KARBON AUDIO ®

K-9604

6X6 AUDIO DISTRIBUTION

AMPLIFIER

K-9604 6x6 audio matrix with 6 bridgeable zones to accomodate 1 or 2 speakers per zone

Integrated the device via the network.

OWNERS MANUAL

DEAR CUSTOMER

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

WARNING

1. Do not expose this unit to water, moisture, or excessive humidity.

2. Do not install or place this unit in a built-in cabinet, or other confined space without adequate ventilation.

3. To prevent risk of electrical shock or fire hazard, due to overheating do not obstruct unit's ventilation openings.

4. Do not install near any source of heat, including other units that may produce heat.

5. Do not place unit near flames.

6. Only clean unit with a dry cloth.

7. Unplug unit during lightening storms or when not used for an extended period of time. A surge protector is strongly recommended.

8. Protect the power cord from being walked on or pinched, particularly at the plugs.

9. Use unit only with accessories specified by the manufacturer.

10. Refer all servicing to qualified personnel.

CAUTION

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

| | **CAUTION** | |
| | RISK OF ELECTRIC SHOCK DO NOT OPEN | |

FEATURES

The K-9604 is a functional, easy-to-install, highly compatible, expandable, and user-friendly audio distribution system. It provides up to 25W @ 8 Ohm Power by Class D amplifier to up to 18 zones which at can be controlled by packaged keypads (included with K-9604 unit), RS232,IR or network. Overall the distribution systems easy-to- install, so every audiophile can enjoy the powerful audio wherever they are.

6x6 AUDIO DISTRIBUTION AMPLIFIER
Part # K-9604(includes 6 keypads)

- 6 x 6 Audio Matrix with 6 Bridgeable zones to accommodate 1 or 2 speakers per zone
- Provides a Whole House Audio Control System - expandable up to 3 units for 18 Zones of distributed audio
- Integrated network allows for effortless control via PC or Macbook
- High efficiency Class D amplification
- Stereo/Bridge mono output
- Stereo/Bridge mode adjustable
- IR remote controller for source select/volume/treble/bass
- Power 230V and 115V adjustable
- RS-232 port allows 2-way communication with the Home Automation
- Ext. Mute & System on 3.5mm Mono Mini Phone Jacks
- 1 PA Input Jack to set all Zone to Source 1
- 6 IR Emitter 3.5 mm Mono Mini Phone Jacks + 1 IR Emitter 3.5mm Mono for All Output
- 3 Zone Pre-AMP Outputs to connect external Power amplify

SPECIFICATIONS

Watts @8ohms ....25W x 2 per zone

Watts @4ohms ....50W x 2 per zone

Watts Bridge 8 Ohms......................................100W per zone

S/N..>85dB A WTD

THD..<0.1%

Frequency Response.......................................20Hz-20KHz

Input Impedance..>47 K Ohm

Input Sensitivity...250 mv

Protection Function..Overload Protection, Short Circuit Protection, Over Temperature Protection

System on Voltage ....DC +12V

External Mute Voltage....................................DC +12V

Power Supply AC115V/60Hz, 230V/50Hz

Output Connection ....Terminal Block

Dimension..16.9"W x 3.5"H x 16.4"D

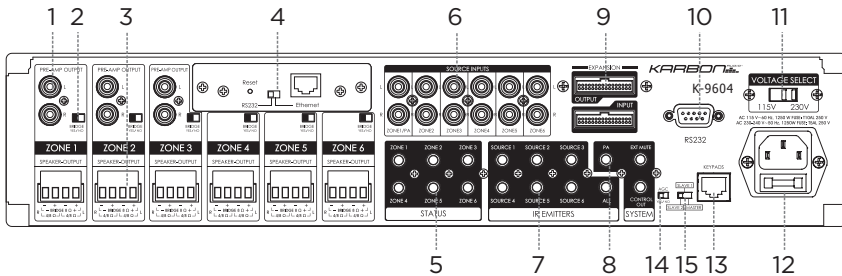Weight ....25 lbs

PACKAGE CONTENTS

- 6x6 Amplifier
- Remote Control
- Expansion Ribbon Cable
- Rack Mounting Ears – 2 (Installed on Amp)
- Speaker Terminal Blocks – 6 (Installed on Amp)
- Keypad Connection Hub and Decora Wall-plate
- POE Keypads with built-in IR RX and Decora Wall-plates – 6
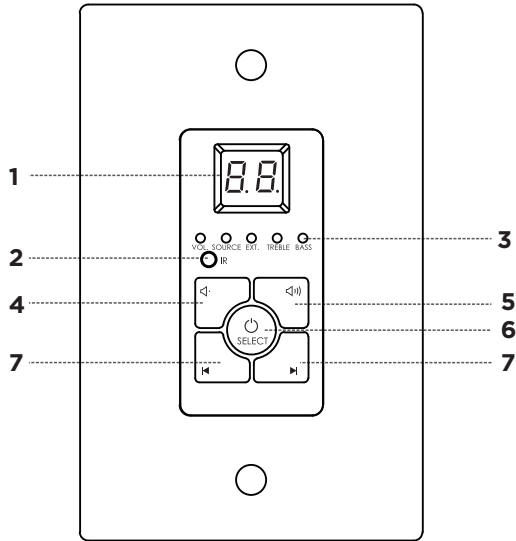- AC Power Cable
- Product Manual

PANEL DESCRIPTIONS
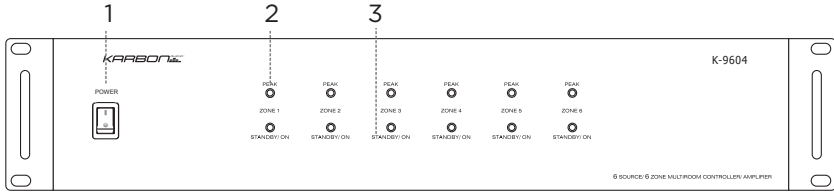
1. Power ON/OFF Switch

2. PEAK LED indicates if a connected source level is too high. If the PEAK LED is RED, reduce the zone input or output level.

3. Standby/Zone ON LED- When this LED is BLUE this indicates a zone is not on or in Standby mode. When this LED is WHITE it indicates that a zone is on.


1. Stereo line-level Pre-Amp outputs (Zones 1-3)

2. Mode Switch: Mono/Bridge

3. Speaker Outputs: 50w @ 4 Ohms-Stereo, 25w @ 8 Ohms-Stereo, 100w @ 8 Ohms-Bridge

4. Integrated network

5. Zone Status: Used to control external Zone Devices

6. Source Inputs (Input 1/PA)

7. IR Outputs to control Sources

8. A) PA Trigger IN (Source 1)
B) MUTE In/Control Out: This input can temporarily mute the system by connecting this unit to a relay closure switch on home automation system or phone system etc. When switch is on, it will short-circuit the input and mute the unit.

9. Expansion IN/OUT Port: Connects up to 3 units' total

10. RS232 Port

11. Voltage Selector (115v in US)

12. AC Input

13. Keypad Hub Input

14. ACG (Automatic Gain Control): brings low input levels up to a preset-level

15. Unit ID Switch

KEYPAD

1. Numeric LED Display

2. IR Receiver Target

3. Selection and Status LED's

4. Power/Status. Press and Hold to Turn Zone ON/OFF. When ON, Press to toggle through settings

5. Increase Volume, Treble or Bass

6. Decrease Volume, Treble or Bass

7. Source Select

REMOTE CONTROL
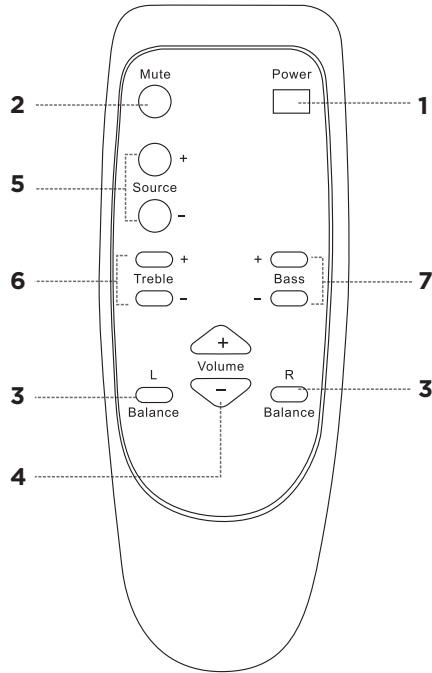
1. Power: switches power (On/Off) for the certain zone.

2. Mute: allows you to mute a certain zone.

3. BAL: These L & R buttons can adjust the balance of L/R channel in stereo mode.

4. VOL: Volume adjustment

5. Source: Used to select signal input.

6. Treble: This allows you to enhance or reduce Treble of signal in individual zone.

7. Bass: This allows you to adjust the Bass for the individual zone

CONNECT AND OPERATE

Before you begin to install the K-9604, it is important to implement good installation practices:

1. Make sure that AC power is disconnected before making ANY connections to the main unit and attached devices.

2. Install in a well-ventilated environment

3. Ensure any vents are not blocked to allow for proper circulation

4. Do not install above or below sources of heat

5. Use good quality cabling

6. The unit can be installed within a rack using the provided mounting rack ears

CONNECTING THE SOURCES

Up to 6 sources can be connected to a single K-9604. Using RCA cables connect each source into one of the available Source Inputs.
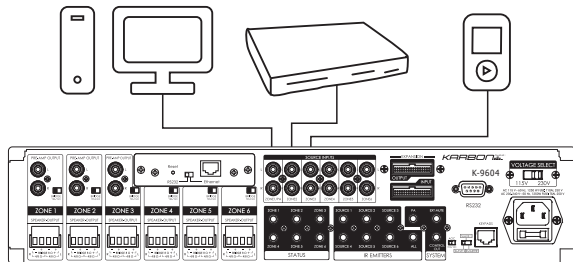
Some sources such as MP3 players and Cell Phones may require a 3.5mm Stereo to RCA Cables in order to connect to the AMP

RCA   3.5mm Stereo

NOTE: Input 1 can be used as a global input for all zones when a source is connected to Input 1 and the 12VDC is applied to the PA-IN jack (tip is positive) then source 1 will broadcast to all zones. If no 12VDC is applied, then the first input will be operating under normal conditions.

CONNECTING THE SPEAKERS

The K-9604 can work with speakers that are 4-8 Ohm. There are 9 two modes that can be set for different setups: Stereo or Bridge. An 8 Ohm speaker can only be used when in Bridge mode. To choose between modes, use the mode switch to determine modes for each zone (Number 2 Panel Descriptions, page 5)

Once you have properly identified the desired mode, strip about ¼" of insulation and twist the copper strands. Connect the speaker wire to there screw down terminal as indicated on the amp. To loosen the terminal turn counterclockwise and to tighten the terminal turn clockwise. For better quality, we recommend used 12-14 AWG stranded copper speaker wire.
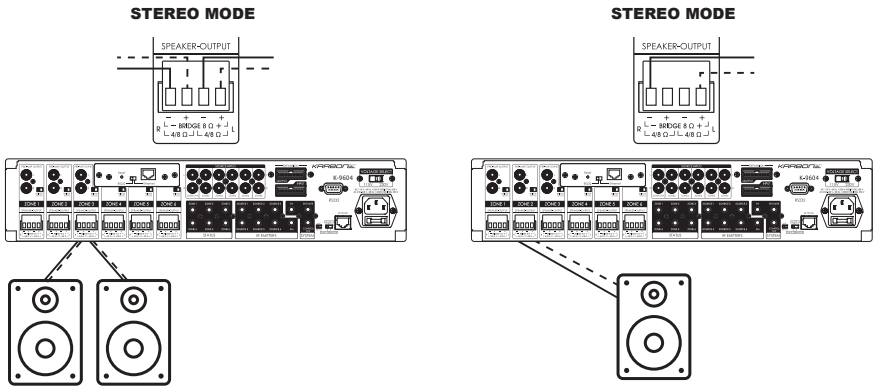
USING THE PRE-AMP OUTPUTS

There are 3 unbalanced, line level Pre-Amp outputs that correspond to the first 3 Outputs. These can be used to connect an additional amplifier, expand zones, or to connect a powered subwoofer. The Pre-amp output levels are not fixed and are able to be controlled via IR, RS232, keypads and network.
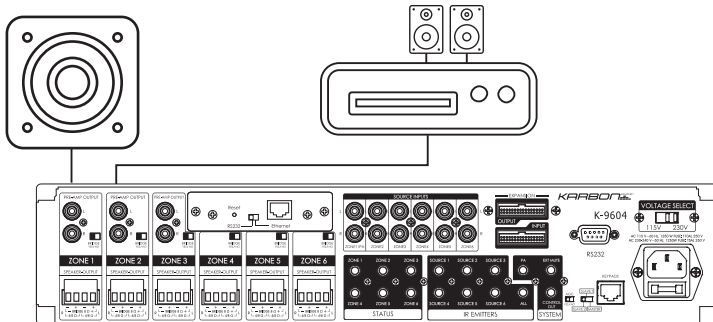
CONNECTING THE KEYPADS

The K-9604 comes with 6 POE enabled keypads. This allows for source control from each specific zone as well as IR routing to the appropriate source devices once selected. The K-9604 also comes with a hub that allows for all 6-keypads to be connected to the amp via Cat5e/6.
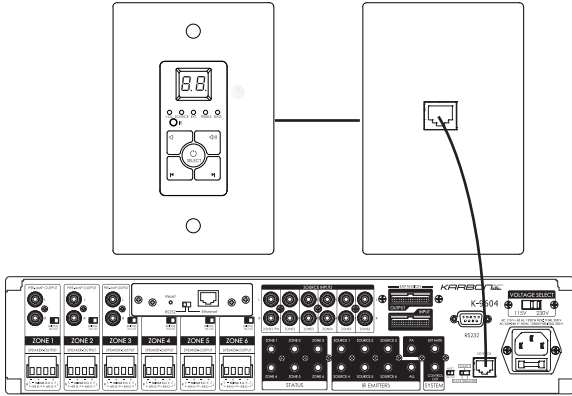

Without power being connected, connect a Cat5e/6 cable to the RJ45 port labeled KEYPADS on the back of the AMP We recommend terminating the Cat5e/6 using the 568B standard.
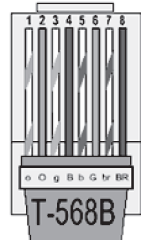
At this point it is also important to address your keypads. Refer to the chart below which is also found on the PCB board of the back of the keypad to set the dip switches according to the zone you would like it to control.

ZONE-1	ZONE-2	ZONE-3
ON ON OFF	ON OFF ON	ON OFF OFF
1 2 3	1 2 3	1 2 3

ZONE-4	ZONE-5	ZONE-6
OFF ON ON	OFF ON OFF	OFF OFF ON
1 2 3	1 2 3	1 2 3

Connect the other end of the Cat5e/6 to the lone RJ45 port found on the front side of the Keypad Hub. The front is what fits into the provide decora plate. Note that the Cat5e/6 between the unit and the hub should only be between 7-10ft. The RJ45 ports on the back of the Keypad Hub are not assigned but the single RJ45 port isolated on the bottom of the hub is reserved for cascading units.


reserved for cascading units

FRONT   BACK
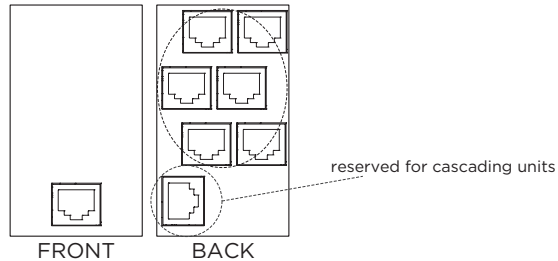
Connect the other end of the terminated Cat5e/6 to the RJ 45 port on the back of the assigned keypad and installation is complete. Complete zone and source control as well as IR and power are provided through the single Cat5e/6.

CONNECTING AND USING THE ZONE STATUS PORTS
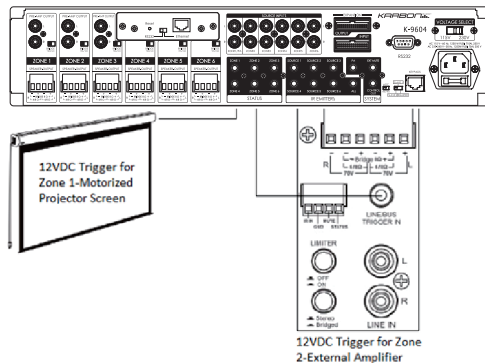
There are six 12Vdc trigger outputs which correspond to the six output zones. When a zone is powered ON by the K-9604 keypad, the corresponding zone sends 12Vdc to the trigger output jack. The triggers can be used to automatically switch peripheral equipment ON or OFF.

WIRING: 3.5mm Mono
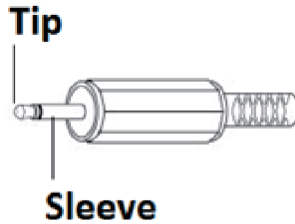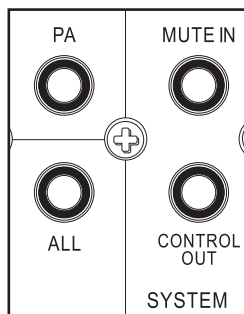
Plug: Tip is Positive (+)

Trigger Outputs for Zones 1 ~ 6: Zone ON; 12Vdc applied to the TRIGGER OUTPUT, Zone OFF; 12Vdc removed from the TRIGGER OUTPUT.

CONTROL: When any zone is on, 12Vdc applied to the CONTROL OUT. When All zones are OFF, 12Vdc removed from the CONTROL OUT

Trigger Inputs:

PA- IN: Apply 12Vdc for input #1 override on all six zones.

MUTE – IN: Apply 12Vdc to mute all zones.

IR EMITTERS

When being used with keypads, the K-9604 can receive IR signals from each zone, and routed back through the Cat5e/6 and Keypad up to the Amplifier to control the selected source. For example, if Source 2-DVD is selected in Zone 1, the user will be able to control the DVD player to power the device on/off, change settings ect. Since the amplifer has discreet routing, ONLY the Source that is selected on each zone can be controlled. This prevents other sources from accidently be controlled when selected on other zones.

Source 2-DVD

IR Emitter from
Source 2 port

Power
IR Signal
Grounding

IR +
IR -
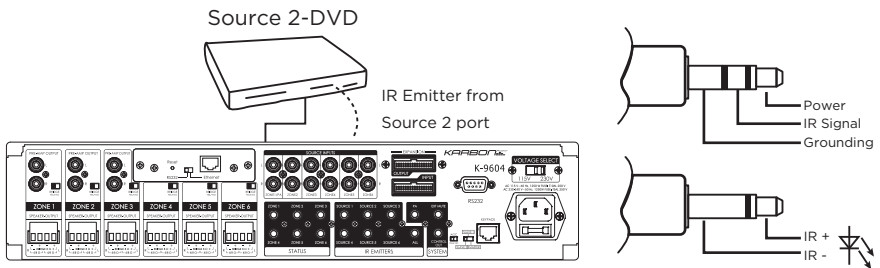
CASCADING SOURCES INTO ADDITONAL ZONES

The K-9604 can allow 6 sources to be distributed to up to 18 zones on 3 different units using the provided ribbon cable to connect between units. To do this first each unit needs to be addressed according using the MASTER/SLAVE switch. There are 3 positions for this, Master, Slave 1, and Slave 2 which help identify each unit.
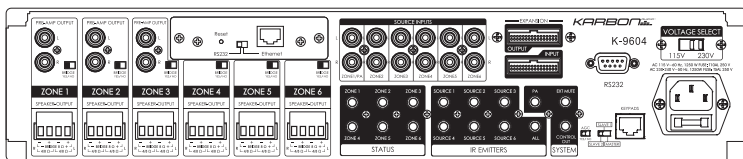
Once each unit is correctly addressed, use the provided ribbon cables to connect the OUTPUT of the original MASTER unit into the INPUT of Slave 1. To cascade the sources into a third unit, using the provided expansion ribbon cable, go out of the OUTPUT port from the device addressed as SLAVE 1 into the INPUT port of the device addressed as SLAVE 2.
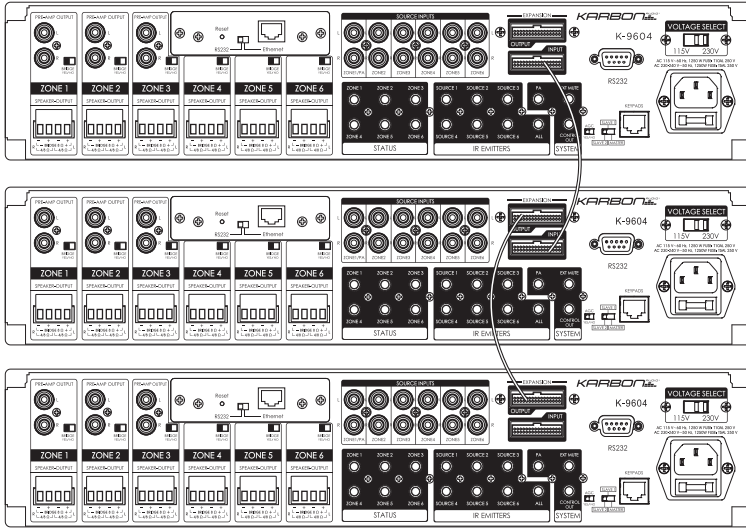

INTEGRATED NETWORK
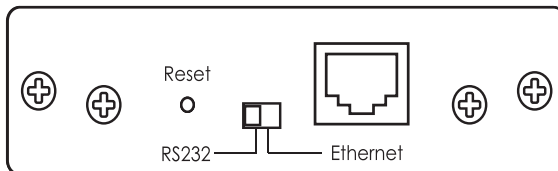
Set the switch to Ethernet.
Connect the Cat5 cable to Ethernet port and LAN port of the Router.

Open the IE web browser of PC, log in to the WEB configuration page of local Router to find the IP address of K-9604 (shown as below)

X450J	IP: 192.168.100.8	MAC: 28-E3-47-C0-64-40
B018	IP: 192.168.100.11	MAC: 00-22-6C-CA-B0-1B
B3EC	IP: 192.168.100.9	MAC: 00-22-6C-CA-B3-EF
K-9604	IP: 192.168.100.7	MAC: 10-A4-BE-FB-0C-07
KENNYLAI	IP: 192.168.100.13	MAC: 4C-ED-FB-D9-D1-B0

Then enter the IP address of K-9604 to the IE browser (shown as below), ensure the Serial Configure is 9600. After finishing this step, K-9604 could be controlled through the local Network.
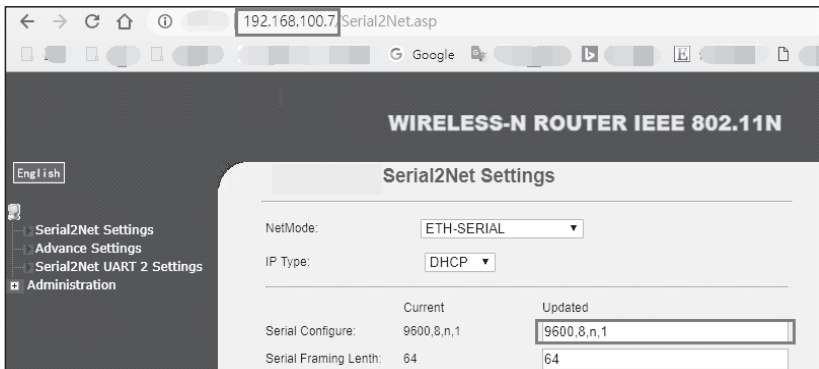
Download free software Serial&TCP/UDP Tool from the internet to control the device. Operation diagram as below:
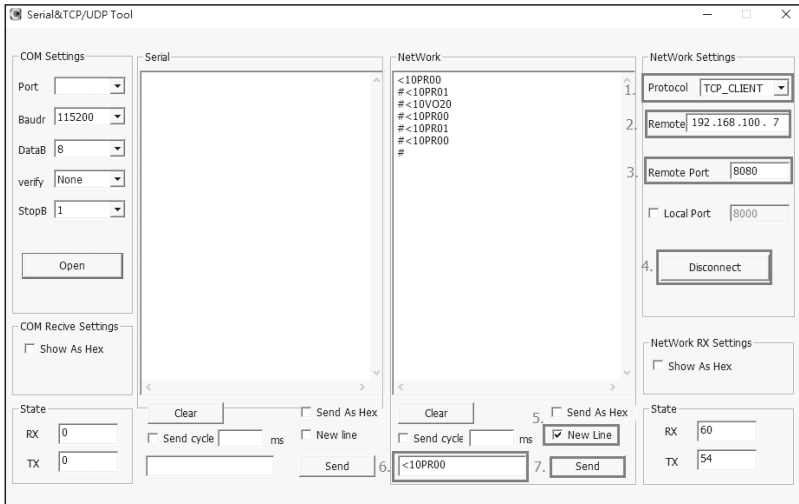
K-9604 AT COMMAND CODE

'CR':Carriage Return (0x0D)

No case capitalization/ lowercase

Control order structure <xxPPuu'CR'

Reply control order frame >xxPPuu'CR'

xx: stands for control object code

10 :All Zone of Main unit 1.

20 :All Zone of Main unit 2.

30 :All Zone of Main unit 3.

:Zone1 of Main unit 1.

:Zone2 of Main unit 1.

:Zone3 of Main unit 1.

....

PP: Stands for control action code.

PR:Power control

PR00:Power off PR01:Power on

MU:Mute control

MU00:Mute off MU01:Mute on

DT:Do Not Disturb control

DT00:DT control off

DT01:DT control on

VO:Volume control

VO(00-38):Volume control

TR:Treble control

TR(00-14):Treble control

BS:Bass control

BS(00-14):Bass control

BL:Balance control

BL(00-20):Balance control

CH:Source Channel control

CH(01-06):Source control

Inquiry command structure (1) ?xx'CR'

xx: stands for control object code

10 : All Zone of Main unit 1.

20 : All Zone of Main unit 2.

30 : All Zone of Main unit 3.

: Zone1 of Main unit 1

: Zone2 of Main unit 1

: Zone3 of Main unit 1

: Zone1 of Main unit 2

: Zone2 of Main unit 2

: Zone3 of Main unit 2

....

Reply command: >xxaabbccddeeff-gghhiijj'CR'

aa: PA control status

bb: Power control status ([5]:Backup Zone Power

Status

(only on zone)

cc: Mute control status

dd: DT control status

ee: Volume control status

ff: Treble control status

gg: Bass control status

hh: Balance control status

ii: Source control status

jj: keypad connecting status

(00:disconnect 01:connected)

Inquiry command structure (2)

?xxPP'CR'

xx: stands for control object code

10 : All Zone of Main unit 1.

20 : All Zone of Main unit 2.

30 : All Zone of Main unit 3.

11 : Zone1 of Main unit 1

12 : Zone2 of Main unit 1

13 : Zone3 of Main unit 1

14 : Zone4 of Main unit 1

15 : Zone5 of Main unit 1

16 : Zone6 of Main unit 1

K-9604 AT COMMAND CODE

PP: Stands for control action code.

PA: PA control

PR: Power control

MU: Mute control

DT: DT control

VO: Volume control

TR: Treble control

BS: Bass control

BL: Balance control

CH: Source control

LS: keypad connecting status

Reply command: >xxPPuu'CR'

Key in 1<********'CR' change Source 1 Name display;********needs to be 8 valid ASCII codes.

Key in 2<********'CR' change Source 2 Name display

Key in 3<********'CR' change Source 3 Name display

Key in 4<********'CR' change Source 4 Name display

Key in 5<********'CR' change Source 5 Name display

Key in 6<********'CR' change Source 6 Name display

Key in M<********'CR' change the name display on

keypad when turn on.

Key in <9600'CR' change RS232 speed rate to 9600

Key in <19200'CR' change RS232 speed rate to 19200

Key in <38400'CR' change RS232 speed rate to 38400

Key in <57600'CR' change RS232 speed rate to 57600

Key in <115200'CR' change RS232 speed rate to 115200

Key in <230400'CR' change RS232 speed rate to 230400

When unplugging and re-plugging the AC power cord, the baud speed rate returns to 9600.

ee: Volume control status

ff: Treble control status

gg: Bass control status

hh: Balance control status

ii: Source control status

jj: keypad connect status (00:disconnect 01:connected)

Inquiry command structure (2)

?xxPP'CR'

xx: stands for control object code

10 : All Zone of Main unit 1.

20 : All Zone of Main unit 2.

30 : All Zone of Main unit 3.

11 : Zone1 of Main unit 1

12 : Zone2 of Main unit 1

13 : Zone3 of Main unit 1

14 : Zone4 of Main unit 1

15 : Zone5 of Main unit 1

16 : Zone6 of Main unit 1

PP: Stands for control action code.

PA: PA control

PR: Power control

MU: Mute control

DT: DT control

VO: Volume control

TR: Treble control

BS: Bass control

BL: Balance control

CH: Source control

LS: keypad connecting status

K-9604 AT COMMAND CODE

Reply command: >xxPPuu'CR'

*******needs to be 8 ASCII codes.

Key in 1<********'CR' change Source 1 Name display

Key in 2<********'CR' change Source 2 Name display

Key in 3<********'CR' change Source 3 Name display

Key in 4<********'CR' change Source 4 Name display

Key in 5<********'CR' change Source 5 Name display

Key in 6<********'CR' change Source 6 Name display

Key in M<********'CR' change the name in the display

On the keypad when the keypad is turned on.

Key in <9600'CR' change RS232 speed rate to 9600

Key in <19200'CR' change RS232 speed rate to 19200

Key in <38400'CR' change RS232 speed rate to 38400

Key in <57600'CR' change RS232 speed rate to 57600

Key in <115200'CR' change RS232 speed rate to 115200

Key in <230400'CR' change RS232 speed rate to 230400

When unplugging and re-plugging the AC power cord, the

Baud speed rate will return to 9600.