  
DC 6V (Standard)
- ❖ Speech Amplifier Gain : App. 25dB
- ❖ Side-Tone Amplifier Gain : App. -15dB
- ❖ DTMF Gain : App. 5dB
- ❖ Oscillator Frequency : 3.579545MHz (Crystal)
- ❖ Operating Temperature Range  
: -10°C ~ +40°C
- ❖ Operating Humidity : less than 90%



Wall Type Auto Tel.



Flush Type Auto Tel.



Desk Type Auto Tel.

# ❖ COMMON BATTERY TELEPHONE & SOUND POWERED TELEPHONE

Wall Type Auto Tel.



Flush Type Auto Tel.



Common Battery Telephone  
(30 Types of Model)

Wall Type Auto Tel.



Flush Type Auto Tel.



Sound Powered Telephone  
(26 Types of Model)

## Specifications

### ■ CBT (Common Battery Telephone)

- Operation Voltage : DC 19V ~ 36V
- Output Power : DC 24V, 2.5A
- Output Adjustment : DC 24V  $\pm$  10%
- Ripple Rejection Ratio : Min 50dB
- Operating Temperature Range : 0°C~+40°C
- Operating Humidity : less than 90%

### ■ SPT (Sound Powered Telephone)

- Direct Type (1:1 Station)
- Mutual Selection Type  
(Max. 1:12 Station)

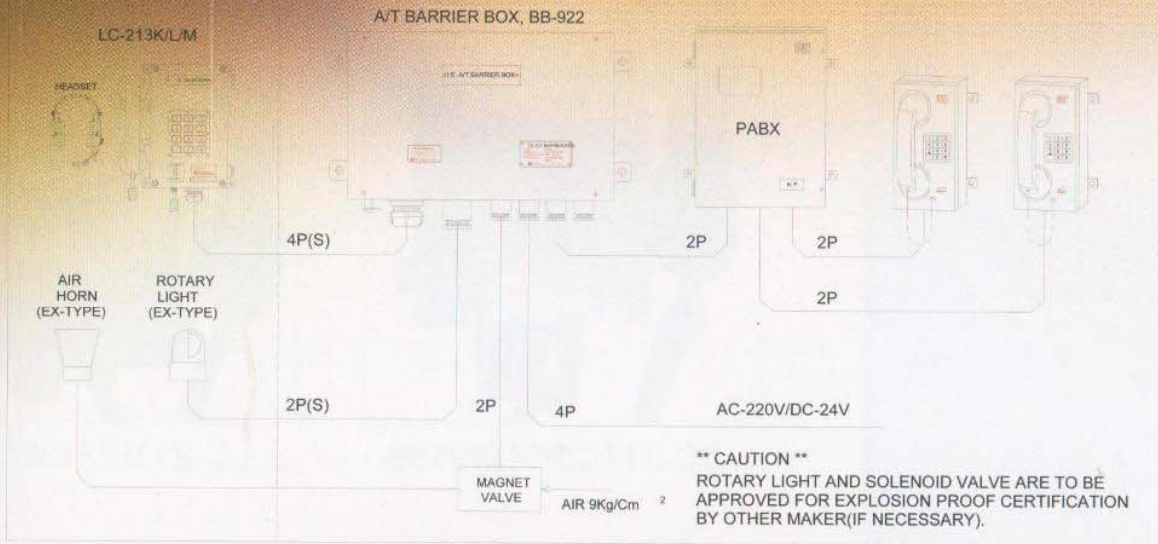
# INTRINSICAL SAFETY TELEPHONE

## Block Diagram

Hazardous Area

Safety Area

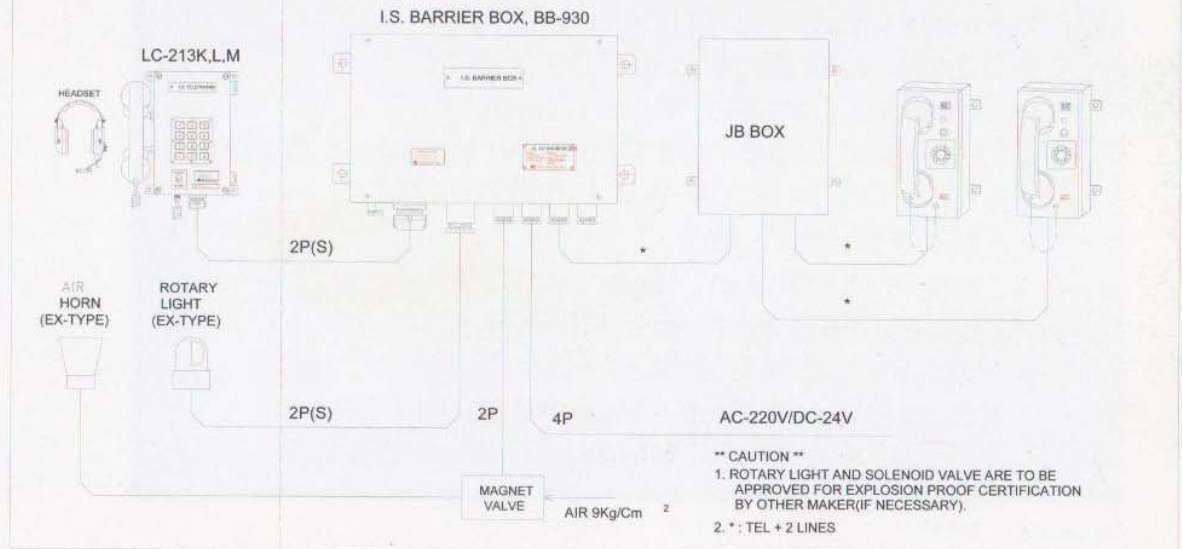
◀ System Diagram  
Intrinsical Safety Auto Telephone



System Diagram ▶  
Intrinsical Safety CBT/SPT Telephone

Hazardous Area

Safety Area



# ❖ INTRINSICAL SAFETY TELEPHONE

## Specifications

### ■ Intrinsic Safety Telephone

- Zener Voltage : DC 15V
- Rating Voltage : Max. DC 12V
- Current Consumption : Max. 30mA
- Communication System : Simultaneous
- Noise Cancel Characteristic : 75 dB or more
- Side Tone Attenuation : -30 dB or Less
- Microphone : Dynamic Type(150 Ohm)
- Type of Protection : Ex-ia IIC T6
- Ambient Temperature : - 15° ~ 55°C
- Humidity : 35% ~ 95%

### ■ BARRIER BOX

- Power Input : AC 110/220V, DC 24V
- Operation Voltage : Max. DC 24V
- Operation Current : Max. 170mA
- Peripheral Equipment Operation Voltage & Current : Max. DC 24V/10A, AC 110V/220V/3A (Only safety area)
- Type of Protection : Ex ia IIC T6
- Ambient Temperature : -15° ~ 55°C
- Humidity : 35% ~ 95%
- Power Consumption : Max. AC 220V / 1.0A  
Max. DC 24V / 0.5A



LC-914C/914D/918B



LC-213K/213L/213M

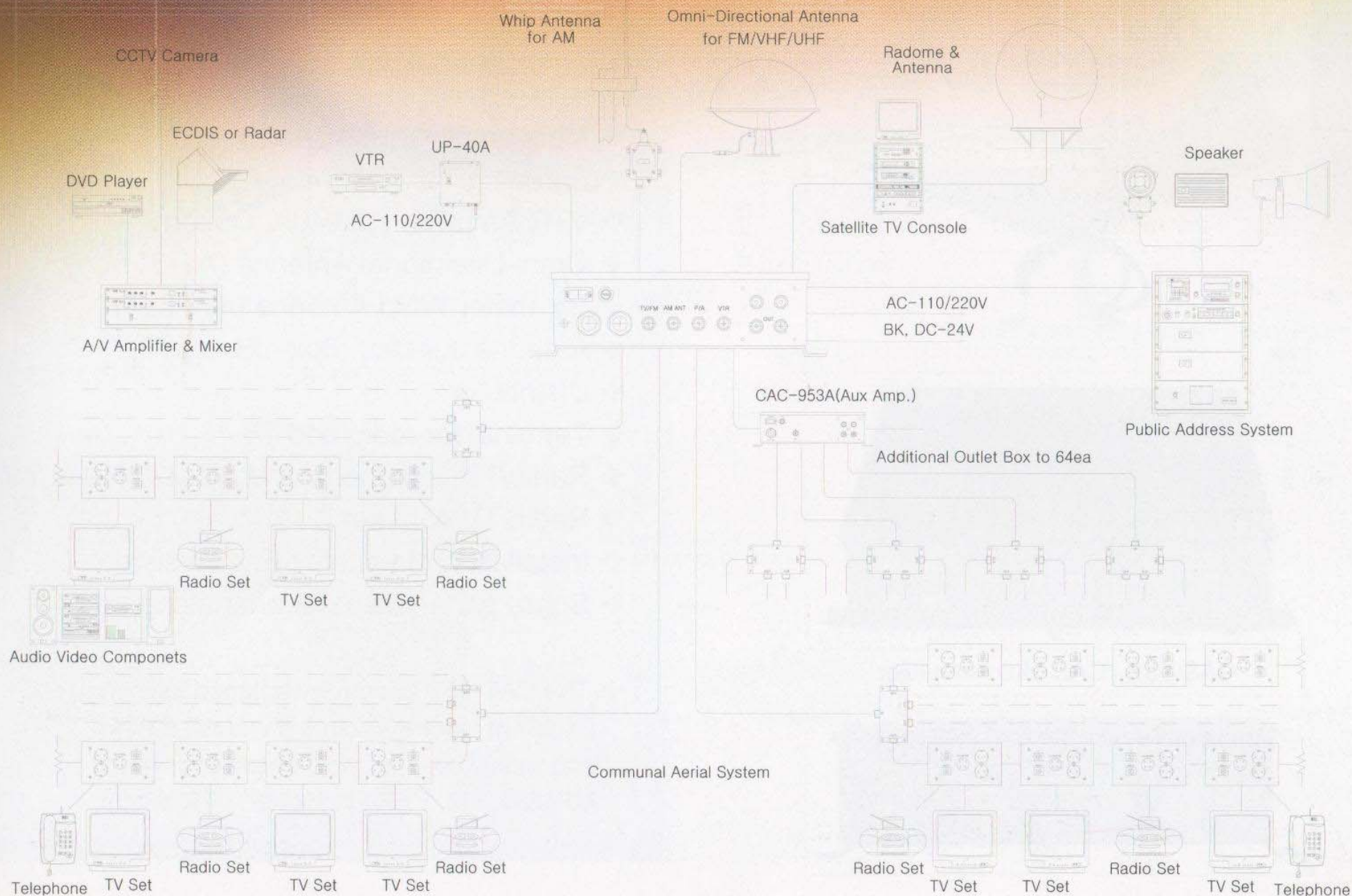


BARRIER BOX



# COMMUNAL ARIAL SYSTEM

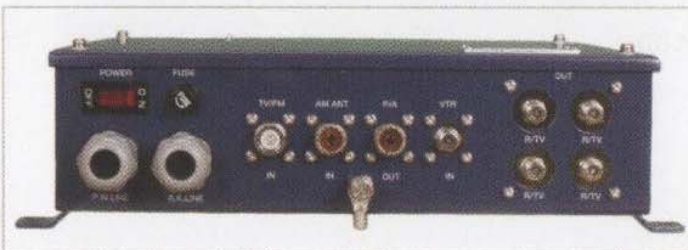
## Block Diagram



# ❖ COMMUNAL ARIAL SYSTEM



CAS-935 CAS Main Amplifier

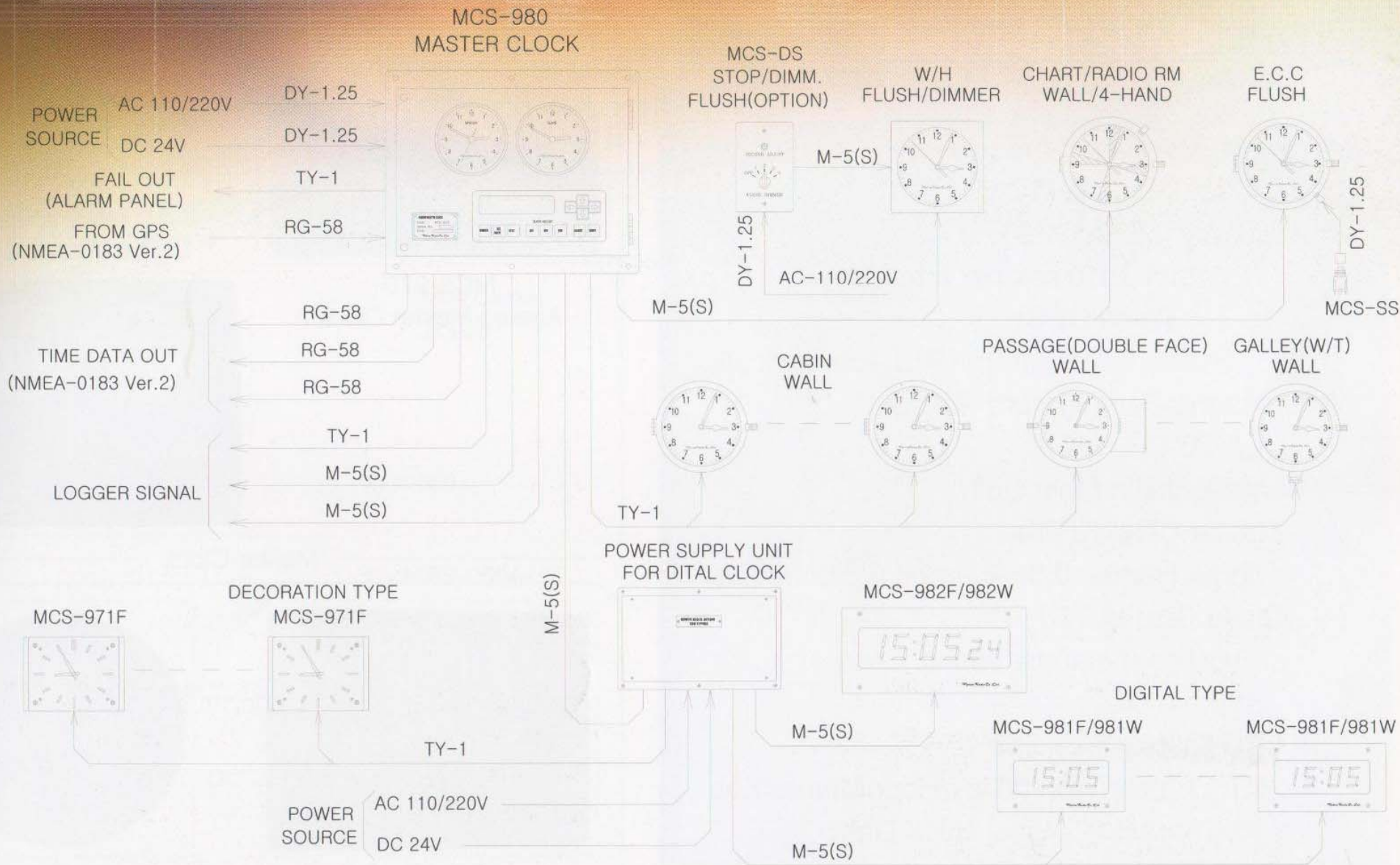


## Components

- ❖ Main amplifier (CAC-953)
- ❖ Sub amplifier (CAC-953A)
- ❖ VTR Amplifier (UP-40A, Option)
- ❖ Omni-Directional Antenna (AT-807)
- ❖ Six-meter Whip Antenna (AW-624)
- ❖ Antenna Junction Box (JB-4 W/T)
- ❖ Distributor
- ❖ Terminal for radio and TV
- ❖ Radio/TV, telephone and AC-220 RP terminal
- ❖ Radio/TV cord set
- ❖ Installation Materials : End Resister
- ❖ Spare parts : Manufacturer standard
  
- ❖ The CAC-953 system is designed for Excellent marine Radio & TV aerial system and widely used as multi-amplifier covering MF, SW, FM, VHF(H/L), UHF, VTR bands.

# MARINE CLOCK SYSTEM

## Block Diagram



# ❖ MARINE CLOCK SYSTEM

## Specifications

- ❖ Crystal Oscillation Frequency  
: 10.000 MHz (TCXO)
- ❖ Accuracy (None GPS)  
: Within  $\pm 1.0$  sec per a month  
(With GPS)  
: Synchronizing from GPS automatically
- ❖ Operating Temperature Range  
:  $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$
- ❖ Dual Clocks in Main Unit
  - Master Clock(UTC)  
: Three Hands, 0.5sec. Leap,  $\text{Ø}80\text{mm}$  Dial
  - Slave Clock(LTC)  
: Two/Three Hands, 30sec. Leap,  
 $\text{Ø}80\text{mm}$  Dial
  - LCD Display  
: UT/LT Year/Month/Day/Hour/Minute/Sec  
: 16-Character 2-Line, Back Light

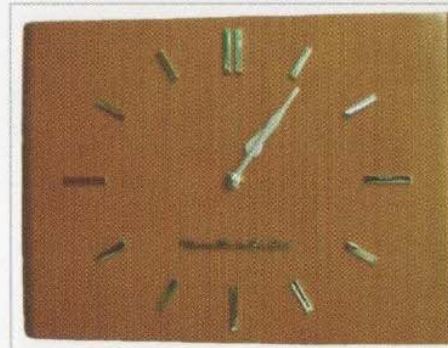


MCS-970  
Analog Master Clock

MCS-980  
Digital Master Clock



Master Clock



Flush Type



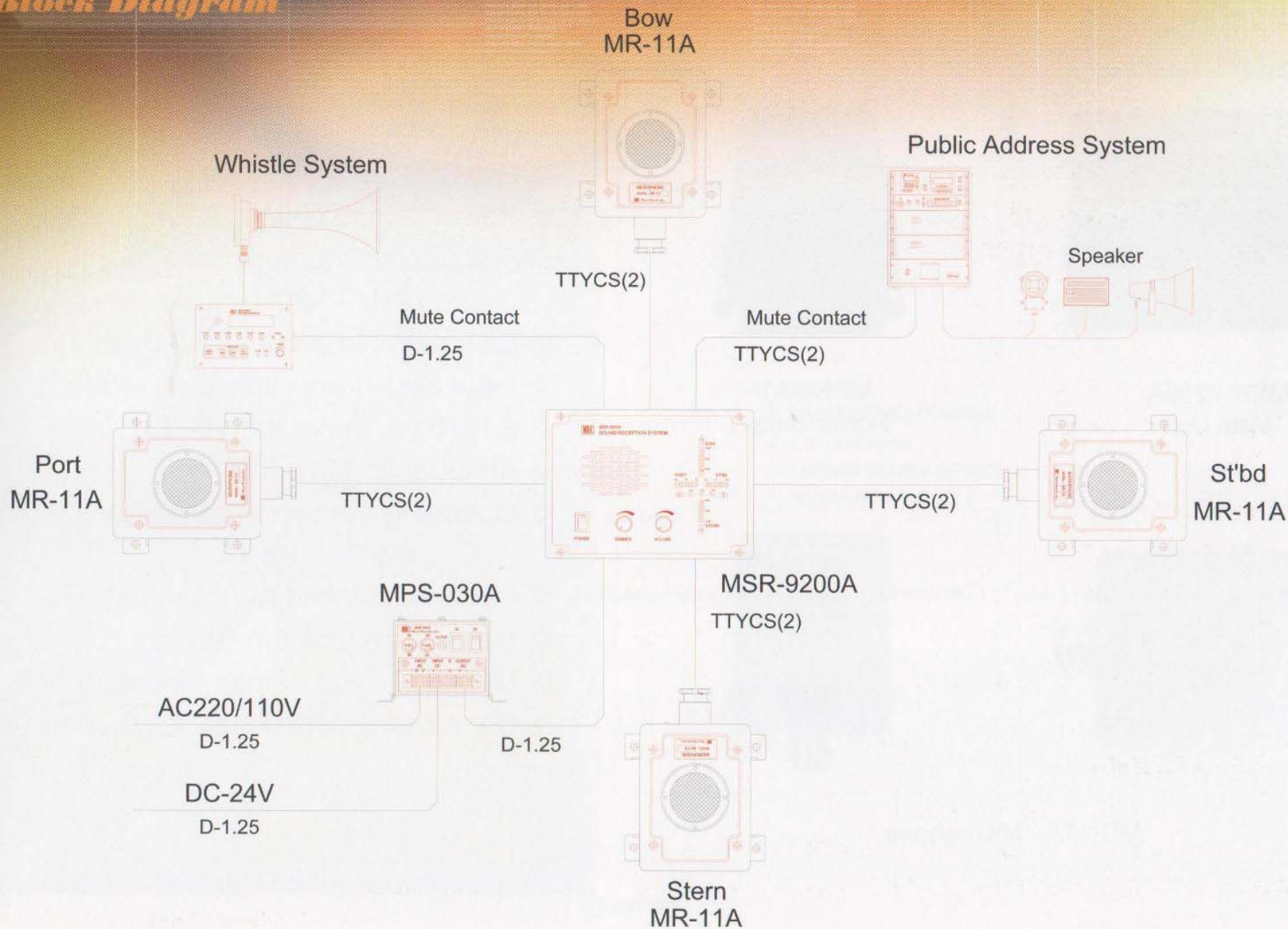
Wall Type

Slave Clock



# SOUND RECEPTION SYSTEM

## Block Diagram



# ❖ SOUND RECEPTION SYSTEM



MSR-9200A  
Main Unit



MPS-030A  
Power Supply



MR-11A Microphone

## Specifications

- ❖ Power Source : DC24V
- ❖ Power Consumption : Max. 30VA
- ❖ Frequency Characteristics  
: 70Hz - 820Hz(6dB)
- ❖ Distortion : less than 3%(-30dBm)
- ❖ Input Sensitivity : less than -45dBm
- ❖ S/N Ratio : more than 50dB
- ❖ AF Output : Max. 5W
- ❖ Operating Temperature Range  
: -25°C ~ +55°C
- ❖ Operating Humidity : less than 95%
- ❖ Material : Aluminum-Steel
- ❖ Mounting Type : Flush Mounting
- ❖ Compass Safety Distance : 0.75m

# ❖ IBS CONSOLE

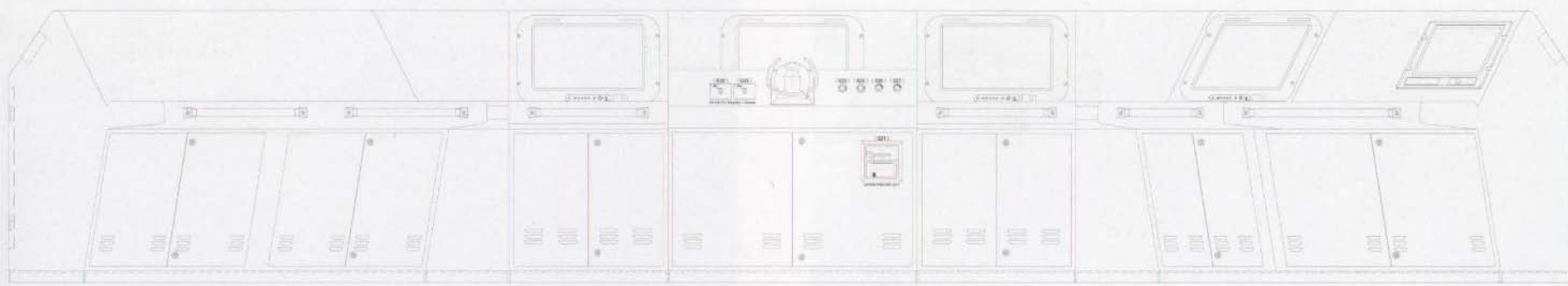
## Block Diagram



- A. SURV. & MONI. CONSOLE
- B. ECDIS
- C. CORNER CONSOLE(ST'BD)
- D. S-BAND RADAR

- E. MANOEUVRING CONSOLE
- F. X-BAND RADAR
- G. CORNER CONSOLE(PORT)
- H. NAVIGATION CONSOLE

TOP VIEW



FRONT VIEW

# ❖ IBS CONSOLE



DEMONSTRATION



DSME(DAEWOO) SUPPLY



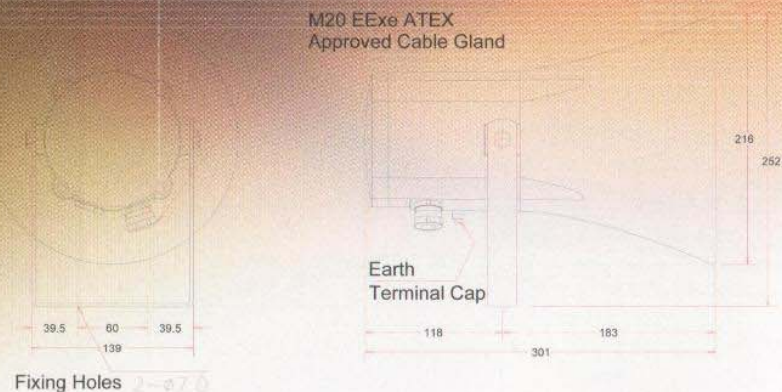
DAE-HAN SUPPLY



DEMONSTRATION

# Ex/EEEx SPEAKER

## Block Diagram

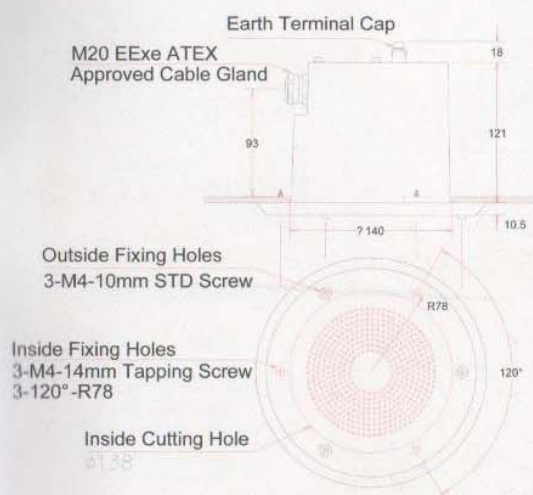


Material/Color	Aluminium/Dark Blue
Mounting	2- $\phi 7$ (60mm) Screws
Terminal Block	ATEX 3247U/275V 28A
Weight	4.5kg
Ex/IP Grade	Ex de IIB T6, IP66
Ambient Temp.	60°C/-50°C

Power Max.	30W
SPL 1W/1m	104dB $\pm$ 2dB
SPL 6W/1m	115dB $\pm$ 2dB
Effective Freq.	330Hz - 7kHz
HS-30Exde-1	M20 EEEx 1-Gland
HS-30Exde-2	M20 EEEx 2-Gland

Material/Color	Aluminium/Dark Blue
Mounting	2- $\phi 7$ (60mm) Screws
Terminal Block	ATEX 3247U/275V 28A
Weight	3.4kg
Ex/IP Grade	Ex de IIB T6, IP66
Ambient Temp.	60°C/-50°C

Power Max.	10W
SPL 1W/1m	101dB $\pm$ 2dB
SPL 6W/1m	110dB $\pm$ 2dB
Effective Freq.	390Hz - 7.7kHz
HS-10Exde-1	M20 EEEx 1-Gland
HS-10Exde-2	M20 EEEx 2-Gland



Material/Color	Aluminium/White
Mounting	3 Screws
Terminal Block	ATEX 3247U/275V 28A
Weight	3.5kg
Ex/IP Grade	Ex de IIB T6, IP34
Ambient Temp.	40°C/-20°C

Power Max.	6W
SPL 1W/1m	90dB $\pm$ 2dB
SPL 6W/1m	96dB $\pm$ 2dB
Effective Freq.	120Hz - 19kHz
CS-6Exde-1	M20 EEEx 1-Gland
CS-6Exde-2	M20 EEEx 2-Gland



Material/Color	Aluminium/Anodized
Mounting	4- $\phi 7$ Screws
Terminal Block	ATEX 3247U/275V 28A
Weight	3.8kg
Ex/IP Grade	Ex de IIB T6, IP53
Ambient Temp.	40°C/-20°C

Power Max.	6W
SPL 1W/1m	90dB $\pm$ 2dB
SPL 6W/1m	96dB $\pm$ 2dB
Effective Freq.	120Hz - 19kHz
LS-6Exde-1	M20 EEEx 1-Gland
LS-6Exde-2	M20 EEEx 2-Gland