



## MIXING AMPLIFIER

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## MIXING AMPLIFIER



**T-2510A/2510D** 10 Zone Mixing amplifier



**S-2520A/2520D** 20 Zone Mixing amplifier

High efficiency class-D 100V mixing amplifier Various input and function to make better use Lowest power consumption and lowest noise green amplifier 20 zone selector type and 10 zone A.T.T type.

### FEATURES

- CH 1 : PTT/MIC/LINE
- 2TONE CHIME
- SIREN : WAVE, FLAT, DIN33404
- TEL PAGING INPUT
- DIGITAL MESSAGE (OPTION)
- RECORDING OUTPUT
- Pack module signal is cut
- Operating Message first trigger, PTT or MIC1 is priority to digital message
- Operating siren, PTT is priority to siren
- Power failure and supplying power again, amplifier is memory operating condition before power failure
- High efficiency PWM CLASS-D POWER AMPLIFIER
- Micro processor for control all of amplifier function by MICOM
- High efficiency S.M.P.S circuit (AC/DC, DC/DC)
- INPUT LIMITED CIRCUIT
- OVER-CURRENT CIRCUIT
- OVER-LOAD CIRCUIT
- OVER-TEMPORATURE CIRCUIT
- RS 485 COMMUNICATION for remote amplifier (Power ON/OFF, Amplifier condition monitoring)

### TECHNICAL SPECIFICATIONS

OUT-TYPE	ATTENUATOR TYPE		SELECTOR TYPE	
	T-2510A (AC)	T-2510D (AC/DC)	S-2520A (AC)	S-2520D (AC/DC)
MODEL	T-2510A (AC)	T-2510D (AC/DC)	S-2520A (AC)	S-2520D (AC/DC)
Rated Output	250W	250W	250W	250W
Output Impedance	40Ω/100V,4Ω	40Ω/100V,4Ω	40Ω/100V,4Ω	40Ω/100V,4Ω
Power Consumption	390W	390W	390W	390W
OUT Zone	10 Zone	10 Zone	20 Zone	20 Zone
INPUT Channel	6ch (MIC/LINE:4Ch, LINE:2Ch), CH-1 : P.T.T			
Priority	① PTT/MIC-1 ② DIGITAL MASSAGE ③ TEL, CH-2 ④ CH-3~CH-6, PACK			
Signal to noise Ratio	MIC : More Than. 70dB, LINE : More Than. 100dB ("A" weight)			
T.H.D.	Less Than 0.9% (1KHz) ("A" Weight)			
Frequency Response	MIC : 200Hz~18KHz, LINE : 50Hz~18KHz			
INPUT Sensitivity	MIC : -50dBu 5KΩ BAL, LINE : -10dBu 15KΩ BAL			
Power Source	AC 220-230V 50/60Hz , DC 24V			
Dimesions	483(W)x 133(H)x 350(D)m/m			

### MODULE SERIES (Option)

**CDP-100MU**  
CD & USB Player



**CDR-100RDSU**  
CD & Receiver & USB



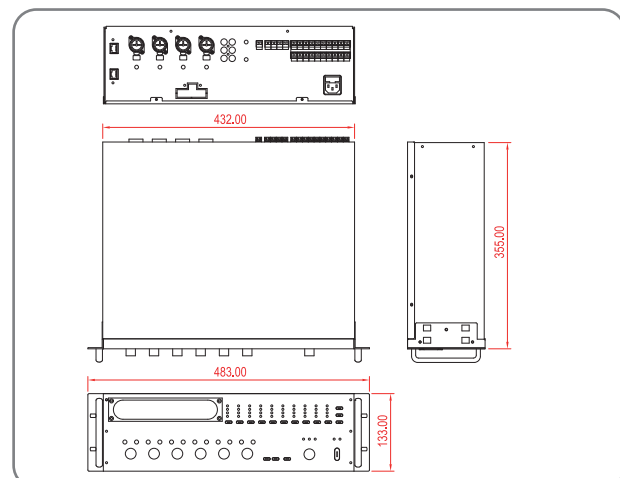
**DMT-100**  
Digital Message & Timer Module



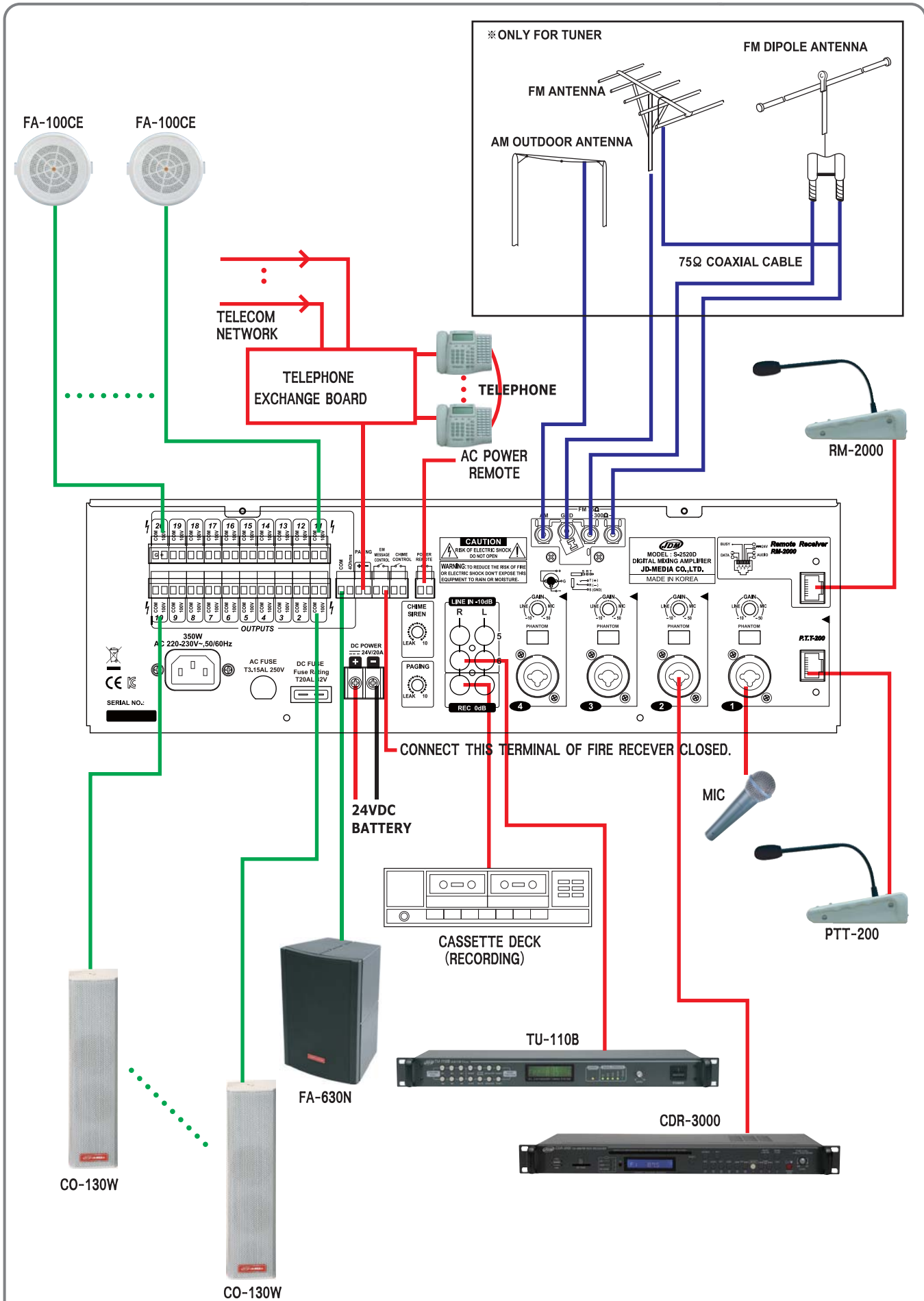
**TP-100RDS**  
Digital RDS Tuner



### DRAWING



# MIXING AMPLIFIER



Specifications and design subject to change without notice for improvements.

## MIXING AMPLIFIER



### MA-412 4 Zone Mixing amplifier

It designed emergency and multi-broadcasting mixing amplifier by four bus. The unit can be used at school , department , factory and office. And FIRE MAN'S can record alert message(Max. 1min) , so if emergency situation , it can be used for E/M broadcasting via message recorded and P.T.T MIC. Moreover distance for remote controller is. 1km(max) and it can be linked 32pcs of remote mic

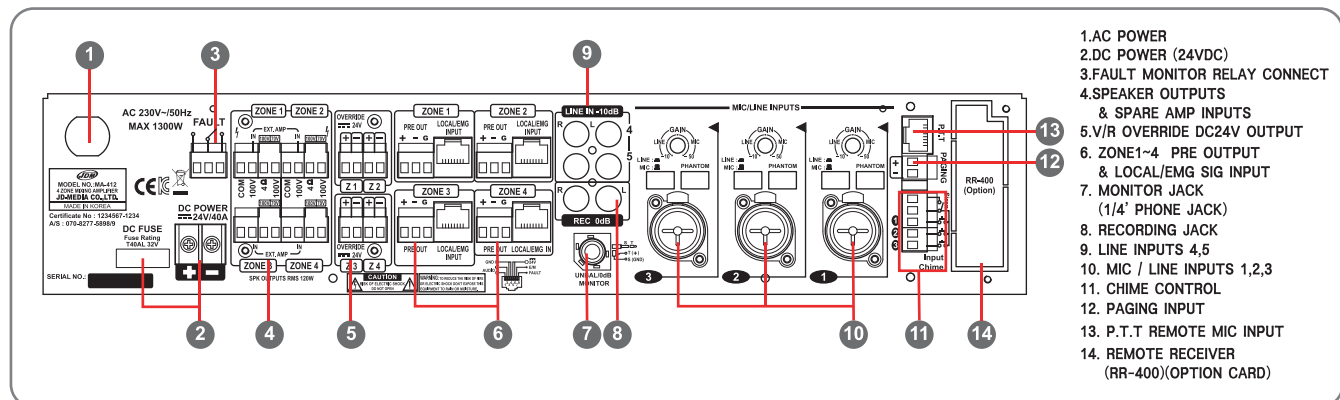
### FEATURES

- Zone select switch per channel for multi-broadcasting
- Treble/Bass control volume per channel.
- Output volume and LED level meter per zone.
- Monitoring speaker selector per zone
- It can be controled chime & siren by remote controller
- Phantom power ON/OFF switch for MIC input
- Priority selector for INPUT 1,2,3 (Activation with zone selector)
- Paging input (Paging announce link switch)
- Emergencyannounce local input(RJ45) (While paging or EMG signal , cut-off BGM and remote signal)
- It can be connected booster amplifier to increase output power per zone
- It can be connected with spare-amplifier per zone
- P.T.T MIC input (RJ45)
- Remote controller input (RJ45)
  - Distance 1km(max)
  - Expandable to 32pcs remote mic
- Output impedance selector 4ohm and 70v/100v selector
- 3-WIRE/4-WIRE for output speaker
- Fault detector curcuit
- Sleep detector curcuit
  - while No signal and stand-by mode power consumption will be minimized
- VOLUME OVERRIDE DC24V output terminal for Emergency situation

### TECHNICAL SPECIFICATIONS

Input Sensitivity / Impedance	MIC/LINE 1~3	-50dBu(2.45mV) 5k $\Omega$ BAL / -10dBu(245mV) 15K $\Omega$ UNBAL
	MIC/LINE 4,5	-10dBu(245mV) 15k $\Omega$ UNBAL
	TEL PAGING	-10dBu(245mV) 10k $\Omega$ BAL
	REC OUT	0dBu(775mV) 3k $\Omega$ UNBAL
	PRE OUT	0dBu(775mV) 200 $\Omega$ UNBAL
Output Impedance /ATT. Step (Option)	LOW IMP : 4 $\Omega$ / HI IMP : 70V, 100V	
Frequency Responses	Less Than 3dB (45Hz ~ 20KHz)	
Signal to Noise Ratio	LINE	More Than 90dB ("A" WEIGHT)
	MIC	More Than ("A" WEIGHT)
T.H.D (1kHz)	Less than 0.3%	
Rated Output (RMS)	120W x 4	
Power Consumption	1107W	
1/8 Power Current draw 230V	3.28A	
1/3 Power Current draw 230V	4.7A	
Rated Power Current draw 230V	7.16A	
Weight (kg)	16.5 Kg	
Output / Impedance	70V	100V
	40.8 $\Omega$	83.3 $\Omega$
Power	AC220V/60Hz, DC24V	
Dimensions (m/m)	483(W)x133(H)x377(D)m/m	

### REAR VIEW





## MIXING AMPLIFIER

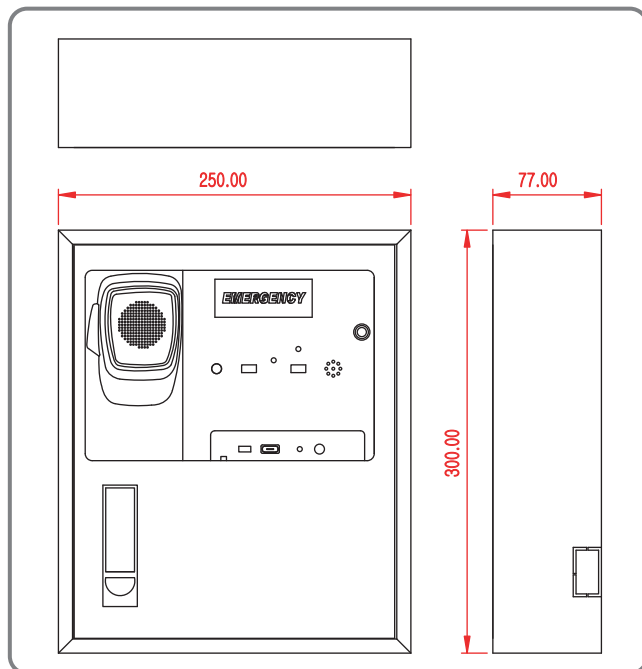


**FIR-400**  
Fireman's Microphone

### FEATURES

- Easy-to-use single-chip voice record/playback solution.
- High-quality, natural voice/audio reproduction.
- Operation of manual switches.
- Recording time is 60 seconds.
- Non voltage memory.
- In emergency, play siren and recording message automatically. (Emergency LED)
- P.T.T MIC for evacuation announcement by manual.
- Automatic evacuation announcement. (Play siren after 10sec, play recording message)
- Siren select switch (FLAT/DIN33404)
- Speakers protection circuit for over-output. (Compression)
- Fault detector
  - MIC fault (Disconnection, Short, Unit fault)
  - Circuit fault
- Fault monitoring buzzer (ON/OFF switch)
- Use RJ 45 connector for easy system connection.
- Power saving circuit for reduce power consumption on stand-by mode.
- Low voltage detector circuit.
- DC adaptor connector.

### DRAWING



### TECHNICAL DATA

Power Consumption	24V DC
Audio Output	0dB / 600Ω BAL
Distortion	Less Than 0.5%
S/N Ratio	More Than 60dB
Frequency Response	MIC : 300Hz ~ 5.4kHz (±12kHz)
	LINE : 100Hz ~ 5.4kHz (±12kHz)
Dimensions(m/m)	250(W) X 300(H) X 77(D)
Weight(kg)	3.2kg

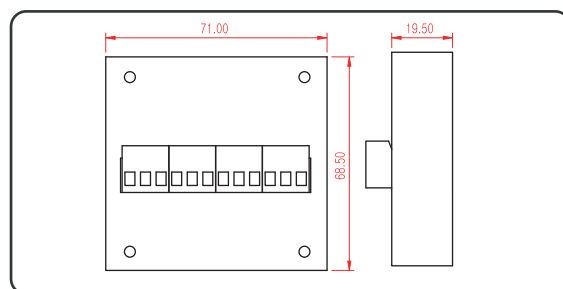
**A.T.T-400**  
3-Way Adapter



### FEATURES

- ATT-400 / 3-Way Adapter
- 2-Way for Business broadcasting , 3-Way / 4-Way for Emergency broadcasting.
- Dimensions(m/m) : 71(W) x 68.5(H) x 19.5(D)
- Weight(g) : 165 g

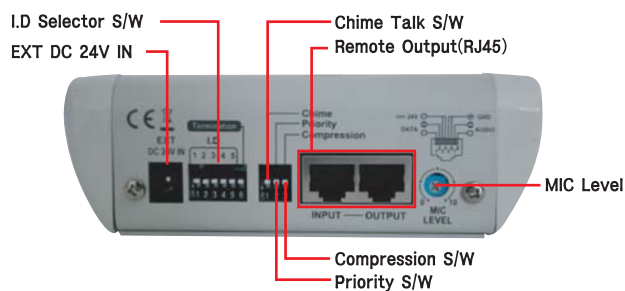
### DRAWING



## MIXING AMPLIFIER

### RM-400

Remote Microphone



### FEATURES

- Unidirectional microphone.
- Chime ON / OFF switch.
- Slave - Priority selector.
- It can be expand max 32pcs.
- Over-output protection circuit. (ON / OFF switch)
- Microphone fault detector (Short , open , fault)
- Saving power consumption circuit on stand-by mode.
- Lowvoltage detector.
- DC adaptor connector.
- Using UTP-CAT5 cable. (RJ-45)
- Output channel select button.

### FUNCTION

#### 1. TALK

When pressing "TALK", MIC signal is activated and make input of DC 24V from the screw NO. 2 of main amplifier and priority activated.

#### 2. RJ-45 connector

Easy-to-use connection and audio, data and power via one cable.

### ACCESSORY



### RR-400

Remote Receiver



### FUNCTION

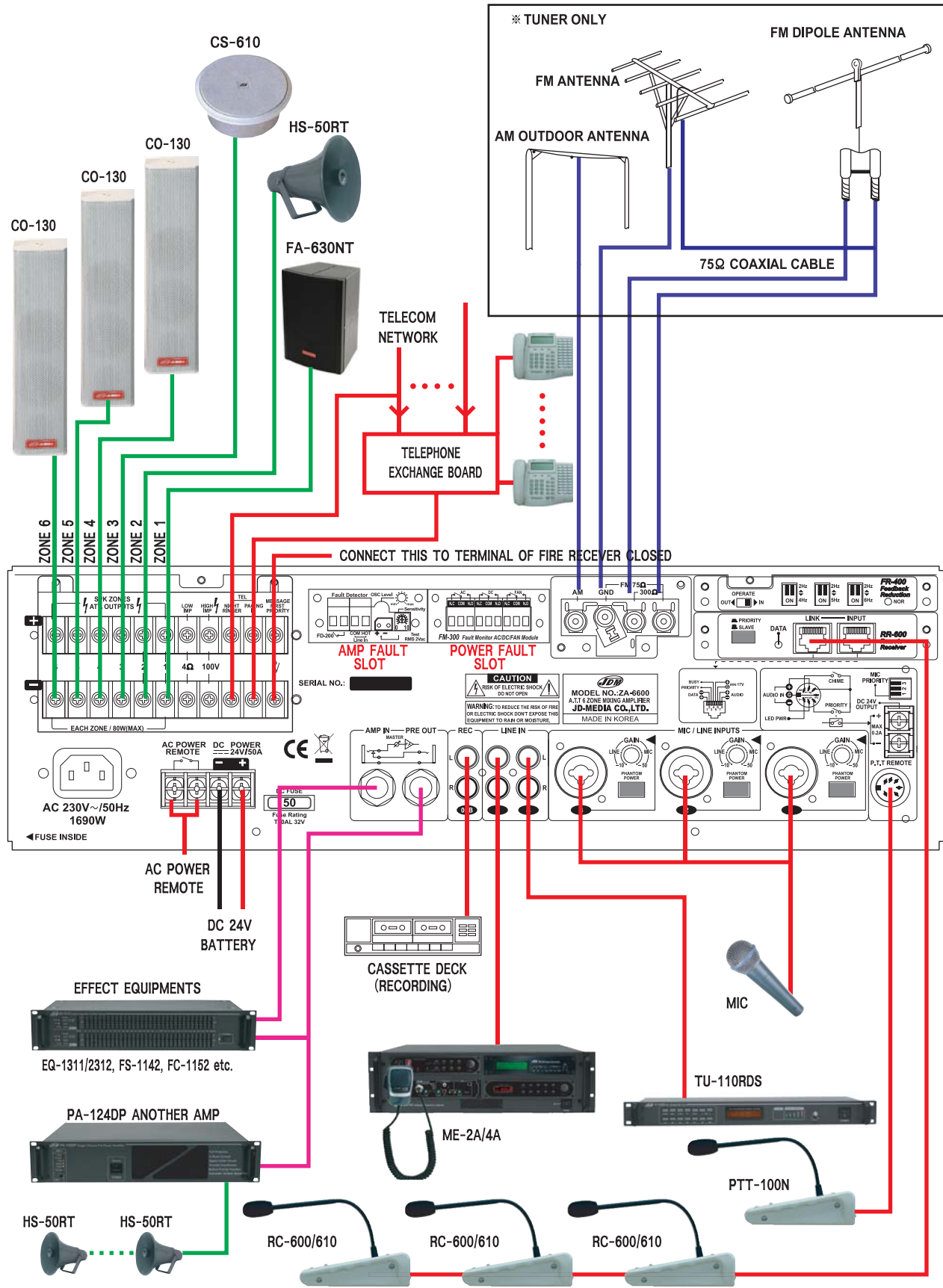
- It can be expand max 32pcs of RM-400 (Max. distance is 1.2 km)
- Using CAT-5 UTP cable.
- LED display for DATA communication condition.
- Dimension : 126(W) x 54(H) x 156(D)mm
- Weight : 0.8Kg





# MIXING AMPLIFIER

Example 1 : Basic, Total Power 600W

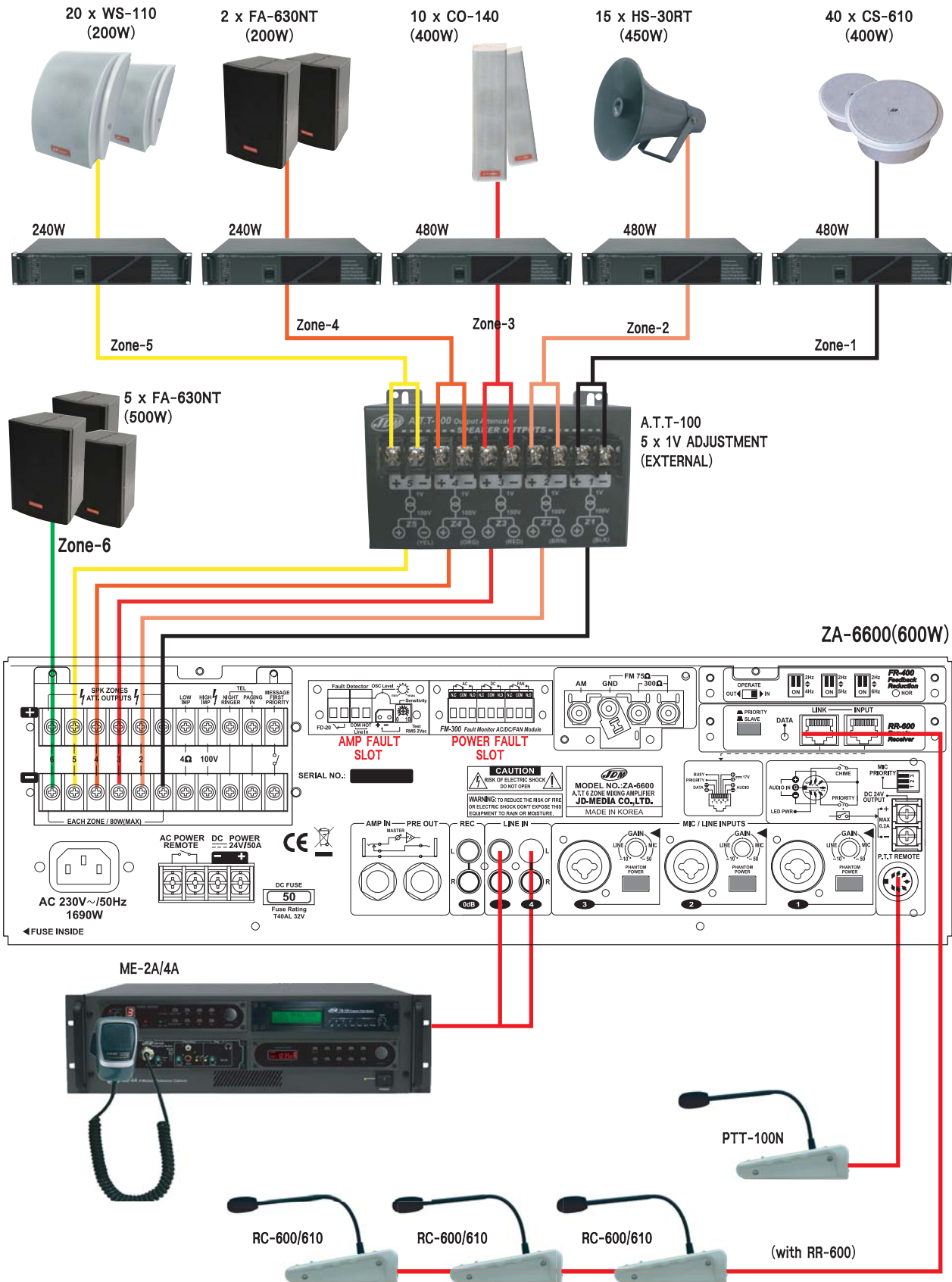


Specifications and design subject to change without notice for improvements.

# MIXING AMPLIFIER

## Example 2 : 6 Speaker Lines, Total Power 2520W

Up to 5 speaker zones are adapted to LINE level for cascading with additional amplifier to increase power.



Specifications and design subject to change without notice for improvements.

## MIXING AMPLIFIER

### RR-100/600 Module (Option)

Remote control receiver

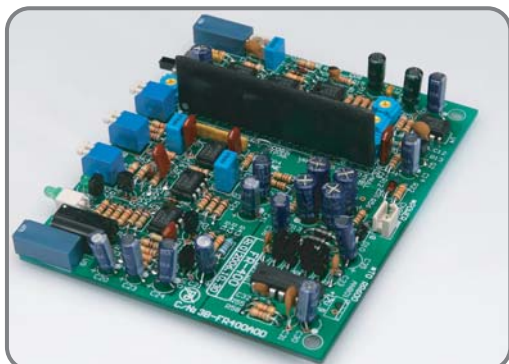


#### FEATURES

- Remote control receiver lets you connect 3 PCS of remote controls simultaneously by 4 pairs LAN cable at the 100m MAX.
- DATA LED INDICATOR  
In case of normal operation of data of data receipt, data LED indicator will be turn "ON".
- SLAVE/PRIORITY
  - SLAVE SELECTOR : All signal output of remote controller(RC-600) will be closed under setting "ON" of priority switch on the rear of P.T.T remote (PTT-100N). (SLAVE/PRIORITY switch of RC-600 to "SLAVE")
  - PRIORITY SELECTOR : Remote controller(RC-600) is priority to any other priority is activated, an signals are closed (But, P.T.T MIC signal can be activated is spite of priority).

### FR-400 Module (Option)

Feedback Reduction

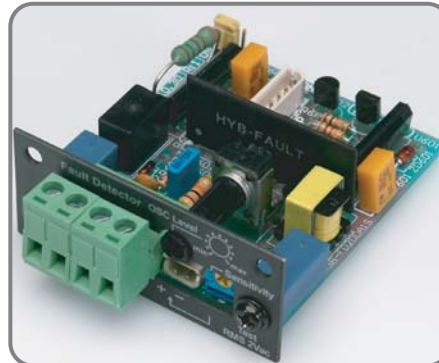


#### FEATURES

- The FR-400 is to control feed-back when you want to design clear sound. For example, if you speak into MIC system, your input signal is amplified and then the audience hears your voice (music) from speaker system. But, as times goes by, amplified sound is little louder than it's first emanation from the speaker and you would like to adjust speaker sound more reliable. Because, first few second, your input signal is only your voice but now between your voice and emanated sound from the speaker input a MIC system few minute. (it is howling)  
Therefore, to hear clear sound, you will turndown volume or off MIC system (to prevent Feed-back) because of listener's attention.

### FD-200 Module (Option)

Fault detection module

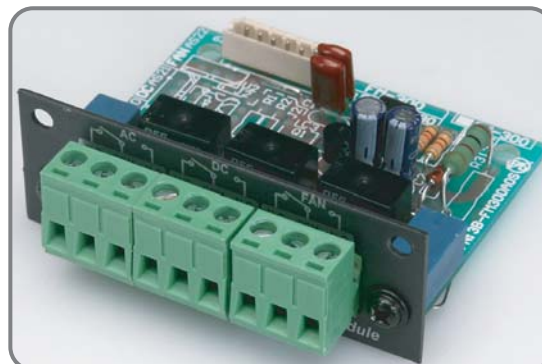


#### FEATURES

- The fault detection module of mixing amplifier checks operating conditions of amplifier and disconnection of speaker wiring by giving out the sine wave of 20KHz at an output level of 2V RMS (at 70 or 100V line). As the block diagram shows, the sine wave of 20KHz (2V RMS) is mixed with other signals on the amplifier output which is delivered to the detection module though speaker cables and the detection module detects only the sine wave of 20KHz through a filter to check a fault.

### FM-300 Module (Option)

Fault monitoring relay contact



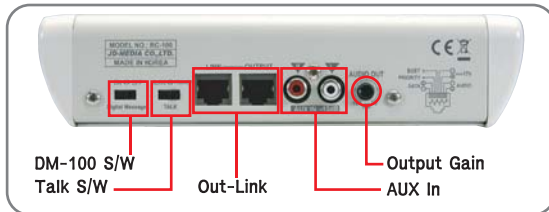
#### FEATURES

- FAN FAULT RELAY CONTACT  
Fan fault relay contact is operating when fan fault or fan is disconnected.
- DC FUSE FAULT RELAY CONTACT  
DC fuse fault relay contact is operating when DC fuse is blown out or DC 24V battery is disconnected.
- AC FUSE FAULT RELAY CONTACT  
AC fuse fault relay contact is operating when AC main power switch is "off" or AC fuse is blown-out or AC main power cord is unplugged.

## MIXING AMPLIFIER

### RC-100

Remote controller for ZA-1120A/1240A

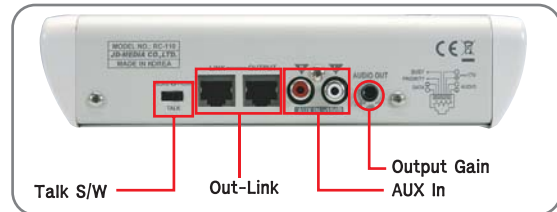


#### FEATURES

- Unidirectional microphone .
- Multiple use of RC-100 with slave-priority function.
- Microphone with 5 zone speaker selector to connect ZA-1120A/1240A/1480A.
- Chime function.
- Remote control for DMT-100 module.
- Audio, data & power via one cable (UTP-Cat5).

### RC-110

Remote controller for ZA-1120A/1240A

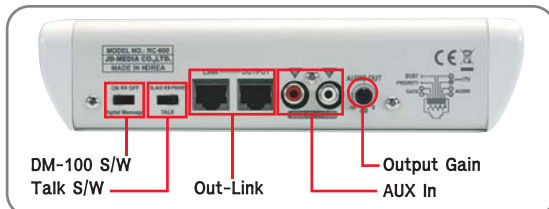


#### FEATURES

- Unidirectional microphone .
- Multiple use of RC-110 with slave-priority function.
- Microphone with 5 zone speaker selector to connect ZA-1120A/1240A/1480A.
- Chime function.
- Audio, data & power via one cable (UTP-Cat5).

### RC-600

Remote controller for ZA-6000 series

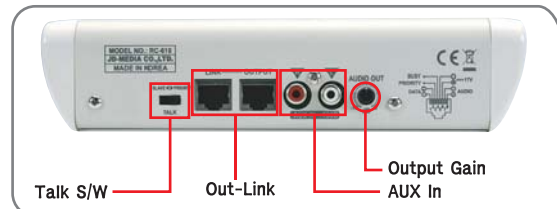


#### FEATURES

- Unidirectional microphone .
- Multiple use of RC-600 with slave-priority function.
- Microphone with 6 zone speaker selector to connect ZA-6120/6240/6360/6480/6600
- Chime function.
- Remote control for DMT-100 module.
- Audio, data & power via one cable (UTP-Cat5).

### RC-610

Remote controller for ZA-6000 series



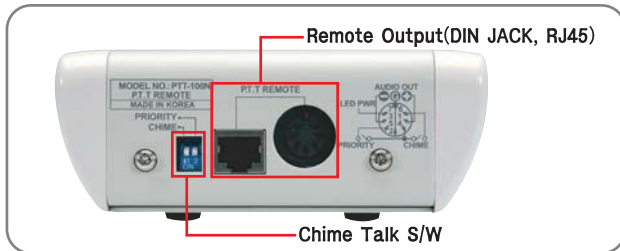
#### FEATURES

- Unidirectional microphone .
- Multiple use of RC-610 with slave-priority function.
- Microphone with 6 zone speaker selector to connect ZA-6120/6240/6360/6480/6600
- Chime function.
- Audio, data & power via one cable (UTP-Cat5).

## MIXING AMPLIFIER

### PTT-100N

P.T.T Remote(Condensor Mic)

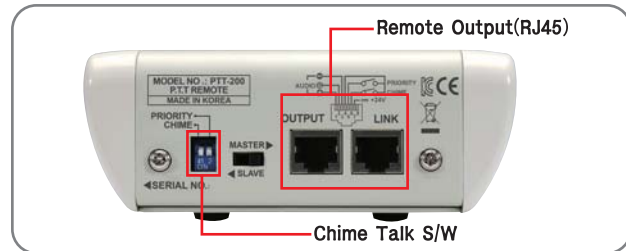


#### FEATURES

- Auto chime function to ZA-1120A/1240A/1480A, MA-1410/1408, ZA-6120/6240/6360/6480/6600.
- Chime & priority function by P.T.T. (Push To Talk).
- Unidirectional microphone .
- Dimension : 126(W) x 54(H) x 156(D)mm
- Weight : 0.8Kg

### PTT-200

P.T.T Remote(Condensor Mic)

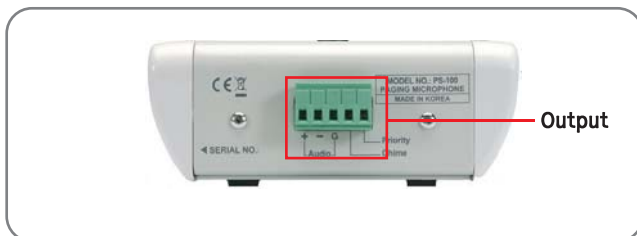


#### FEATURES

- Auto chime function to ZA-1120A/1240A/1480A.
- Chime & priority function by P.T.T. (Push To Talk).
- Unidirectional microphone .
- It can be link up to 3pcs of remote microphone.
- Dimension : 126(W) x 54(H) x 156(D)mm
- Weight : 0.8Kg

### PS-100

Paging Microphone(Dynamic Mic)



#### FEATURES

- Unidirectional dynamic microphone
- Auto chime with PS-3120/3240/3360/3480
- Chime & override function by P.T.T Remote. (Push To Talk).
- TYPE : Dynamic Microphone (Unidirectional)
- Frequency Response : 60Hz~18.000Hz
- Impedance : 400Ω
- Sensitivity :  $-75 \pm 3\text{dB}(1\text{V}/0.1\text{Pa at } 1\text{KHz})$   
(0Pa = 10 Bar = 94dB SPL)
- Max, SPL for 0.5% THD : 130dB (1KHz)
- Dimension : 126(W) x 54(H) x 156(D)mm
- Weight : 0.8Kg

#### FUNCTION

##### 1. TALK SWITCH

Pushing the talk switch, it makes permissible announcement after chime two tone chime built in muting function of mute signal.

##### 2. OUTPUT TERMINALS

Connect screw terminal of input 2~4 of PS-Series.

## MIXING AMPLIFIER



### ATT-100 Output Attenuator

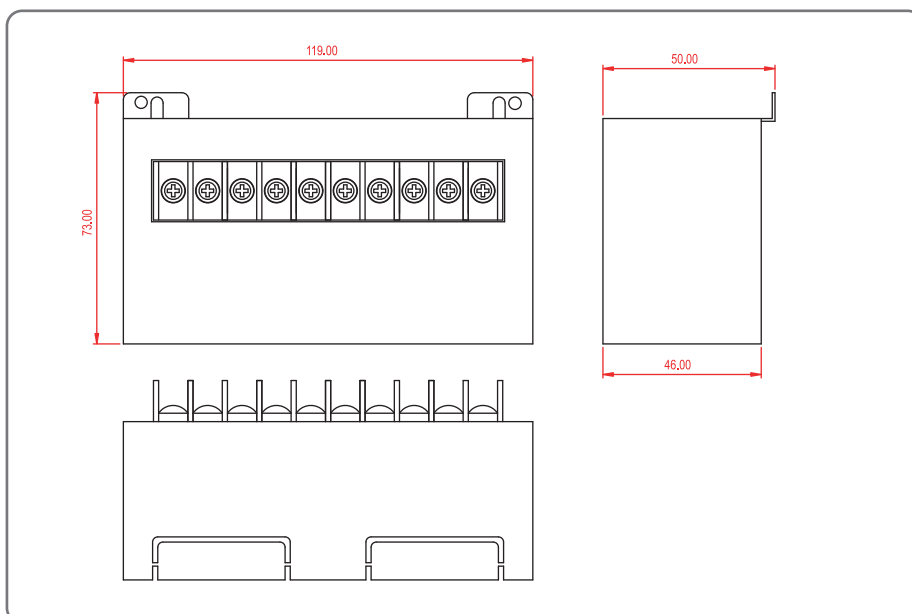
#### FEATURES

- It makes power increasing by output level change from 100V to 1V and supply signal to the amplifier.
- Connect to speaker selector output of mixing amplifier to increase power output.
- Easy installation for JDM mixing amplifiers (TA-Series, ZA-Series, PS-Series).
- Screw type fixture housing on the rear panel of mixing amplifier.
- Built-in five output.
- Sophisticated circuit isolated between speaker output and line output.
- New technology adaption to send signal in long distance.
- 5 PCS of matching transformer built-in for each zone to control five attenuators.

#### TECHNICAL DATA

INPUT / OUTPUT	100V : 1V A.T.T(5Ch)
FREQUENCY RESPONES	Less than -3dB (35Hz ~ 20KHz)
T.H.D	Less than 0.4%
INSULATION RESPONES	More than 10M
DIMENSIONS (m/m)	119(W) x 73(H) x 50(D)
WEIGHT	0.4kg

#### DRAWING



## MIXING AMPLIFIER



### ZA-1120A/1240A/1480A A.T.T 5 Zone Mixing Amplifier

#### FEATURES

- Pre-Amp in/out for extension of power amplifiers.
- Override input on Mic 1, 2, 3.
- Phantom power switch for condenser mic.
- Input 1, 2, 3 - Combo (mic-line).
- Input 4, 5 - RCA line.
- PTT-100N/PTT-200 Input RJ-45 Jack.
- Individual bass&treble input control .
- Input gain control (microphone-line inputs 1~3).
- Tel paging and night ringer.
- Recording output by RCA connector.
- Optional modules  
( DMT-100, CDP-100MU, CDR-100RDSU, TP-100RDS ).
- Bass & treble control for pack series.
- Automatic variable speed fan.
- Load short circuit protection.
- 100V direct output.
- Speaker attenuator per channel by 5 step.

#### TECHNICAL SPECIFICATIONS

TECHNICAL DATA	ZA-1120A	ZA-1240A	ZA-1480A
Input Sensitivity / Impedance	MIC1~3 : -50dBu(245mV) 5K $\Omega$ BAL		
	LINE 1~3 : -10dBu(245mV) 5K $\Omega$ BAL		
	LINE 4~5 : -10dBu(245mV) 15K $\Omega$ UNBAL		
	TEL PAGING : -10dBu(245mV) 5K $\Omega$ BAL		
	PACK UNIT : -10dBu(245mV) 10K $\Omega$ UNBAL		
	REC OUT : 0dBu(775mV) 3K $\Omega$ UNBAL		
	PRE OUT : 0dBu(775mV) 100 $\Omega$ UNBAL		
AMP IN : 0dBu(775mV) 10K $\Omega$ UNBAL			
Rated Output	120W(RMS)	240W(RMS)	480W(RMS)
Direct output	LOW IMP : 4 $\Omega$		
ATT.STEP(Optional)	8.9V, 12.5V, 25V, 50V, 70V, 100V		
Frequency Response (Line input)	Less than -3dB (50Hz ~ 16kHz)		
Signal to Noise Ratio	LINE : More than 80dB ("A" Weighted)		
	MIC : More than 70dB ("A" Weighted)		
T.H.D at 1kHz(Rated output)	Less than 0.5% 1kHz		
Tone Control	Bass : $\pm$ 10dB at 100Hz, Treble : $\pm$ 10dB at 10kHz		
Power consumption	355W	630W	1280W
1/8 Power Current draw	0.8A	1.4A	2.9A
1/3 Power Current draw	1.2A	2A	4.25A
Rated Power Current draw	1.8A	3.2A	6.7A
Weight(kg)	14kg	15kg	19kg
Power	AC230V/50Hz, DC24V		
Dimensions m/m	430(W) x 133(H) x 352(D)m/m		

#### MODULE SERIES (Option)

##### CDP-100MU

CD & USB Player



##### CDR-100RDSU

CD & Receiver & USB



##### DMT-100

Digital Message & Timer Module

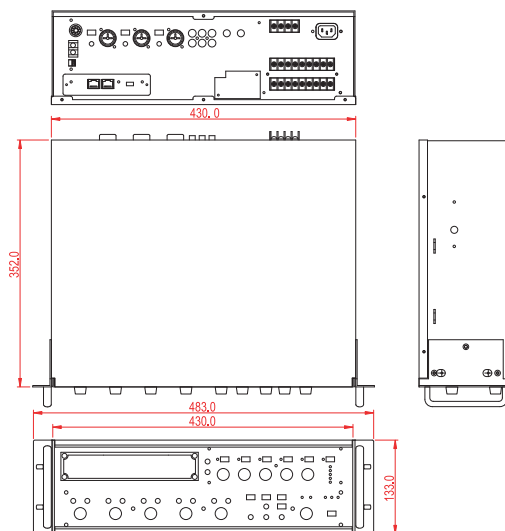


##### TP-100RDS

Digital RDS Tuner



#### DRAWING



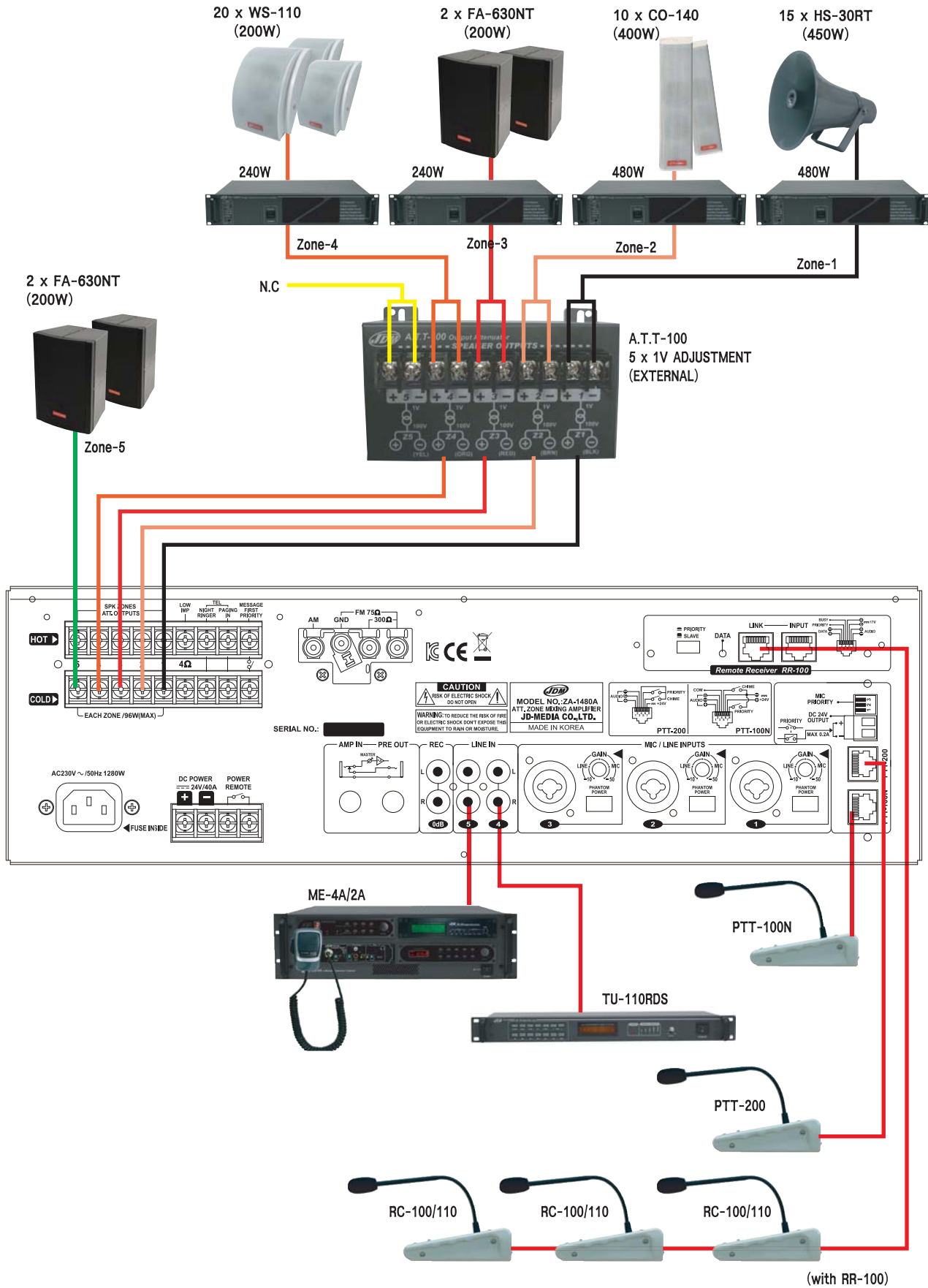




# MIXING AMPLIFIER

## EXAMPLE 2 : 5 Speaker lines, Total power 1680W

Up to 4 speaker zones are adapted to LINE level for cascading with additional amplifier to increase power



Specifications and design subject to change without notice for improvements.

# MIXING AMPLIFIER

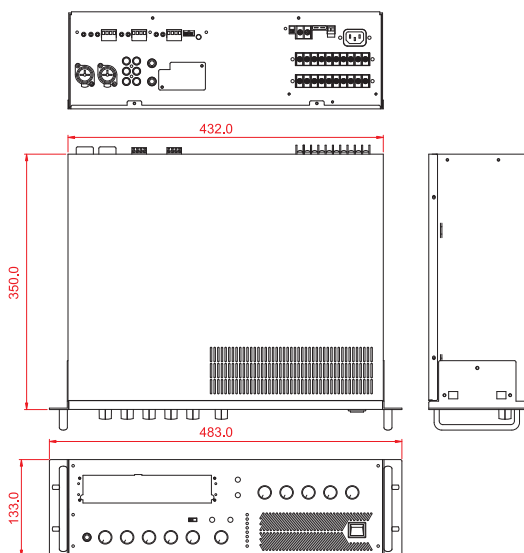


## PS-3120/3240/3360/3480 A.T.T Zone Mixing Amplifier

### FEATURES

- RCA connector for input 5-7 (aux selector).
- Selective Mic/Line switch for input 2-4.
- Pre out/Amp in for extensions with other amplifiers.
- Remote announcement by paging mic (PS-100).
- RMS outputs: 120W/240W/360W/480W on 25V, 35V, 50V, 70V & 100V.
- "Voice priority" on input 1.
- "Chime + Mute" contact on input 2-4 has override to aux input Pack Signals.
- Detachable screw terminals for input 2-4.
- Bass & treble control for pack series.
- Phantom power on input 1-4 for condenser mic.
- Surge-protection for mic input.
- Slot for input modules, (TP-100RDS, DMT-100, CDP-100MU, CDR-100RDSU).
- Bass & Treble tone control (100Hz, 10KHz).
- Five zone attenuators
- Variable speed fan.
- Over current protection.
- Thermal protection.
- Short circuit protection.
- AC/DC 24V operation.

### DRAWING



### TECHNICAL SPECIFICATIONS

TECHNICAL DATA	PS-3120	PS-3240	PS-3360	PS-3480			
Input Sensitivity Impedance	Input 1 : MIC : -50dBu(2.45mV) 2KΩ BAL						
	Input 2-4 MIC : -50dBu(2.45mV) 2KΩ BAL						
	LINE : -10dBu(245mV) 200KΩ BAL						
	Input 5-7 AUX : -10dBu(245mV) 5KΩ UNBAL						
	Pack Unit : -10dBu(245mV) 10KΩ UNBAL						
	PRE OUT : 0dBu(775mV) 100Ω UNBAL						
	AMP IN : 0dBu(775mV) 10KΩ UNBAL						
Rated Output	120W(RMS)	240W(RMS)	360W(RMS)	480W(RMS)			
Direct OUTPUT	8Ω, 100V or 70V						
ATT.STEP(Optional)	position	OFF	1	2	3	4	5
	option	DOMESTIC	OFF	25V	35V	50V	70V
Frequency Response	LINE : Less than -3dB (35Hz ~ 19kHz)						
	MIC : Less than -3dB (200Hz ~ 19kHz)						
Signal to Noise Ratio	LINE : More than 80dB ("A" Weighted)						
	MIC : More than 70dB ("A" Weighted)						
T.H.D at 1kHz	Less than 0.4% 1kHz						
Tone Control	Bass : ±10dB at 100Hz			Treble : ±10dB at 10kHz			
Power consumption	350W	740W	1150W	1420W			
1/8 Power Current draw	0.8A	1.6A	2.5A	3.2A			
1/3 Power Current draw	1.2A	2A	3.8A	4.7A			
Rated Power Current draw	1.8A	3.2A	6A	7.5A			
Weight(kg)	14kg	17kg	19.5kg	21kg			
Power	AC230V/50Hz, DC24V						
Dimensions m/m	483(W) x 133(H) x 352(D)m/m						

### MODULE SERIES (Option)

**CDP-100MU**  
CD & USB Player



**CDR-100RDSU**  
CD & Receiver & USB



**DMT-100**  
Digital Message & Timer Module

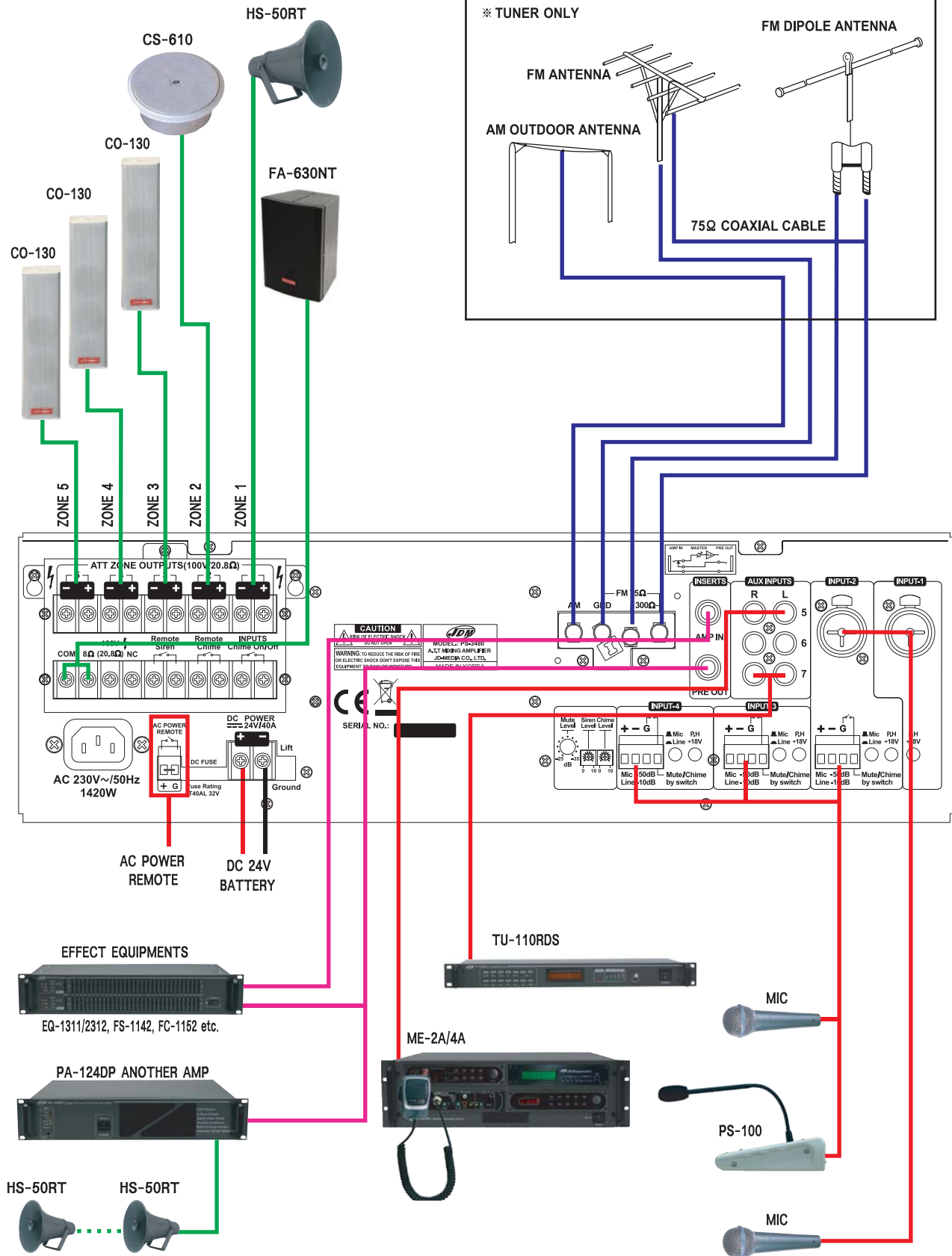


**TP-100RDS**  
Digital RDS Tuner



# MIXING AMPLIFIER

TOTAL POWER 480W



Specifications and design subject to change without notice for improvements.

## MIXING AMPLIFIER



### TA-1060/1120 A.T.T Zone Mixing Amplifier

#### FEATURES

- Pre-Amp out / Amp-in for extensions to power amplifiers.
- Individual gain control for channel 1-5.
- 4 mic input+4line inputs two/four tone Chime, 2 siren tones.
- Voice priority for Mic 1.
- Telephone Input & Music On Hold (tuner only).
- Optional modules  
( DMT-100, CDP-100MU, CDR-100RDSU, TP-100RDS ).
- Bass / treble tone control.
- 4 speaker outputs.
- Remote Chime with external terminal.
- Individual 4 Zone speaker selector .
- VU output meter.
- 100V / 70V output selector.
- AC / DC 24V.
- Bass & treble control for pack series.

#### TECHNICAL SPECIFICATIONS

TECHNICAL DATA	TA-1060	TA-1120
THD at 1KHz	Less than 1%	Less than 1%
Rated output(at 1% THD)	60W(RMS)	120W(RMS)
Power consumption	145W	295W
Frequency response( $\pm 3$ dB)	80Hz to 15kHz	
Equalizer	Bass : $\pm 10$ dB at 100Hz, Treble : $\pm 10$ dB at 10kHz	
Signal to noise ratio	Line : More than 70dB, MIC : More than 60dB	
Input	MIC 1~4 : 3mV, LINE : 300mV, PHONE : 2.4mV	
Power	AC230V/50Hz, DC24V	
Dimensions m/m	420(W) x 110(H) x 320(D) m/m	
Weight(kg)	10.5kg	12.5kg

#### RMK-100 (Option)

Rack Mounting Bracket For TA-1060/1120



#### MODULE SERIES (Option)

**CDP-100MU**  
CD & USB Player



**CDR-100RDSU**  
CD & Receiver & USB



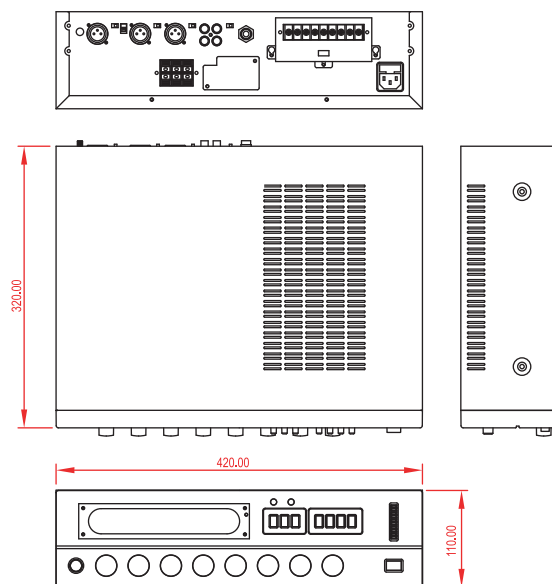
**DMT-100**  
Digital Message &  
Timer Module



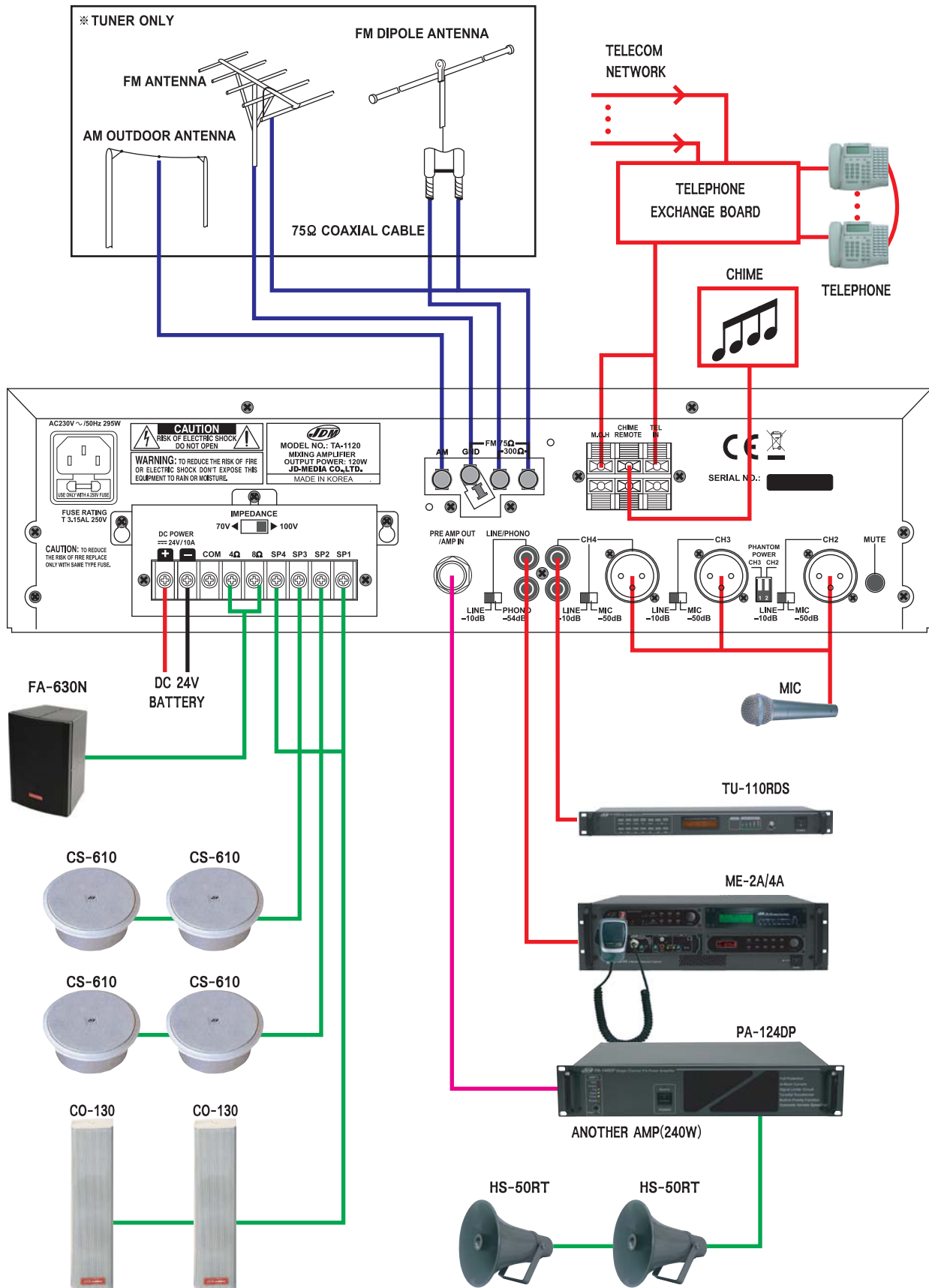
**TP-100RDS**  
Digital RDS Tuner



#### DRAWING



# MIXING AMPLIFIER



Specifications and design subject to change without notice for improvements.

## MIXING AMPLIFIER

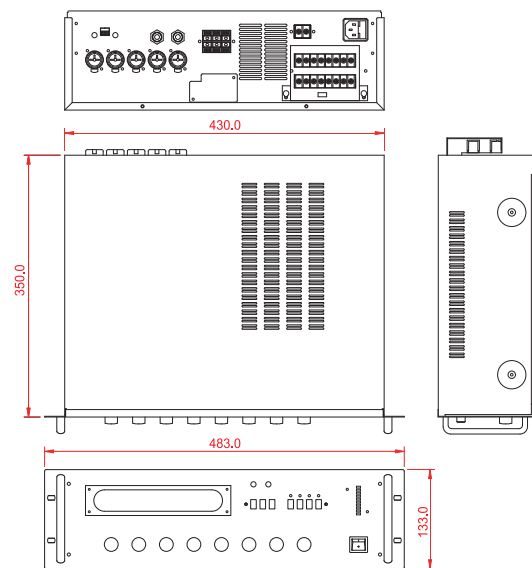


### TA-1120N/1240 Mixing Amplifier

#### FEATURES

- Four Output speaker selectors
- Four separate output selectors can be switched "ON" or "OFF" independently using the front panel controls.
- Override Assignment For Channels 1 And 2
- Universal Input
- Each input is combo connector to use both XLR and 1/4" phone connectors.
- Bass & treble Equalizer.
- External DC Input.
- Chime remote.
- +48V Phantom power for mic 1 and mic 2 Inputs
- Bass & treble control for pack series.
- AC230V / DC24V.

#### DRAWING



#### TECHNICAL SPECIFICATIONS

Input Sensitivity / Impedance	MIC1-5 : -50dBm(2.45mV), / LINE : -10dBm(245mV)
	TEL Paging : -10dBm(245mV)
	PACK Unit : -16dBm(245mV)
	PRE OUT : +4dBm(1.23V)
Rated Output	AMP IN : +4dBm(1.23V)
	TA-1120N : 120W(RMS), LOW IMP : 8Ω, 5.2Ω
Output Impedance	TA-1240 : 240W(RMS), LOW IMP : 8Ω, 2.6Ω
	EUROPE : 100V, AMERICA : 70V
Frequency Response(Line Input)	TA-1120N : 100V/83.3Ω, 70V/40.8Ω
	TA-1240 : 100V/41.7Ω, 70V/20.4Ω
Signal to Noise Ratio	LINE : More than 70dB, MIC : More than 60dB
T.H.D at 1kHz(Rated output)	Less than 2% 1kHz
Power consumption	TA-1120N : 337W, TA-1240 : 625W
1/8 Power Current draw	TA-1120N : 0.74A, TA-1240 : 1.35A
Rated Power Current draw	TA-1120N : 1.74A, TA-1240 : 3.48A
Power	AC 230V/50Hz, DC 24V
Dimensions m/m	483(W)x133(H)x350(D)m/m
Weight (kg)	TA-1120N : 12kg, TA-1240 : 13.5kg

#### MODULE SERIES (Option)

**CDP-100MU**  
CD & USB Player



**CDR-100RDSU**  
CD & Receiver & USB



**DMT-100**  
Digital Message & Timer Module

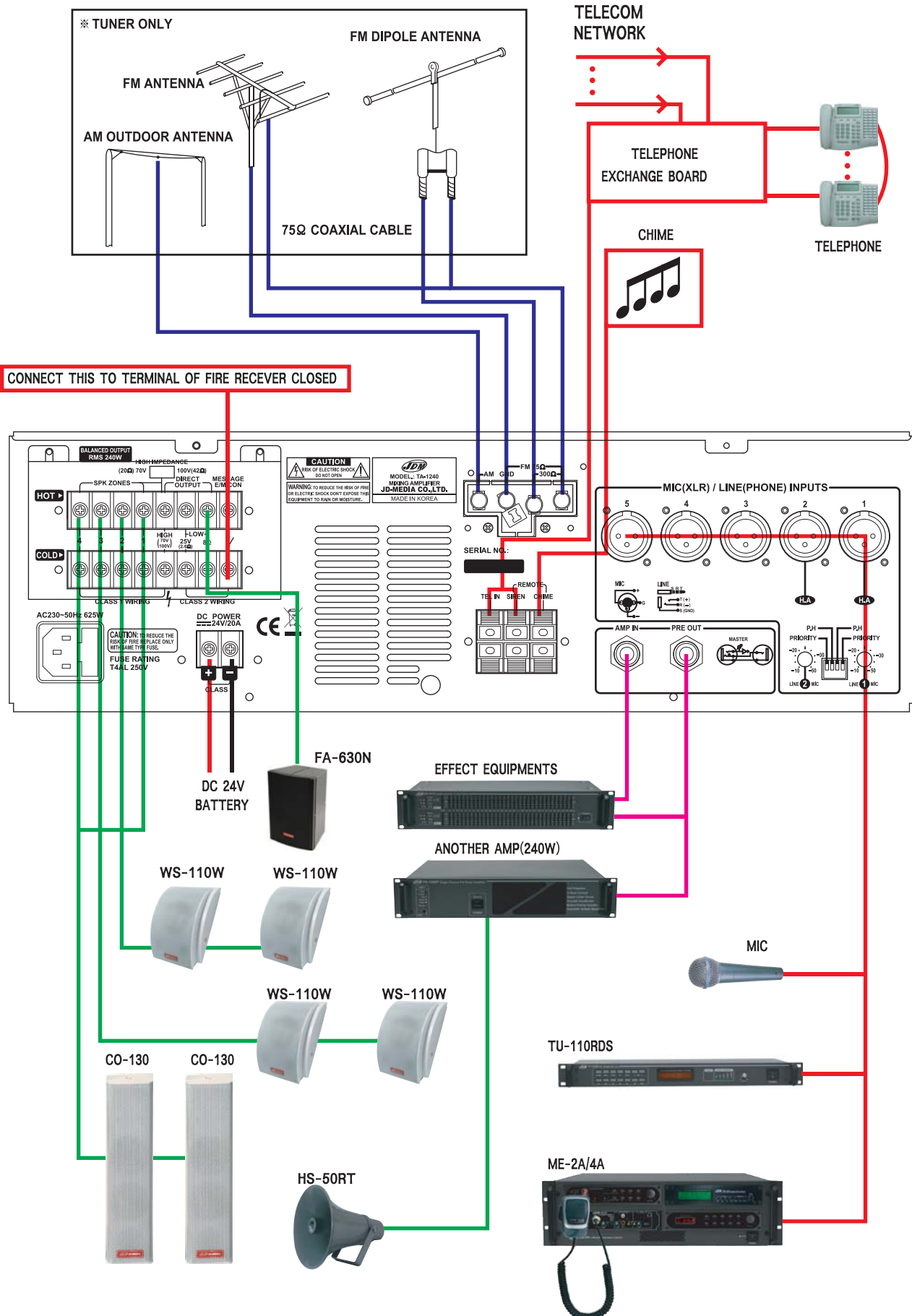


**TP-100RDS**  
Digital RDS Tuner



# MIXING AMPLIFIER

TOTAL : 240W



Specifications and design subject to change without notice for improvements.

## MIXING AMPLIFIER

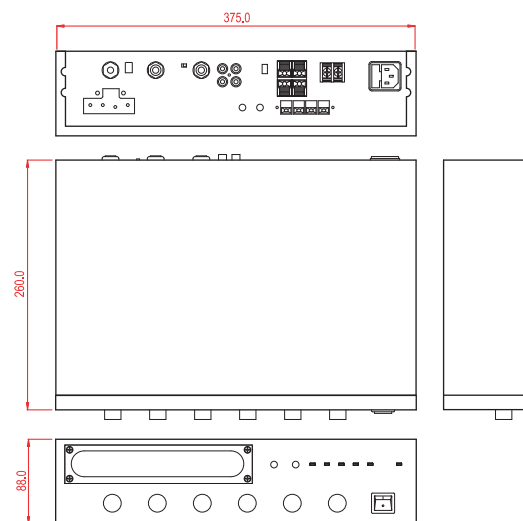


### MOBILE-35/60 Mixing Power Amplifier

#### FEATURES

- Optional module slot ( TP-100RDS, DMT-100)
- Easy-to-use amplifier for both mobile and fixed installation.
- balanced microphone inputs.
- Low & high pass tone control to increase intelligibility.
- Tel input terminal for tel night ringer.
- LED level meter.
- Over current protection.
- Three Mic inputs, two Aux & 1 Tape input.
- AC / DC (12V).
- Bass & treble control for pack series.

#### DRAWING



#### TECHNICAL SPECIFICATIONS

THD at 1kHz (Rated output)	MOBILE-35 : Less than 1% (25W) MOBILE-60 : Less than 1% (40W)
Output	REC : -6dB / 3K $\Omega$ Unbalanced
Input sensitivity impedance	MIC : -50dB/2K $\Omega$ BAL, TAPE : 0dB/3K $\Omega$ UNBAL AUX : -20dB/60K $\Omega$ (AUX1) BAL, -20dB/15K $\Omega$ (AUX2) BAL
Frequency response	Less than -3dB 150Hz~18kHz(at 1% THD)
Tone filter	Low 40Hz~400Hz -6dB/oct, High 2.5kHz~20kHz -6dB/oct
Power consumption	MOBILE-35 : 130W MOBILE-60 : 210W
Max curr. draw (120V/230V AC)	MOBILE-35 : 0.55A MOBILE-60 : 1A
Weight(kg)	MOBILE-35 : 6kg, MOBILE-60 : 7kg
Signal to Noise Ratio	AUX : More than 70dB MIC : More than 60dB
Power	AC230V/50Hz, DC12V
Dimensions(mm)	375(W) x 88(H) x 260(D)m/m

#### MODULE SERIES (Option)

**DMT-100**  
Digital Message &  
Timer Module



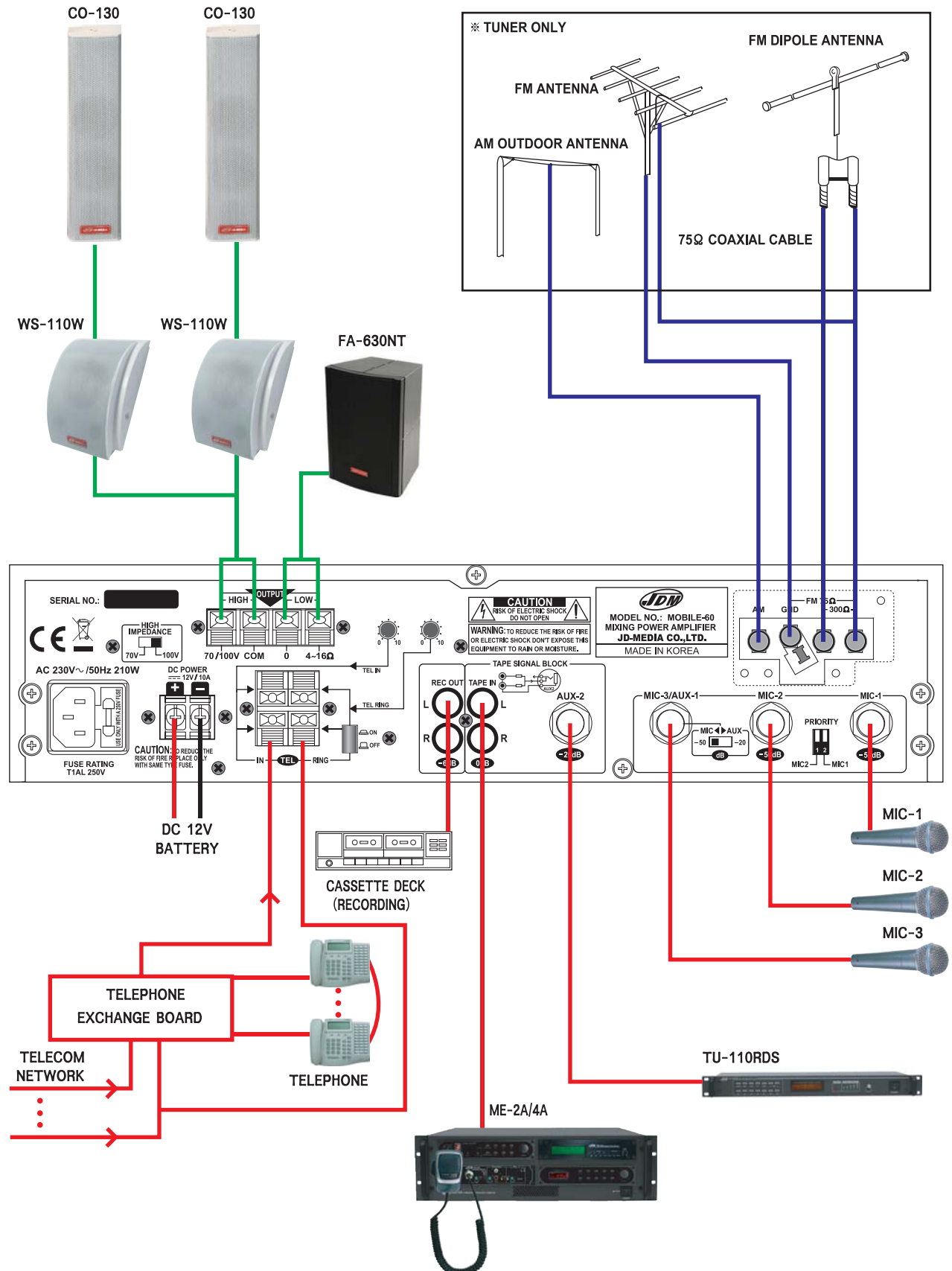
**TP-100RDS**  
Digital RDS Tuner





# MIXING AMPLIFIER

TOTAL : 60W



Specifications and design subject to change without notice for improvements.

## MIXING AMPLIFIER

### CDP-100MU

CD/USB/MP3 Player



#### THCHNICAL DATA

T.H.D (1kHz)	Less than 0.02%
Frequency Reponse	10Hz~20kHz(±1dB)
Dimensions m/m	195(W)x40(H)x215(D)
Wgight (kg)	1.3kg
Power	+15V DC ~ +17V DC

#### FEATURES

- CD pliy function.
- Play / Pause function.
- Intro scan play.
- Repeat play.
- Random play.
- Cue / Review function.
- USB storage media can directly be connected.

### CDR-100RDSU

CD/USB/MP3 & RDS Receiver



#### THCHNICAL DATA

Tuning Range	FM 87.5~108MHz AM 522~1620kHz
T.H.D (1kHz)	Less than 0.02% (1kHz)
Frequency Reponse	10Hz~20kHz(±1dB)
Dimensions m/m	195(W)x40(H)x215(D)
Wgight (kg)	1.4kg
Power	+15V DC ~ +17V DC

#### ACCESSORY



#### FEATURES

- RDS(Radio data system) function.
- Digital tuner with 30 station preset memory (FM:187#,AM:127#).
- Manual, seek up / down tuner.
- Cue/Review Function.
- Random, repeat & intro-scan play.
- USB storage media can directly be connected (USB hard disk, USB stick).

### DMT-100

Digital Message & Timer Module



#### TECHNICAL DATA

Inputs	MIC : -50dB/600Ω unbal, LINE : -10dB/10KΩ unbal
	Remote Control Inputs : 10 PIN connector (M1~M6, START/STOP, REPEAT/STOP, BUSY)
	SD card down load DCF-77
Otputs	Audio : -10dB unbal
	Headphone : 24mv ≤ 64Ω
Frequency Response	MIC : 150Hz~15kHz
	LINE : 50Hz~15kHz
Operating Voltage	+15V DC~+17V DC
Memory Size	Voice/each 128kbite (23sec)
	M1-M6/each 2176kbite (360sec)
Message Recording Time	Refer to Table
Message Input Time	base 4 min 28sec in total(16Mbit)
Message Backup Time	Nonvolatile
Current Consumption	100mA
Sampling Frequency	fs=32kHz
Ambient Temperature	0°C~50°C
Dimensions0(m/m)	194(W)x40(H)x85(D)m/m
Weight(kg)	0.27kg

#### ACCESSORY



#### FEATURES

- 2 x 8dot matrix lcd display.
- 32khz sampling frequency / 32bit MICOM
- Suitable playing and recoding for mp3,ogg, flac, wav.
- Program Timer (RTC IC) : Setting for message playing time.
- Use micro sd card to recording and playing from PC.
- Emergency Broadcasting(MEMORY BANK NO6)
- External Connector
  - Controlled by External Connector
- Repeat
- REC :Mic/Line select switch and adjusting input level
- Indicate Recoding suitable level
- Monitoring headphone JACK and level volume
- Easy to easy front control Key
- Receiving time data by DCF-77 (European time)

## MIXING AMPLIFIER

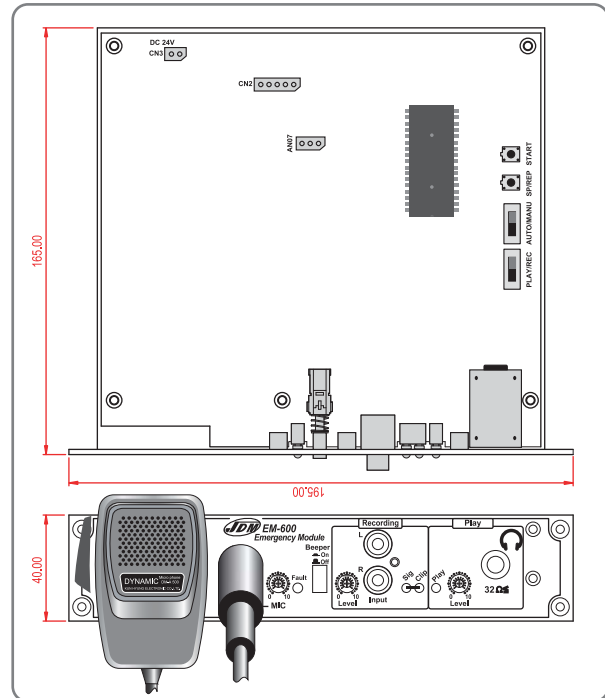


**EM-600**  
Emergency Module

### ACCESSORY



### DRAWING



### FEATURES

- Automatic alert message announcing for Emergency situation.
- Easy and convenient to play & recording.
- Two ways recording via self Microphone builtin or via external message input.
- Head phone jack to monitor recording status.
- Zero-power message storage (No backup battery).
- 100,000 times life cycle for recording repeated.
- Builtin fault self detector of microphone.
- Business call will be stopped in case of Emergency call.
- High-quality, natural voice/audio reproduction.
- Recording time of 60-second.
- 100-year message retention (typical).

### TECHNICAL DATA

INPUTS	EXT LINE -10dB / 10kΩ UNBAL
OUTPUTS	Audio Output : 0dB/600Ω, Siren : -10dB
	Headphone : 24mW ≥ 32Ω
FREQUENCY RESPONSE	100Hz ~ 3.4kHz(fs=8kHz)
OPERATING VOLTAGE	+17V
CURRENT CONSUMPTION	NOR 125mA / MAX 185mA
MESSAGE RECORDING TIME	MAX 60sec
DIMENSIONS (m/m)	195(W) x 40(H) x 165(D)
WEIGHT	0.6kg

### TP-100RDS

AM/FM Digital R.D.S Tuner



### TECHNICAL DATA

Tuning Range	FM 87.5~108MHz/AM 522~1620KHz
ANT impedance	FM AM Common
	300Ω balanced or 75Ω unbalanced
Usable Sensitivity	FM : 2dB <sub>μV</sub> / AM : 4.5dB <sub>μV</sub>
Signal to Noise Ratio	FM : More than 60dB / AM : More than 50dB
T.H.D	FM : Less than 0.2% / AM : Less than 0.5%
Seek Stop Sens	FM : 25dB / MW : 30 dB
외형 규격(mm)	194(W)x40(H)x80(D)m/m
중량(kg)	0.5kg

### ACCESSORY



### FEATURES

- Hi-blend function.
- Digital electronic tuner.
- RDS(Radio Data System) function.
- Manual, seek up/down tuning.
- 24Station preset memory. (FM:18, AM:6)
- AF, CT, PI, PS, PTY function.



## 100V/70V LINE AMPLIFIER

DPA-1301/1302/1304	29
DPA-2501/2502/2504	30
DPL02501/2502/5001	31
PA-600/720/1000DP	32
PA-248DP	33
PA-112/124/148C(100V Only)	34
FS-3381	35
FA-2242	36

## 100V/70V LINE AMPLIFIER



**DPA-1301/1302** 1ch/2ch Digital Power amplifier

**DPA-1304** 4ch Digital Power amplifier

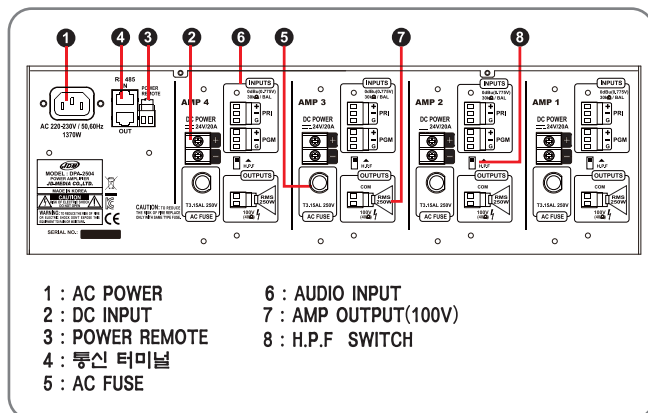
### FEATURES

- High efficicate of PWM amplifier
- Can be controlled all of function by MCU
- Dual SMPS power supply circuit (AC/DC , DC/DC)  
Emergency , change DC power supply from AC power automatically
- Lowest DC power consumption on stand-by mode
- Independant power circuit per each amplifier. (Compliacne EN54)
- Overheat, overload, output-short, AC low voltage, over-current, DC voltage condion monitoring
- Over modulation circuit to increase amplifier reliability
- Natural cooling amplifier (1ch. 2ch. amplifier)
- 2 input (PGM, PRI), PRI signal is input to amplifier, PGM signal is cut automatically.
- No signal input, amplifier output circuit is not operate to decrease standby power.
- Built-in output transformer to increase amplifier and speaker reliability (Compliance EN54)

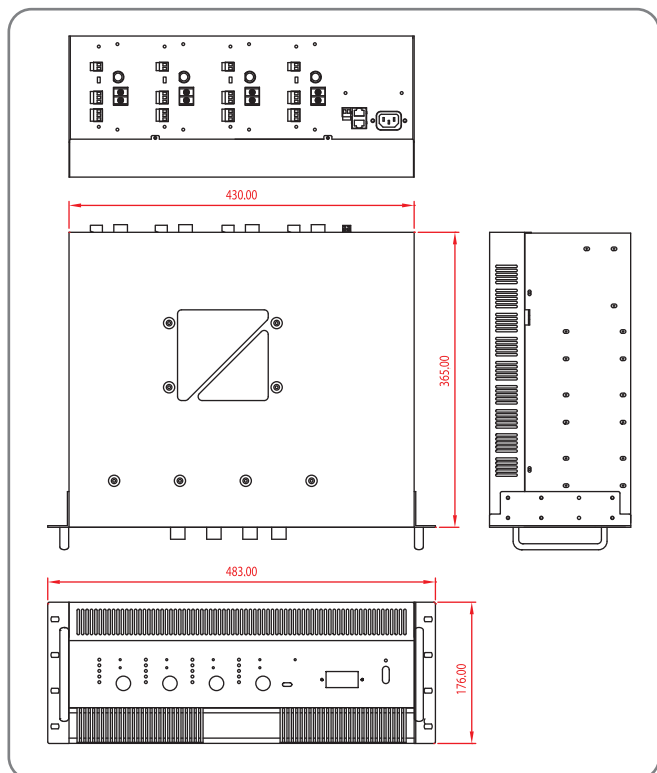
### TECHNICAL SPECIFICATIONS

MODEL	DPA-1304	DPA-1302	DPA-1301
Rated Output	250W x 4Ch	250W x 2ch	250W x 1ch
Output Impedance	77Ω / 100V	77Ω / 100V	77Ω / 100V
AC	Power Consumption	800W	383W
	Power ON Consumption	95W	46W
	Stand-by Consumption	20W	10W
DC	Power Consumption	24V/8.5A (Each Channel)	195W
	Power ON Consumption	24V/1,220mA (Each Channel)	24W
	Stand-by Consumption	24V/470mA (Each Channel)	5.5W
	DC24V With AC 230V	24V/15mA (Each Channel)	
INPUT	(PGM, Priority)-Each Channel		
Cross Talk	More Than 100dB("A" Weight)		
H.P.F at PGM INPUT	200Hz (-3dB/oct)		
Signal to noise Ratio	More Than. 100dB. ("A" Weight)		
T.H.D.	Less Than 0.5% (1KHz) ("A" Weight)		
Frequency Response	Less Than. ±3dB. (50Hz~20KHz)		
INPUT Sensitivity	0dBm(0.775V) / 30KΩ Balanced		
Power Source	AC 220-230V 50/60Hz , DC 24V		

### REAR VIEW



### DRAWING



## 100V/70V LINE AMPLIFIER



**DPA-2501/2502** 1ch/2ch Digital Power amplifier

**DPA-2504** 4ch Digital Power amplifier

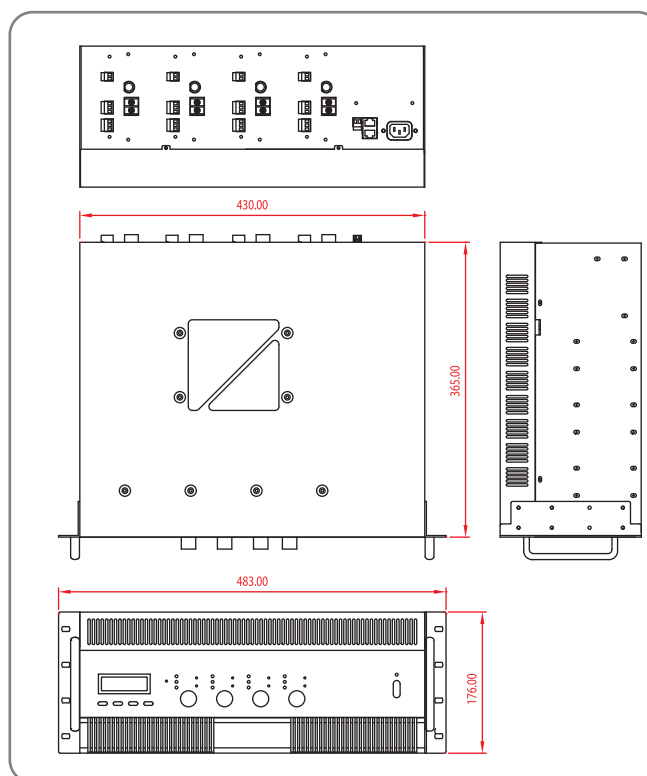
### FEATURES

- High efficiency D-CLASS of PWM amplifier with light and small.
- Can be controlled all of function by MCU
- Can be monitored amplifier condition by LCD display
- Dual SMPS power supply circuit (AC/DC , DC/DC)
  - Emergency, change DC power supply from AC power automatically
- Lowest DC power consumption on stand-by mode
- Overheat , overload, output-short, AC low voltage, over-current, DC voltage condition monitoring
- Over modulation limit circuit to increase amplifier reliability
- Natural cooling amplifier (1ch. 2ch. amplifier)
- Built-in SUB SONIC FILTER to increase articulation.
- 2 input (PGM, PRI), PRI signal is input to amplifier, PGM signal is cut automatically.
- No signal input, amplifier output circuit is not operate to decrease standby power
- In fault the amplifier, warning the condition by LCD and buzzer sound.
- And the amplifier condition is checking automatically.
- Built-in output transformer to increase amplifier and speaker reliability(Standard to EN54)
- It has power circuit per each amplifier circuit (Standard to EN54)
- It can be controlled power ON/OFF by remote terminal.

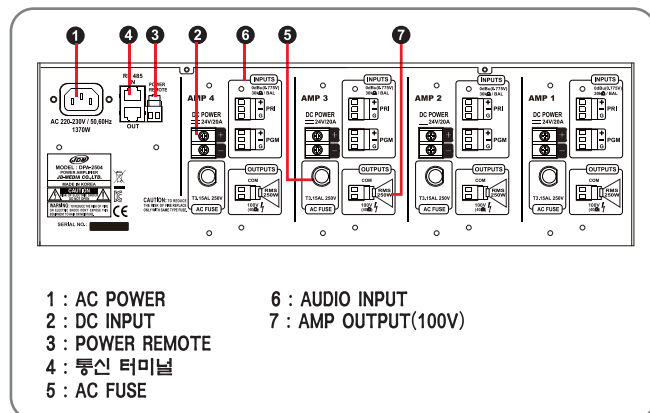
### TECHNICAL SPECIFICATIONS

MODEL	DPA-2504	DPA-2502	DPA-2501
Rated Output	250W x 4Ch	250W x 2ch	250W x 1ch
Output Impedance	40Ω / 100V	40Ω / 100V	40Ω / 100V
AC	Power Consumption	1,370W	700W
	Power ON Consumption	93W	47W
	Stand-by Consumption	18.7W	10W
DC	Power Consumption	24V/16.5A (Each Channel)	355W
	Power ON Consumption	24V/1,380mA (Each Channel)	24W
	Stand-by Consumption	24V/520mA (Each Channel)	6W
	DC24V With AC 230V	24V/15mA (Each Channel)	
INPUT	(PGM, Priority)-Each Channel		
Cross Talk	More Than 100dB("A" Weight)		
H.P.F at PGM INPUT	200Hz (-3dB/oct)		
Signal to noise Ratio	More Than. 100dB. ("A" Weight)		
T.H.D.	Less Than 0.5% (1KHz) ("A" Weight)		
Frequency Response	Less Than. ±3dB. (50Hz~20KHz)		
INPUT Sensitivity	0dBm(0.775V) / 30KΩ Balanced		
Power Source	AC 220-230V 50/60Hz , DC 24V		

### DRAWING



### REAR VIEW



## 100V/70V LINE AMPLIFIER



**DPL-2501/5001** Digital Power amplifier

**DPL-2502** Digital Power amplifier

### FEATURES

- High efficiccate of PWM amplifier
- Dual SMPS power supply circuit (AC/DC , DC/DC)
- It can be operated with rated power more than 30minutes (Test condition AC230V / 20°C)
- Overheat , overload , output-short protection circuit
- Over modulation circuit to increase amplifier reliability
- Natural cooling amplifier

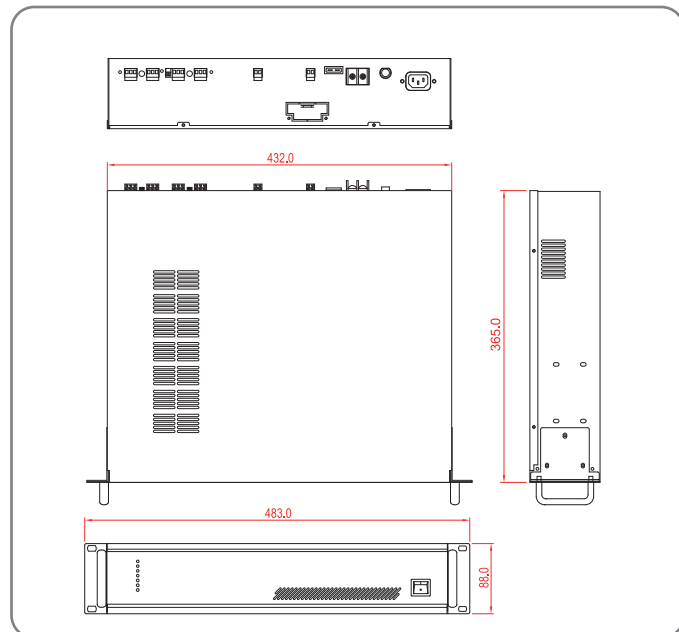
2 input (PGM, PRI), PRI signal is input to amplifier, PGM signal is cut automatically.

It can be connect to FD-200 module to check amplifier condition (Option)  
Built-in output transformer to increase amplifier and speaker reliability  
Remote power control by remote power contact

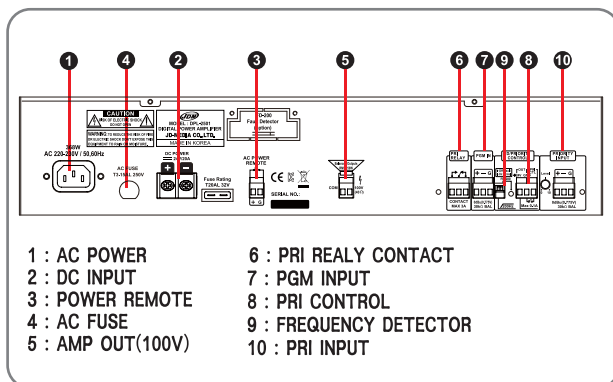
### TECHNICAL SPECIFICATIONS

MODEL	DPL-1301	DPL-1302	DPL-2501	DPL-2502	DPL-5001	
Rated Output	130W x 1Ch	130W x 2ch	250W x 1ch	250W x 2ch	500W x 1ch	
Output Impedance	77Ω / 100V	77Ω / 100V	40Ω / 100V	40Ω / 100V	20Ω / 100V	
AC	Power Consumption	190W	380W	356W	710W	710W
	Power ON Consumption	25W	50W	25W	50W	50W
	Stand-by Consumption	800mW	800mW	800mW	800mW	800mW
DC	Power Consumption	24V/8A	24V/16A	24V/15.5A	24V/31A	24V/31A
	Power ON Consumption	24V/1,300mA	24V/1,300mA	24V/1,300mA	24V/1,300mA	24V/1,300mA
	Stand-by Consumption	24V/10mA	24V/10mA	24V/10mA	24V/10mA	24V/10mA
Dimensions (m/m)	483(W)x 88(H)x 365(D)	483(W)x 133(H)x 365(D)	483(W)x 88(H)x 365(D)	483(W)x 133(H)x 365(D)	483(W)x 88(H)x 365(D)	
Weight (kg)	11 kg	12.5 kg	11 kg	13 kg	13 kg	
INPUT	(PGM, Priority)-Each Channel					
H.P.F at PGM INPUT	200Hz (-3dB/oct)					
Signal to noise Ratio	More Than. 90dB. ("A" Weight)					
T.H.D.	Less Than 0.5% (1KHz) ("A" Weight)					
Frequency Response	Less Than. ±3dB. (50Hz~20KHz)					
INPUT Sensitivity	0dBm(0.775V) / 30KΩ Balanced					
Power Source	AC 220-230V 50/60Hz , DC 24V					

### DRAWING



### REAR VIEW



# 100V/70V LINE AMPLIFIER



**FM-300 (Option)**  
Fault Monitor AC/DC/FAN



**FD-200 (Option)**  
Fault Detector



## PA-600/720/1000DP Single Channel P.A Power Amplifier

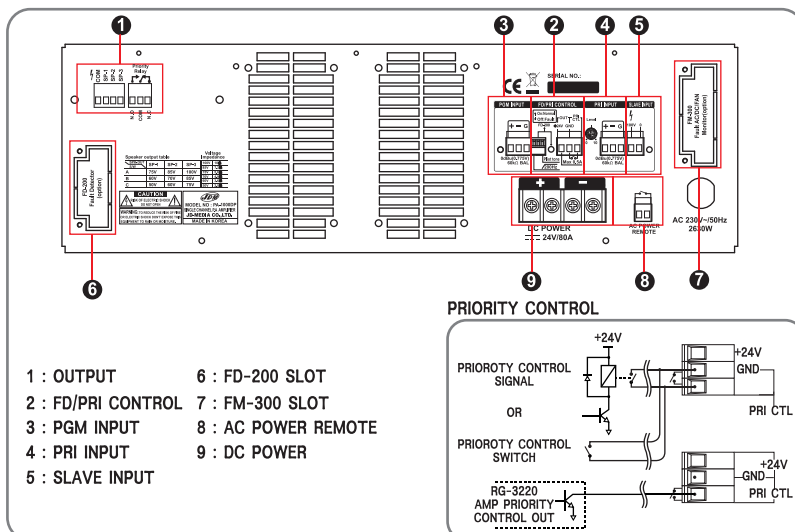
### FEATURES

- Automatic variable speed fan control by Thermal sensor  
50V, 70, 100V Outputs for matching of speaker impedance(optional).
  - Designed for operation either AC mains or 24VDC.
  - Optional FAULT DETECTOR MODULE(FD-200) makes monitoring of amplifiers and loudspeaker line (short, open) failures.
  - An override relay contact on the output terminal board allows emergency paging to be distributed through 3-wire or 4-wire system siring that requires the DC power supply.
  - Input level 0dBu(0.775V)/60kohm balanced.  
(1 Program, 1 Priority and 1 slave Input)
  - Optional fault detector module makes detection of speaker line fault or amplifier fault and change from fault amplifier into Stand-by amplifier by FS-3381(Fault stand-by switcher).
  - Rated outputs:600W/720W/1000W(RMS).
  - Full protection for product reliability.
    - Overload and speaker line short limiter circuit.
    - Over current limiter circuit.
  - + 24V DC out to external accessories (max 500mA).
  - AC power remote control(Stand-by LED).
  - Screw terminals for signal input to make an easy installation.
  - PGM audio muting level controller when priority control signal input.
  - Priority Audio input terminal and priority control terminal.
  - Inrush circuit protection for AC power on.
  - 200Hz filter to improve sound quality.
- OPTIONAL FAULT MONITORING MODULE(FM-300)
- Fault monitoring of fan fault, DC fuse fault and AC fuse fault.
  - P.C.L Protection adoption.

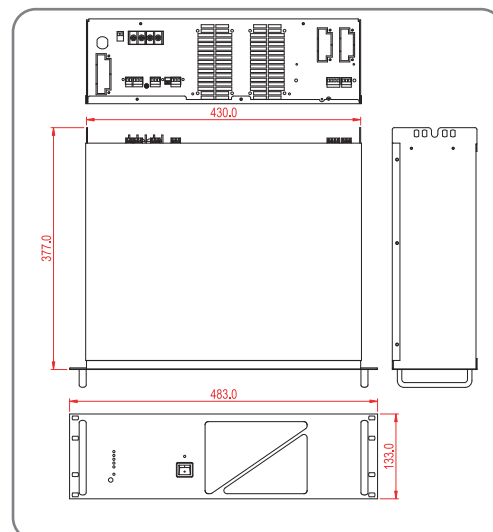
### TECHNICAL SPECIFICATIONS

TECHNICAL DATA	PA-600DP	PA-720DP	PA-1000DP
Rated Output(RMS/MAX)	600W/900W	720W/1080W	1000W/1500W
Output Impedance	50V(4.2Ω), 70V(8.2Ω), 100V(16.7Ω)	50V(3.5Ω), 70V(6.8Ω), 100V(13.9Ω)	50V(2.5Ω), 70V(4.9Ω), 100V(10Ω)
Power Consumption	1650W	1890W	2630W
1/8 Power Current draw	3A	3.8A	5.4A
1/3 Power Current draw	5A	5.8A	7.7A
Rated Power Current draw	8A	9A	12A
Weight(kg)	20kg	20kg	25kg
Frequency Response	Less than -3dB (35Hz~20KHz)		
Signal to Noise Ratio	More than 100dB ("A" WEIGHT)		
THD at 1kHz	Less than 0.4%		
Input Filter (H.P.F)	200Hz / -3dB		
Input Sensitivity/Impedance(PGM,PRIORITY)	0dBu(0.775V)/60kΩ BALANCED		
Power	AC230V/50Hz, DC24V		
Dimensions (m/m)	483(W)x 133(H)x 377(D)m/m		

### REAR VIEW



### DRAWING





# 100V/70V LINE AMPLIFIER



## FM-300 (Option)

Fault Monitor AC/DC/FAN



## FD-200 (Option)

Fault Detector



## PA-248DP Dual Channel P.A Power Amplifier

### FEATURES

- Automatic variable speed fan by thermal sensor on the heatsink.
- 50V, 70V, 100V Outputs for matching of speaker impedance (optional).
- Designed for operation either AC mains or 24VDC.
- Optional FAULT DETECTOR MODULE (FD-200) makes monitoring of amplifiers and loudspeaker line (short, open) failures.
- An Override relay contact of the output terminal board allows emergency paging to be distributed through 3-wire or 4-wire system wiring that requires the DC power supply.
- Rated outputs 480W x 2 (RMS).
- Optional fault detector module makes detection of speaker line fault or amplifier fault and change from fault amplifier into Stand-by amplifier by FS-3381 (Fault stand-by AMP switcher).
- P.C.L Protection adoption.
- Full protection for product reliability.
  - Overload and speaker line short limiter circuit.
  - Over current limiter circuit.
- Input level: 0dBu (0.775V) 60kΩ balanced. (2 Program, 2 override 2 slave Inputs)
- Power on delay circuit.
- Override Audio input terminal and Override control terminal.
- PGM audio muting level controller when Override control signal input.
- 400Hz filter to improve sound quality
- Screw terminals for signal input to make an easy installation.
- AC power remote control (Stand-by LED)
- +24V DC output to external accessories (max. 500mA).

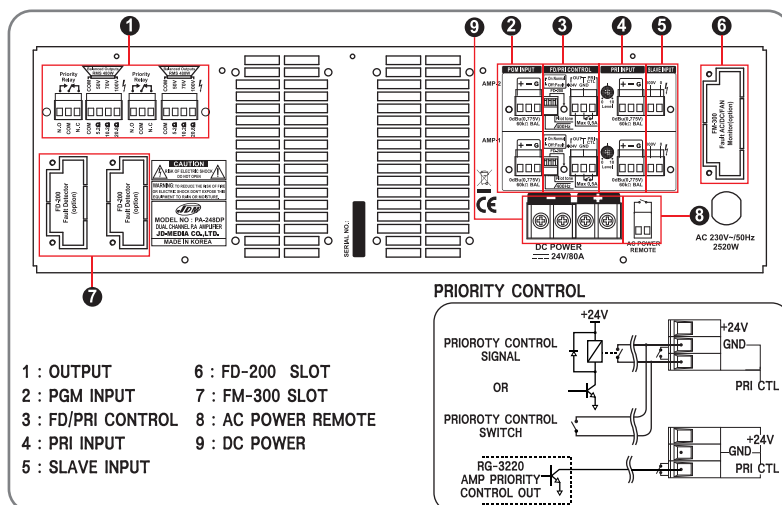
### OPTIONAL FAULT MONITORING MODULE (FM-300).

- Fault monitoring of fan, DC fuse and AC fuse.

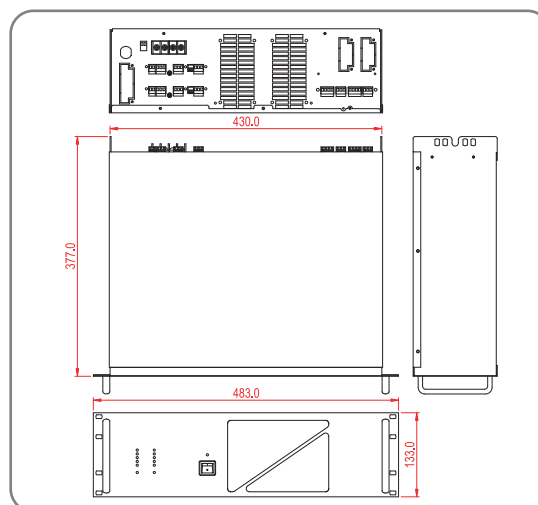
### TECHNICAL SPECIFICATIONS

TECHNICAL DATA	PA-248DP
Rated Output	480W x 2 (RMS)
Output Impedance	50V(5.2Ω), 70V(10.4Ω), 100V(20.8Ω)
Power Consumption	2520W
1/8 Power Current draw 120V/230V	10A / 5A
1/3 Power Current draw 120V/230V	15A / 7.5A
Rated Power Current draw 120V/230V	23.6A / 11.8A
Frequency Response	Less than -3dB (35Hz ~ 20KHz)
Signal to Noise Ratio	More than 100dB ("A" WEIGHT)
THD	Less than 0.4% (1KHz)
Input Filter (H.P.F)	400Hz / -3dB
Input Sensitivity/Impedance (PGM, PRIORITY)	0dBu(0.775V) / 60kΩ BALANCED
Power	AC230V/50Hz, DC24V
Dimensions (m/m)	483(W)x 133(H)x 377(D)m/m
Weight(kg)	25kg

### REAR VIEW



### DRAWING



## 100V/70V LINE AMPLIFIER



### PA-112/124/148C Single Channel P.A. Amplifier(100V Only)

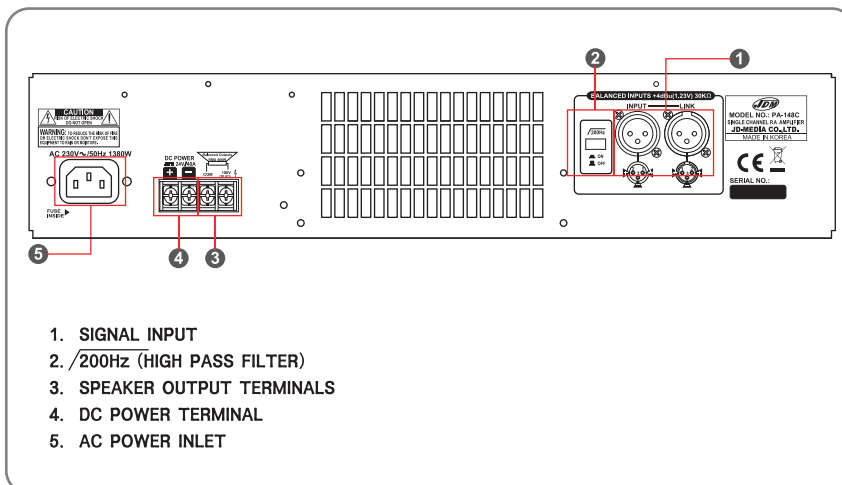
#### FEATURES

- Automatic variable speed FAN.
- Over current protection.
- Full protection.
- 100V only impedance.
- XLR connector for IN/OUT.
- Noise reduction circuitry when power-on
- Soft start of AC power-on

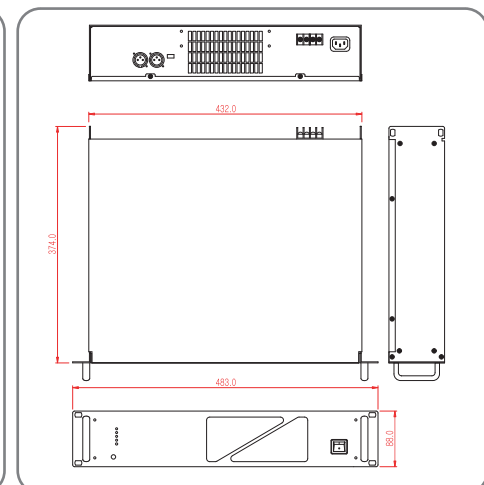
#### TECHNICAL SPECIFICATIONS

TECHNICAL DATA	PA-112C	PA-124C	PA-148C
Rated Output(RMS/MAX)	120W / 180W	240W / 360W	480W / 600W
Output Impedance	100V(83.3Ω)	100V(41.7Ω)	100V(20.8Ω)
THD at 1kHz	Less than 1%		Less than 2%
Power Consumption	335W	650W	1380W
1/8 Power Current draw 120V/230V	0.7A	1.4A	3A
1/3 Power Current draw 120V/230V	1.1A	2A	4A
Rated Power Current draw 120V/230V	1.7A	3.3A	6.7A
Weight(kg)	10.5kg	12.5kg	15.5kg
Input Sensitivity/Impedance(PGM, PRIORITY)	+4dBu(1.23V) / 30kΩ		
Frequency Response	Less than -3dB (35Hz~20KHz)		
Signal to Noise Ratio	More than 100dB ( "A" WEIGHT)		
Input Filter (H.P.F)	200Hz / -3dB		
Power	AC230V/50Hz, DC24V		
Demensions (m/m)	483(W)x 88(H)x 375(D)m/m		

#### REAR VIEW



#### DRAWING



# 100V/70V LINE AMPLIFIER



## FS-3381 Fault Automatic Switcher for DP Series

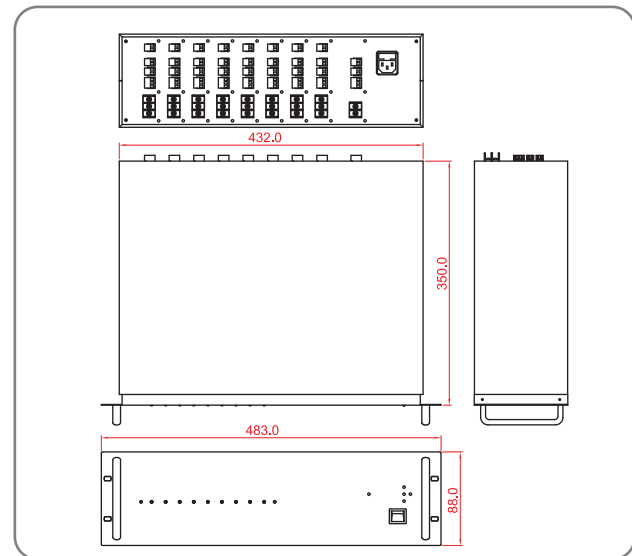
### FEATURES

- LED indicator will be flashed and buzzer will be sound.
- Stand-By amplifier will be turn on automatically, incase of main amplifier fail on the way of operating to announce emergency situation or important broadcasting.
- AC/DC 24V

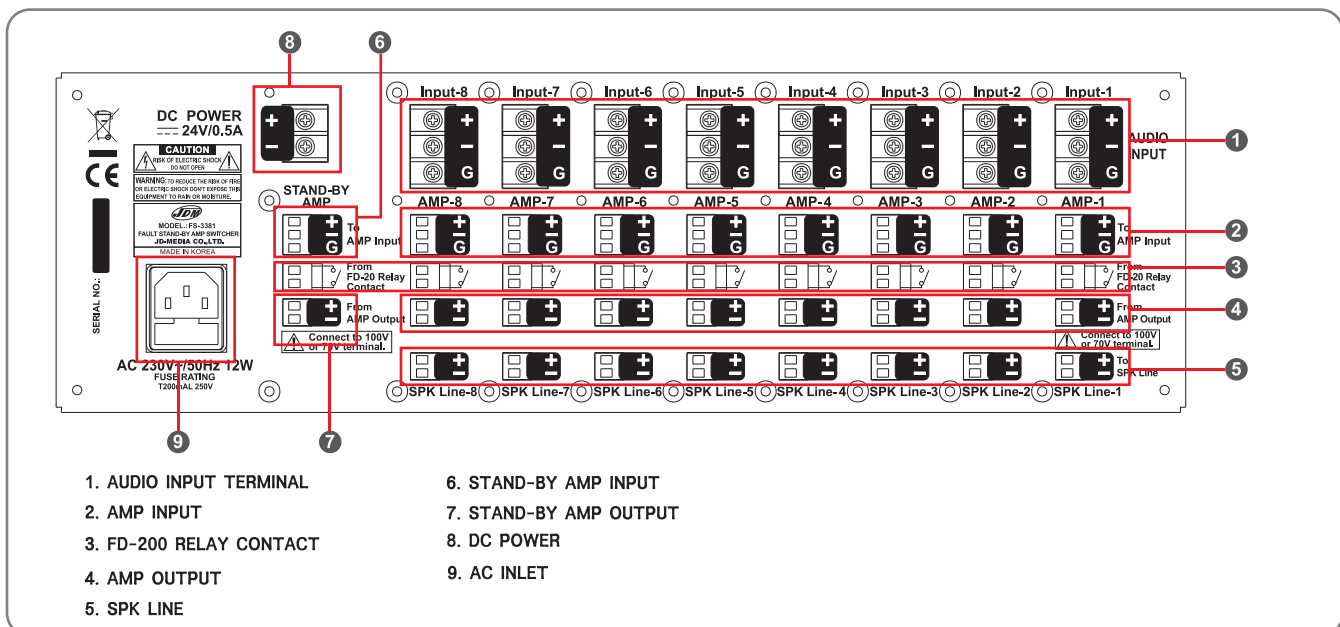
### TECHNICAL SPECIFICATIONS

Capacity	8 Main Amplifiers , 1 Stand-by Amplifier
Audio input / AMP INPUT	1 : 1
AMP output / SPK LINE	1 : 1
Frequency response	Less than -0.5dB (20Hz-20kHz)
Signal to Noise ratio	More than 81dB
T.H.D at 1kHz	Less than 0.004%
Cross-talk	More than 80dB
Power Consumption	12W
Power	AC230V/50Hz, DC24V
Dimensions (m/m)	483(W)x133(H)x 350(D)m/m
Weight (kg)	7.5kg

### DRAWING



### REAR VIEW



# 100V/70V LINE AMPLIFIER



## FA-2242 Fault Auto Exchanger

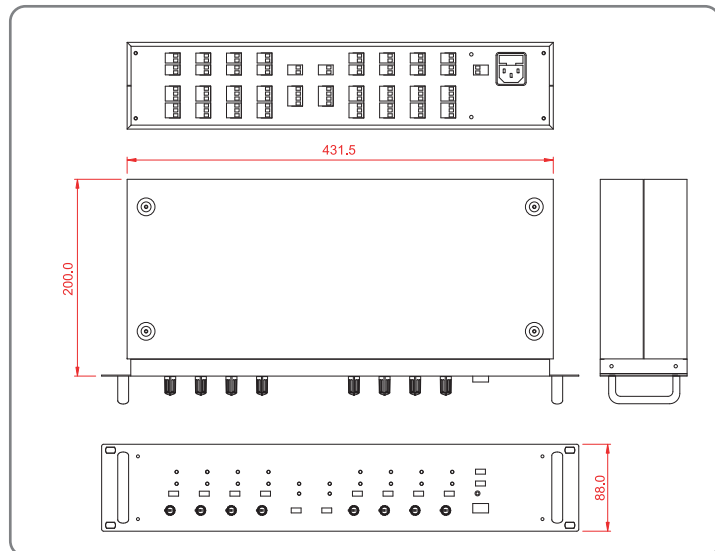
### FEATURES

- Spare amplifier will be turn on automatically, incase of main amplifier is out of order on the way of operating to announce emergency situation or important broadcasting.
- Led indicator will be flashed and buzzer will make sound.
- Speaker line of amplifier output is ground, LED indicator will be flashed and buzzer will make sound.
- Convenient signal volume control per amplifier.
- High fidelity electronic balanced input circuit.
- AC / DC 24V
- Versatile usage
  - 4main amplifier + one spare amplifier.
  - 8main amplifier + one spare amplifier.
  - 16main amplifier + one spare amplifier.
  - Extended if want.

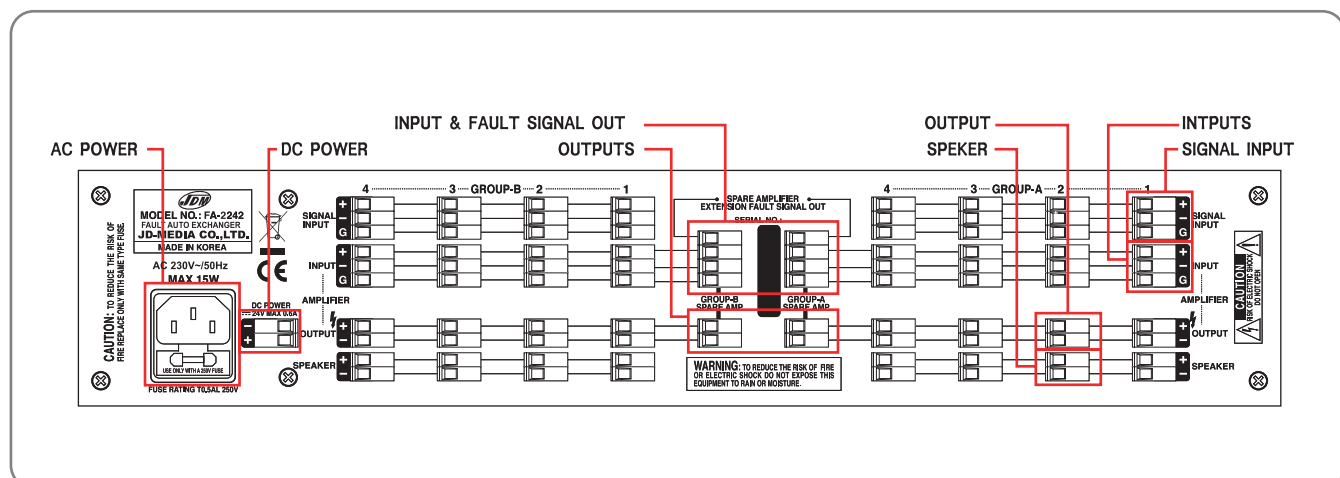
### TECHNICAL SPECIFICATIONS

Signal input / output	1 : 1 (Level Variable)
Dynamic range	+18dB (6.15V)
Frequency Response	Less than 0.5dB (20Hz ~ 20KHz)
THD at 1kHz	Less than 0.04%
Signal to Noise Ratio	Less than 86dB
Power Consumption	15W
Power	AC230V/50Hz, DC24V
Dimensions(mm)	483(W) x 88(H) x 200(D)m/m
Weight(kg)	4.5kg

### DRAWING



### REAR VIEW





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## 19" RACKING UNIT



## CDR-3000 Fault Auto Exchanger

### FEATURES

#### RECEIVER SECTION

- Electronic Digital Tuner
- RDS System Receiver
- Auto & Manual Tuning
- 24 Memory Set (FM:18 , AM:6)
- AF, CT, PI, PS, PTY Function

#### CD/USB/SD CARD SECTION

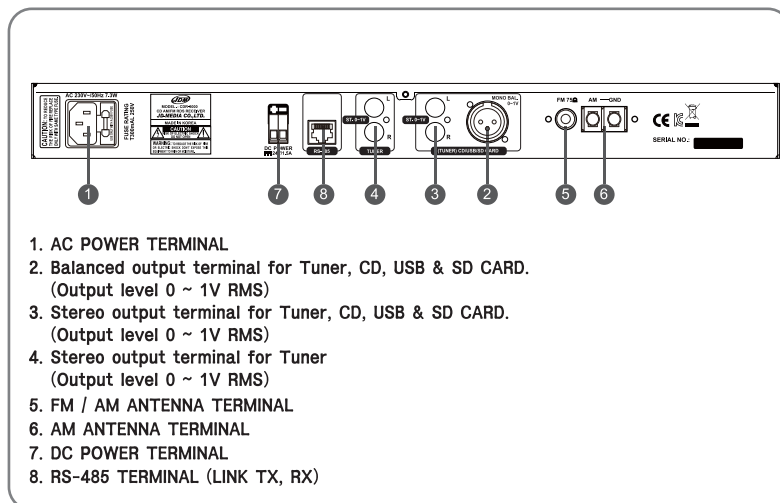
- CD Play Function
- Play / Pause Function
- Auto Searching Function
- Repeat Function
- Random Play Function
- Select function for Previous and Next track
- Folder / Track Navigation Function
- Directive Track Select Function (1~999)
- Indicating ID3 Tag
- Protection for Shock Wave by External
- RS-485 communication control function
- Operating CD/USB/SD CARD & AM/FM together
- Remote Control Function (Optional)

### TECHNICAL SPECIFICATIONS

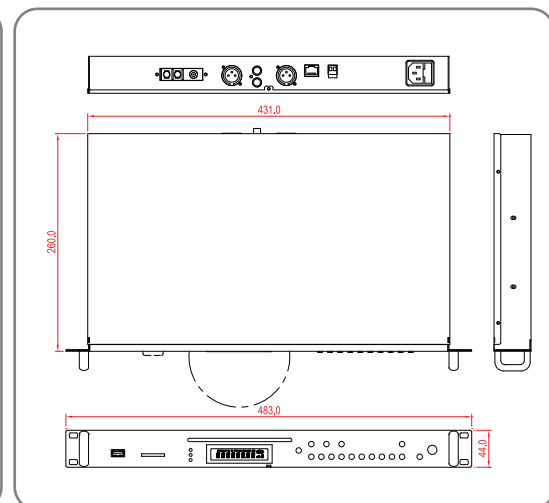
RECEIVER SECTION	
Tuner Range	FM : 87.5~108MHz AM : 522~1620KHz
Usable Sensitivity	FM : 6 dBuV AM : 25dBuV
ANT, Impedance	FM : 75R UNBAL AM : LOOP ANT
Signal to Noise Ratio	FM : MORE THAN 60dB AM : MORE THAN 50dB
Seek Stop Sens	FM : 25dB (±5dB) AM : 30dB (±5dB)
T.H.D	FM : LESS THAN 0.3% AM : LESS THAN 0.5%
Dimensions	483(W) x 44(H) x 250(D)mm
Weight	5Kg

CD SECTION	
Digital Filter	8 Times Over Sampling
T.H.D	LESS THAN 0.03%
Signal to Noise Ratio	MORE THAN 85dB
Frequency Respones	10Hz~20KHz(±1dB)
WOW Filter	BELOW MEASURABLE LIMITS
Loading Time	6 Sec

### REAR VIEW



### DRAWING



## 19" RACKING UNIT



### APM-808/808D Audio Matrix

#### FEATURES

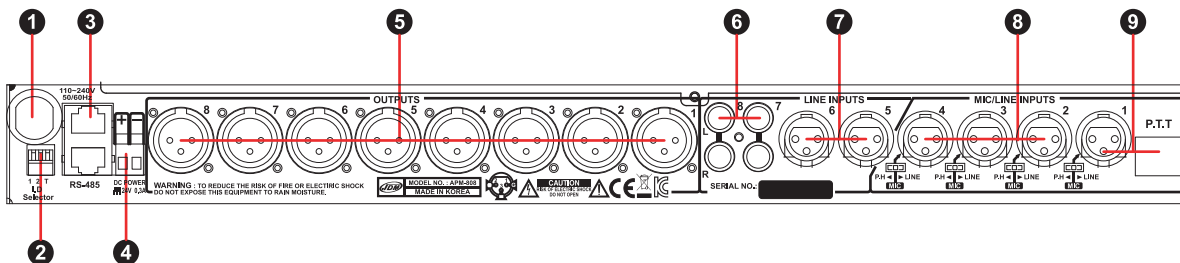
- 8 channel inputs(1~4 MIC/LINE, 5~8 LINE), 8 channel outputs.
- It can be connect to P.T.T-100N and first channel input.
- First channel has priority function.
- It can be set preset memory to max. 32 memories.
- LCD DISPLAY.
- Electronic potentiometer (APM-808D)
- It can be controlled by PC through PC-2000M.  
(POWER ON/OFF, Set a 8 x 8 Matrix)
- Clip LED for input signal.
- It can be adjust volume per each output channel.
- Adjusting EQ volume per each output channel.  
(TREBLE(10Khz) $\pm$ 10dB, BASS(100Hz) $\pm$ 10dB)
- It can be memory operating condition before power off.
- It can be connect max. 4pcs.

#### TECHNICAL SPECIFICATIONS

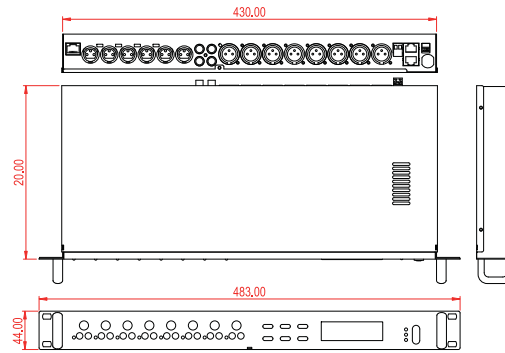
Input Sensitivity/Impedance	MIC(Input 1~4) : -50dBu(2.45mV)/5K $\Omega$ bal
	LINE(Input 1~4) : -10dBu(245mV)/5K $\Omega$ bal
	LINE REC IN(Input 5, 6) : -10dBu(245mV)15K $\Omega$ bal
	TEL PAGING(Input 7, 8) : -10dBu(245mV)15K $\Omega$ unbal
Output level/Impedance	MAX 3.5V(+10dBm)/ 200 $\Omega$ Bal
Frequency Responses	MIC : 100Hz ~ 20KHz -2.5dB
	LINE : 20Hz ~ 20KHz -2dB
Signal to Noise Ratio	MIC : More than 65dB
	LINE : More than 85dB
T.H.D(1kHz)	MIC : Less than 0.1% (" A " WAT 0.05%)
	LINE : 0.03%(" A " WAT 0.006%)
Cross-Talk	MIC : 60dB
	LINE : 70dB
Communication	RS-485(6,900bps), MAX 1200M
Power Consumption	9.9W
Power(option)	110V-240V~ / 50-60Hz, DC 24V
Dimensions(m/m)	483(W) x 44(H) x 200(D) mm
Weight(kg)	2.5 kg

#### REAR VIEW

- 1 : AC POWER
- 2 : ID SELECTOR
- 3 : RS-485( LINK IN/OUT)
- 4 : DC POWER (24VDC)
- 5 : OUTPUT 1~8
- 6 : LINE 7,8
- 7 : LINE 5,6
- 8 : MIC/LINE INPUT
- 9 : PRIORITY INPUT(CH 1) P.T.T



#### DRAWING



## 19" RACKING UNIT



### PD-3322N/EX Power Distributor

#### FEATURES

- 8 channel 3 group are supplied AC power sequentially.
- Constant AC power output socket.
- Expand to AC output  
(It can be expand 6 AC outlet to connect PD-3322EX)
- DC 24V (1.5A) power output terminal.
- It can be control emergency power when AC power is fault.
- It can be supplying AC power through E/M or remote amplifier (RA-1051A,B), when main unit is OFF.
- Power remote terminal.
- Built-in protection fuse per each channel for AC power output.  
(It can be change fuse on front)
- It can be control by PC to connect PC-2000M (Power ON/OFF)
- Supplying power after AC power fault, it can be memorised latest operating condition.
- It can be connect up to 4pcs of PD-3322N.
- Connect to PD-3322C, it can be controlled power ON/OFF by signal condition.

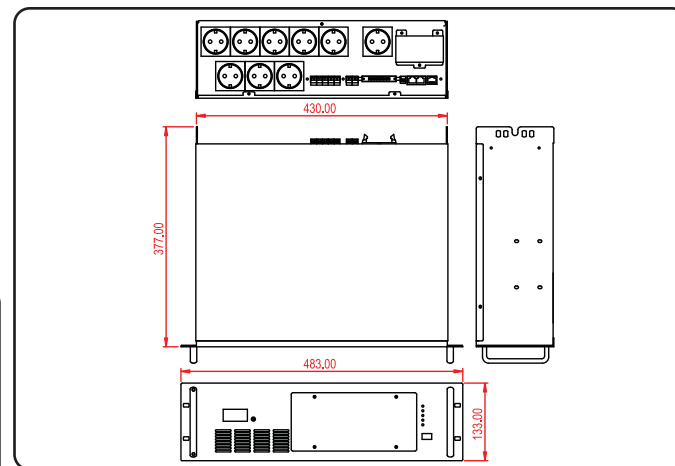
#### REAR VIEW

1. DC OUTPUT
2. AC POWER INPUT TERMINAL
3. SWITCHED AC OUTLET(6~8)
4. SWITCHED AC OUTLET(4~5)
5. SWITCHED AC OUTLET(1~3)
6. CONSTANT AC OUTLET
7. SWITCHED/UNSWITCHED, POWER CONTROLS
8. EMERGENCY TRIGGER
9. POWER REMOTE
10. DC 24V OUTPUT(TO RG-3220)
11. RS-485(LINK IN/OUT)

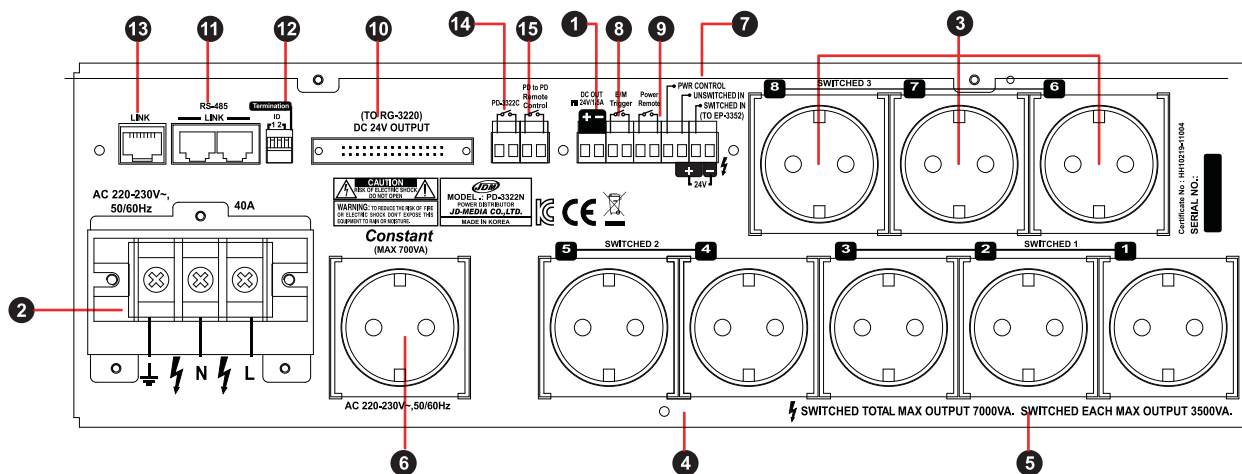
#### TECHNICAL SPECIFICATIONS

Model	PD-3322N	PD-3322EX
DC Power	24V/1.5A MAX	
AC Power	AC 220V / 60 Hz, DC 24V	
Power Consumption	122W (DC Power 24V / 1.5A)	
AC POWER	230VAC / MAX 7000VA(30A)	230VAC / MAX 5280VA(30A)
Dimensions(m/m)	483(W) x 133(H) x 375(D)	483(W) x 88(H) x 350(D)
Weight(kg)	11 kg	4.5 kg

#### DRAWING



12. I.D SELECTOR & TERMINATION SWITCH
13. LINK CONNECT
14. PD-3322C POWER CONTROL CONNECT
15. REMOTE CONTROL(PD TO PD) CONNECT





## 19" RACKING UNIT



### SS-1120A Active Speaker Selector

#### FEATURES

- 21 push type selector switches are provided to enable you to select 20 zone speakers individually or totally.
- Individual zone speaker line and all zone speaker selector with connection to the relay group.
- All remote inputs to select speaker line from external.
- LED indicator for speaker line selected.
- In case of emergency like fire, E/M LED indicator will be turn on and release selected speaker line simultaneously.
- Selected speaker line will be released, when remote amplifier is turn on the announce. (Release of speaker line per group, per line by relay group)
- Connected PC-2000M to control system by PC.
- Linked up to 4pcs.

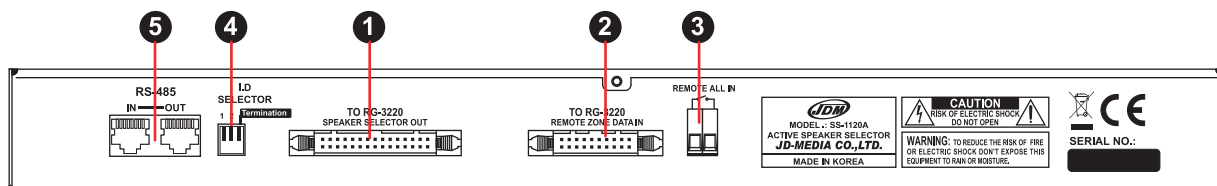
#### TECHNICAL SPECIFICATIONS

Speaker Controls	20 Line
Power	DC 24V / 0.5A
Communication	RS-485(9,600bps), MAX 1200M
Power Consumption	2.5W (ALL Operation)
Dimensions(m/m)	483(W) x 44(H) x 200(D) mm
Weight(kg)	2.7 kg

#### REAR VIEW

1. SPEAKER SELECTOR OUT
2. REMOTE ZONE DATA IN
3. REMOTE ALL IN
4. I.D SELECTOR 및 TERMINATION SWITCH
5. RS-485(IN/OUT)

#### DRAWING



## 19" RACKING UNIT



### MX-604 4 Zone Pre Amplifier (6 Inputs 4 Outputs)

#### FEATURES

- Zone select switch per channel for multi-broadcasting
- Treble/Bass control volume per channel.
- Output volume and LED level meter per zone.
- Monitoring speaker selector per zone
- It can be controled chime & siren by remote controller
- Phantom power ON/OFF switch for MIC input
- Priority selector for INPUT 1,2,3 (Activation with zone selector)
- Paging input (Paging announce link switch)
- Local signal input (built-in Local signal Priority/Slave JUMP SHUNT)
- P.T.T MIC input (RJ45)
- Remote controller input (RJ45)
  - Distance 1km(max)
  - Expandable to 32pcs remote mic

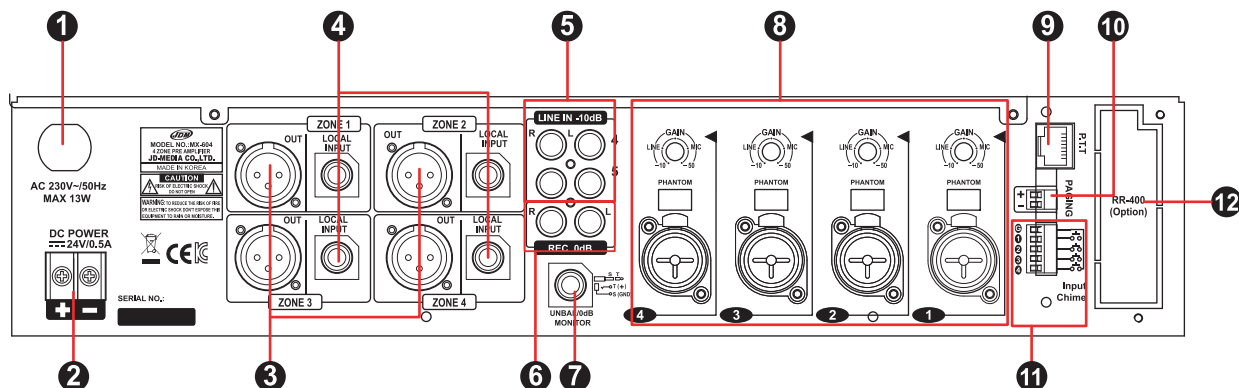
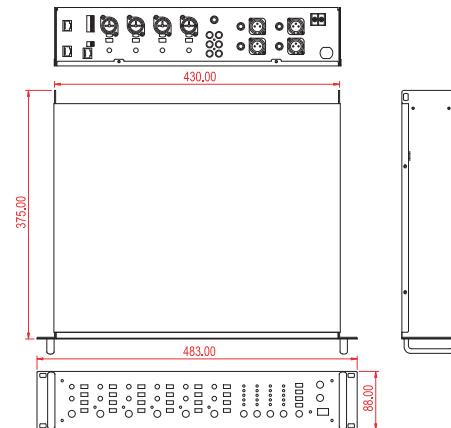
#### TECHNICAL SPECIFICATIONS

Input Sensitivity / Impedance	MIC/LINE : -50dBu(2.45mV)/5K $\Omega$ bal
	-10dBu(245mV)/5K $\Omega$ bal
	LINE REC IN : -10dBu(245mV)15K $\Omega$ unbal
	TEL PAGING : -10dBu(245mV)10K $\Omega$ bal
Output Level / Impedance	PRE : 0dBu(775mV) 200 $\Omega$ unbal
	REC : 0dBu(775mV) 3K $\Omega$ unbal
Frequency Response(Line Signal)	Less than -1dB (20Hz~20KHz)
Signa to Noise Ratio	MIC : More than 65dB
	LINE : More than 87dB
T.H.D(1kHz)	MIC : Less than 0.1%
	LINE : Less than 0.05%
Cross-Talk	MIC : 60dB
	LINE : 70dB
Power Consumption	12.6W
Power Sourec	AC 220V / 60Hz, DC 24V
Dimensions(m/m)	483(W) X 88(H) X 260(D)
Weigth(kg)	4.4kg

#### REAR VIEW

- 1 : AC POWER
- 2 : DC POWER TERMINAL
- 3 : OUTPUTS
- 4 : LOCAL INPUT
- 5 : LINE INPUT
- 6 : RECORDING OUTPUT
- 7 : MONITOR OUTPUT
- 8 : MIC/LINE INPUT
- 9 : P.T.T INPUT JACK
- 10 : PAGING INPUT TERMINAL
- 11 : CHIME CONTROL
- 12 : REMOTE RECEIVER(RR-400 OPTION CARD)

#### DRAWING



# 19" RACKING UNIT



## MA-1408 Pre Amplifier

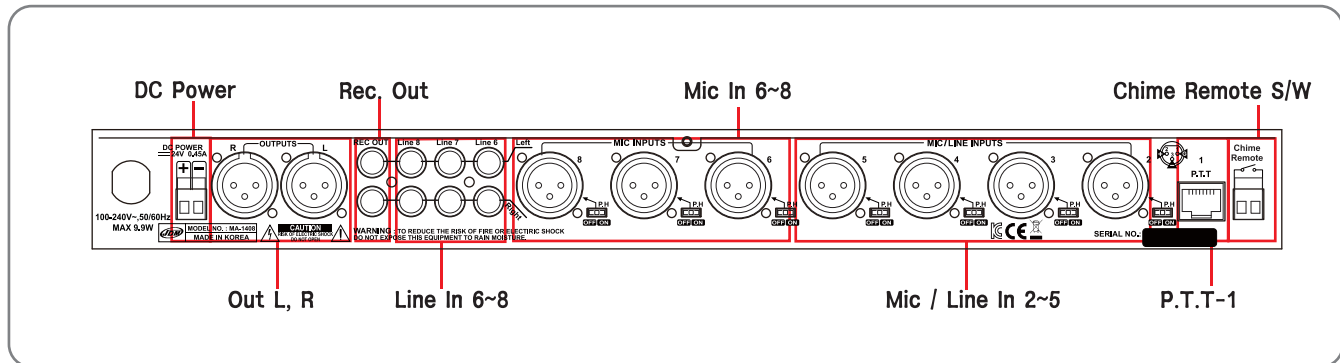
### FEATURES

- Chime Signal
  - Selective two tone/ four tone chime.(internal setting)
  - Automatic Priority.
  - Permissible external chime remote and P.T.T Remote.
- Master 1,2 output.
- Two band EQ per output.
- Signal indicator per input.
- Independent din jack for P.T.T Remote(PTT-100N)
- Priority switch and phantom of MIC 2,3
- Selective mic input of H.P.F
- Selective output for per input signal (output 1,output 1+2, output 2)
- Independent line input with RCA pin jack(Line 6~8)
- Recording output.
- LED indicator for master-output.
- AC/DC 24V

### TECHNICAL SPECIFICATIONS

Input sensitivity impedance	MIC/LINE : -50dBu(2.45mV/5kΩ bal
	-10dBu(245mV)/5kΩ bal
	LINE RCA IN : -10dBu(245mV)10kΩ unbal
Output level impedance	Master L, R : Nor +4dBu(1.23V)/200Ω bal
	REC : Nor 0dBu(0.775V)10kΩ unbal
Frequency response	Less than -0.5dB (20Hz ~20kHz)
Signal to noise ratio	MIC : More than 60dB
	LINE : More than 75dB
T.H.D at 1kHz	MIC : Less than 0.05%
	LINE : Less than 0.03%
Cross-talk	MIC : More than 60dB
	LINE : More than 75dB
Power consumption	9.9W
Power	Free voltage(120V~240V AC)
Dimensions(m/m)	483(W) x 44(H) x 200(D)m/m
Weight (kg)	3.9kg

### REAR VIEW

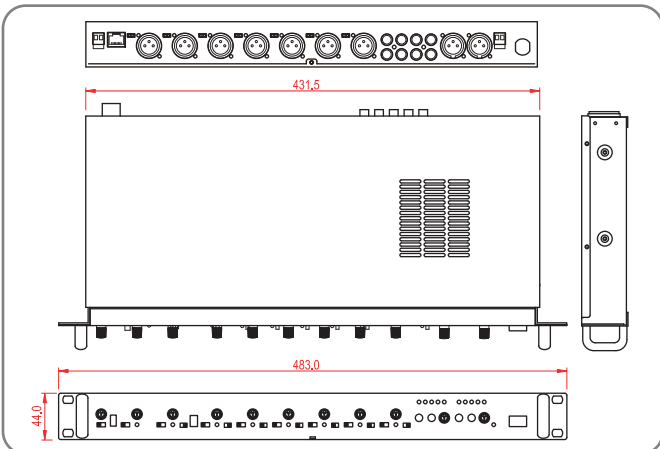


### PTT-100N (Option)

P.T.T Remote



### DRAWING



## 19" RACKING UNIT

**MA-1410** Pre Amplifier

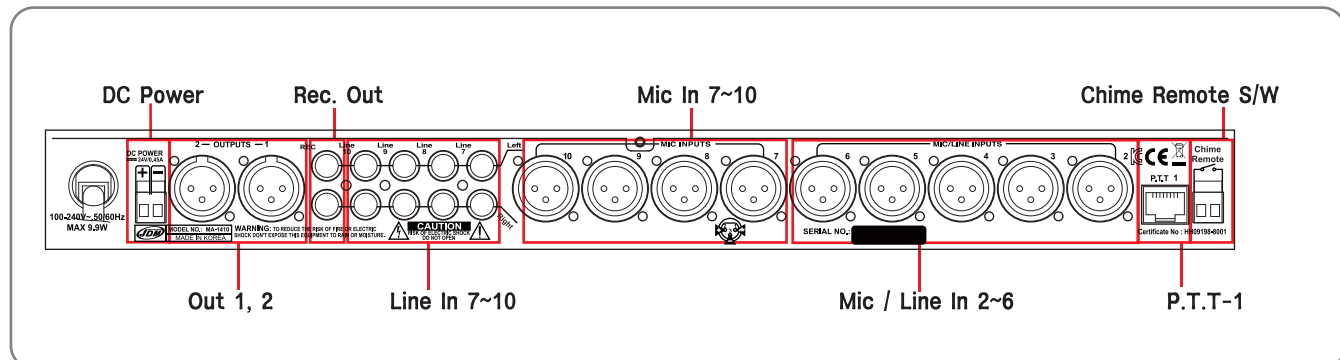
## FEATURES

- 1/4" TRS phone jack for monitor of channel input.
- 2 individual XLR balanced master-outputs with bass/treble and LED indicators.
- 10 input / 2 zone output pre-amp mixer.
- Line/Mic/Mic-lowcut with phantom selector on each channel.
- Automatic priority for channel 1-3.
- 10 channels with individual master-output selector (output 1, output 1+2, output 2).
- High Pass Filter.
- AC operation - DC 24V operation.
- Input signal indicator.
- Recording output.
- DIN connection for P.T.T. remote on ch.1 (PTT-100N).
- Signal input by XLR (2-10) & RCA channel 7-10.
- 4 or 2 tone chime with internal tone selector.

## TECHNICAL SPECIFICATIONS

Input sensitivity impedance	MIC/LINE : -50dBu(2.45mV)/5kΩ bal
	-10dBu(245mV)/5kΩ bal
Output level impedance	Master 1, 2 : Nor +4dBu(1.23V)/200Ω bal
	REC : Nor 0dBu(0.775V)10kΩ unbal
Frequency response	Less than -0.5dB (20Hz ~20kHz)
Signal to noise ratio	MIC : More than 60dB
	LINE : More than 75dB
T.H.D at 1kHz	MIC : Less than 0.04%
	LINE : Less than 0.02%
Cross-talk	MIC : More than 60dB
	LINE : More than 75dB
Power consumption	9.9W
Power	AC230V/50Hz, DC24V
Dimensions(mm)	483(W) x 44(H) x 200(D)m/m
Weight(kg)	4kg

## REAR VIEW

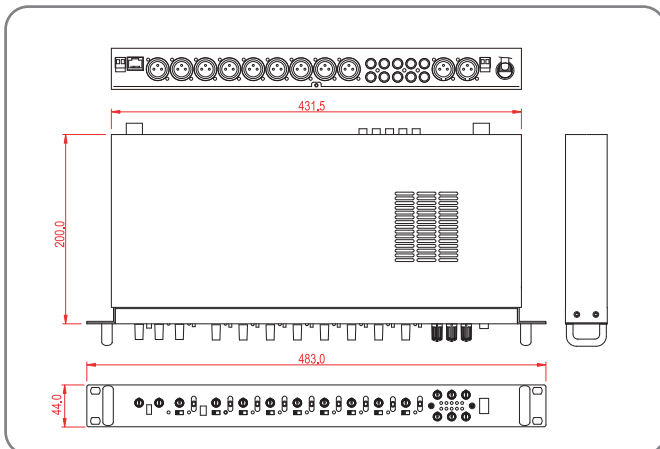


## PTT-100N (Option)

P.T.T Remote



## DRAWING



## 19" RACKING UNIT



## CS-1110 Chime &amp; Siren

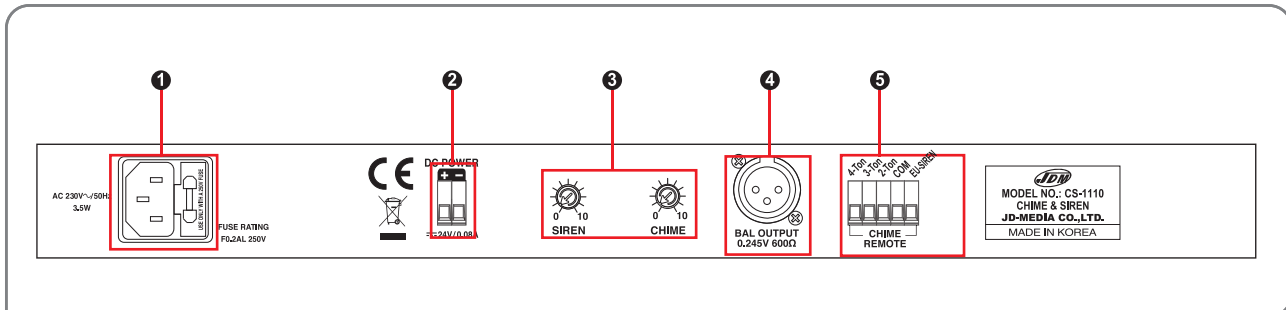
## FEATURES

- 4 TONE MOLODY  
A clear and tender 4 tone melody as signal for attention before announcement.
- SIREN FUNCTION  
The function as duration of flat siren in case of fire or warning.
- CHIME REMOTE CONTROL  
You can control chime melody by remote through input terminal.
- USE OF EMERGENCY BATTERY  
You can operate this model by using emergency battery for unexpected AC power failure. (Built in DC 24V terminal)

## TECHNICAL SPECIFICATIONS

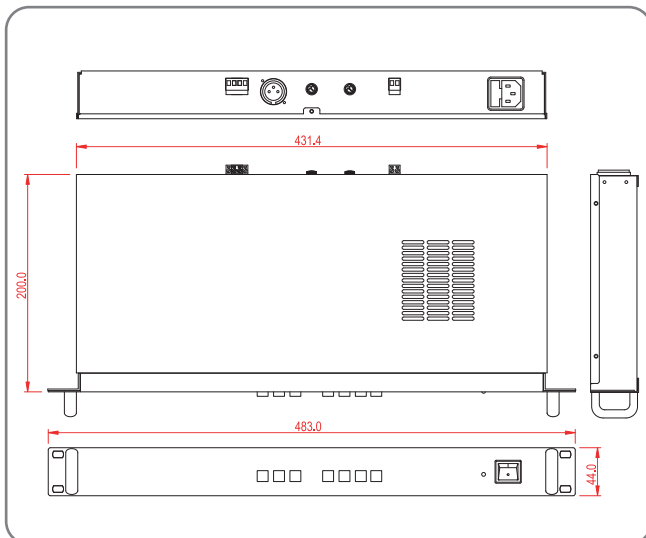
Chime Frequency	440Hz, 554Hz, 655Hz, 880Hz
Siren Frequency	800Hz
Output level / Impedance	More than 0.245V (-10dB) / 600Ω bal.
Signal to noise ratio	More than 80dB
Power consumption	3.5W
Power	AC 230V / 50Hz, DC 24V
Dimensions (m/m)	483(W) x 44(H) x 200(D) m/m
Weight (kg)	2.6kg

## REAR VIEW



1. AC INLET  
The AC INLET is the socket to supply the AC power. You turn on the power after plugging the AC cord. The fuse is built in socket.
2. DC 24V TERMINAL  
This terminal is for connectinf the battery input, please confirm the polarity before connecting.
3. VOLUME CONTROLLERS
  - SIREN : Adjusting SIREN output level by volume controller.
  - CHIME : Adjusting CHIME output level by volume controller.
4. SIGNAL OUTPUT JACK  
Signal output jack balanced is 600Ω load over balanced and signal polarity is TIP : +, RING : -, SLEEVE : GND.
5. CHIME REMOTE CONTROL TERMINALS  
You can control chime & EU SIREN melody by this terminal from long distance.

## DRAWING



## 19" RACKING UNIT



### TU-110RDS AM/FM Digital RDS Tuner

#### FEATURES

- Auto Stored Memory Function(A/PS).
- Balanced Mono XLR Output.
- Unbalanced Stereo RCA Output.
- Retains Presets When Power is Off.
- 6+6+6 FM Presets.
- 6+6 AM Presets.
- SCAN And SEEK Functions.
- Signal Strength Meter.
- Preset Memory SCAN Function(A/PS).
- Large LCD Digital Display.
- AC and DC 24V operation.
- Stereo tuning LED indicator.
- Digital tuner with 24station preset memory(FM18, MW6)

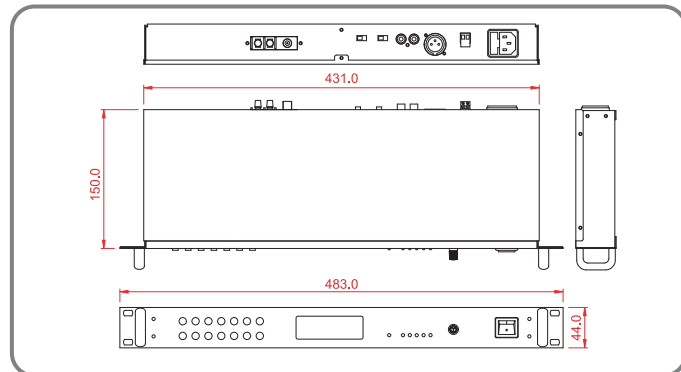
#### TECHNICAL SPECIFICATIONS

Tuning range	FM 87.5~108MHz, MW 522~1620kHz
ANT Input	FM : 75Ω coaxial cable
	MW : Loop antenna and lead antenna
Usable sensitivity	FM : 2μV MW : 4.5μV
Signal to noise ratio	MW: 60dB MW : 45dB
Memory Back-up	For 45days(After AC Power Off)
Output level	0.245V(-10dBm) Unbalanced
Variable output	
Fixed output	0.775V(0dBm) Balanced
Power consumption	7.3W
Dimensions(m/m)	483(W) x 44(H) x 120(D)m/m
Weight(kg)	3.2kg
Power	AC230V/50Hz, DC24V

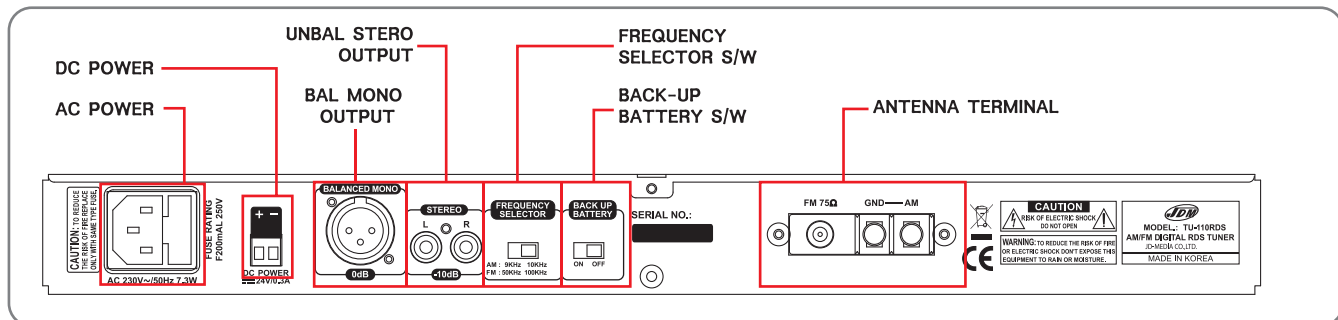
#### ACCESSORY



#### DRAWING



#### REAR VIEW



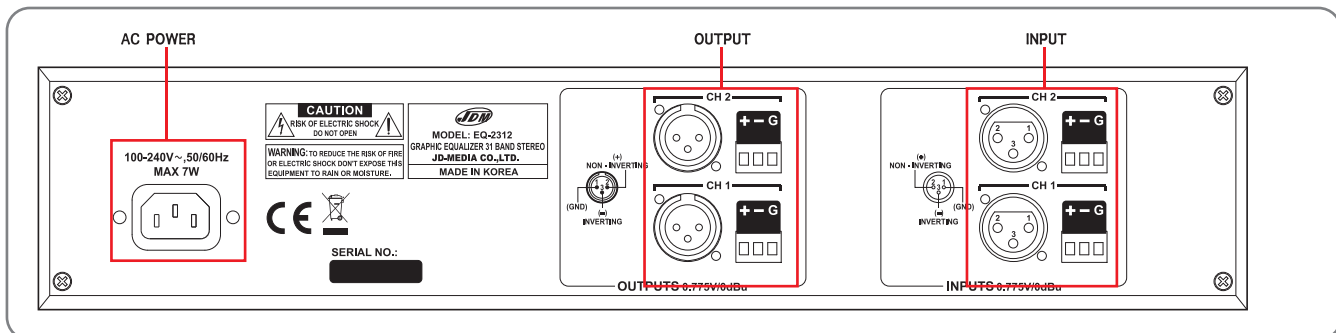
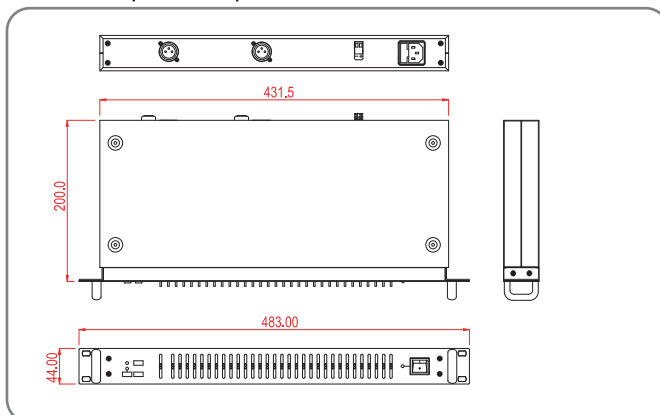
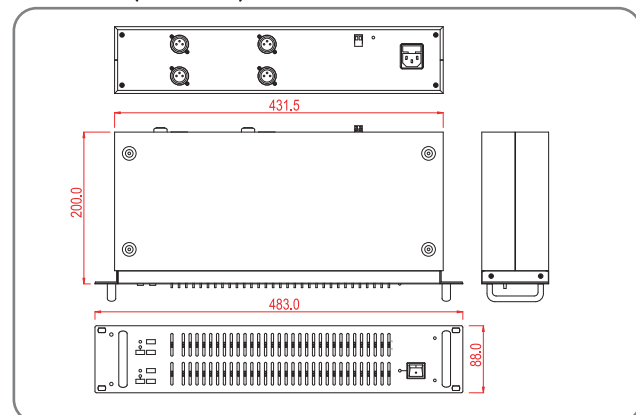
## 19" RACKING UNIT

**EQ-1311** Graphic Equalizer 31 Band Mono**EQ-2312** Graphic Equalizer 31 Band Stereo**FEATURES**

- **BALANCED INPUT**  
High efficiency balanced circuit is adopted to reduce the exterior static.
- **BALANCED OUTPUT**  
You can ground any of polarity "+", "-" to sound output power an DC hum will be minimized by  $\pm 15V$  power supply.
- **HIGH PASS FILTER (LOW CUT)**  
You can select High pass filter for the sound clearness.
- **BY-PASS**  
By depressing the "EQ IN" switch input signal deliver to output directly.
- **1 CHANNEL 31BAND GRAPHIC EQUALIZER**  
Controlling a frequency spectrum that intervals of each band 1/3 octave from 20Hz.
- **OUTPUT EXCEEDED INDICATOR**  
Signal is exceeded, The LED Indicator output.
- **COUSTANT-Q Filter** apply.
- The product works with all voltage.(100-240V~,50/60Hz)
- High efficiency electronic balanced circuit.

**TECHNICAL SPECIFICATIONS**

Input Sensitivity/Impedance	0.775V(0dB)/15k $\Omega$ balanced
Outputs Level/Impedance	0.775V(0dB)/600 $\Omega$ balanced
Frequency response	Less than -1.0dB (20Hz-20kHz)
Signal to Noise Ratio	More than 68dB
High Pass Filter(Low Cut)	40Hz -12dB/Oct
Low Pass Filter(High Cut)	20kHz -12dB/Oct
Band	20, 25, 31.5, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1K, 2K, 2.5K, 3.15K, 4K, 5K, 6.3K, 8K, 10K, 12.5K, 16K, 20K(Hz)
T.H.D.	Less than 0.02%
EQ boost/cut	$\pm 12$ dB
Power consumption	EQ-1311 : 4W, EQ-2312 : 7W
Power	Free voltage (AC 100-240V~,50/60Hz)
Dimensions(m/m)	EQ-1311 : 483(W) x 44(H) x 200(D)m/m EQ-2312 : 483(W) x 88(H) x 200(D)m/m
Weight (kg)	EQ-1311 : 2.8kg, EQ-2312 : 4.5kg

**REAR VIEW****DRAWING (EQ-1311)****DRAWING (EQ-2312)**

## 19" RACKING UNIT



## MU-2307 Monitor Unit

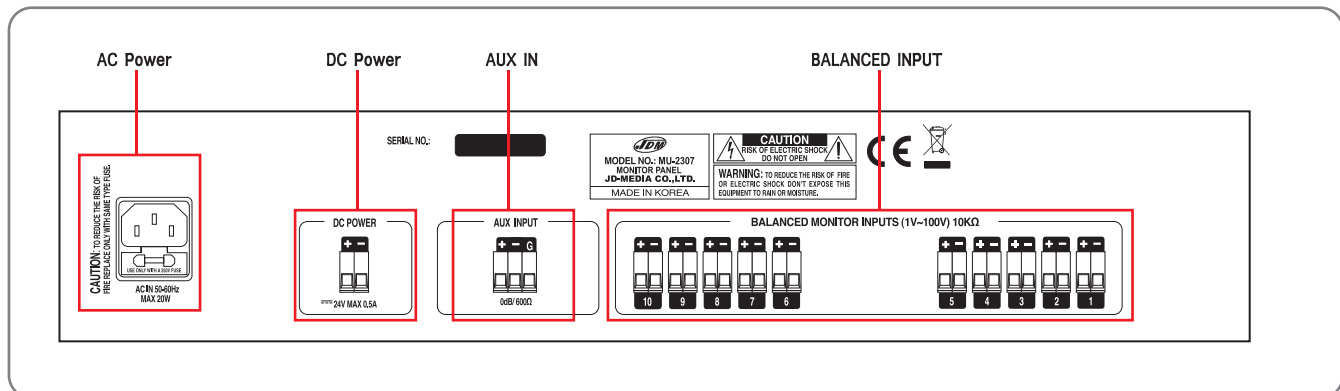
### FEATURES

- Permissible monitor for 10pcs-power Amplifier output by monitor selector.
- Level adjustment of input level for each monitor.
- Permissible signal input 1V~100V according to setting for monitor input.
- LED meter per monitor input.
- Two way monitors by speaker built-in or headphone.
- No problem by potential difference between MU-2307 and product unbalanced. Due to balanced input circuit.
- AUX input for monitor of pre AMP out.
- Monitoring up to 10 channels with individual LED meters.
- Variable Input signal ranges from 1V to 100V.
- Monitoring pre-amp out by extra aux input.
- Input level Monitor adjustment.
- +/- input and GND of circuit is insulated.

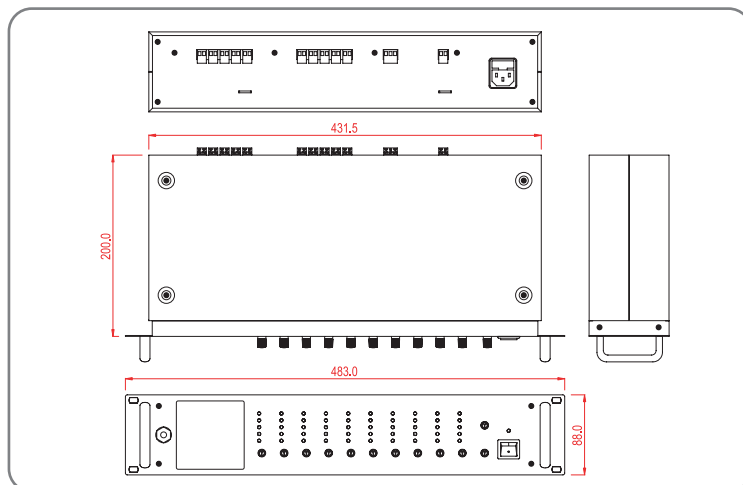
### TECHNICAL SPECIFICATIONS

Input sensitivity/Impedance	1V-100V / 10kΩ bal.
Rated monitor	speaker : 2W max.
	headphone : 0.1W max.
Frequency response	Less than -3dB (100Hz ~ 20kHz)
T.H.D(1kHz)	Less than 0.04%
Power consumption	12W(all operation)
	8.5W(1ch operation)
Power (Option)	AC230V/50Hz, 24VDC
Dimensions(m/m)	483(W) x 88(H) x 200(D)m/m
Weight (kg)	4.8kg

### REAR VIEW



### DRAWING





# 19" RACKING UNIT



## AB-112A Automatic Manual Blower

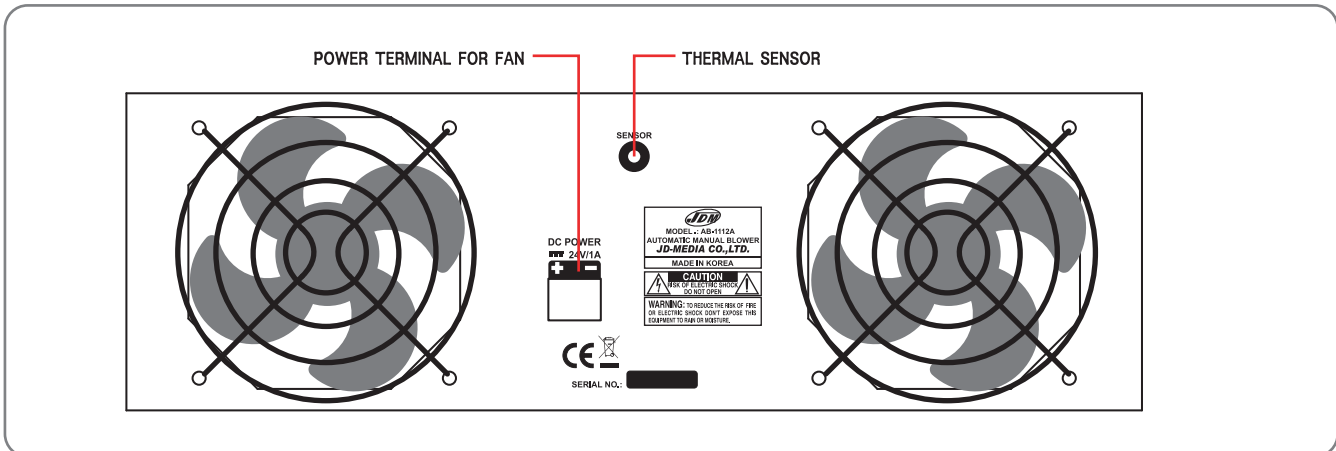
### FEATURES

- **AUTO OR MANUAL OPERATION**  
You can operate fan continuously by manual and operated fan automatically according to sensor adjusting
- **PROTECTION FOR PRODUCT LIFE OF RACK SYSTEM**  
It is designed for enhancing product life by fan operation so as to get down over heating in the rack inside
- **THERMAL CONTROL**  
It is designed variabe range to operate at 20°C~55°C

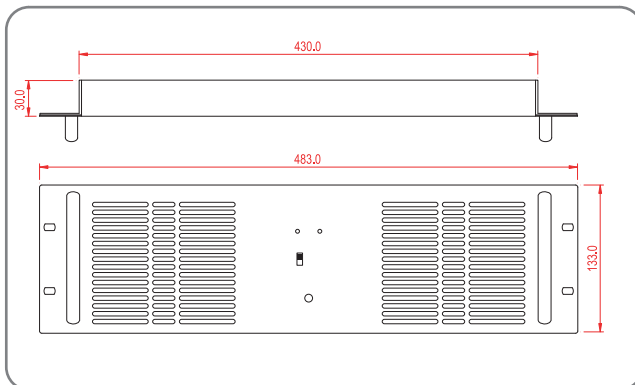
### TECHNICAL SPECIFICATIONS

Temperature variance	20°C ~ 55°C (Continuous Variance)
Power	DC 24V (MAIN)
Power consumption	1W (MAIN)
Blower Power	DC Available
Dimensions (m/m)	483(W) x 133(H) x 30(D) m/m
Weight (kg)	1.5 kg

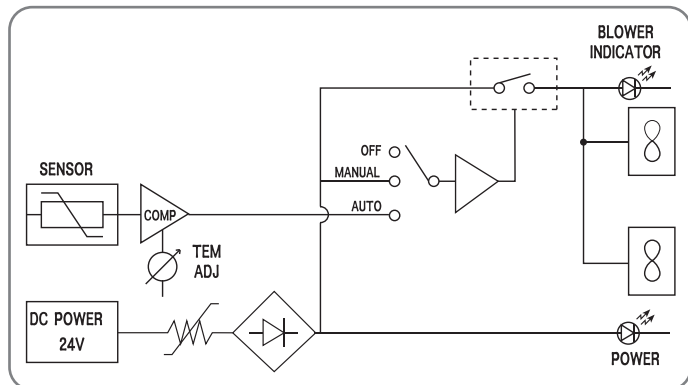
### REAR VIEW



### DRAWING



### BLOCK DIAGRAM



## 19" RACKING UNIT



## EU-2211 Emergency Unit

## EU-2211M (Option)

Emergency Message Card



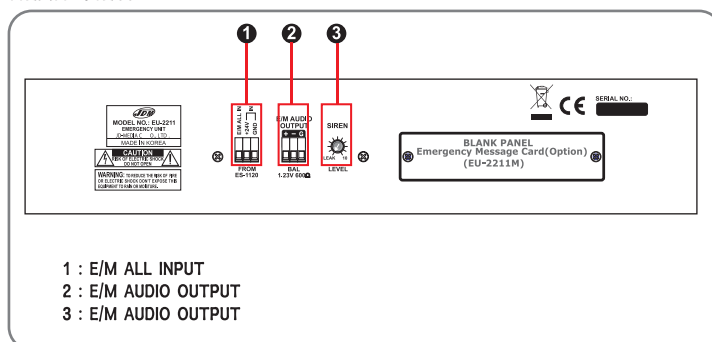
## FEATURES

1. Easy-to-use single-chip voice record/playback solution.
2. High-quality, natural voice/audio reproduction.
3. Operation of manual switches.
4. Recording time of 60-second.
5. Zero-power message storage (No backup battery).
6. 100-year message retention (typical).
7. 100,000 record cycles (typical).

## TECHNICAL SPECIFICATIONS

Inputs	MIC : 2.45mV(-50dBm/600Ω Unbal)
	LINE : 24.5mV(-10dBm/10kΩ Unbal)
Outputs	Audio Output : 0dB/600Ω
	Headphone Output : 24mW ≥32Ω
Frequency Response	MIC : 300Hz~3.4kHz ( $f_s = 8\text{kHz}$ )
	LINE : 100Hz~3.4kHz ( $f_s = 8\text{kHz}$ )
Operating Voltage	+24VDC
Current Consumption	NOR 30mA / MAX 70mA
Message Recording Time	Max 60sec
Dimensions(m/m)	130(W) x 30(H) x 153(D)m/m
Weight (kg)	190g

## REAR VIEW



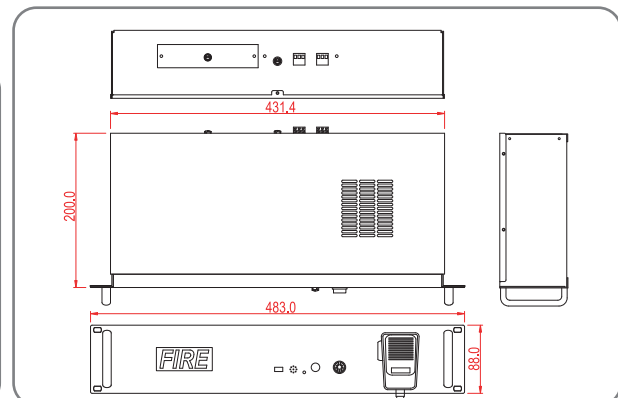
## FEATURES

- **AUTO ALERT(ALARM) OF FIRE**  
It should be connected with 'five auto alarm' and if fire broke out, automatically alarming and flashing of fire indicator.
- **AUTO ANNOUNCEMENT (OPTION)**  
Firstly, siren ringing for 10sec and E/M message is followed continuously by E/M message card(option).  
※ Without E/M message card : Only
- **OPERATING & INSPECTION**  
Connect with ES-1120 and select S/W of ES-1120 to check this unit.
- Siren, announcement by fire detector from fire sensor (Optional E/M message card)
- Continuously repeat E/M announcement after 10 seconds of alarm indicator or alarm sound

## TECHNICAL SPECIFICATIONS

Input sensitivity/impedance	2.45mV(-50dB/1.2KΩ unbal.)
Output level/impedance	1.23V(+4dB/600Ω bal)
Frequency response	Less than -3dB (200Hz ~ 10kHz)
Signal to ratio	More than 60dB
T.H.D	Less than 0.4% (200Hz ~ 10kHz)
Siren Frequency	800Hz
Power Consumption	3.6W
Power	DC 24V
Dimensions(m/m)	483(W) x 88(H) x 200(D)m/m
Weight (kg)	2.8kg

## DRAWING



## 19" RACKING UNIT



### ES-1120 Emergency Speaker Selector

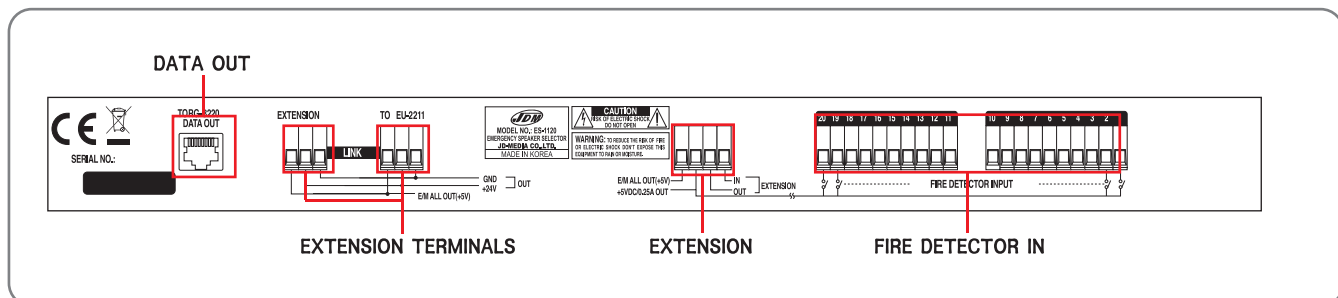
#### FEATURES

- 21 push type selector switches are provide to enable you to select 20 zone speakers individually or totally by manual.
- Fire detector signal input for 20 lines.
- Speaker line of the upper floor and the below floor where to fire place .
- Extendible in output fire detector to extend additional ES-1120.
- Easy checking at where to fire place due to.
- When you push speaker selector switch or coming signal of emergency situation like a fire from fire detector, it will be power remote control to operate power distributor (PD-3322) and emergency power supply (EP-3352).
- Normal announcement will be released, when E/M speaker selector is operating (function of remote amplifier RA-1051A and speaker selector of SS-1120).
- Data circuit for easy connection.
- Indicating LED to inform normal situation.
- LED for selected announce zone.
- Extendible link function.

#### TECHNICAL SPECIFICATIONS

Speaker controls	20 lines
Fire Directors	20 lines
Power consumption	3.7W(All Operation)
Power	DC 24V
Dimensions(m/m)	483(W) x 44(H) x 200(D)m/m
Weight (kg)	3kg

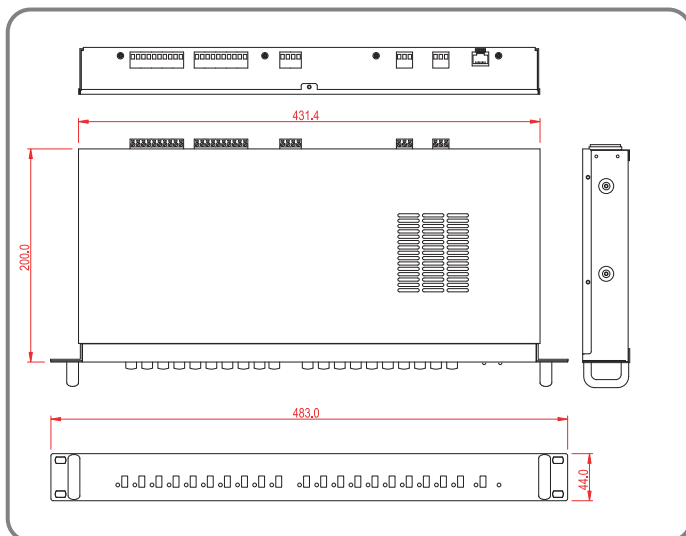
#### REAR VIEW



#### ACCESSORY



#### DRAWING



## 19" RACKING UNIT



### SS-1120 Active Speaker Selector

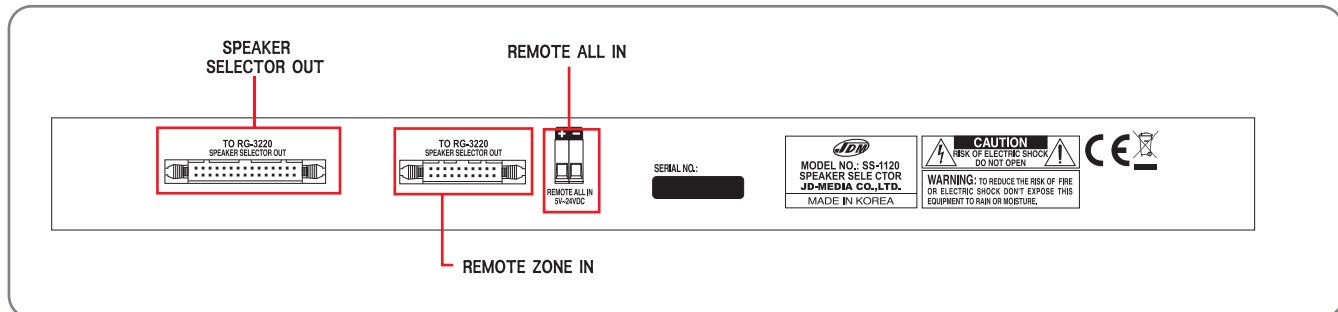
#### FEATURES

- 21 push type selector switches are provided to enable you to elect 20zone speakers individually or totally.
- Individual zone speaker line and all zone speaker selector with connection to the relay group.
- All remote inputs to select speaker line from external.
- LED indicator for speaker line selected.
- In case of emergency like fire, E/M LED indicator will be turn on and release selected speaker line simultaneously.
- Selected speaker line will be released, when remote amplifier is turn on the announce.  
(Release of speaker line per group, per line by relay group)

#### TECHNICAL SPECIFICATIONS

Speaker controls	20 lines
Power	DC 24V
Power consumption	3.6W(All Operation)
Dimensions(m/m)	483(W) x 44(H) x 200(D)m/m
Weight(kg)	2.7Kg

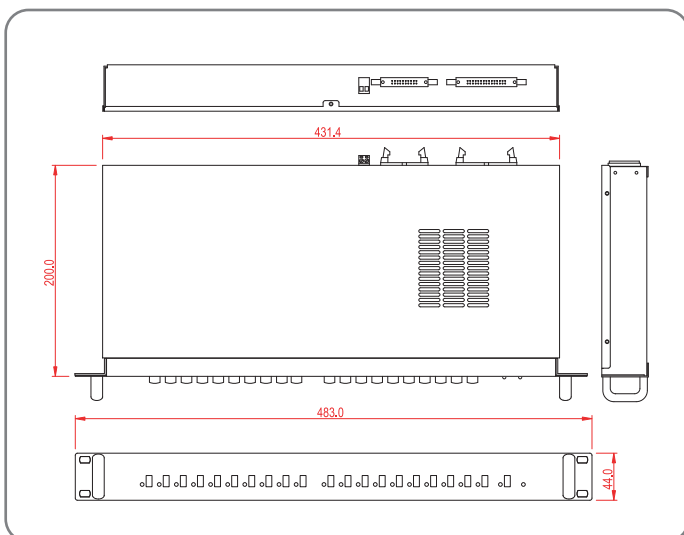
#### REAR VIEW



#### ACCESSORY



#### DRAWING



## 19" RACKING UNIT



### SS-2220P Passive Speaker Selector

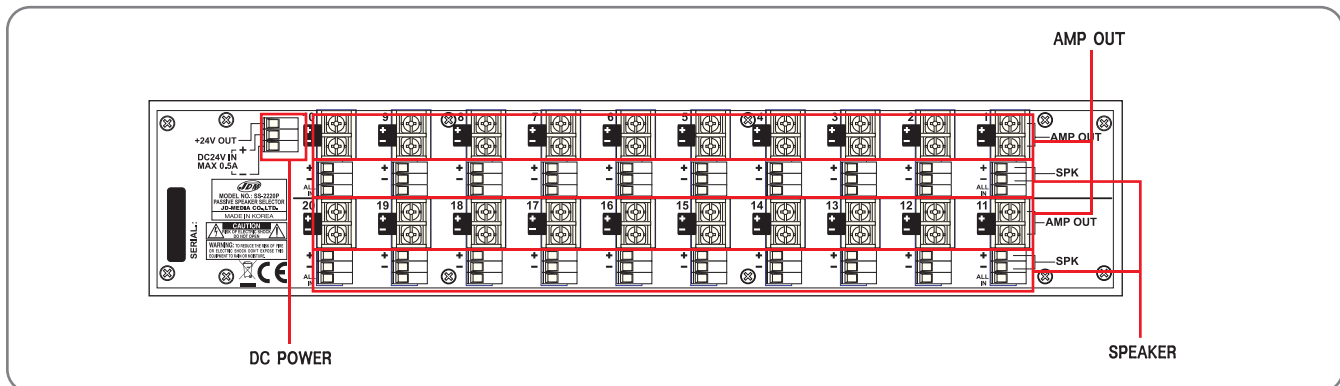
#### FEATURES

- 21 push type switches are provided to enable you to select 20zone speakers individually or totally.
- LED indicator in the each push switch makes easy checking about selected speaker line.
- External "all in" remote control per speaker line.
- Selection of speaker line against output signal of amplifier via relay contact point.

#### TECHNICAL SPECIFICATIONS

Speaker controls	20 lines
Power	DC 24V
Power consumption	12W
Dimensions(m/m)	483(W) x 88(H) x 200(D)m/m
Weight(kg)	3.5kg

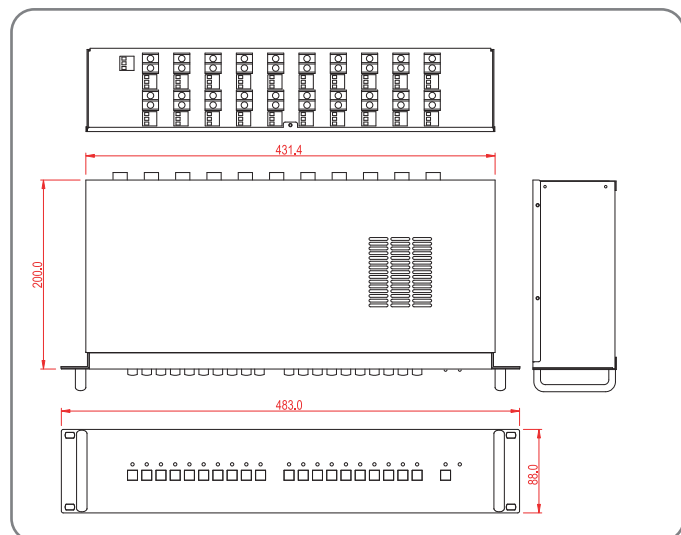
#### REAR VIEW



#### DETAILS

You can control 20 speaker lines directly from the amplifier output without using relay group(RG-3220)to build simple or small system configuration.

#### DRAWING



## 19" RACKING UNIT



### SC-132A Speaker Line Checker

#### FEATURES

- Speaker Line Under Load Check.
- Speaker Line Open Check.
- Watch Dog Function.
- Speaker Line Impedance Check.
- Speaker Line Short Check.
- Automatic check in adjustable time intervals between 1 minute and 24 hours.
- Interruption of the check when emergency announcement comes up.
- Store by No volatile memory(EE-PROM).
- AC and DC 24V operation.
- Buzzer sound on/off function.
- Alert sound and LED indicator when speaker line fault.
- Permissible speaker line check 100V/70V.
- Bridging of the existing volume control with the intergrated relay during the check.
- Speaker Line Over Load Check.
- Ground Fault Detection.
- Max. 32 Speaker Lines(with 4 Relay Board).

#### SC-008A(Optional) Relay Board



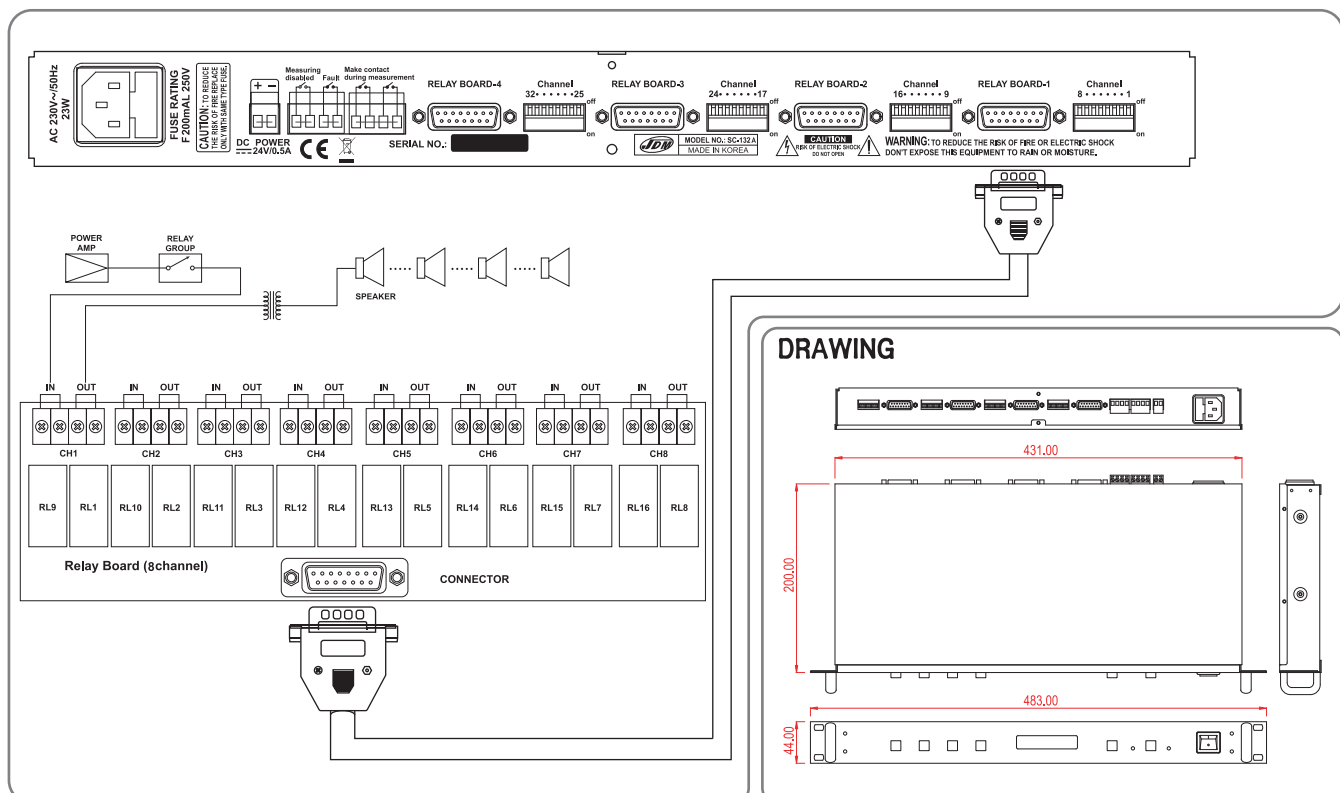
#### FEATURES

The relay board has been designed for the connection of the speaker line. Up to 4 board (32 circuits) can be connected up to SC-132A monitor unit. The card provides one additional relay per line, which disconnects the affected line from the 100V output after measurement

#### TECHNICAL SPECIFICATIONS

Check range	20~1600Ω
Check time	Less than 10m sec / Channel
Signal input	32 Channel(with 4 relay board)
Signal output	32 Channel(with 4 relay board)
ADC resolution	10Bit(1024 step)
Power Consumption	23W
Power	AC230V/50Hz, DC24V
Dimensions(mm)	483(W) x 44(H) x 200(D)m/m
Weight(kg)	3.1Kg

#### CONNECTION EXAMPLE



## 19" RACKING UNIT



### SC-216M Speaker Line Checker

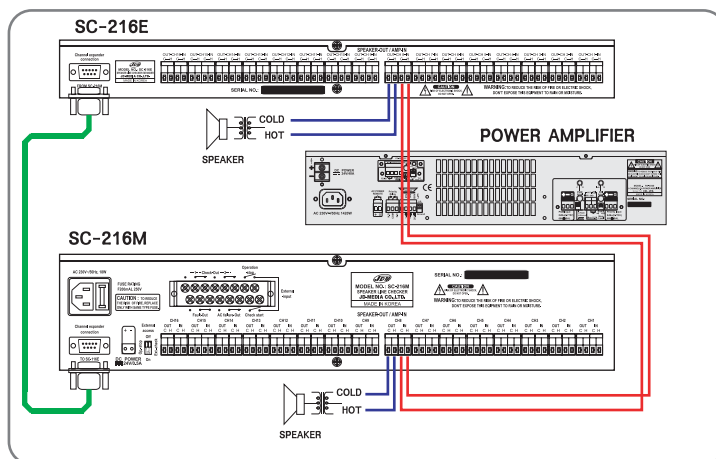
#### FEATURES

- Ground fault detection.
- Speaker line impedance check.
- Speaker line open check.
- Speaker line over load check.
- Speaker line short check.
- Max. 32 speaker lines(with 4 relay board).
- Automatic check in adjustable time intervals between 1 minutes and 24 hours.
- Double-spaced background-lighted liquid crystal display with clear text output.
- Interruption of the check when emergency announcement comes up.
- Bridging of the existing volume control with the intergrated relay during the check.
- Permissible speaker line check 100V/70V.
- Store by Non volatile memory(EE-PROM).
- Alert sound and LED indicator when speaker line fault.
- Buzzer off function.
- AC and DC 24V operation.
- Standard in height desktop or 19" rack mount.

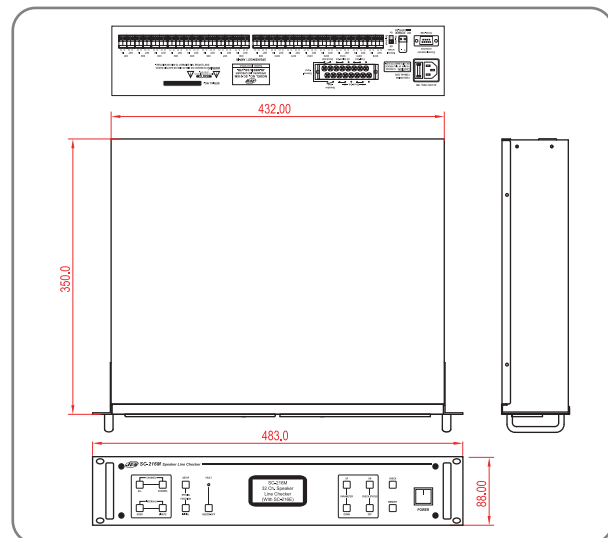
#### TECHNICAL SPECIFICATIONS

Check range	20 ~ 1600Ω
Check time	Less than 100 msec / Channel
Signal Input	32 Channel (With SC-216E)
Signal Output	32 Channel (With SC-216E)
Checking Output	2 Channel
Fault Output	1 Channel
AC Failure Output	1 Channel
Check Start Input	1 Channel
Operation Stop	1 Channel
ADC Resolution	10 Bit / 1024 Step
LCD	16 Character * 4 Line
Power Consumption	23W
Power	AC 230V, 50Hz/DC 24V
Dimensions(m/m)	483W x 88 H x 350 D (m/m)
Weight(Kg)	About 3.0Kg

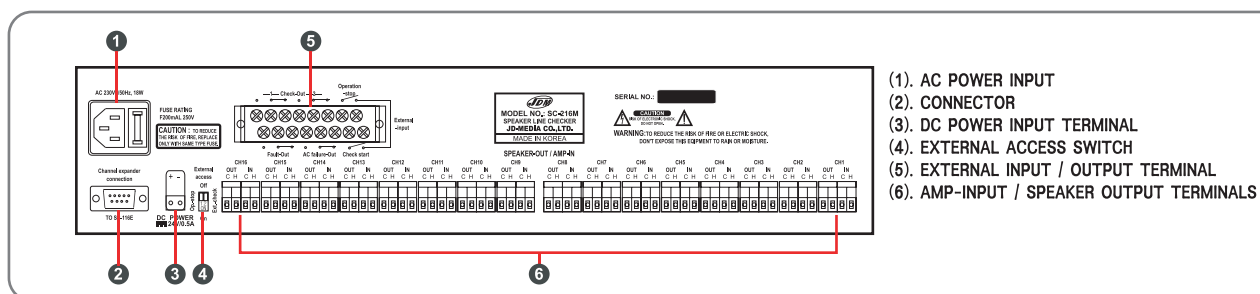
#### CONNECTION EXAMPLE



#### DRAWING



#### REAR VIEW



- (1). AC POWER INPUT
- (2). CONNECTOR
- (3). DC POWER INPUT TERMINAL
- (4). EXTERNAL ACCESS SWITCH
- (5). EXTERNAL INPUT / OUTPUT TERMINAL
- (6). AMP-INPUT / SPEAKER OUTPUT TERMINALS

# 19" RACKING UNIT



## SC-216E Speaker Line Checker Expander

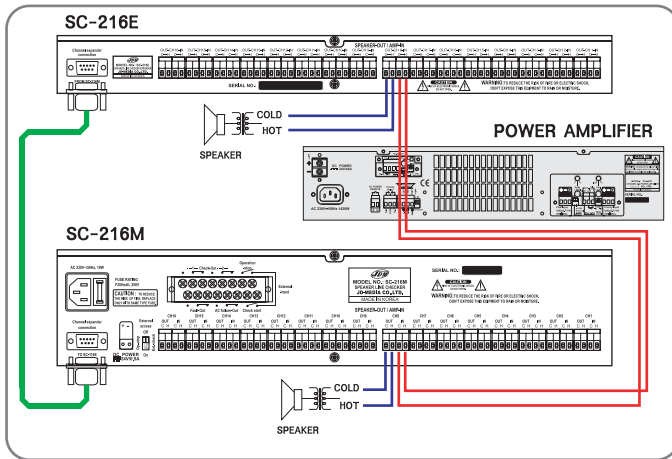
### FEATURES

- Ground fault detection.
- Speaker line impedance check.
- Speaker line open check.
- Speaker line overload check.
- Speaker line short check.
- Max. 32 speaker lines(with 4 relay board).
- DC 24V operation.
- Standard in height desktop or 19" rack mount.

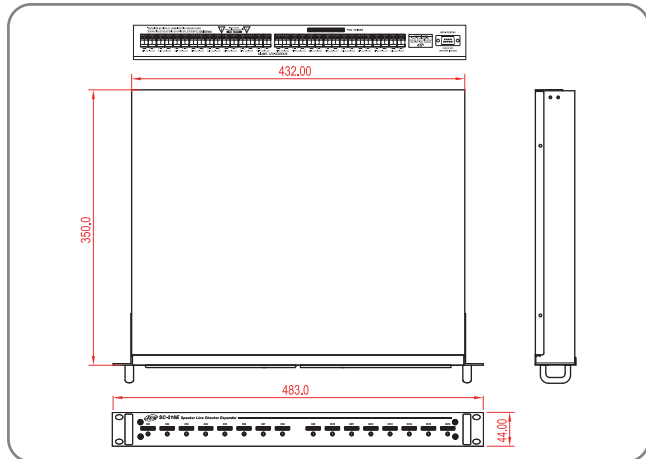
### TECHNICAL SPECIFICATIONS

Check range	20~1600Ω
Check time	Less than 100m sec / Channel
Signal input	32 Channel(with SC-216M)
Signal output	32 Channel(with SC-216M)
Power Consumption	23W
Power	DC24V
Dimensions(mm)	483(W) x 44(H) x 350(D)
Weight(kg)	3.0Kg

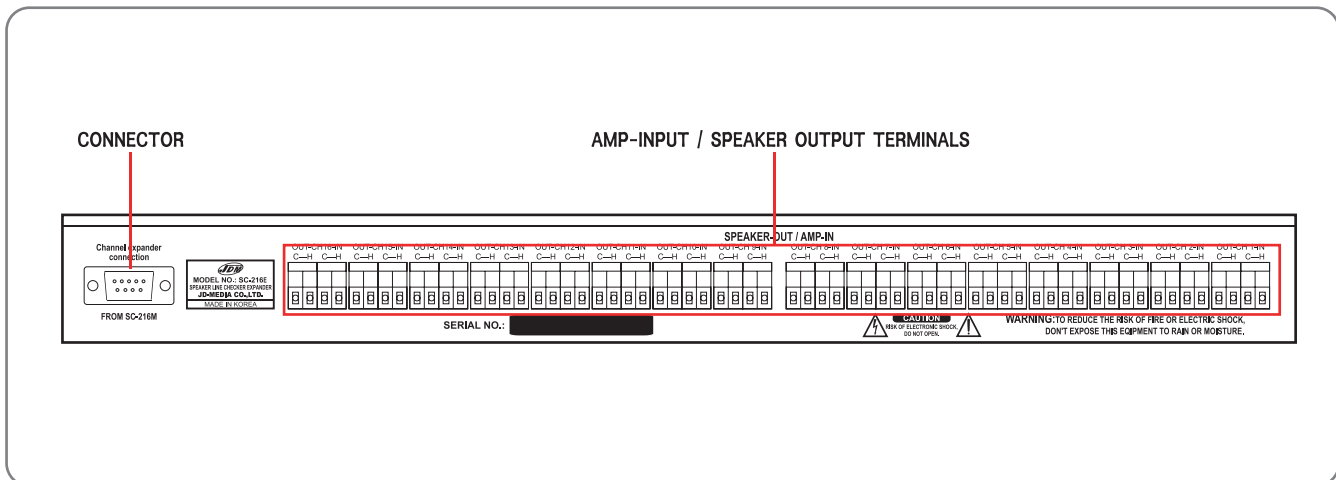
### CONNECTION EXAMPLE



### DRAWING



### REAR VIEW





## 19" RACKING UNIT

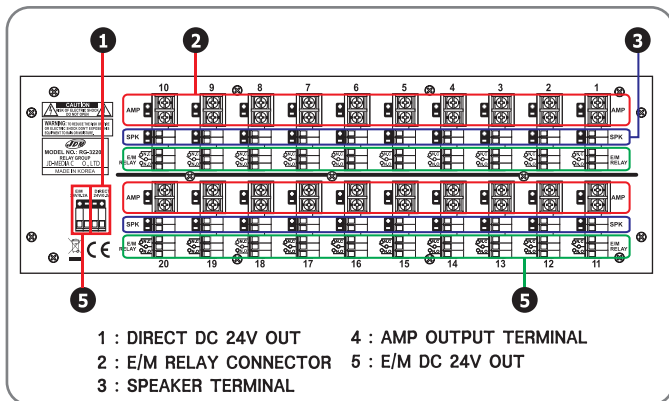


## RG-3220 Relay Group

## FEATURES

- Speaker lines are controlled by relay that is operated according to command procedure of signal of diode matrix built in.
- Priority announcement are E/M speaker selector, remote amplifier, speaker selector and users can check current situation by LED indicator.
- Matrix style of speaker line controls for E/M speaker selector and amplifier to be easy speaker system configuration.
- Speaker line control per zone announcement of remote amplifier.
- Built-in one signal exchanger circuit.
- Built in amplifier priority.
- Design to be extendible relay group.
- Module style E/M. remote-1, remote-2, telephone paging card to use.
- proper system configurations.
- Consist of speaker line for RG-3220 is two-line way for normal announcement, three-line way for emergency announcement, fourline way, main and local amplifier two-way.
- Method of control between remote amplifier and relay group is data circuit with RS-485. Permissible communication.(MAX 1Km)

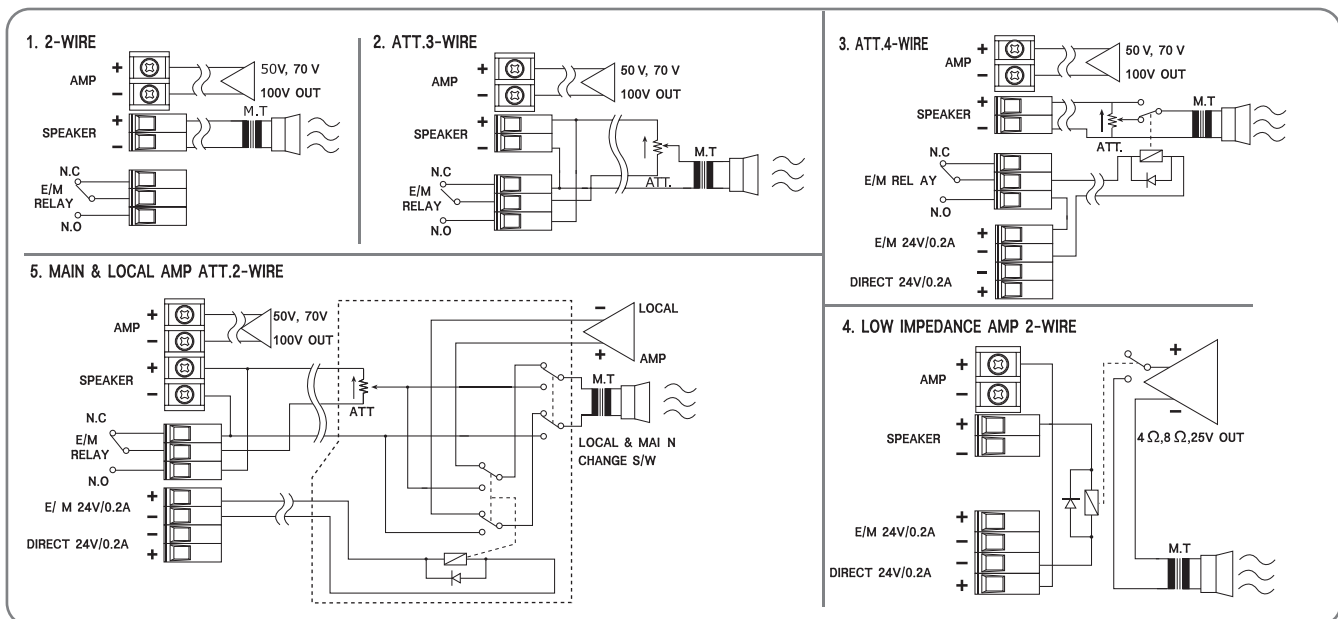
## REAR VIEW



## TECHNICAL SPECIFICATIONS

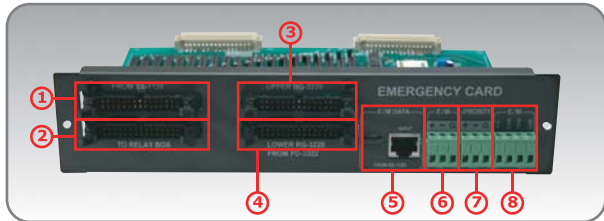
Speaker controls	20 lines
Signal exchanger circuit	1 circuit
Speaker line connection	2-wire, ATT. 3-wire, ATT. 4-wire.
	Low Imp AMP 2-wire Main & Local AMP ATT.2-wire
Power consumption	12W
Power	DC 24V
Dimensions(m/m)	483(W) x 133(H) x 350(D)m/m
Weight(kg)	8.6kg

## SPEAKER CONNECTION EXAMPLE



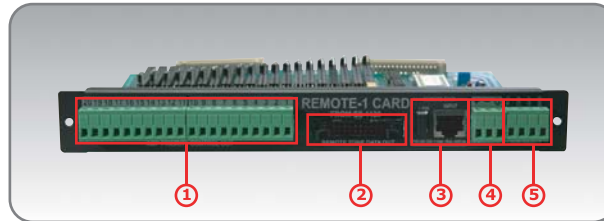
# 19" RACKING UNIT

## EMERGENCY CARD (BASIC)



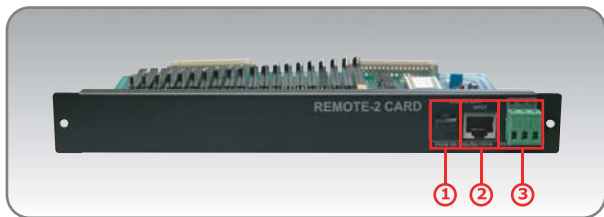
- 1. CONNECTION TO SS-1120
- 2. RELAY-BOX
- 3. UPPER RG-3220
- 4. FROM PD-3322
- 5. E/M DATA
- 6. E/M AUDIO INPUT
- 7. PRIORITY
- 8. E/M OUTPUT

## REMOTE-1 CARD (BASIC)



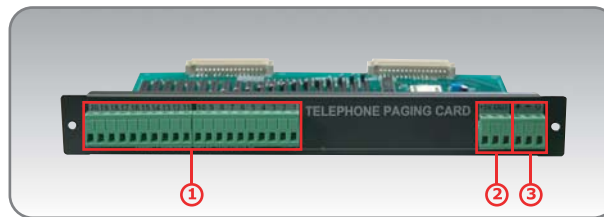
- 1. AMP PRIORITY
- 2. FROM SS-1120
- 3. REMOTE DATA
- 4. REMOTE AUDIO INPUT
- 5. REMOTE CONTROL

## REMOTE-2 CARD (OPTION)



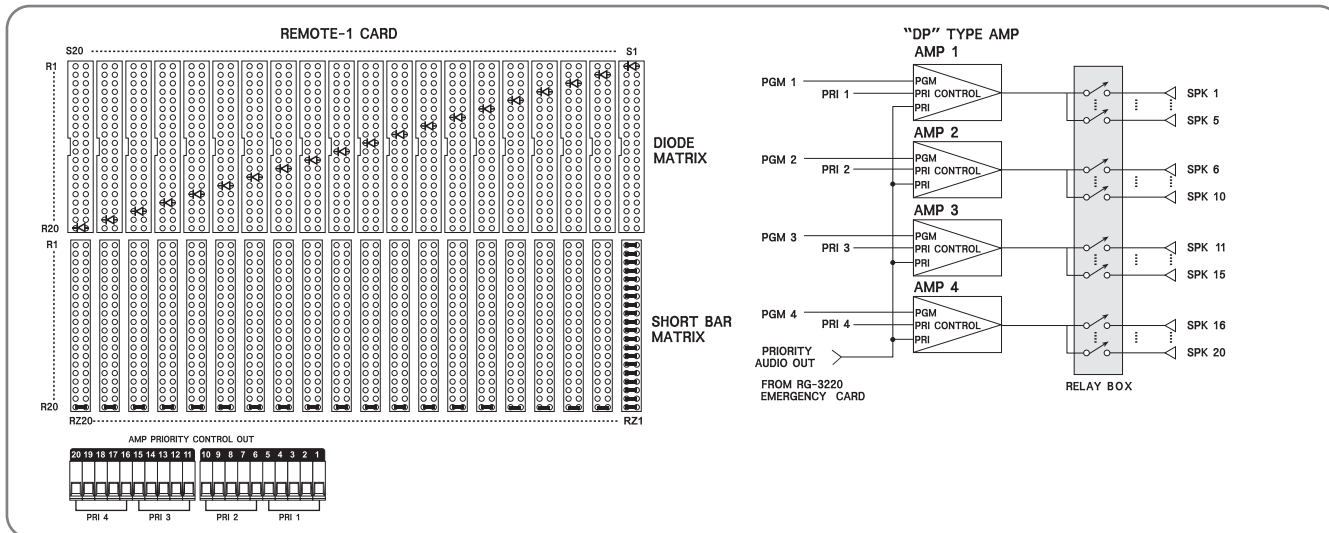
- 1. REMOTE DATA LINK
- 2. REMOTE DATA INPUT
- 3. REMOTE AUDIO INPUT

## TELEPHONE PAGING CARD (OPTION)



- 1. TELEPHONE EXCHANGE RELAY CONTACT
- 2. +5V OUTPUT
- 3. TELEPHONE AUDIO INPUT

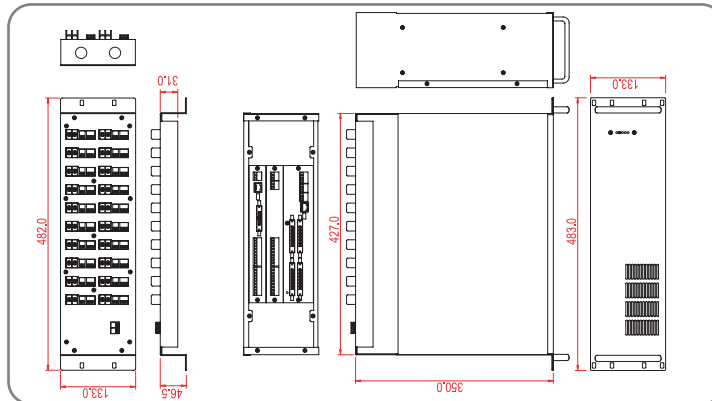
## HOW TO SET MATRIX



## ACCESSORY



## DRAWING



## 19" RACKING UNIT

**DR-1104** Data Receiver

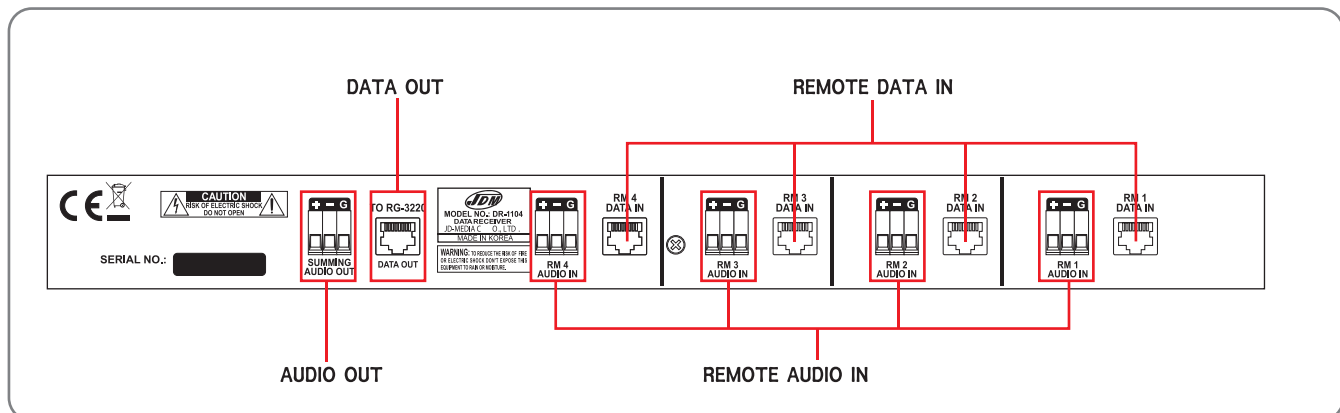
## FEATURES

- Superior audio circuit to communicate for long distance with balanced circuit (separate cable).
- Overall priority (E/M) will makes mute all RA-1051A/B.
- 4 power "ON" LED's to check the operation.
- 4 LED indicators "BUSY" to monitor the status.
- Up to 4pcs of 20-zone paging microphone's RA-1051A/B.
- RS485 data communication to RA-1051A/B (UTPcat 5).
- Data electrical transmission and recognition is LED indicator.

## TECHNICAL SPECIFICATIONS

Input sensitivity / impedance	+4dBu/600Ω bal.
Output level /impedance	+4dBu/600Ω bal.
Frequency response	Less than -1dB (20Hz-20kHz).
Signal to noise ratio	More than 86dB
T.H.D(1kHz)	Less than 0.02%
Power consumption	6.5W
Power	DC 24V
Dimensions(m/m)	483(W) x 44(H) x 200(D)m/m
Weight (kg)	2.9kg

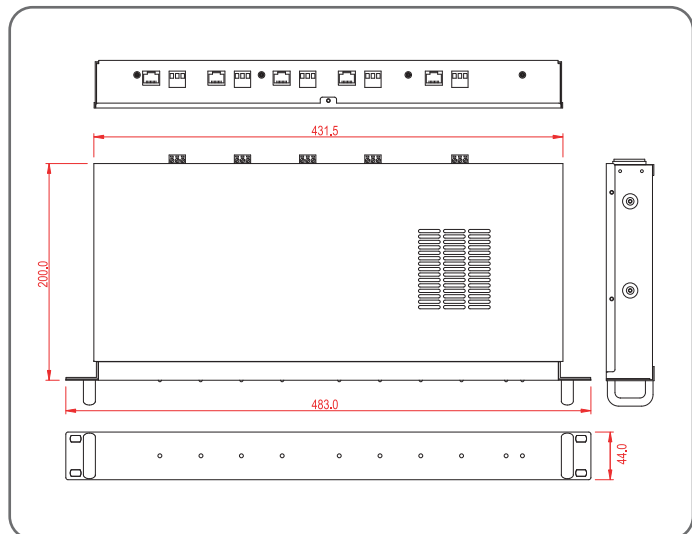
## REAR VIEW



## ACCESSORY



## DRAWING



## 19" RACKING UNIT

### RA-1051A

Remote Amplifier (20ch)



### RA-1051B

Remote Amplifier (10ch)



### ACCESSORY



### FEATURES

1. You can control for speaker lines. Each speaker lines same as that of main system control. Push "all switch" for all announcement.
2. Adapted high fidelity unidirectional condenser microphone to reduce howling.
3. Auto chime when pushing talk MIC
4. When using 4 REMOTE AMPLIFIERS(RA-1051A, RA-1051B) with DATA RECEIVER(DR-1104), priority for remote input is 1, 2, 3, 4. Additional one DR-1104+ REMOTE-2 CARD on the RG-3220 make connect of 8 REMOTE AMPLIFIERS.
5. Adapted by data method to max 1Km without problem.
6. Adapted trans method of audio output circuit for long distance.

### DETAILS

It is convenient to use P.A system or E/M announcement by remote.

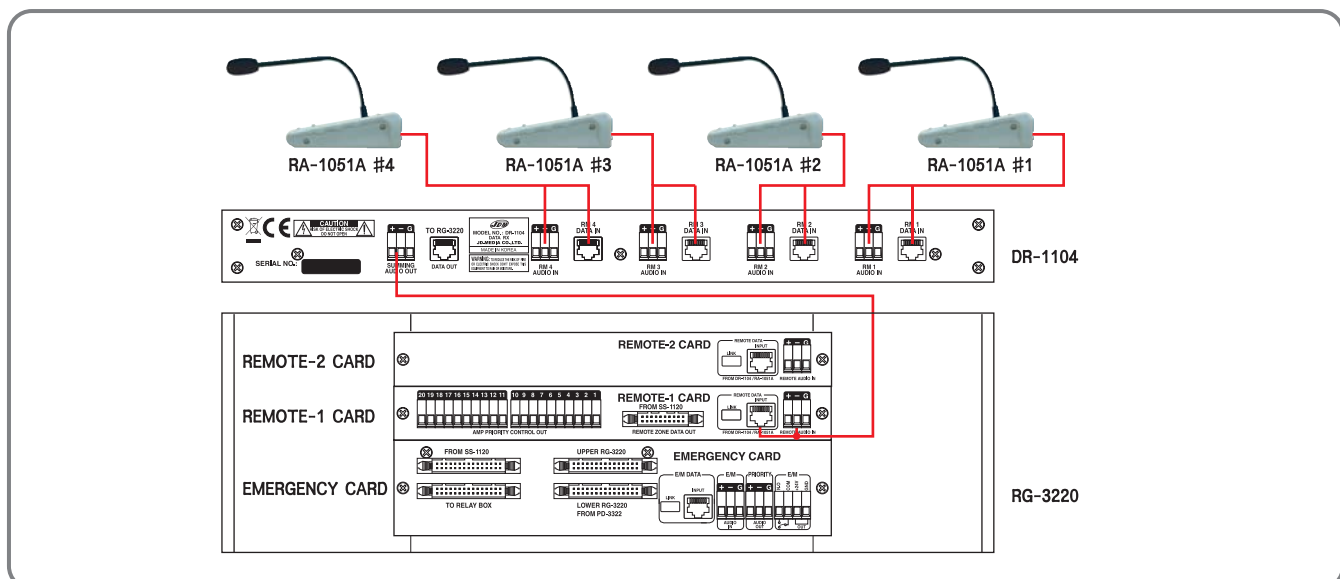
### REAR VIEW



### TECHNICAL SPECIFICATIONS

Speaker controls	20lines
Power	DC 24V
Power consumption	11W
Dimensions(mm)	275(W) x 51(H) x 156(D)
Weight (kg)	2.0kg

### SYSTEM CONNECTION EXAMPLE



## 19" RACKING UNIT



### AD-1125 Audio Distributor

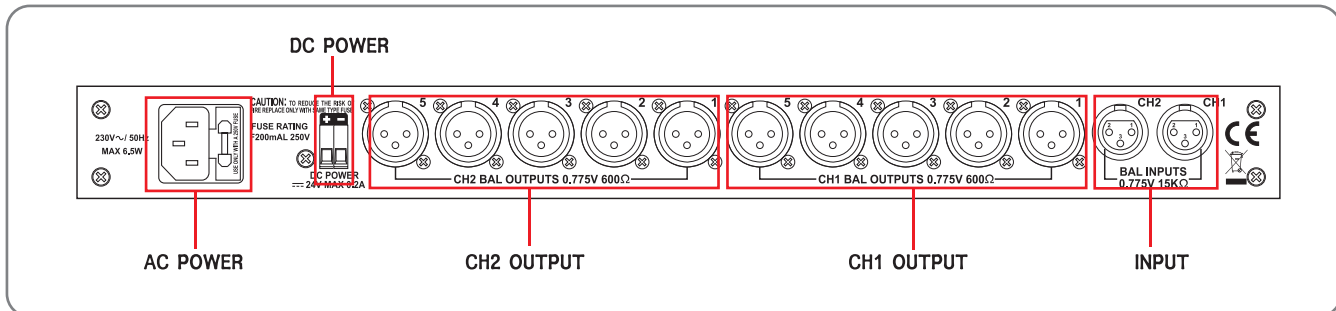
#### FEATURES

- **BALANCED INPUT**  
High efficiency electronic balanced circuit is adopted on other to reduce external hum from signal input
- **INPUT MODE SWITCH**  
This model is able to distribution of the sound signal input to output at 1:10 or 1:5 by mono and stereo selector switch.
- **LEVEL CONTROL AND PEAK LED PER CHANNEL**  
Capable of adjusting each output volume and in case of exceeding input LED lamp warns distortion status.
- **BALANCED OUTPUT AND MINIMIZE THE DC HUMS**  
Signal output is possible whether + or - of the output unit polarity is grounded and the direct current noise is minimized at  $\pm 15V$  power source motivates the operation of circuit.
- **USE OF EMERGENCY BATTERY**  
You can operate this model by using emergency battery for unexpected AC power failure.(Built in DC 24V terminal)

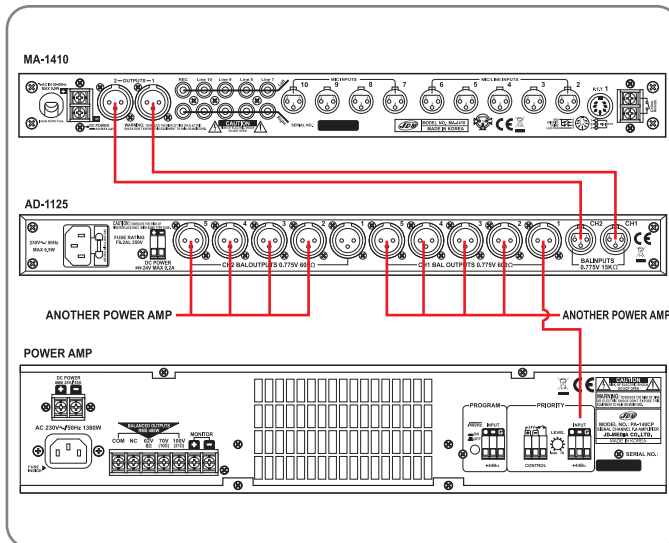
#### TECHNICAL SPECIFICATIONS

Input sensitivity / Impedance	0.775V(0dBm)/15k $\Omega$ bal
Output level / Impedance	0.775V(0dBm)/600 $\Omega$ bal
Frequency response	Less than -0.5dB (20Hz ~20kHz)
Signal to noise ratio	More than 94dB
T.H.D	Less than 0.04% (20Hz ~20kHz)
Cross-talk	More than 75dB
Power consumption	6.5W
Power	AC230V/50Hz, DC24V
Dimensions(m/m)	483(W) x 44(H) x 200(D)m/m
Weight (kg)	3kg

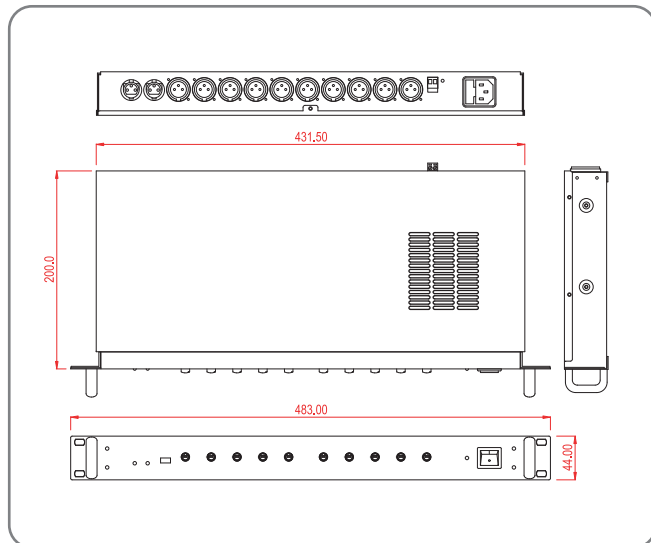
#### REAR VIEW



#### CONNECTION EXAMPLE



#### DRAWING



## 19" RACKING UNIT



### SE-1174 Signal Router For Normal Amplifier

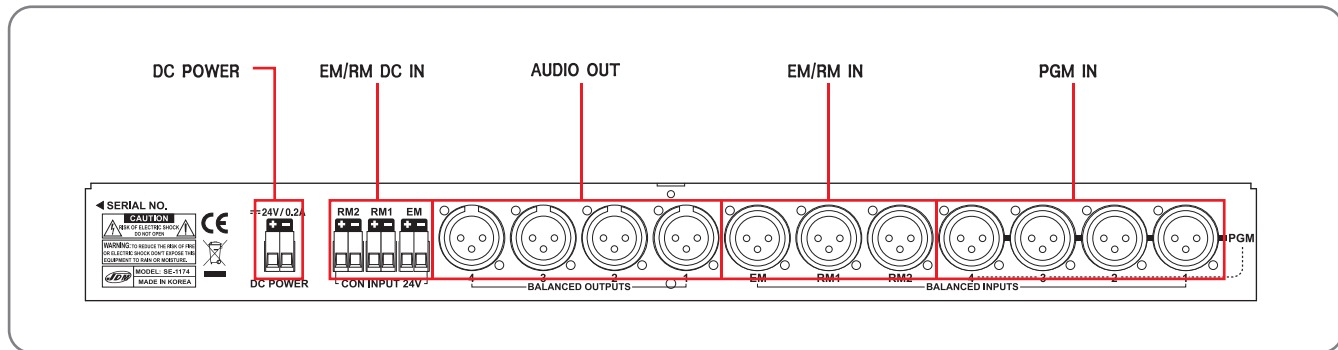
#### FEATURES

- Composed of 4 independent channels and selection is performed by the broadcasting signal according to the order of emergency, remote, normal 1 and 2 broadcastings of each channel.
- Sound output is possible whether "+" or "-" of the output circuit polarity is grounded and direct current status is minimized as  $\pm 15V$  power source motivates the operation of circuit.
- The balanced input system to the signal line when combined with a long-distance signal source is adopted.
- Non-contact electronic switch to clear switch noise when converting to the broadcasting.
- Led instruction have motion condition simples discrimination.

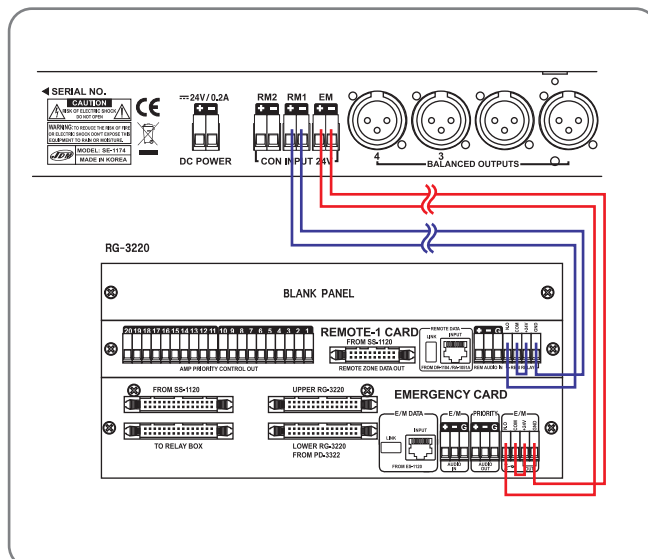
#### TECHNICAL SPECIFICATIONS

Signal Input	Main : 4EA
	Remote : 2EA
	Emergency : 1EA
Power Consumption	5W
Power	DC 24V
Dimensions(mm)	483(W) x 44(H) x 200(D)m/m
Weight(kg)	3.5kg

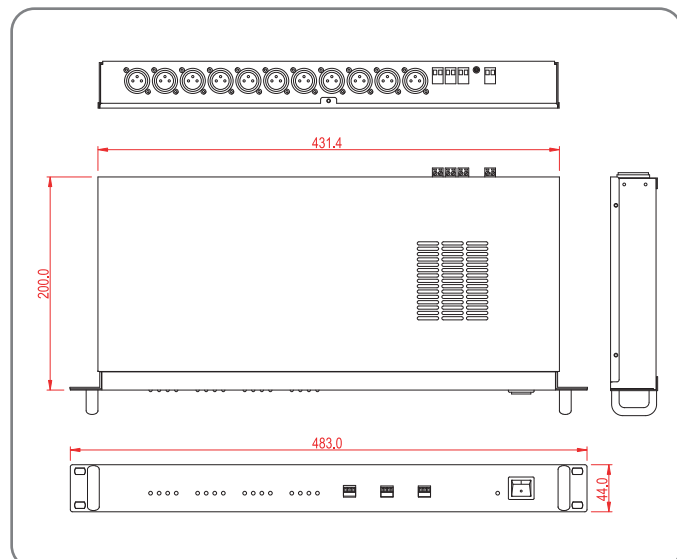
#### REAR VIEW



#### CONNECTION EXAMPLE



#### DRAWING



## 19" RACKING UNIT



## FS-1142 Feedback Suppressor

## FEATURES

- **BLANCED INPUT**  
High efficiency electronic balanced circuit is adopted in order to reduce external hum from signal input.
- **THE FUCTION OF HOWLING CONTROL**  
The howling caused by the interior resonance can be controlled by adjusting the 4-stage notch filters.
- **HIGH RELIABILITY CLEAR FILTER**  
The bandwidth of the notch filter is 1/6 OCT and eliminating the interference factor, for the quality of sound in audition.
- **METER FOR NOTCH LEVEL**  
Convenient function to adjust nominated frequency response by level indicator, when controlling depth on each filter.
- **USE OF EMERGENCY BATTERY**  
You can operate this model by using emergency battery for unexpected AC power failure. (Built in DC24V terminal)

## TECHNICAL SPECIFICATIONS

Input sensitivity / Impedance	0.775V(0dB)/15kΩ bal
Output level / Impedance	0.775V(0dB)/600Ω bal
Frequency response	Less than -1dB (20Hz ~20kHz)
Signal to noise ratio	More than 94dB
T.H.D	Less than 0.5% (20Hz ~20kHz)
Notch Filter Frequency	60Hz~6kHz(Continuous Variance)
Notch Depth	0 ~ -20dB
Power consumption	10W
Power	AC230V/50Hz
Dimension(m/m)	483(W) x 44(H) x 200(D)m/m
Weight (kg)	3.8kg

## REAR VIEW



## 1. AC INLET

The AC inlet is the socket to supply the AC power.  
You turn on the power switch after plugging the AC cord.  
The fuse is built in the socket.

## 2. DC 24V TERMINAL

This terminal is for connecting the battery input, please confirm the polarity before connecting.

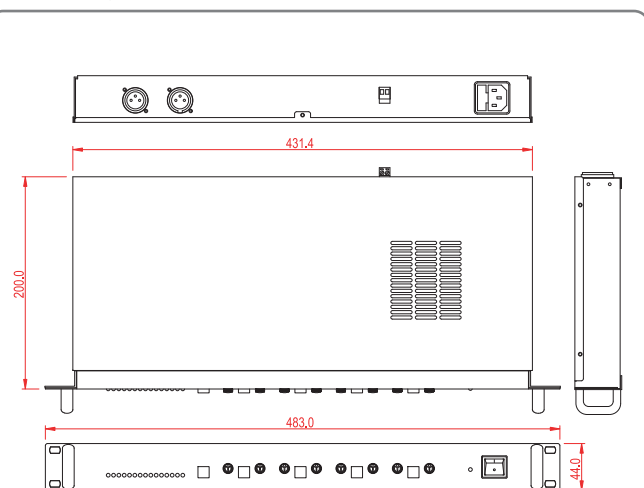
## 3. SIGNAL OUTPUT JACK

Signal output jack XLR balanced is 600Ω load over balanced.

## 4. SIGNAL INPUT JACK

Signal input jack XLR balanced is 0.775V(0dBm) 15K at regular input level.

## DRAWING



## 19" RACKING UNIT



### FC-1152 Feedback Controller Unit

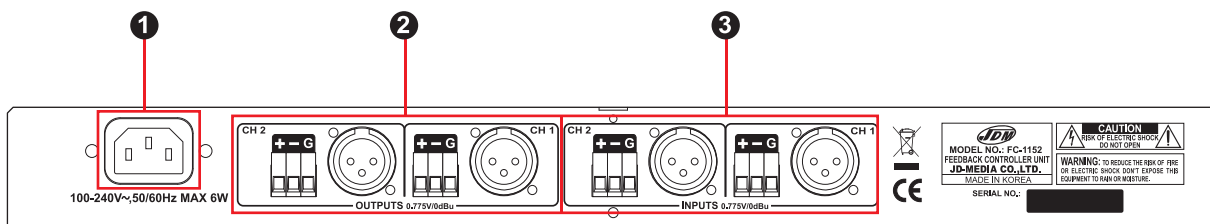
#### FEATURES

- The FC-1152 is to control feed-back when you want to design clear sound. For example, if you speak into MIC system, your input signal is amplified and then the audience hears your voice (music) from speaker system. But, as times goes by, amplified sound is little louder than it's first emanation from the speaker and you would like to adjust speaker sound more reliable. Because, first few second, your input signal is only your voice but now between your voice and emanated sound from the speaker input a MIC system few minute. (it is howling) Therefore, to hear clear sound, you will turndown volume or off MIC system (to prevent Feed-back) because of listener's attention.
- Accept NOISE GATE circuit to adjust resonant frequency
- Up to 13 step for adjusting frequency range , Controlling the quality of sound.
- By-Pass function of input signal.
- To easy connect, we adopted XLR and Screw terminal switches
- When you use this at public places, like hospital, tel, church, sport center, it is easy to control feed-back and even if situation is emergeny, you will manage sound system properly.

#### TECHNICAL SPECIFICATIONS

Input sensitivity / Impedance	Up to +20dBu / 60kΩ BAL
Output level / Impedance	Up to +20dBu / 50Ω BAL
Frequency response	Selector from 3 to 15Hz
Signal to noise ratio	More than 70dB
Frequency Response	-3dB ( 20Hz ~20KHz)
T.H.D	Less than 0.03%
Power Consumption	6W
Power	Free voltage(AC100-240V~,50/60HZ)
Dimension(m/m)	483(W) x 44(H) x 200(D)m/m
Weight (kg)	3kg

#### REAR VIEW

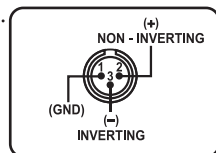


##### 1. POWER IN-LET

Free voltage (100 ~ 240V).

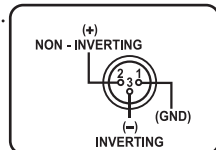
##### 2. OUTPUTS

These are balanced output jacks. So when you send message or sound in a long distance, shield cable is more reliable to reduce noise.

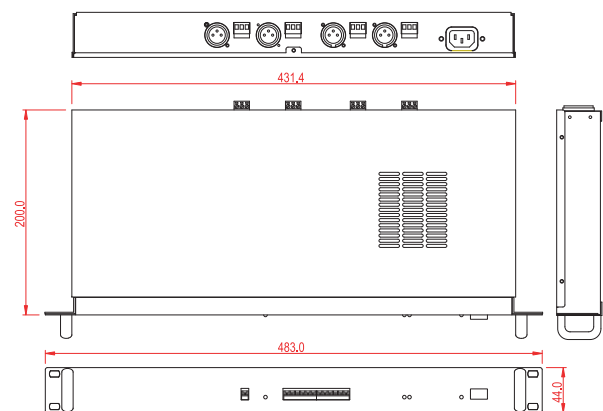


##### 3. INPUTS

These are balanced input jacks. So when you send message or sound in a long distance, shield cable is more reliable to reduce noise.



#### DRAWING





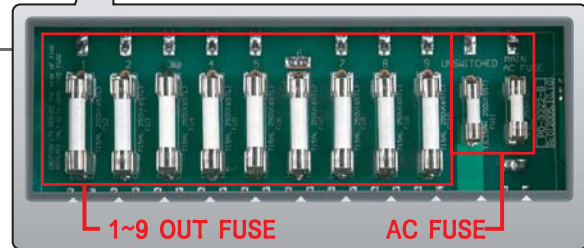
## 19" RACKING UNIT



## PD-3322 Power Distributor

## FEATURES

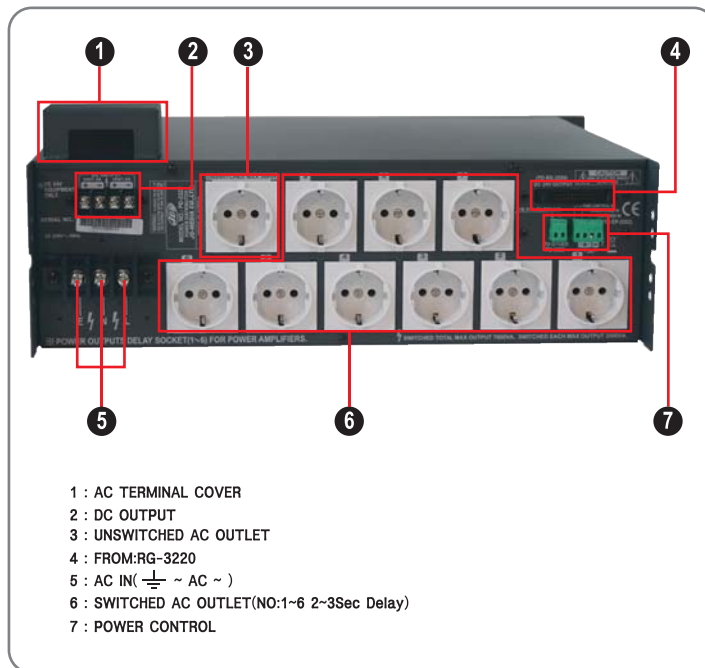
- AC outlet for power supplying totally to the rack system.
- Two 24V DC output terminals for power supplying to only 24V/DC rack system.
- Power control to supply 24V/DC to the rack system automatically when PD-3322 switch "ON" under unexpected AC power failure. Under power switch "OFF", in case of emergency situation like a fire or selection for remote microphone from Remote Amplifier, AC power of distributor will be turn "ON" for supplying AC power to the rack system.
- Built-in protection against 24V/DC output terminal short. (automatic recovery normal when remote short)
- Fuse built-in per AC outlet. (fuse exchange at the front panel)
- Power output delay operations to reduce power shock noise from speaker when power supplying to the rack system.
- Delay operation : When power "ON", power will be supplied to No.7~9AC outlet(for supplying of pre-amplifier) than of No.1~6AC outlet. When power "OFF", power will be closed to No.1~6 outlet than that of No.7~9AC outlet.



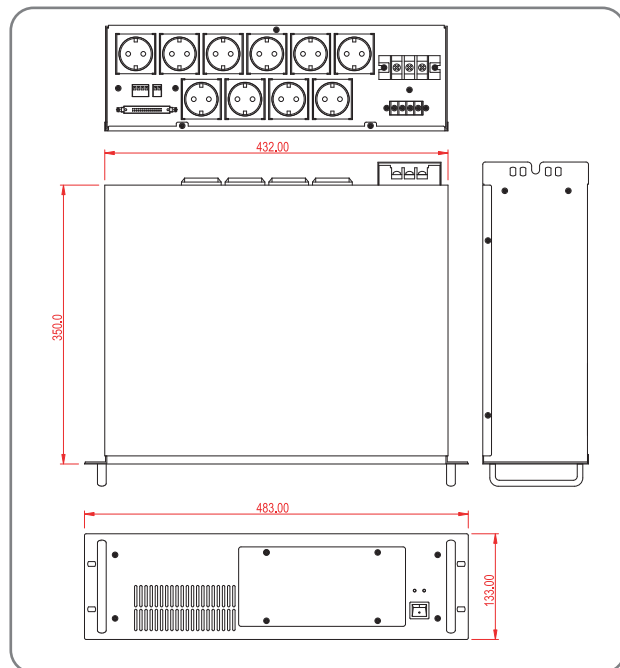
## TECHNICAL SPECIFICATIONS

DC power	24V/1.5A max x 2
AC power	Switched 1-6 : 230VAC/7000VA(30A)
	Switched 7-9 : Each max 115VA
Unswitched	Unswitched : 360VA max
Power consumption	122W(DC Power 24V/3A Load)
Power	AC230V/50Hz, DC24V
Dimensions(m/m)	483(W) x 133(H) x 350(D)m/m
Weight (kg)	8.5kg

## REAR VIEW



## DRAWING



## 19" RACKING UNIT



### SPD-3108 Sequence Power Distributor

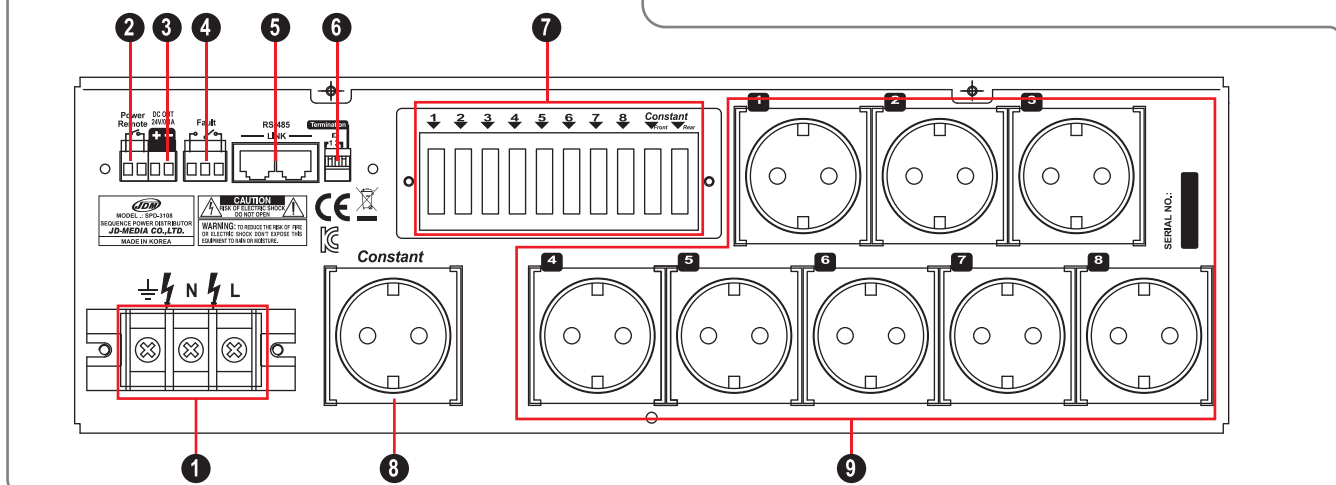
#### FEATURES

- 8 channel sequence power distributor
- Timer selector for supply sequence power (0.5 ~ 2 Sec)
- DC output (24V/1.5A) for power supply external units
- Easy to use operating unit at night through LED light on front panel (Control LED light on up and down)
- BY-PASS switch for supply AC power at same time
- Constant socket for constant power supply (Front and rear)
- Power remote terminal for external AC power switch
- RS-485 data communication for control all of function by remote
- Power supplying monitoring (Short circuit, make a buzzer sound)

⚠ Important notice : It is designed that AC outlet output is 2200W (10A), if using electric power is higher than rating power, it make that fuse is blown. It must be used electric power within rating power.

#### REAR VIEW

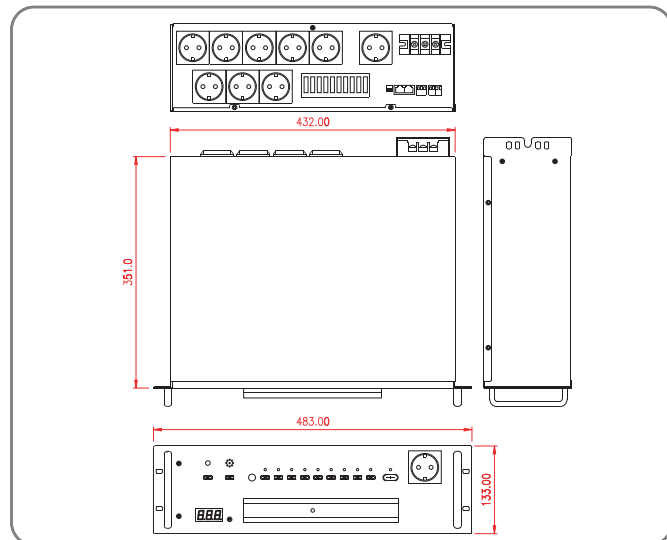
- 1 : AC IN(  $\perp$  ~ AC ~ )
- 2 : POWER REMOTE
- 3 : DC OUTPUT
- 4 : FAULT RELAY
- 5 : RS-485
- 6 : I.D SELECTOR SWITCH
- 7 : FUSE BUILT-IN PER AC OUTLET
- 8 : CONSTANT AC OUTLET
- 9 : SWITCHED AC OUTLET(NO:1~6 2~3Sec Delay)



#### TECHNICAL SPECIFICATIONS

AC Output	Switched 2300W (AC230V 10A) per channel
DC Output	DC 24V 1.5A Max.
Cable	CAT-5 (RJ45 JACK)
Communication Distance	Max. 1.2Km (RS-485)
Extension	Max. 4 units (Set an I.D)
Power Consumption	50W (DC24V OUT : 36W)
Power	AC220~240V/50~60Hz
Dimensions (m/m)	483(W) x 88(H) x 350(D) m/m
Weight (Kg)	7.5 Kg

#### DRAWING



## 19" RACKING UNIT



### EP-3352 Emergency Power Supply

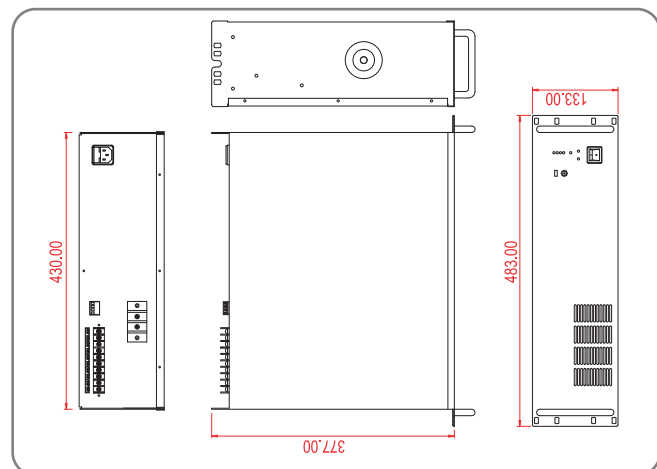
#### FEATURES

- Automatic convertable AC power to DC power when unexpected AC powers failure.
- Protection circuitry for battery against over current, over voltage.
- Battery built-in or use of battery from outside.(extended battery)
- An airtight battery built-in makes not leakage of gas when recharging.
- Automatic battery charge and discharge.
- Built-in fuse for 24V DC per output.
- Protection circuit against misconnecting of "+, -" polarity.
- LED indicator for battery charge.
- It makes buzzer sound in case of on AC power SUPPLY under battery rechargeable or rechargable circuit has a fault.

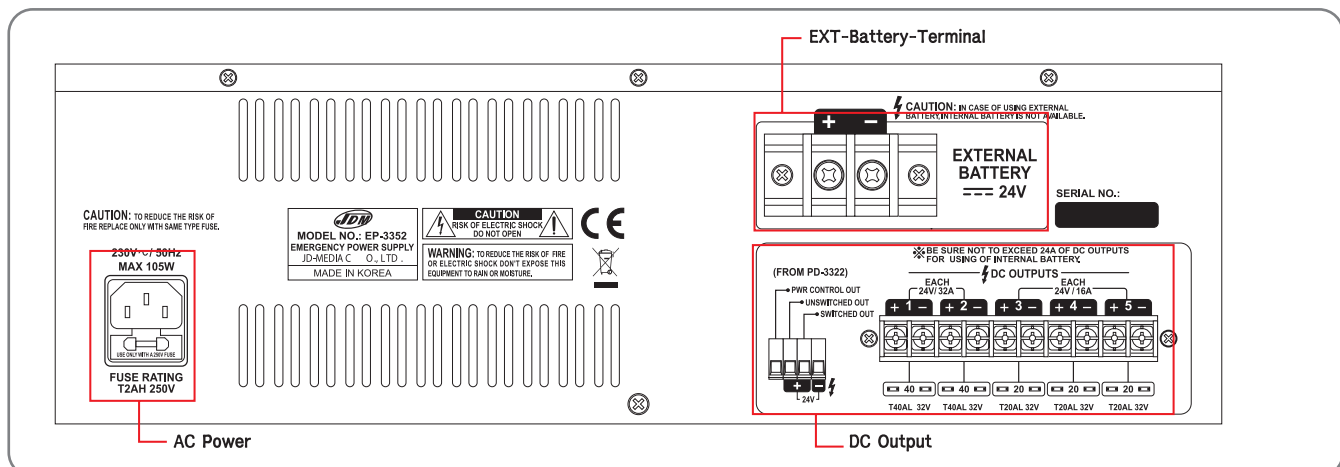
#### TECHNICAL SPECIFICATIONS

Charging off	Aprox. 27.3V DC
Charging current	2.5A limited
Power consumption	105W
Power(option)	AC230V/50Hz, DC24V
Dimensions(m/m)	483(W) x 133(H) x 377(D)m/m
Weight(kg)	built-in battery 30kg
	not built-in battery 12kg
Battery Dimensions(m/m)	175(W) x 125(H) x 166(D)m/m
Capacity	12V / 24AH x 2

#### DRAWING



#### REAR VIEW



# 19" RACKING UNIT



## TB-3372 Terminal Board / Blank Panel

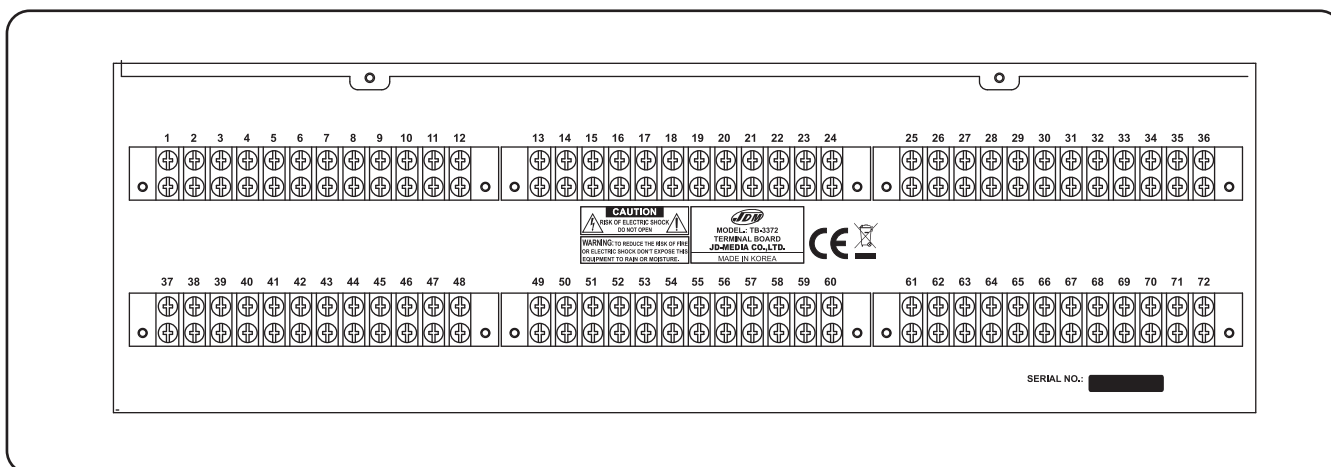
### FEATURES

- High quality 36CH. Terminal
- Connecting external signal with JDM system

### TECHNICAL SPECIFICATIONS

Dimensions(mm)	483(W) x 133(H) x 350(D)
Weight(kg)	5.3Kg

### REAR VIEW



## BP-001/002/003

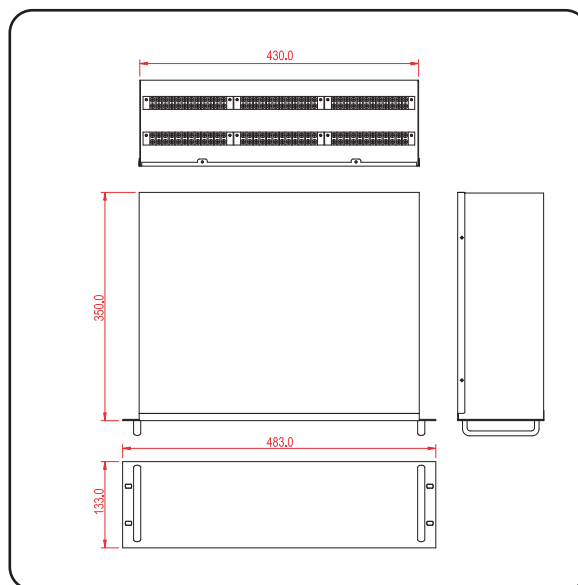
Blank Panel

### TECHNICAL SPECIFICATIONS

	BP-001	BP-002	BP-003
Dimensions(mm)	483(W) x 44(H)	483(W) x 88(H)	483(W) x 133(H)
weigh (kg)	280g	440g	600g



### DRAWING



## 19" RACKING UNIT



**ME-2A** 2-module Extension Cabinet



**ME-4A** 4-module Extension Cabinet

### FEATURES

- 19" rack mounting & table type.
- XLR balanced outputs, individual or mixed for two all modules.
- Racking cabinet for modules DMT-100, CDP-100MU, CDR-100RDSU, TP-100RDS.
- AC operation - DC 24V operation.

### TECHNICAL DATA

Model	ME-2A	ME-4A
Output level/impedance	Pack output-Nor 0dBm(0.775V)/600Ω bal. 1+2, 1+2+3+4-Nor 0dBm(0.775V)/600Ω bal.	
Frequency response	Less than -0.5dB (20Hz-20kHz).	
Signal to noise ratio	More than 68dB	
Power consumption	55W	
Power	AC230V/50Hz, DC24V	
Dimensions m/m	483(W) x 88(H) x 350(D)	483(W) x 133(H) x 350(D)
Weight(kg)	5kg	6kg

### MODULE SERIES (Option)

**EM-600**  
Emergency Module



**CDP-100MU**  
CD & USB Player



**CDR-100RDSU**  
CD & Receiver & USB



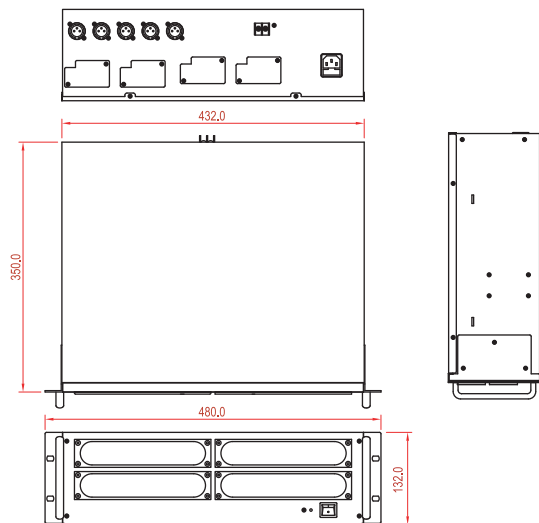
**DMT-100**  
Digital Message & Timer Module



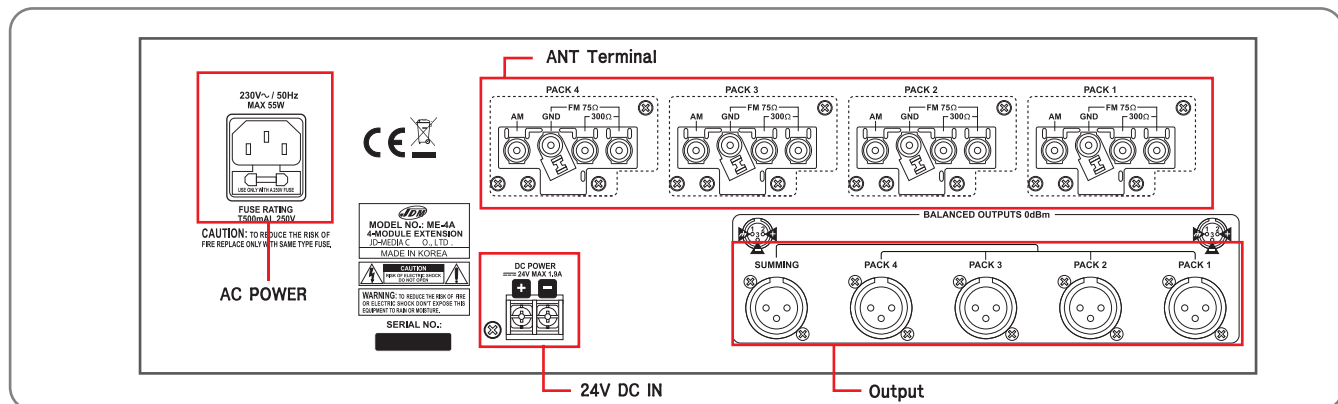
**TP-100RDS**  
Digital RDS Tuner



### DRAWING



### REAR VIEW





## MUSIC AMPLIFIER

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POWER-300/600/800	71
FX-2425	72-73
LX-1.0/1.5/2.2	74
LX-3.0/3.6/4.8/6.0	75
MA-300A/600A/900A	76
SA-200	77

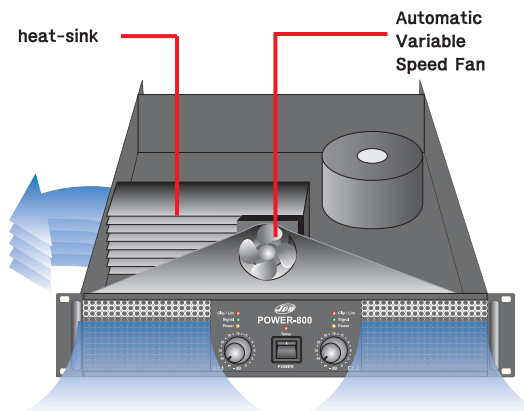
# MUSIC AMPLIFIER



## POWER-300/600/800 Stereo Power Amplifier

### FEATURES

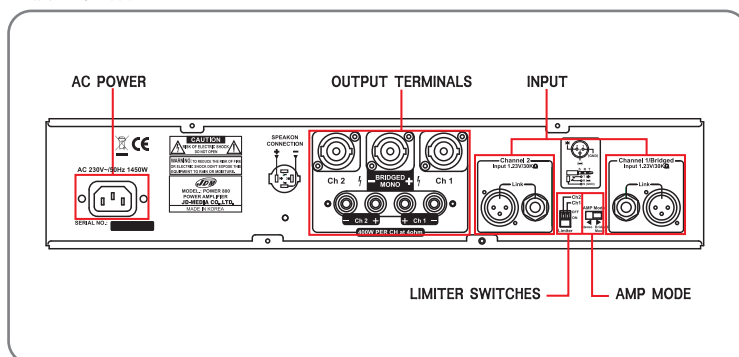
- HIGH EFFICIENT
  - Air flux from right front and side to left front and side.
  - “ $\pi$ ” type air flux design makes high efficient cooling.
- PROTECTION
  - Speaker protection
  - Short protection
  - Over current protection
  - Over heating protection
- 5-Way binding post and speakon connector.
- Built in bridged mono function
- Power “ON” delay circuit (soft start).
- Peak clipping limiter circuit.
- Built-in over current protection to protect output transistor.



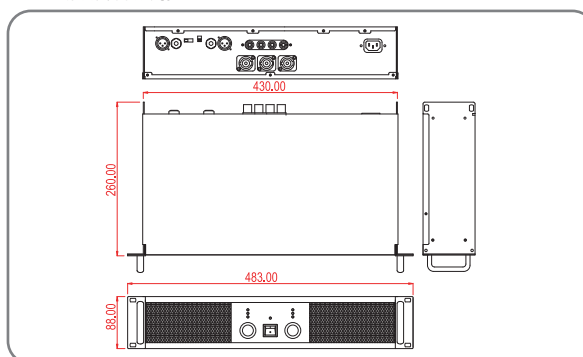
### TECHNICAL SPECIFICATIONS

TECHNICAL DATA	POWER 300	POWER 600	POWER 800
Max output	1kHz, 1% THD		
8 $\Omega$ stereo(RMS)	124W	198W	269W
4 $\Omega$ stereo(RMS)	189W	306W	412W
8 $\Omega$ bridge(RMS)	364W	600W	800W
Rated output	1kHz, 0.1% THD		
8 $\Omega$ stereo(RMS)	118W	189W	260W
4 $\Omega$ stereo(RMS)	181W	396W	392W
8 $\Omega$ bridge(RMS)	345W	566W	750W
Frequency response(1W/8 $\Omega$ )	Less than -0.5dB (20Hz~20kHz)		
Voltage Gain(reference 1kHz)	36dB		
Input Sensitivity at 4 $\Omega$ rated output power	+4dBu(1.23V) / 30k $\Omega$ Bal		
Signal to noise ratio A weighted,rms,to rated output level	More than 100dB		
Damping factor	More than 300		
Slew rate	30V/ $\mu$ s		
Cross talk at 8 $\Omega$ load(“A” weighted)	60dB(“A” weighted)		
Power	AC230V/50Hz		
	Factory configured		
Power Consumption	667W	1050W	1400W
1/8 Power Curr. Draw 120V/220~240V/4 $\Omega$	1.5A	2.4A	3.1A
Max Curr. Draw 120V/220~240V/4 $\Omega$	3.6A	5.5A	7.3A
Dimensions(m/m)	483(W) x 88(H) x 370(D)m/m		
Weight(kg)	10Kg	11Kg	12Kg

### REAR VIEW



### DRAWING



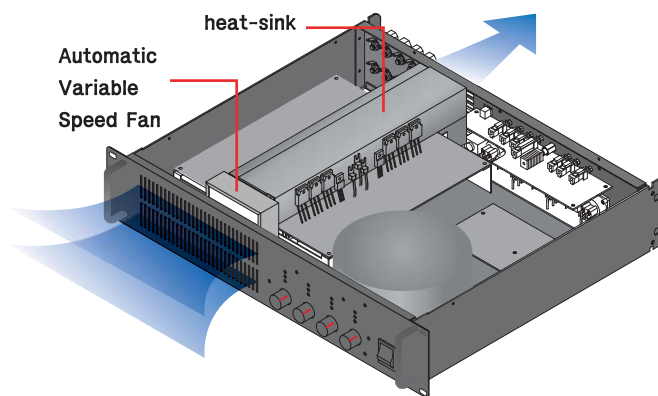
## MUSIC AMPLIFIER



**FX-2425** 4 Channel Professional Power Amplifier

### FEATURES

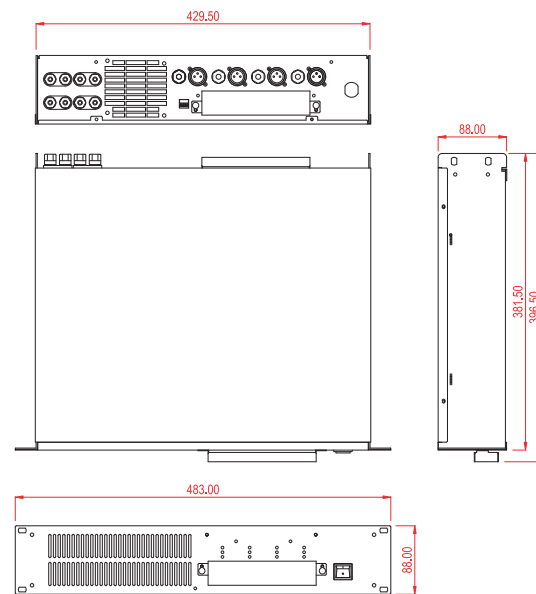
- Mono sub + stereo satellite function (FX-2425).
- Signal input by XLR & TRS Connectors .
- Bridged & parallel mono mode.
- Variable crossover 50Hz - 2.5KHz (-24dB-oct).
- 4 x 250W rated power.
- 21 detent volume control
- Short circuit protection.
- Peak clipping limiter circuit.
- Over current protection.
- Over heating protection.
- Power "ON" delay circuit (soft start).
- Built in 3D mode.
- 5-WAY binding post, speakon connector.
- Detended gain controls with security cover.
- Front panel LED indicators for Power, Signal, Clip/lim and Protector.



### TECHNICAL SPECIFICATIONS

MAX output	1KHz, 1% THD
8 $\Omega$ Stereo(RMS)	170W x 4
4 $\Omega$ Stereo(RMS)	260W x 4
8 $\Omega$ Bridge(RMS)	500W x 2
Rated output	1KHz, 0.05% THD
8 $\Omega$ Stereo(RMS)	160W x 4
4 $\Omega$ Stereo(RMS)	250W x 4
Frequency response at 4 $\Omega$ rated output	Less than -0.5dB (20Hz ~ 20KHz)
Input Sensitivity/Impedance at 4 $\Omega$ rated output	+4dBu(1.23V) / 30k $\Omega$ bal
Input clipping	10Vrms(+22dB)
Signal to Noise Ratio	More than 100dB
Damping Factor 8 $\Omega$ , f=1kHz	More than 300
Slew Rate	More than 50V/ $\mu$ s
Cross Talk 8 $\Omega$ rated power	More than 65dB
Power Consumption	1730W
Power(option)	AC230V/50Hz
Dimensions(m/m)	483(W) x 88(H) x 380(D)m/m
Weight (kg)	17kg

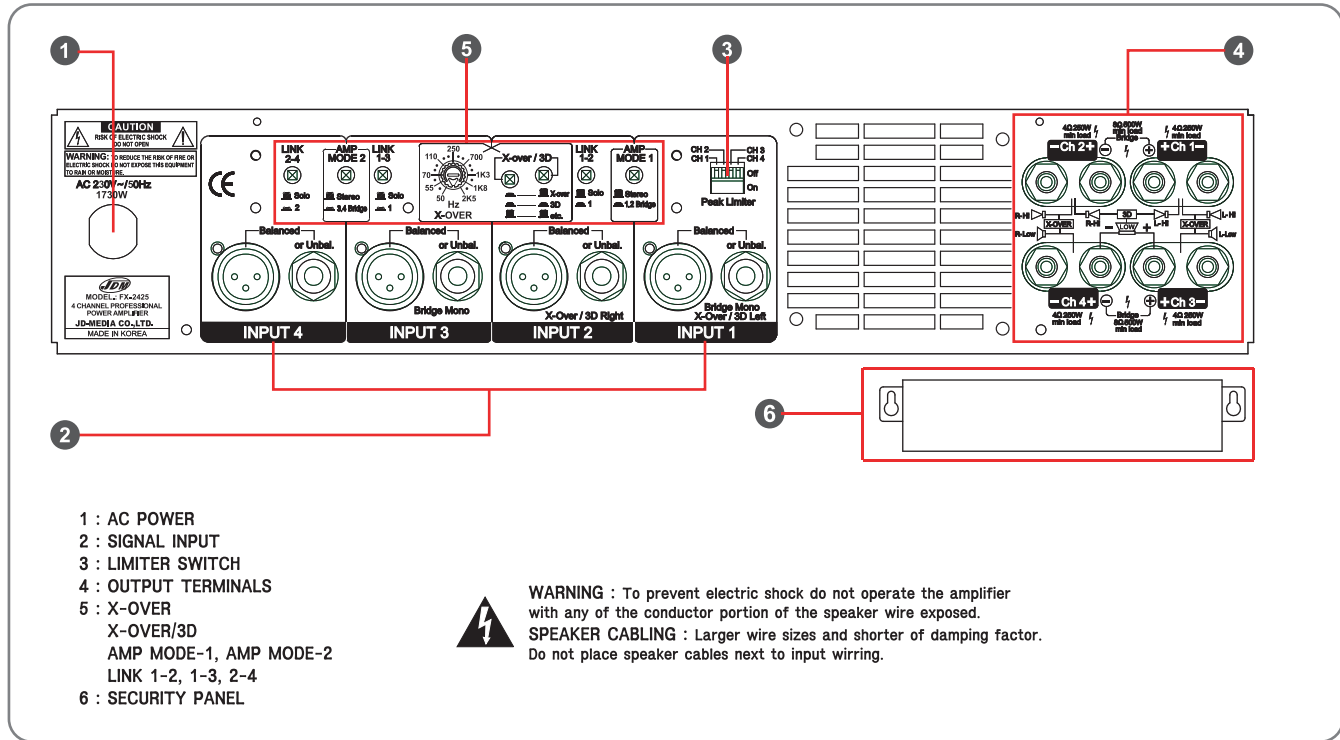
### DRAWING



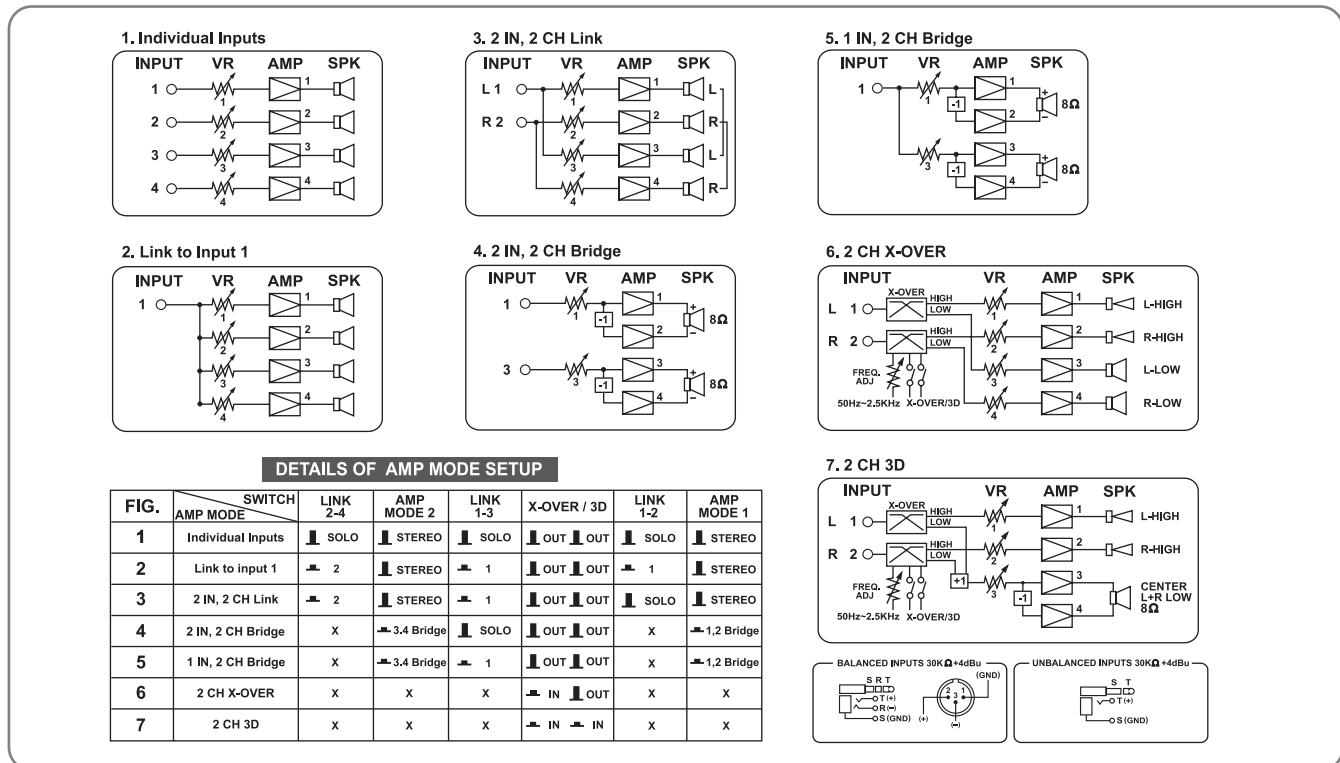


# MUSIC AMPLIFIER

## REAR VIEW



## CONFIGURATION DETAILS



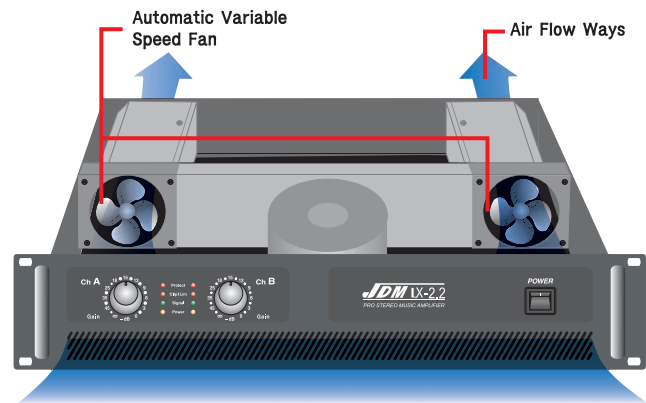
# MUSIC AMPLIFIER



## LX-1.0/1.5/2.2 PRO Stereo Music Amplifier

### FEATURES

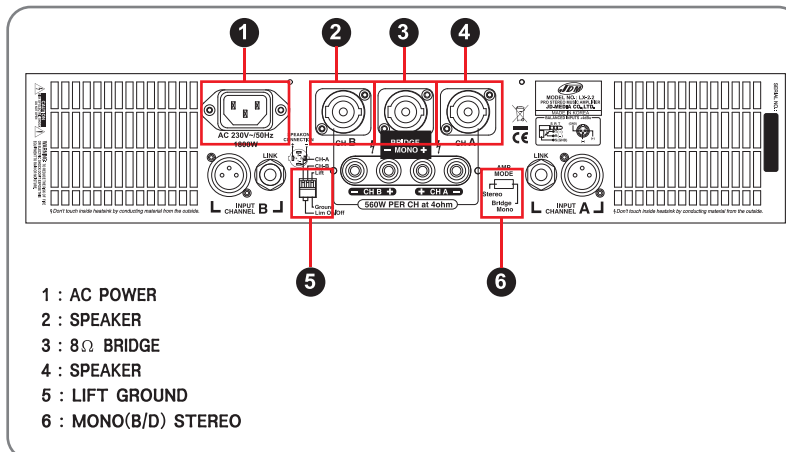
- Power-on delay function.
- XLR, 1/4" TRS(LINK) balanced inputs.
- Bridged mono & 4 Ohm stereo
- Peak detector clipping limiter circuit.
- Ultra low distortion.
- Screw terminal & speakon connectors.
- Variable speed fan.
- Over current protection.
- Thermal protection.
- "π" type airflow from the front makes better cooling to keep reliability.



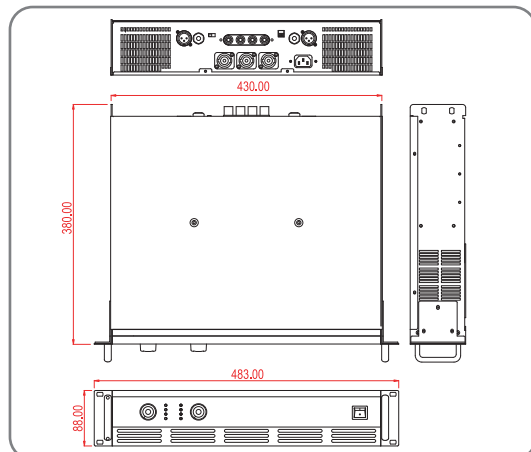
### TECHNICAL SPECIFICATIONS

TECHNICAL DATA	LX-1.0	LX-1.5	LX-2.2
Max output	1KHz, 1% THD		
8Ω Stereo(RMS)	175W	270W	365W
4Ω Stereo(RMS)	275W	420W	565W
8Ω Bridge(RMS)	550W	840W	1130W
Rated output	1KHz, 0.1% THD		
8Ω Stereo(RMS)	160W	250W	345W
4Ω Stereo(RMS)	250W	385W	525W
Frequency response at 4Ω rated power	Less than -0.5dB (20Hz~20kHz)		
Input Sensitivity/Impedance at 4Ω rated power	+4dBu(1.23V) / 30KΩ bal		
Input Clipping	10Vrms(+22dB)		
Signal to Noise Ratio A Weighted 4Ω reted power	More than 100dB		
Damping Factor 8Ω, f=1kHz	More than 300		
Slew Rate	More than 50V/μs		
Cross Talk 8Ω rated power	More than 65dB		
Power Consumption 4Ω rated power(1% THD)	915W	1400W	1800W
Power	AC230V/50Hz		
Dimensions(mmm)	483(W) x 88(H) x 380(D)m/m		
Weight (kg)	11.5kg	12kg	14.2kg

### REAR VIEW



### DRAWING



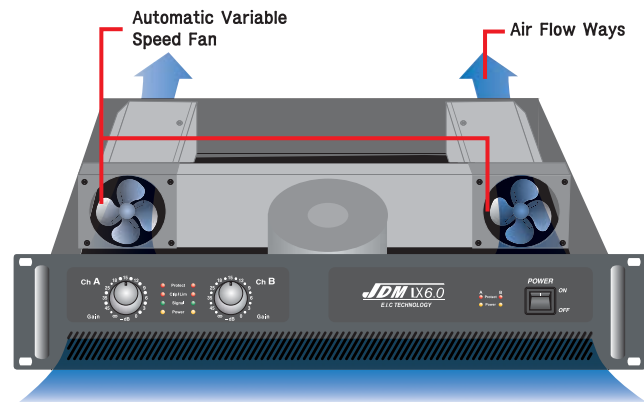
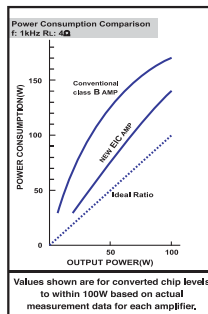
# MUSIC AMPLIFIER



## LX-3.0/3.6/4.8/6.0 Professional Music Amplifier

### FEATURES

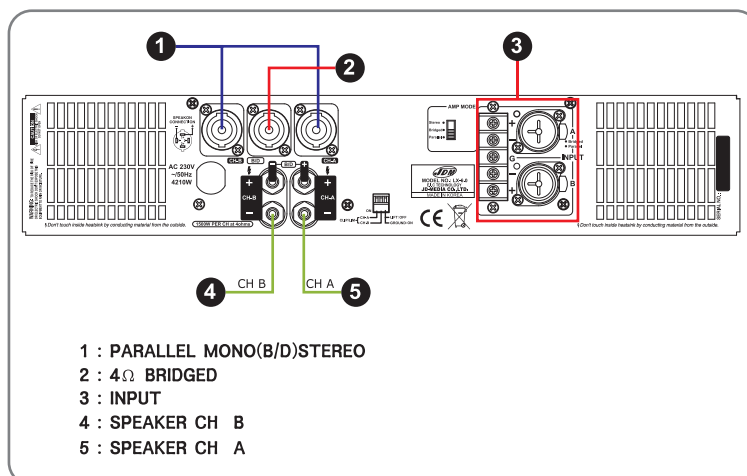
- The EIC engine outperforms other efficiency-enhancing schemes without degrading sound quality by digital power supply.
- New model LX-series are high efficiency amplifiers  
New LX-series high power amplifiers make more efficient use of the AC power
- Variable crossover(x-over)filter(50Hz~2.5Hz)
- In rush current protection
- Stereo bridged mono, parallel mode.
- Variable sub woofer filter(50Hz ~ 160Hz)
- Variable low cut filter(10Hz ~200Hz)
- Over current protection
- Over heating protection
- Over load protection
- Peak clipping limiter circuit
- Output LED meter per channel.



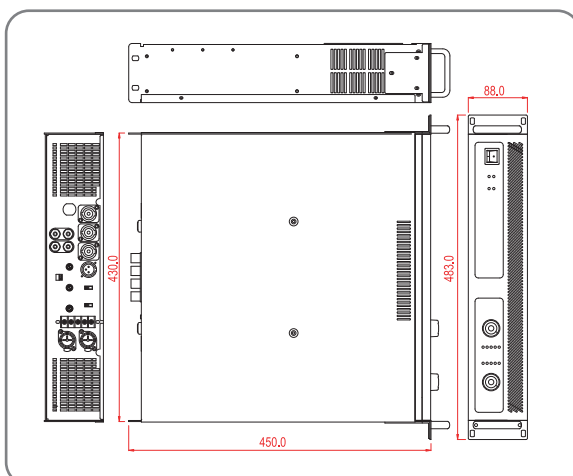
### TECHNICAL SPECIFICATIONS

TECHNICAL DATA	LX-3.0	LX-3.6	LX-4.8	LX-6.0
Max output	1KHz, 1% THD			
8Ω Stereo(RMS)	465W	595W	795W	955W
4Ω Stereo(RMS)	700W	900W	1240W	1500W
8Ω Bridge(RMS)	1400W	1800W	2480W	3000W
Rated output	1KHz, 0.1% THD			
8Ω Stereo(RMS)	435W	555W	735W	905W
4Ω Stereo(RMS)	660W	870W	1160W	1400W
Frequency response at 4Ω rated power	Less than -0.5dB (20Hz~20kHz)			
Input Sensitivity/Impedance at 4Ω rated power	+4dBu(1.23V) / 30KΩ bal			
Input Clipping	10Vrms(+22dB)			
Signal to Noise Ratio A Weighted 4Ω rated power	More than 100dB			
Damping Factor 8Ω, f=1kHz	More than 300			
Slew Rate	50~160Hz-12dB/Octave			
Cross Talk 8Ω rated power	50~160Hz-24dB/Octave			
Power Consumption 4Ω rated power(1% THD)	2075W	2625W	3485W	4215W
Power	AC230V/50Hz			
Dimensions(m/m)	483(W) x 88(H) x 450(D)m/m			
Weight (kg)	16.5kg	18kg	21.5kg	25.5kg

### REAR VIEW



### DRAWING



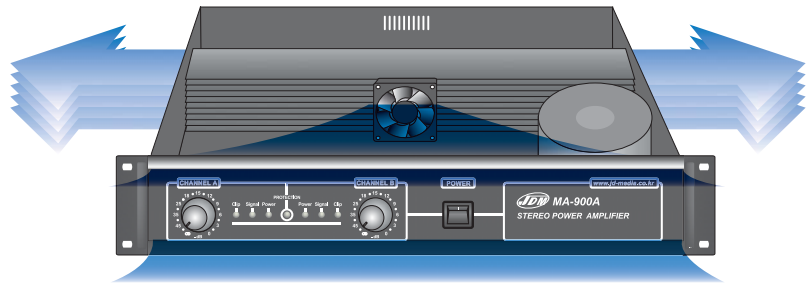
## MUSIC AMPLIFIER



### MA-300A/600A/900A Stereo Power Amplifier

#### FEATURES

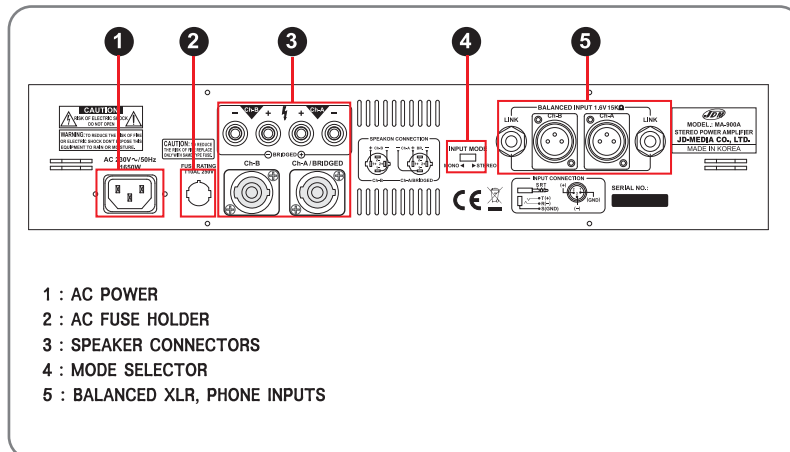
- Automatic variable speed FAN.
- Over-current protection.
- Over-heating protection.
- Load short circuit protection.
- Power delay on circuit (soft start)
- XLR, 1/4" Phone jack(LINK) input connector.
- 5-WAY binding post, speakon connector.
- Ultra low distortion circuit.
- Selective stereo, bridged mono.



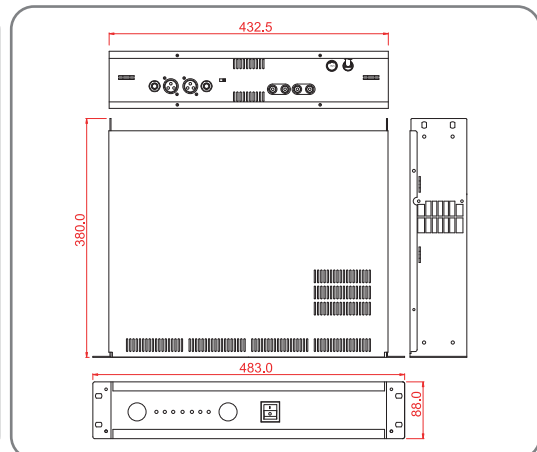
#### TECHNICAL SPECIFICATIONS

TECHNICAL DATA	MA-300A	MA-600A	MA-900A
Rated output	20-20,000 Hz/ = 0.03% THD		
8Ω Stereo(RMS)	2 x 110W	2 x 230W	2 x 300W
4Ω Stereo(RMS)	2 x 150W	2 x 350W	2 x 450W
8Ω Bridge(RMS)	1 x 300W	1 x 700W	1 x 920W
Max output	1KHz, 0.1% THD		
8Ω Stereo(RMS)	2 x 128W	2 x 250W	2 x 350W
4Ω Stereo(RMS)	2 x 175W	2 x 380W	2 x 490W
8Ω Bridge(RMS)	1 x 350W	1 x 760W	1 x 980W
Frequency response at 4Ω rated power	Less than -0.5dB (20Hz~20kHz)		
Input Sensitivity	+4dBu(1.6V)		
Signal to Noise Ratio	More than 100dB		
Power	AC230V/50Hz		
Dimensions(m/m)	483(W) x 88(H) x 380(D)m/m		
Power Consumption	600W	1160W	1650W
Weight (kg)	11kg	12kg	14.2kg

#### REAR VIEW



#### DRAWING



# MUSIC AMPLIFIER



## SA-200 Professional Monitor Amplifier

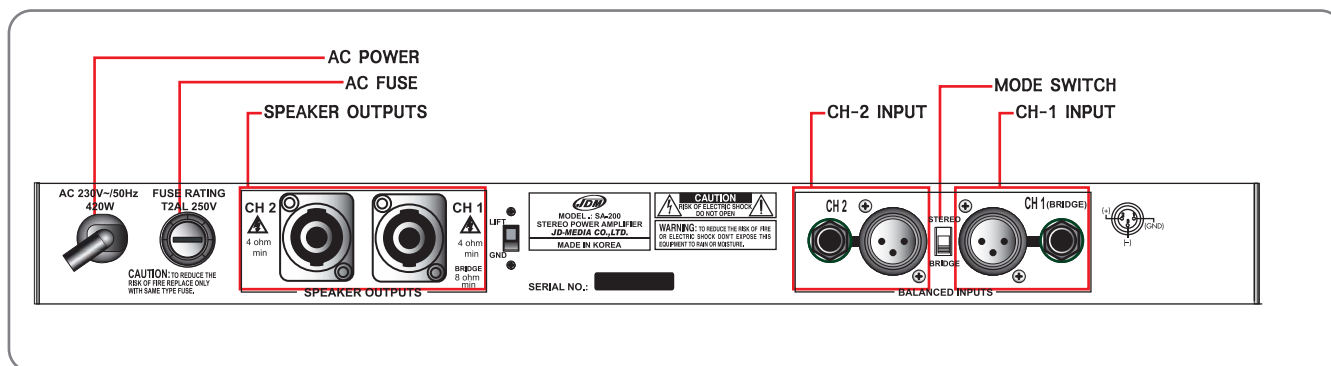
### FEATURES

- 2 x 100W into 4Ω 200W bridged operation.
- Independent power on for each channel offer dependable protection speaker system.
- Professional SPEAKON loudspeaker output enable secure operation.
- Balanced XLR and 1/4" TRS input and for input source.
- High-quality component and exceptionally rugged construction for long life and durability.
- High current toroidal transformer for absolute reliability and lowest noise emission.
- Independent DC and thermal overload protection on each channel automatically protects amplifier and speaker.

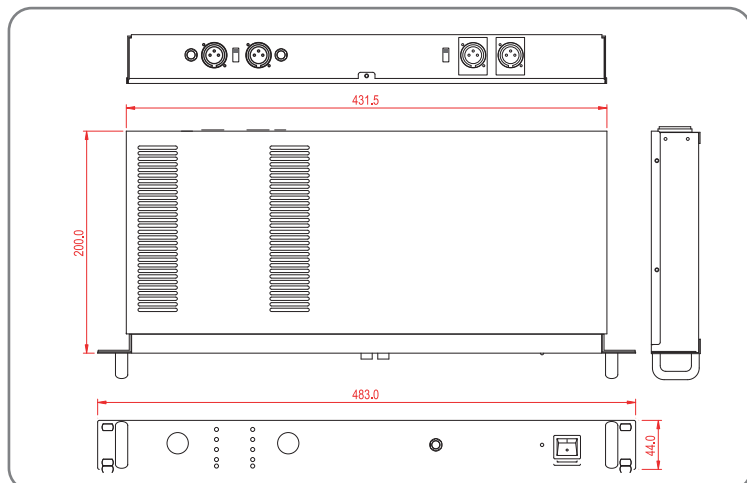
### THCHNICAL SPECIFICATIONS

4Ω Stereo	2 x 100W
8Ω Stereo	2 x 70W
8Ω Mono Bridged	200W
T.H.D at 1kHz	Less than 0.05%
Frequency Response	Less than -1dB (20Hz~20kHz)
Signal to Noise Ratio	More than 100dB
Damping Factor 8Ω, f=50kHz	More than 200
Input Impedance	More than 10kΩ
Channel Sparation 8Ω, 1kHz	More than 70dB
Input Sensitivity	+0dBu(0.78V)
Cooling	Convection Heatsink
Power Consumption	420W
Power	AC220V/60Hz
Dimensions(m/m)	483(W) x 44(H) x 257(D)m/m
Weight (kg)	6.8kg

### REAR VIEW



### DRAWING





## MIXERS

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## MIXERS



### M-2480 Low Noise 24-Input 8-Bus Mic/Line Mixer

High class M series mixer is designed to make high performance that can be used professional sound place for Concert hall, church, school and ETC.

#### FEATURES

- It is designed lowest noise to use live, front of house, monitor, touring mixer.
- 20CH. MIC input, 4CH. stereo line input and 2CH. serve input.
- British 3 band equalizer that is adjusted middle resistor to play high quality sound
- Serve group output for 8 XLR JACK, Main output for 2 XLR JACK, independent Mono output for 1 XLR JACK
- 3, 4 AUX can be shift to 5,6 AUX to can be use 6 AUX function
- 16 insert function and 8 direct output (Only MONO function)
- Clip, signal meter, 100Hz low cut filter switch, channel ON, 8 serve group and main routing switch per each channel
- Multieffect and external signal adjustment
- Use high class 100mm fader and rotary switch
- Built in Mp3/USB player

#### TECHNICAL SPECIFICATIONS

INPUTS	Mono/Stereo Mic	20(16Mono /4 Stereo)
	Stereo Line	4(TRS 1/4" + 2 RCA)
	2T Input	Stereo RCA
	AUX Returns	3 Stereo
OUTPUTS	Main L/R Stereo	2 XLR
	Main Mono	XLR
	AUX Sends	6 TRS 1/4"
	REC L/R Stereo	L/R RCA
	Group Master Output	8 XLR
	Phones	1
CHANNEL STRIPS	CTRL Room L/R	TRS 1/4"
	AUX Controls	4
	Channel On/Mute	Yes
	Channel Solo(PFL) W/Meter	Yes
ELECTRICAL	LED Indicatrol	PFL, -20 Peak
	Bus Assign Switches	1/2, 3/4, 5/6, 7/8 L/R
	Volume Control	100mm Faders
	Frequency Response	20Hz to 60kHz (+0 / -1 dB)
	T.H.D	0.005%
	Mic Preamp E.I.N	-127dBm
	Signal to Noise Ratio	More Than 90dB
	Equalizations	3-band, Swept mid
	Low EQ	80Hz
	Mid EQ	Swept 100Hz~8kHz
	High EQ	12Khz
Low Cut Filter	18dB/oct at 100Hz	
Power Consumption	65Watts	
Dimensions(WxHxD)	750x120x576mm	
Weight (kg)	18Kg	

## MIXERS



### **M-3280** Low Noise 32-Input 8-Bus Mic/Line Mixer

High class M series mixer is designed to make high performance that can be used professional sound place for Concert hall, church, school and ETC.

#### FEATURES

- It is designed lowest noise to use live, front of house, monitor, touring mixer.
- 28CH. MIC input, 4CH. stereo line input and 2CH. serve input.
- British 3 band equalizer that is adjusted middle resistor to play high quality sound
- Serve group output for 8 XLR JACK, Main output for 2 XLR JACK, independent Mono output for 1 XLR JACK
- 3, 4 AUX can be shift to 5,6 AUX to can be use 6 AUX function
- 16 insert function and 8 direct output (Only MONO function)
- Clip, signal meter, 100Hz low cut filter switch, channel ON, 8 serve group and main routing switch per each channel
- Mult effect and external signal adjustment
- Use high class 100mm fader and rotary switch
- Built in Mp3/USB player

#### TECHNICAL SPECIFICATIONS

INPUTS	Mono/Stereo Mic	28(16Mono /4 Stereo)
	Stereo Line	4(TRS 1/4" + 2 RCA)
	2T Input	Stereo RCA
	AUX Returns	3 Stereo
OUTPUTS	Main L/R Stereo	2 XLR
	Main Mono	XLR
	AUX Sends	6 TRS 1/4"
	REC L/R Stereo	L/R RCA
	Group Master Output	8 XLR
	Phones	1
CHANNEL STRIPS	CTRL Room L/R	TRS 1/4"
	AUX Controls	4
	Channel On/Mute	Yes
	Channel Solo(PFL) W/Meter	Yes
ELECTRICAL	LED Indicatrol	PFL, Peak
	Bus Assign Switches	1/2, 3/4, 5/6, 7/8 L/R
	Volume Control	100mm Faders
	Frequency Response	20Hz to 60kHz (+0 / -1 dB)
	T.H.D	0.005%
	Mic Preamp E.I.N	-127dBm
	Signal to Noise Ratio	More Than 90dB
	Equalizations	3-band, Swept mid
	Low EQ	80Hz
	Mid EQ	Swept 100Hz~8kHz
High EQ	12Khz	
Low Cut Filter	18dB/oct at 100Hz	
Power Consumption	65Watts	
Dimensions(WxHxD)	960x120x576mm	
Weight (kg)	22Kg	



## MIXERS



### CPM-600 2 x 300 Watts Powerde Mixer

#### FEATURES

- 2 x 300W Stereo Powerde Mixer
- 6 MONO , 2 Stereo inout and TAPE/CD RETURN for serve stereo input
- 48V Phantom power for condenser microphone
- 3 BAND EQ and LED for signal and peak per each channel
- Built in stereo prossesor and 99 FREE function included reverb, chorus, flanger, delay, combination and muti effecter
- Stereo 7 band grapic equalizer
- Full protection circuit

#### TECHNICLA SPECIFICATIONS

Power Output Level(EIA)	RL 4ohm	2 x 300W
	RL 8ohm	2 x 300W
T.H.D	Rated output RL4ohm	0.05%
	Rated output RL8ohm	0.05%
	Main output +4dBm/600ohm	0.08%
Frequency Response	20Hz ~ 20Khz, 8ohm, 1Watt	+1 / -2dB
	CH in to Main out @ +4dBm	+1 / -2dB
Hum & Noise	-70dB	
Cross Talk	60dB at 1Khz	
Equalizations	Low EQ	80Hz (+/- 15dB)
	Mid EQ	2.5KHz (+/- 12dB)
	High EQ	12KHz (+/- 15dB)
	Graphic EQ	STEREO 7band
Protection Circuit	Short circuit, Current Limit. DC protection at speaker output, AC line fuse	
DC offset	> DC10mV	
Power Consumption	1080 Watts	
Dimensions(WxHxD)	415 x 150 x 330mm	
Weight (kg)	7Kg	



## MIXERS



### M-1843FX Low Noise 18-Input 4-Bus Mic/Line Mixer

#### FEATURES

- 8 Mono channels with high precision.
- MIC PREAMPS, inserts and phantom power plus 2 stereo channels.
- 4 Subgroups, 4 AUX sends and 2 stereo AUX returns.
- Warm, 3-band EQs with semi-parametric mids plus low cut on all mono channels.
- 3-Band EQs on all stereo channels.
- 16-preset digital effects.
- All panasonic 60-mm log taper faders and rotary pot.
- Rack-mounting kit option.



#### TECHNICAL SPECIFICATIONS

INPUTS	Mono Mic/ Line	8
	Stereo Line	4
	2T Input	Stereo RCA
	AUX Returns	2 Stereo
	MS Matrix Input	N/A
OUTPUTS	Main L/R Stereo	TRS 1/4"
	Main Mono	TRS 1/4" (W/LEVEL)
	AUX Sends	4 TRS 1/4"
	REC L/R Stereo	L/R RCA
	Group Master Output	4 TRS 1/4"
	Phones	1
	CTRL Room L/R	TRS 1/4"
CHANNEL STRIPS	AUX Controls	4
	Channel On/Mute	Yes
	Channel Solo(PFL) W/Meter	Yes
	LED Indicatrol	PFL, Peak
	Bus Assign Switches	1/2, 3/4, L/R
ELECTRICAL	Volume Control	60mm Faders
	Frequency Response	20Hz to 60kHz (+0 / -1 dB)
	T.H.D	-127dBm 0.005%
	Mic Preamp E.I.N	-127dBm
	Signal to Noise Ratio	More Than 90dB
	Equalizations	3-band, swept mid
	Low EQ	80Hz
	Mid EQ	swept 100Hz-8K
	High EQ	12Khz
	Low Cut Filter	18dB/oct at 75Hz
	Power Consumption	40Watts
	Dimensions(WxHxD)	440x60x390mm
Weight (kg)	5.8Kg	

## MIXERS



### M-2443 Low Noise 26-Input 4-Bus Mic/Line Mixer

#### FEATURES

- 16 Mono channels with high precision.
- MIC PREAMPS, inserts and phantom power and line level signals from speaker input jack.
- 4 Subgroups, 6 AUX sends and 4 stereo AUX returns.
- Warm, 3-band EQs with semi-parametric mids plus low cut on all mono channels.
- All panasonic 60-mm log taper faders and rotary pot.
- Rack-mounting kit option.
- Auxiliary 1,2 can switched to pre or post fader.
- Control Room/Headphones output with volume control.
- 2-Way physical configuration via rotatable input/output connecting.



#### TECHNICAL SPECIFICATIONS

INPUTS	Mono Mic/ Line	16
	Stereo Line	N/A
	2T Input	Stereo RCA
	AUX Returns	4 Stereo
	MS Matrix Input	N/A
	OUTPUTS	Main L/R Stereo
Main Mono		TRS 1/4" (W/LEVEL)
AUX Sends		6 TRS 1/4"
REC L/R Stereo		L/R RCA
Group Master Output		4 TRS 1/4"
Phones		1
CTRL Room L/R		TRS 1/4"
CHANNEL STRIPS	AUX Controls	4
	Channel On/Mute	Yes
	Channel Solo(PFL) W/Meter	Yes
	LED Indicatrol	PFL, Peak
	Bus Assign Switches	1/2, 3/4, L/R
	Volume Control	60mm Faders
ELECTRICAL	Frequency Response	20Hz to 60kHz (+0 / -1 dB)
	T.H.D	-127dBm 0.005%
	Mic Preamp E.I.N	-127dBm
	Signal to Noise Ratio	More Than 90dB
	Equalizations	3-band, swept mid
	Low EQ	80Hz
	Mid EQ	swept 100Hz-8K
	High EQ	12KHz
	Low Cut Filter	18dB/oct at 75Hz
	Power Consumption	50Watts
	Dimensions(WxHxD)	445x52x495mm
Weight (kg)	7Kg	

## MIXERS



### M-1625 Low Noise 10-Input 2-Bus Mic/Line Mixer

#### FEATURES

- 16 Mono channels with high precision MIC preamps.
- 2 Subgroups, 2 AUX sends and 2 stereo AUX returns.
- 3-band EQs for microphone plus low cut on all mono channels.
- All panasonic 60-mm log taper faders and rotary pot.
- Rack-mounting kit option.
- 3-band EQs on all stereo channels.



#### TECHNICAL SPECIFICATIONS

INPUTS	Mono Mic/ Line	6
	Stereo Line	2
	2T Input	Stereo RCA
	AUX Returns	2 Stereo
	MS Matrix Input	N/A
OUTPUTS	Main L/R Stereo	TRS 1/4"
	Main Mono	TRS 1/4"(W/LEVEL)
	AUX Sends	2 TRS 1/4"
	REC L/R Stereo	L/R RCA
	Group Master Output	2 TRS 1/4"
	Phones	1
	CTRL Room L/R	TRS 1/4"
CHANNEL STRIPS	AUX Controls	2
	Channel On/Mute	Yes
	Channel Solo(PFL) W/Meter	Yes
	LED Indicatrol	PFL, Peak
	Bus Assign Switches	Group 1/2 or L/R
	Volume Control	60mm Faders
ELECTRICAL	Frequency Response	20Hz to 60kHz (+0 / -1 dB)
	T.H.D	-127dBm 0.005%
	Mic Preamp E.I.N	-127dBm
	Signal to Noise Ratio	More Than 90dB
	Equalizations	3-band
	Low EQ	80Hz
	Mid EQ	2.5kHz
	High EQ	12Khz
	Low Cut Filter	18dB/oct at 75Hz
	Power Consumption	25Watts
	Dimensions(WxHxD)	345x60x330mm
Weight (kg)	4.5Kg	

## MIXERS



### M-1002 Low Noise 10-Input 2-Bus Mic/Line Mixer

#### FEATURES

- 16 Mono channels with high precision MIC preamps and phantom power plus 4 stereo channels.
- 1 post fader AUX send.
- Control Room/Headphones output with volume control.
- Warm, 3-band EQs on all mono channels.
- Peak LEDs on all mono input channels.
- All panasonic rotary pot.
- All panasonic 60-mm faders main L/R volume controls.



#### TECHNICAL SPECIFICATIONS

INPUTS	Mono Mic/ Line	16
	Stereo Line	N/A
	2T Input	Stereo RCA
	AUX Returns	4 Stereo
	MS Matrix Input	N/A
OUTPUTS	Main L/R Stereo	XLR
	Main Mono	TRS 1/4" (W/LEVEL)
	AUX Sends	6 TRS 1/4"
	REC L/R Stereo	L/R RCA
	Group Master Output	4 TRS 1/4"
	Phones	1
	CTRL Room L/R	TRS 1/4"
CHANNEL STRIPS	AUX Controls	4
	Channel On/Mute	Yes
	Channel Solo(PFL) W/Meter	Yes
	LED Indicatrol	PFL, Peak
	Bus Assign Switches	1/2, 3/4, L/R
	Volume Control	60mm Faders
ELECTRICAL	Frequency Response	20Hz to 60kHz (+0 / -1 dB)
	T.H.D	-127dBm 0.005%
	Mic Preamp E.I.N	-127dBm
	Signal to Noise Ratio	More Than 90dB
	Equalizations	3-band, swept mid
	Low EQ	80Hz
	Mid EQ	swept 100Hz-8K
	High EQ	12Khz
	Low Cut Filter	18dB/oct at 75Hz
	Power Consumption	50Watts
Dimensions(WxHxD)	445x52x495mm	
Weight (kg)	7Kg	

## MIXERS



### P-1030 PM Series Stereo Mixer

#### FEATURES

- 6 Mono channels with high quality Mic preamps, and phantom power plus 2 stereo channels.(2 with High quality MIC preamps)
- Built in 2 x 150W power amplifier.
- Highest possible headroom, ultra-transparent audio.
- Optional stereo (main L/R) or double mono (main / monitor) operation possible.
- 2 power amp inputs, 2 speaker output(L, R bridge).
- 3 band EQ on all channels.
- Additional 2-track I/O
- 24-bit digital stereo FX processor with 16 outstanding VIRTUALIZER PRESETS.



#### TECHNICAL SPECIFICATIONS

POWER OUTPUTS	4-Ohm load per channel	150W
	8-Ohm load per channel	100W
	8-Ohm load per bridge	N/A
	Total channels	10
INPUTS	Mono Mic / Line	4
	Stereo Line	2
	2T Input	Stereo RCA
	AMP Inputs	L/R TRS 1/4"
OUTPUTS	Speaker Output	TRS 1/4"
	Main L/R Stereo	2 TRS 1/4"
	AUX Sends	1EFX, 1MON
	REC L/R Stereo	L/R RCA
CHANNEL STRIPS	AUX Controls	2
	PAD In / Out	CH1~4
	Volume Control	Rotary
ELECTRICAL	Frequency Response	20Hz to 30kHz (+0 / -1 dB)
	T.H.D	-129.5dBm 0.05%
	Equalizations	3-band
	Low EQ	80Hz
	Mid EQ	2.5kHz
	High EQ	12kHz
	Power Consumption	550W
	Dimensions(WxHxD)	400x235x280mm
Weight (kg)	13.5kg	

## MIXERS



### P-1380 PM Series Stereo Powerde Mixer

#### FEATURES

- 9 Mono channels with high quality Mic preamps, and phantom power plus 2 stereo channels.(2 with High quality MIC preamps)
- Built-in 2 x 400W power amplifier.
- Highest possible headroom, ultra-transparent audio.
- Optional stereo (main L/R) or double mono(main/monitor) operation possible.
- 2 power amp inputs, 2 speaker outputs(L, R mono bridged).
- 3-band EQ on all channels.
- Additional 2-track I/O.
- 24-bit digital stereo FX processor with 32 outstanding VIRTUALIZER presets.



#### TECHNICAL SPECIFICATIONS

POWER OUTPUTS	4-Ohme load per channel	400W
	8-Ohme load per channel	300W
	8-Ohme load per bridge	800W
	Total channels	13
INPUTS	Mono Mic / Line	7
	Stereo Line	2
	2T Input	Stereo RCA
	AMP Inputs	L/R TRS 1/4"
OUTPUTS	Speaker Output	TRS 1/4"
	Main L/R Stereo	2 TRS 1/4"
	AUX Sends	1EFX, 1MON
	REC L/R Stereo	L/R RCA
CHANNEL STRIPS	AUX Controls	2
	PAD In / Out	CH1~7
	Volume Control	Rotary
ELECTRICAL	Frequency Response	20Hz to 30kHz (+0 / -1 dB)
	T.H.D	-129.5dBm 0.05%
	Equalizations	3-band
	Low EQ	80Hz
	Mid EQ	2.5kHz
	High EQ	12KHz
	Power Consumption	1350W
	Dimensions(WxHxD)	470x235x280mm
	Weight (kg)	13.5Kg

## MIXERS



### P-1360R PM Series Stereo Powerde Mixer

#### FEATURES

- 9 Mono channels with high quality Mic preamps, and phantom power plus 2 stereo channels.(2 with High quality MIC preamps)
- Built-in 2 x 300W power amplifier.
- Highest possible headroom, ultra-transparent audio.
- Optional stereo (main L/R) or double mono(main/monitor) operation possible.
- 2 power amp inputs, 2 speaker outputs(L, R mono bridged).
- 3-band EQ on all channels.
- Additional 2-track I/O.
- 24-bit digital stereo FX processor with 32 outstanding VIRTUALIZER presets.
- Rack mounting equipment.

#### TECHNICAL SPECIFICATIONS

POWER OUTPUTS	4-Ohm load per channel	300W
	8-Ohm load per channel	200W
	8-Ohm load per bridge	600
	Total channels	13
INPUTS	Mono Mic / Line	7
	Stereo Line	4
	2T Input	Stereo RCA
	AMP Inputs	L/R TRS 1/4"
OUTPUTS	Speaker Output	TRS 1/4"
	Main L/R Stereo	2 TRS 1/4"
	AUX Sends	1EFX, 1MON
	REC L/R Stereo	L/R RCA
CHANNEL STRIPS	AUX Controls	2
	PAD In / Out	CH1~7
	Volume Control	Rotary
ELECTRICAL	Frequency Response	10Hz to 30kHz (+0 / -1 dB)
	T.H.D	-129.5dBm 0.05%
	Equalizations	3-band
	Low EQ	80Hz
	Mid EQ	2.5kHz
	High EQ	12Khz
	Power Consumption	900W
	Dimensions(WxHxD)	470x235x280mm
Weight (kg)	15.5Kg	

#### REAR VIEW





## MIXERS



### P-1360R PM Series Stereo Powerde Mixer

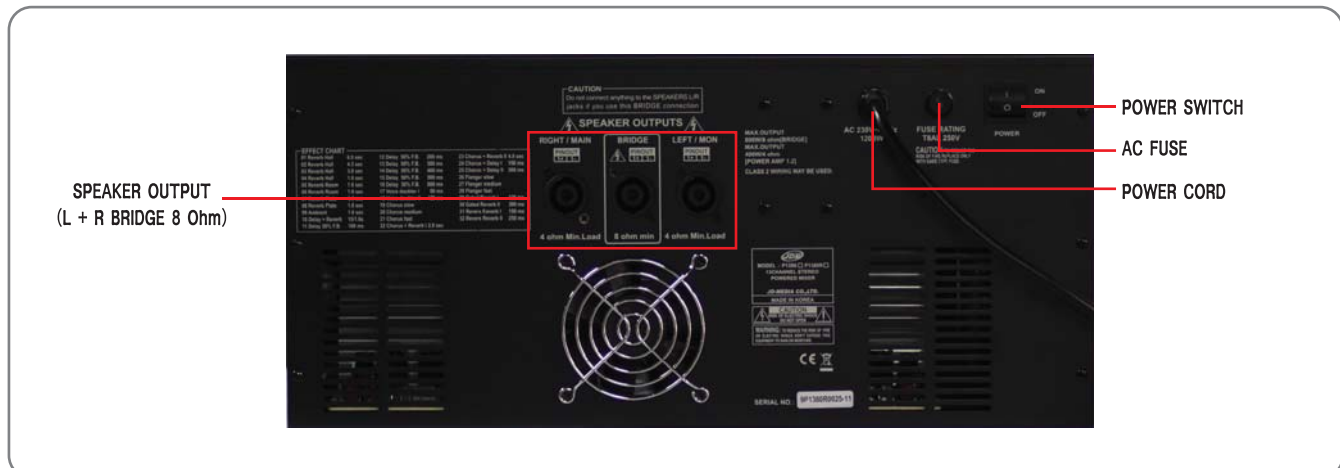
#### FEATURES

- 9 Mono channels with high quality Mic preamps, and phantom power plus 2 stereo channels.(2 with High quality MIC preamps)
- Built-in 2 x 400W power amplifier.
- Highest possible headroom, ultra-transparent audio.
- Optional stereo (main L/R) or double mono(main/monitor) operation possible.
- 2 power amp inputs, 2 speaker outputs(L, R mono bridged).
- 3-band EQ on all channels.
- Additional 2-track I/O.
- 24-bit digital stereo FX processor with 32 outstanding VIRTUALIZER presets.
- Rack mounting equipment.

#### TECHNICAL SPECIFICATIONS

POWER OUTPUTS	4-Ohme load per channel	400W
	8-Ohme load per channel	300W
	8-Ohme load per bridge	800
	Total channels	13
INPUTS	Mono Mic / Line	7
	Stereo Line	4
	2T Input	Stereo RCA
	AMP Inputs	L/R TRS 1/4"
OUTPUTS	Speaker Output	TRS 1/4"
	Main L/R Stereo	2 TRS 1/4"
	AUX Sends	1EFX, 1MON
	REC L/R Stereo	L/R RCA
CHANNEL STRIPS	AUX Controls	2
	PAD In / Out	CH1~7
	Volume Control	Rotary
ELECTRICAL	Frequency Response	10Hz to 30kHz (+0 / -1 dB)
	T.H.D	-129.5dBm 0.05%
	Equalizations	3-band
	Low EQ	80Hz
	Mid EQ	2.5kHz
	High EQ	12kHz
	Power Consumption	1350W
	Dimensions(WxHxD)	470x235x280mm
Weight (kg)	16Kg	

#### REAR VIEW





## SPEAKERS & OTHERS

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CO-110/120/130/140/160	91
CO-110A/120A/130A/140A/160A	92
CS-405/605/610, FA-100/210CE, WS-103W/WN	93
WS-110W/WN, HS-20/30/50RT, AT-03/300/600	94
FA-502/630/830NT, FA-10B	95
RACK CABINET	96

## SPEAKER

## Column Speaker









## ACCESSORY

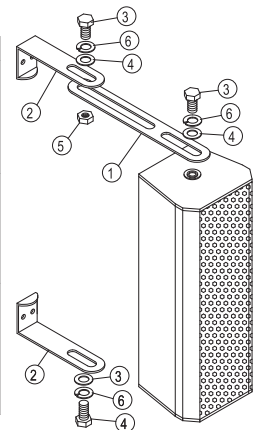


## FEATURES

The series CO-100 column speakers feature the "two-way system" and made of stable, stove-enamelled steel sheet, the two covers of high film plastics. This modern, very wide-range, high-performance speaker combined with the tweeter provides excellent speech and reproduction.

- All column speakers in this series are equipped with 100V-matching-transformer and a turn switch for 1/1 - 1/2 - 1/4 and low-impedance power use.
- The "Low-cut switch" on the front side enables to filter out definite low frequencies, which has the effect of an excellent speech transmission.
- The grill is easily removed. It is easy to handle the impedance-and "Low-cut" selector switches. The speaker can be either used indoor outdoors. The scope of delivery contains a mounting set, for pan and tilt.

NO.	PARTS NAME	QTY(EA)	DES.	NO.	PARTS NAME	QTY(EA)	DES.
1	Fixing Angle	1		4	Flat Washer	3	
2	Fixing Angle	2		5	Hexagonal Nut	1	
3	Hexagonal Bolt	3		6	Spring Washer	3	

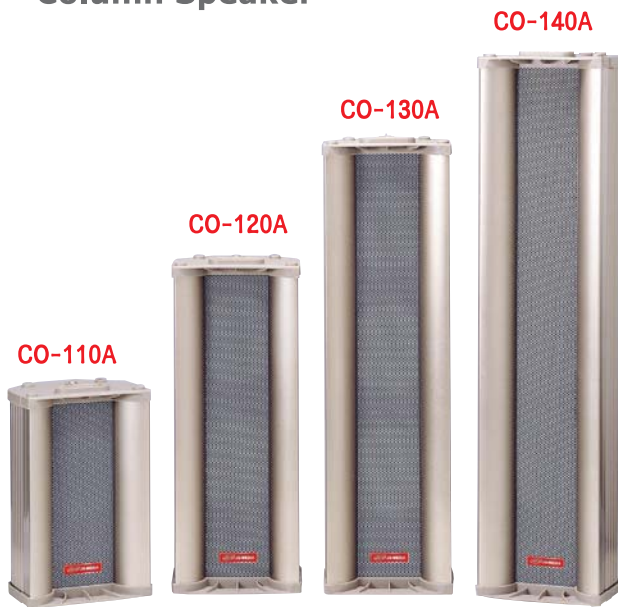


## TECHNICAL SPECIFICATIONS

Model	Spec.	Impedance	Power(RMS)			S.P.L.(at 1M/1W $\pm$ 3dB or Out Power)	Loudspeaker	Size/W x H x D(m/m)	Weight	Direct 8 $\Omega$
			100V	70V	50V					
CO-110(S)		1K $\Omega$	10W	5W	2.5W	88~101dB	3 inch x 1	90 x 260 x 85	2kg	10W
		2.5K $\Omega$	4W	2W	1W		2 inch x 1			
		6.6K $\Omega$	1.5W	0.75W	0.38W		3 inch x 2			
CO-120(S)		500 $\Omega$	20W	10W	5W	89~103dB	3 inch x 2	90 x 360 x 85	2.5kg	20W
		1K $\Omega$	10W	5W	2.5W		2 inch x 1			
		2K $\Omega$	5W	2.5W	1.3W		3 inch x 3			
CO-130(S)		333 $\Omega$	30W	15W	7.5W	90~104dB	3 inch x 3	90 x 470 x 85	3.5kg	30W
		666 $\Omega$	15W	7.5W	3.8W		2 inch x 1			
		1.3K $\Omega$	7.5W	3.8W	1.9W		3 inch x 4			
CO-140(S)		250 $\Omega$	40W	20W	10W	92~106dB	3 inch x 4	90 x 560 x 85	4kg	40W
		500 $\Omega$	20W	10W	5W		2 inch x 1			
		1K $\Omega$	10W	5W	2.5W		3 inch x 6			
CO-160(S)		166 $\Omega$	60W	30W	15W	94~107dB	3 inch x 6	90 x 760 x 85	5.5kg	60W
		250 $\Omega$	40W	20W	10W		2 inch x 1			
		333 $\Omega$	30W	15W	7.5W					

## SPEAKER

## Column Speaker



## ACCESSORY









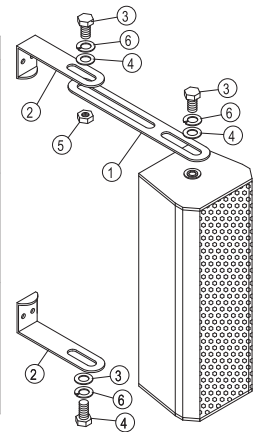
## FEATURES

The column speakers series is very strong and sturdily constructed. They are made of extruded aluminium with cast aluminium top and bottom covers.

The aluminium grille is stove enamelled. The columns are weather- and dust-proof and are very suitable for outdoor use, e.g. open-air theatres, stadiums and public parks.

- All column speakers in this series are equipped with matching transformers for half and full power use.
- Supplied as standard with each of these speakers. Is complete swivel and tilt wall mounting kit.
- Because of their trapeze-shape, These speakers are very space saving and also suitable for corner installation.
- The casing's cross-section is of a trapezoid form, the column speakers fit very well and are space saving in room corners, etc.

NO.	PARTS NAME	QTY(EA)	DES.	NO.	PARTS NAME	QTY(EA)	DES.
1	Fixing Angle	1		4	Flat Washer	3	
2	Fixing Angle	2		5	Hexagonal Nut	1	
3	Hexagonal Bolt	3		6	Spring Washer	3	



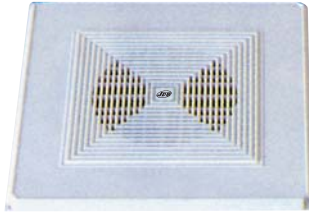
## TECHNICAL SPECIFICATIONS

TECHNICAL DATA	CO-110A	CO-120A	CO-130A	CO-140A
Driver	5" 70 $\phi$	5" 70 $\phi$	5" 70 $\phi$	5" 70 $\phi$
Power(RMS)	10W	20W	30W	40W
Frequency Range	250Hz~12kHz	250Hz~12kHz	250Hz~12kHz	250Hz~12kHz
Impedance	Black	COM	COM	COM
	Brown(100V)	1k $\Omega$	500 $\Omega$	333 $\Omega$
	Sky(70V)	490 $\Omega$	245 $\Omega$	163 $\Omega$
S.P.L	92dBV $\pm$ 3dB	95dBV $\pm$ 3dB	97dBV $\pm$ 3dB	99dBV $\pm$ 3dB
Dimension W x H x D(m/m)	148 x 250 x 120	148 x 370 x 120	148 x 490 x 120	148 x 600 x 120
Net Weight(kg)	1.7kg	2.5kg	3.5kg	4.5kg
Material	ABS resin/Aluminum			

## SPEAKER

**CS-405**

Ceiling Speaker

**TECHNICAL SPECIFICATIONS**

Input(rms)	5W
Frequency response	50Hz~16Hz
S.P.L	94dB
Materials	ABS
Impedance	2k $\Omega$ (ORG)
Weight (kg)	1.5kg
Dimension (m/m)	303 x 303 x 85

**CS-610**

Ceiling Speaker

**TECHNICAL SPECIFICATIONS**

Input(rms)	10W
Impedance	1k $\Omega$ , 2k $\Omega$
Frequency response	160Hz~15kHz
S.P.L	91dB $\pm$ 3dB
Mounting Hole	$\phi$ 195mm
Materials	Aluminum
Weight (kg)	1.54kg
Dimension (m/m)	$\phi$ 220 x 85

**FA-100CE**

Ceiling Speaker

**TECHNICAL SPECIFICATIONS**

Input(rms)	3W/6W
Frequency response	150Hz~12KHz
S.P.L	90dB $\pm$ 2dB
System type	6 1/2" Ceiling
Materials	ABS Resin
Dimension (m/m)	228x228x108
Weight (kg)	3.3K $\Omega$ , 5K $\Omega$ , 10K $\Omega$

**CS-605**

Ceiling Speaker

**TECHNICAL SPECIFICATIONS**

Reate Power	5W
Frequency response	160Hz~15kHz
S.P.L	90dB $\pm$ 3dB
Mounting Hole	$\phi$ 90 mm
Impedance	2k $\Omega$
Materials	Matal Housing, ABS Frame
Dimension (m/m)	$\phi$ 220 x 85
Weight (kg)	1.3kg

**FA-210CE** Ceiling Speaker**TECHNICAL SPECIFICATIONS**

Input(RMS)	40W/80W
Frequency Response	300Hz~15kHz
S.P.L	97dB $\pm$ 3dB
Impedance	8 $\Omega$ , 2 k $\Omega$
Mounting Hole	$\phi$ 200
Materials	ABS Resin + Steel
System type	6 1/2"
Dimension (m/m)	280 x 264 x 130 mm
Weight (kg)	3.5kg

**WS-103W**

Wall Speaker

**WS-103WN**

Wall Speaker

**TECHNICAL SPECIFICATIONS**

System Type	5" x Tweeter
Power(rms/max)	3W/6W
Frequency response	130Hz~12KHz
S.P.L	3.3k $\Omega$ , 5k $\Omega$ , 8k $\Omega$
Impedance	88dB $\pm$ 3dB
Weight(kg)	2.5kg
Material	ABS resin
Dimensions (m/m)	205 x 310 x 85

## SPEAKER

**WS-110W**

Wall Speaker

**WS-110WN**

Wall Speaker



## TECHNICAL SPECIFICATIONS

System Type	5" x Tweeter
Power(RMS/MAX)	10W/20W
Frequency Response	250Hz~20K
Impedance	8Ω, 1kΩ, 500Ω
S.P.L	88dB ±3dB
Weight (kg)	4.2kg
Material	ABS resin
Dimension (m/m)	205 x 310 x 85mm

**HS-30RT**

Horn Speaker



## TECHNICAL SPECIFICATIONS

Power Rated	30W
Impedance	333Ω (WHT), 666Ω (GRN), 1.3KΩ (RED)
Frequency Response	380Hz ~ 6.5kHz
S.P.L	Power/m : 124dB
Hron Matarials	Heavy Duty Aluminum
Dispersion	90° H x 140° Conical at 1kHz
Dimensions(mm)	280φ x 340mm
Weigth(kg)	2.8Kg

**HS-20RT**

Horn Speaker


 Power Rated 20W  
 TECHNICAL SPECIFICATIONS

Impedance	500Ω (WHT), 1KΩ (GRN), 2KΩ (RED)
Frequency Response	380Hz ~ 6.5kHz
S.P.L	101dB ±3dB
Hron Matarials	Aluminum Cavity, Steel Bracket
Dispersion	90° H x 140° Conical at 1kHz
Dimensions(mm)	248φ x 290mm
Weigth(kg)	2.4kg

**HS-50RT**

Horn Speaker



## TECHNICAL SPECIFICATIONS

Power Rated	50W
Impedance	200Ω (WHT), 400Ω (GRN), 666Ω (RED)
Frequency Response	530Hz ~ 6kHz
S.P.L	105dB ±2dB
Hron Matarials	Heavy Duty Aluminum
Dispersion	90° H x 140° Conical at 1kHz
Dimensions(mm)	340φ x 360mm
Weigth(kg)	3.2Kg

**AT-03**

Attenuator



## TECHNICAL SPECIFICATIONS

Inpur(RMS)	3W
Impedance	2KΩ
S.P.L	0, -6dB, -12dB, OFF
Dimension (m/m)	71x116x20
Weight(Kg)	50g

**AT-300/600**

Attenuator



## TECHNICAL SPECIFICATIONS

Rated Power	30W	60W
Impedance	100V	
Switch	4 Position + OFF	
Dimensions (m/m)	70 x 45 x 115	
Weight(Kg)	0.2kg	0.32kg

## SPEAKER

**FA-502NT**(TRANSFORMER)

Fashion Speaker

**TECHNICAL SPECIFICATIONS**

System Type	5" Woofer, 2-way Full Range
Power (r.m.s/max)	50/100W
Frequency Range	50Hz~19KHz
Impedance	8Ω, 250Ω
Sensitivity	97dB ±2dB
Materials	ABS Resin
Dimension (m/m)	227x153x148m/m

**FA-630NT**(TRANSFORMER)

Fashion Speaker

**TECHNICAL SPECIFICATIONS**

System Type	6 1/2" Woofer, 2-way Full Range
Power (r.m.s/max)	100/200W
Frequency Range	40Hz~20KHz
Impedance	250Ω
Sensitivity	99dB ±2dB
Materials	ABS Resin
Dimension (m/m)	312x214x188m/m

**FA-830N**

Fashion Speaker

**TECHNICAL SPECIFICATIONS**

System Type	8" 2-way Full Range
Power (r.m.s/max)	150/300W
Frequency Range	40Hz~20KHz
Impedance	8Ω
Sensitivity	99dB ±2dB
Materials	ABS Resin
Dimension (m/m)	400x260x267m/m

**FA-10B**

Speaker Bracket

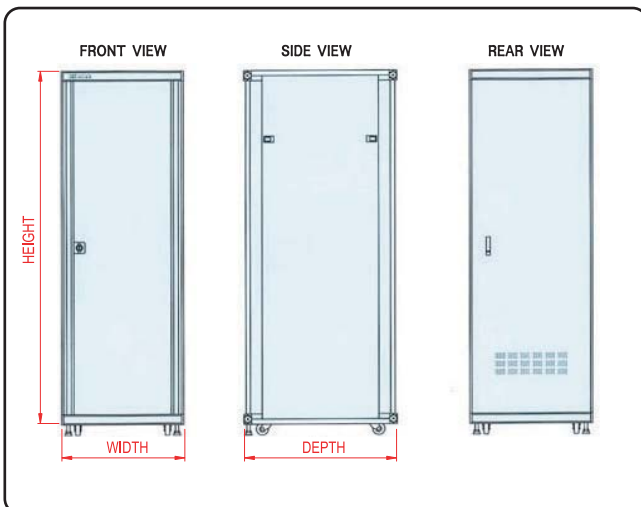


Apply Model	FA-502NT, FA-630NT, FA-830N
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# RACK CABINET



## DRAWING




## COLOR



## FEATURES

- International standard to cooperate with IEC/EIA/DIN.
- Cabinet for broadcasting system.
- Two tone color.
- AL 6063 T5 & Steel.
- Low noise cooling fan.
- Strong internal design.

 RA means aluminium.  
RS means steel.

## TECHNICAL SPECIFICATIONS

TECHNICAL DATA	RA-015	RA-021	RA-027	RA-033	RA-039
WIDTH	587mm	587mm	587mm	587mm	587mm
HEIGHT	881mm	1,237mm	1,415mm	1,682mm	1,949mm
DEPTH	589mm	589mm	589mm	589mm	589mm
CASTER	4EA	4EA	4EA	4EA	4EA
LEVEL FOOT	2EA	2EA	2EA	2EA	2EA
COOLING	OPTION	OPTION	OPTION	OPTION	OPTION
POWER(GROUND)	OPTION	OPTION	OPTION	OPTION	OPTION