TU-110B

19″-TUNER

RCS   AM/FM TUNER **TU-110B**

STATION CALL M1 M2 M3 BAND STER/MONO SCAN/UP TUNE+ MODE FUNCTION

M4 M5 M6 A/PS MUTE SEEK/UP TUNE−

STEREO   98.5   FM1

STEREO   SIGNAL STRENGTH

0 Level 10

POWER
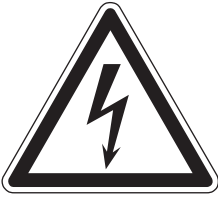
OPERATING INSTRUCTIONS / BEDIENUNGSANLEITUNG   - ENGLISH
- DEUTSCH

CAUTION / ACHTUNG

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

ACHTUNG: ZUR VERMEIDUNG VON STROMSCHLÄGEN GEHÄUSEABDECKUNG ODER RÜCKSEITE NICHT ENTFERNEN. KEINE VOM BENUTZER WARTENDEN TEILE IM INNEREN. WARTUNG NUR DURCH QUALIFIZIERTEM PERSONAL.

SAFETY INSTRUCTION

Please read all safety instructions before operating the Device.

1. Installation according to the following guidelines:

● Install the device always on a flat and even surface.
● The device should not be exposed to damp or wet surroundings. Please keep away from water.
● Please avoid using the device near heat sources, such as radiators or other devices which produce heat.
● To install the device in a 19" rack please note that the appliance should be situated, that the location or position does not interfere with an adequate ventilation.

2. Keep in mind the following when connecting the device:

● Connect the amplifier after reading the manuals.
● To prevent electric shock, do not open top cover.
● Connect only to 230 V and 24 V Emergency power (DC).

INSPECTION AND INVENTORY OF THE PRODUCT

Check unit carefully for damage which may have occurred during transport. Each RCS product is carefully inspected at the factory and packed in a special carton for safe transport.
Notify the freight carrier immediately if you observe any damage to the shipping carton or product!

Return: Repack the unit in the carton and await inspection by the carrier's claim agent. Notify your dealer of the pending freight claim. Returning your unit for service or repairs. Should your unit require service, contact your dealer.

WICHTIGE SICHERHEITSHINWEISE

Bitte lesen Sie die Sicherheitsanweisungen, bevor Sie das Gerät in Betrieb nehmen.

1. Installation nach folgenden Richtlinien:

● Stellen Sie das Gerät immer auf eine ebene und stabile Unterfläche.
● Wählen Sie eine trockene Umgebung und vermeiden Sie Aufstellungsorte mit geringer Luftzufuhr.
● Vermeiden Sie die direkte Nähe zu Heizungen und anderen Hitzequellen.
● Bei Einbau in einen 19″ Gestellschrank ordnen Sie die Geräte so an, daß eine ausreichende Belüftung gewährleistet wird.

2. Bitte beachten Sie folgendes, wenn Sie das Gerät anschließen:

● Um Bedienfehler zu vermeiden, lesen Sie bitte zuerst die Anleitung sorgfältig.
● Öffnen Sie niemals das Gehäuse, ohne vorher den Netzstecker zu ziehen.
● Schließen Sie das Gerät nur an 230 V Netzspannung und an die 24 V Notstromversorgung (DC).

AUSPACKEN UND KONTROLLE DES PRODUKTS

Bitte überprüfen Sie das Gerät sofort auf evtl. Transportschäden. Jedes RCS Produkt wird vor dem Verpacken sorgfältig überprüft und in einem speziell dafür vorgesehenen Karton geliefert.
Alle Transportschäden müssen sofort bei der Transportfirma reklamiert werden!

Rücksendung: Wenn es nötig sein sollte ein defektes Gerät zurückzusenden, nehmen Sie bitte Kontakt mit Ihrem Händler auf. Bitte versenden sie alle Rücksendungen in der Originalverpackung.

TU-110B CONTENT

R·C·S

CONTENTS / INHALT

TU-110B

DESCRIPTION

The TU-110B FM-AM tuner is incorporated in a stable 19″ housing which is 1 RU high. The stations are indicated on a backlit digital display.

30 station presets (FM 3 x 6 and AM 2 x 6) are available. A station can be stored by pressing the respective button on the clearly designed control panel.

The tuner operates on 230 V mains power as well as on 24 V DC power (operation with emergency power supply). The device has a balanced XLR output and an unbalanced RCA output. Both outputs can be controlled on the front panel.

Please consider the following features:

● 3 FM bands and 2 AM bands, each with 6 presets. Automatic and manual tuning.
● The device can be switched from stereo to mono to suppress noise, if reception is poor.
● 75 ohms FM antenna connection via F connector.
● The signal strength is indicated through 5 LEDs.
● The output volume can be adjusted on the front panel.
● Clear LCD.

BESCHREIBUNG

Der FM-AM Radiotuner TU-110B ist in einem stabilen 19″-Gehäuse mit 1 HE eingebaut. Die Anzeige der Sender erfolgt auf einem hintergrundbeleuchteten Digitaldisplay.

Es stehen 30 Memory-Stationen (FM 3 x 6 und AM 2 x 6) zur Verfügung. Die Einstellung bzw. Speicherung der jeweiligen Sender, erfolgt durch entsprechenden Tastendruck auf dem übersichtlich gestalteten Bedienfeld.
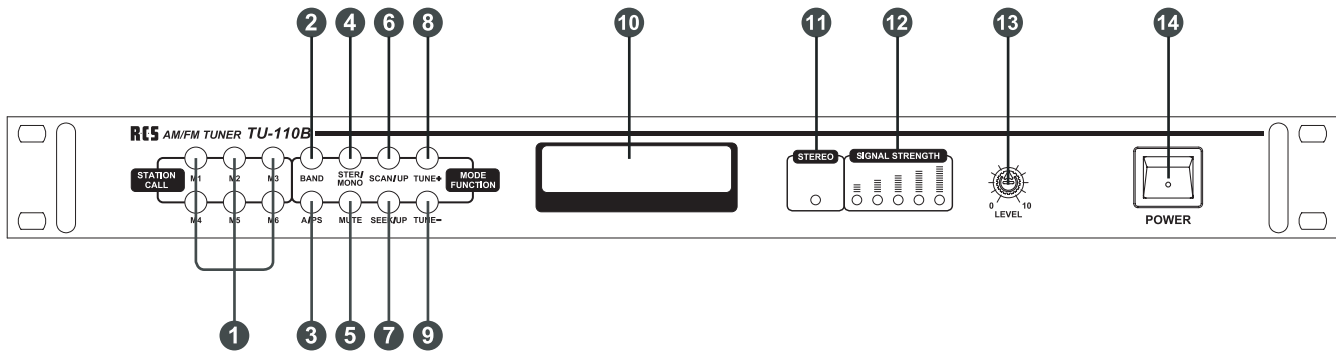
Die Spannungsversorgung erfolgt über 230 V Netzspannung, aber auch über 24 V Gleichspannung (Notstrombetrieb). Das Gerät verfügt über einen symmetrischen XLR- und einen unsymmetrischen Cinchausgang. Beide sind an der Front regelbar.

Bitte beachten Sie noch folgende Merkmale:

● 3 FM- und 2 AM-Bänder mit jeweils 6 Speicherplätzen. Automatischer und manueller Sendersuchlauf.
● Von Stereo auf Mono umschaltbar, um bei schlechtem Empfang das Rauschen zu unterdrücken.
● 75 Ohm FM-Antennenanschluss über F-Stecker.
● Die Signalstärke wird über 5 LED´s angezeigt.
● Ausgangslautstärkepegel an der Front regelbar.
● Übersichtliches LCD-Display.

FEATURES

● 6+6+6 FM Presets
● 6+6 AM Presets
● Retains Presets when power is off
● Large LCD digital display
● SCAN and SEEK functions
● Auto store memory function (A/PS)
● Signal strength meter
● Balanced mono XLR output
● Unbalanced stereo RCA output
● AC and DC 24V operation
● Standard 1 Rack-Unit chassis

HAUPTMERKMALE

● 3x 6 FM Speicher-Stationen
● 2x 6 AM Speicher-Stationen
● Speichert Voreinstellung im ausgeschalteten Zustand
● Großes LCD-Display
● Automatischer und manueller Suchlauf
● Automatische Speicherfunktion (A/PS)
● Signalstärke Anzeige LEDs
● Symetrischer Mono XLR-Ausgang
● Unsymetrischer Stereo Cinch-Ausgang
● Netzstromversorgung 230V oder 12 VNotstrom
● Standard 1 HE Rack-Gehäuse

TU-110B FRONT PANELS

R·C·S

FRONT PANEL

1. M1 – M6 BUTTONS

Directly access the preprogrammed station within the selected frequency band.

It performs preset memory read/write function.

- ● WRITE Operation

  One of the M1 ~ M6 button is pressed for more than 2 seconds, current frequency is stored to corresponding memory area.
- ●READ Operation

  One of the M1 ~ M6 button is pressed for less than 2 seconds, read the corresponding preset memory.
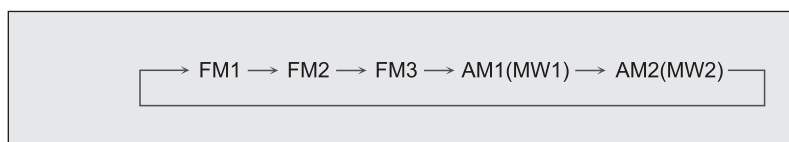- ●When write operation, it performs 0,5 sec. mute operation.
- ●These buttons are invalid when AMEMO operation.

AREA (STEP)	BAND	M1	M2	M3	M4	M5	M6	
AMERICA (AM 10kHz Step) (FM 100kHz Step)	FM1	87.5	90.1	98.1	106.1	107.9	87.5	MHz
	FM2	87.5	87.5	87.5	87.5	87.5	87.5	MHz
	FM3	87.5	87.5	87.5	87.5	87.5	87.5	MHz
	AM1	530	600	1000	1400	1620	530	kHz
	AM2	530	530	530	530	530	530	kHz
EUROPE (AM 9kHz Step) (FM 50kHz Step)	FM1	87.5	90.0	98.0	106.0	108.0	87.5	MHz
	FM2	87.5	87.5	87.5	87.5	87.5	87.5	MHz
	FM3	87.5	87.5	87.5	87.5	87.5	87.5	MHz
	MW1	522	603	999	1404	1620	522	kHz
	MW2	522	522	522	522	522	522	kHz

2. BAND BUTTON

Band change over is performed through the cyclic method with the band button.

NOTE: If the rear panel frequency selector switch is set for 9kHz, the band will indicate MW1 and MW2 instead of AM1 and AM2.

$$FM1 \longrightarrow FM2 \longrightarrow FM3 \longrightarrow AM1(MW1) \longrightarrow AM2(MW2)$$
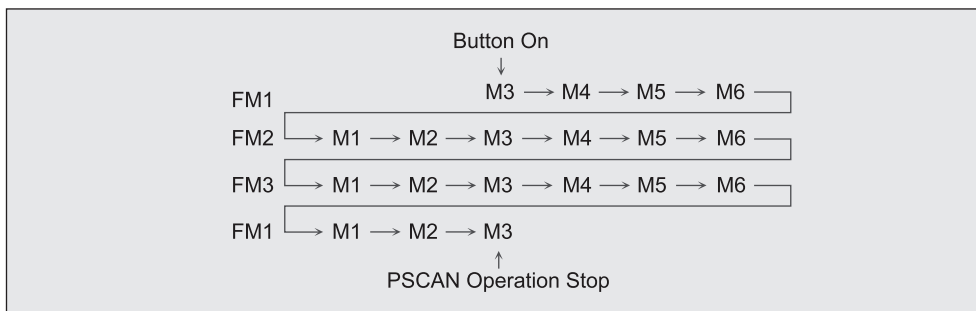
3. **A/PS BUTTON (AME/PSCAN)**
   Preset memory scan auto score memory button.
   ● When A/PS button is pressed for less than 1 sec. it performs preset memory scan function.
   ● When A/PS button is pressed for more than 1 sec. it performs auto store memory function.

   1) *Preset memory scan function descriptions*
      Reading preset memory in regular frequency for 5 seconds each.
      Ex1) Current receiving frequency: FM1, CH3.

   Button On
   ↓
   FM1   M3 ⟶ M4 ⟶ M5 ⟶ M6
   FM2 ⟶ M1 ⟶ M2 ⟶ M3 ⟶ M4 ⟶ M5 ⟶ M6
   FM3 ⟶ M1 ⟶ M2 ⟶ M3 ⟶ M4 ⟶ M5 ⟶ M6
   FM1 ⟶ M1 ⟶ M2 ⟶ M3
                      ↑
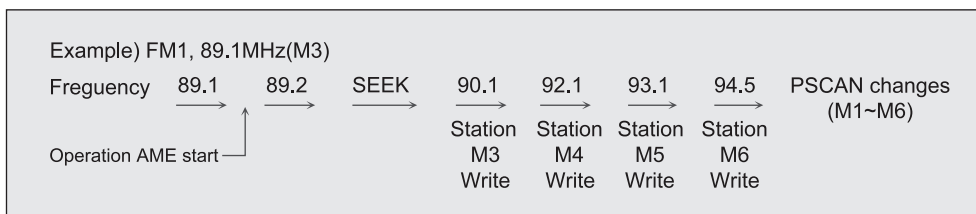   PSCAN Operation Stop

   - If A/PS button is pressed aging during preset memory scan operation, it stop preset memory scan operation and maintain the current frequency.

   2) *Auto store memory function descriptions*
      During SEEK UP operation with station detection, if any station is detected, then this detected station is automatically stored to the corresponding preset memory area in regular frequency.
      – Current receiving frequency is preset memory: From current channel to M6
      – Current receiving frequency is not preset memory : From M1 to M6.
      – During auto store memory, output signals are muted and flashing channel number (1Hz 1/2 duty) till finished this function.
      – When this operation is finished, it performs preset memory scan operation for one time.

   Example) FM1, 89.1MHz(M3)
   Frequency   89.1   89.2   SEEK   90.1   92.1   93.1   94.5   PSCAN changes
                                                                        (M1~M6)
   Operation AME start   Station Station Station Station
                                   M3   M4   M5   M6
                                   Write   Write   Write   Write

4. **STEREO/MONO BUTTON**
   MONO function control button. It is valid only in FM band. „STEREO" display is toggled on LCD panel.

5. **MUTE BUTTON**
   MUTE on/off control button. When „MUTE" is displayed on LCD panel, all outputs are muted.

6. SCAN/UP BUTTON

When SCAN/UP button is pressed, the frequency is scan up by one channel step with station detection. If a valid signal has detected, the current frequency is blinked each 500 m sec. within 5 seconds.

If this case, SCAN/UP button is pressed, SCAN function is released and the current frequency in maintained. When SCAN/UP button is not pressed with in blinking the frequency moves up by one channel step with station detection.

7. SEEK/UP BUTTON

When any of SEEK/UP button is pressed, the frquency moves up by one channel step with station detection. At this time, if a valid signal has detected, maintain the current frequency. If not, performs seek operation continuously.
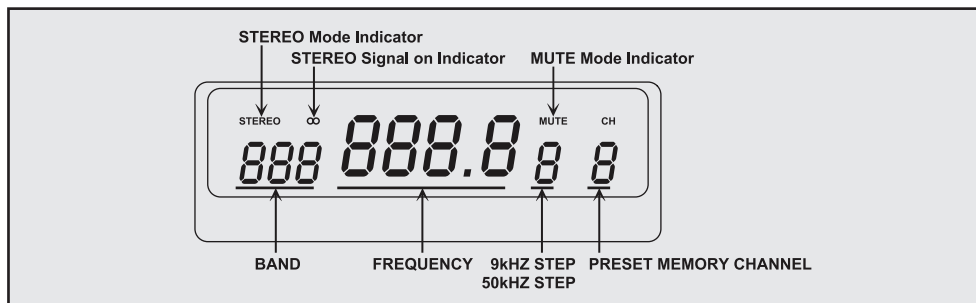
8. TUNE"+" BUTTON

● Whenever TUNE"+" button is pressed, the frequency moves up by one channel step.

● If TUNE"+" button is pressed for more than 0.5 second , it performs fast tune up operation continuously.

9. TUNE"-" BUTTON

● Whenever TUNE"-" button is pressed, the frequency moves down by one channel step.

● If TUNE"-" button is pressed for more than 0.5 second, it performs fast tune down operation continuously.

10. LCD DISPLAY

11. STEREO SIGNAL ON INDICATOR

It is valid only in FM band. If a valid signal has detected, this indicators light up.
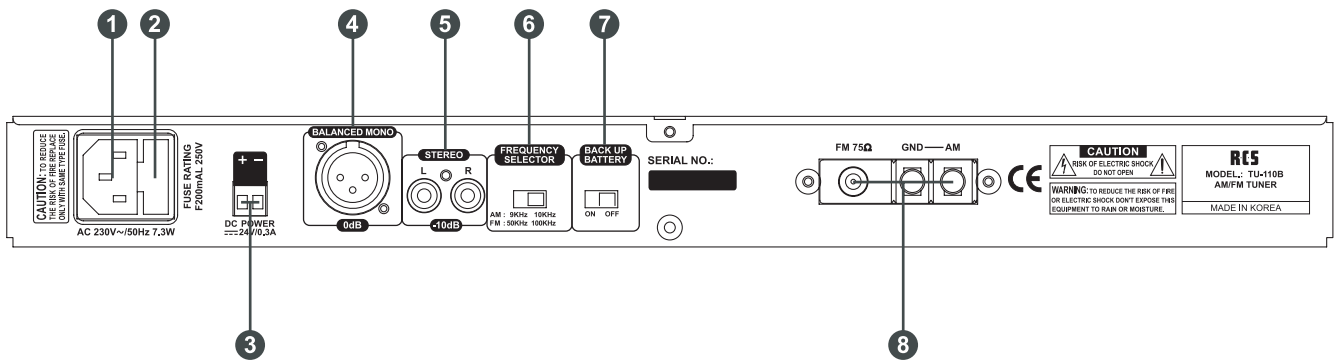
12. SIGNAL STRENGTH INDICATOR

This is for signal strength indicator.

13. LEVEL VOLUME CONTROL

Volume control for tuner adjust you need.

14. POWER SWITCH

Pressing this switch the upper position, the power supply to this unit without indication on the LCD. Then, pressing one of a tuner function buttons, it displays operation status which was operated just before „power off".

REAR PANEL CONTROLS

1. AC INLET SOCKET
This is AC power cord socket. Please connect the power cord after main power switch „off".

2. AC FUSE HOLDER
This is AC fuse holder
IMPORTANT NOTICE: When fuse is blown out, it should be replaced with the same type fuse like following table, if it continuous to blown out, stop replacing fuse and refer servicing to qualified person.
Fuse Rating: 120V AC / F200mAL 250V (N51)
　　　　　　　　220~240V AC / F200mAL 250V (50F)

3. DC 24V INPUT SCREW TERMINAL
This is terminals for DC 24V battery power supply, when unexpected AC power failure. Fuse is built in „fuse" on PCB board.
IMPORTANT NOTICE: Please note the „+", „-" polarity connecting DC 24V. For the connection of battery connect „+" polarity terminal after „-" polarity terminal connection. So as not to make a fault of unit.
Fuse Rating: DC 24 V / T1AH 250V (55T)

4. BALANCED MONO OUTPUT JACKS
It increases output by level volme control on the front panel output level is balanced 0dBm. (Tip : +, Ring : -, Sleeve : GND)

5. UNBALANCED STEREO OUTPUT JACKS
It increases output by level volume control on the front panel output level is unbalanced -10dBmz.

6. CHANNEL FREQUENCY STEP SELECTOR SWITCH
This is step selector switch of channel frequency.
Select AM : 9kHz, FM: 50kHz or AM: 10kHz, FM:100kHz.
factory production setting is AM: 9kHz, FM : 50 kHz
　　IMPORTANT NOTICE: For step change, please act on as follows:
– Turn power switch „OFF".
– Convert step switch.
– Set „OFF" position of backup battery ON/OFF switch.
– Turn poer switch „ON".
– Set „ON" position of backup battery ON/OFF switch. Please notecl that. the above operation makes deletion of presetting memory.

7. BACK-UP BATTERY ON/OFF SWITCH

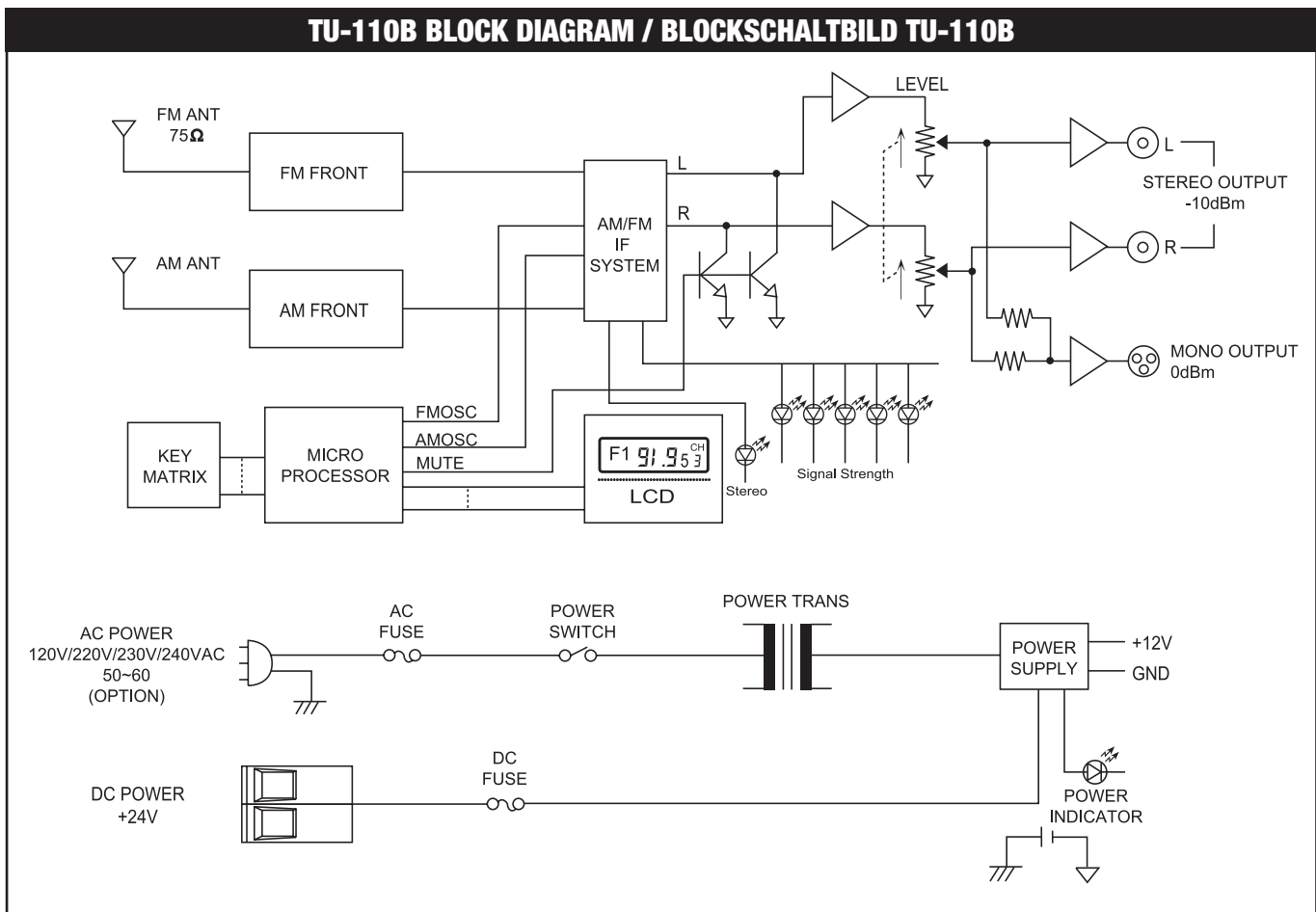The unit has a back-up battery so that the preset memory are kept stored even after power off.

This back up battery is deactivated when delivery ex factory to prevent a slow discharge until the unit will be installed. To activate the back up battery, place the switch from OFF position to ON position.

8. ANTENNA TERMINALS

FM: You can connect a 75ohm coaxial cable antenna to this terminal.

AM: You can connect the AM loop antenna to this terminal.

GND: Used as a grounding terminal for AM reception to protect the unit in a thunder storm and to reduce background noise.

TU-110B BLOCK DIAGRAM / BLOCKSCHALTBILD TU-110B

RCS

CONNECTION OF ANTENNAS AND GROUND CABLE

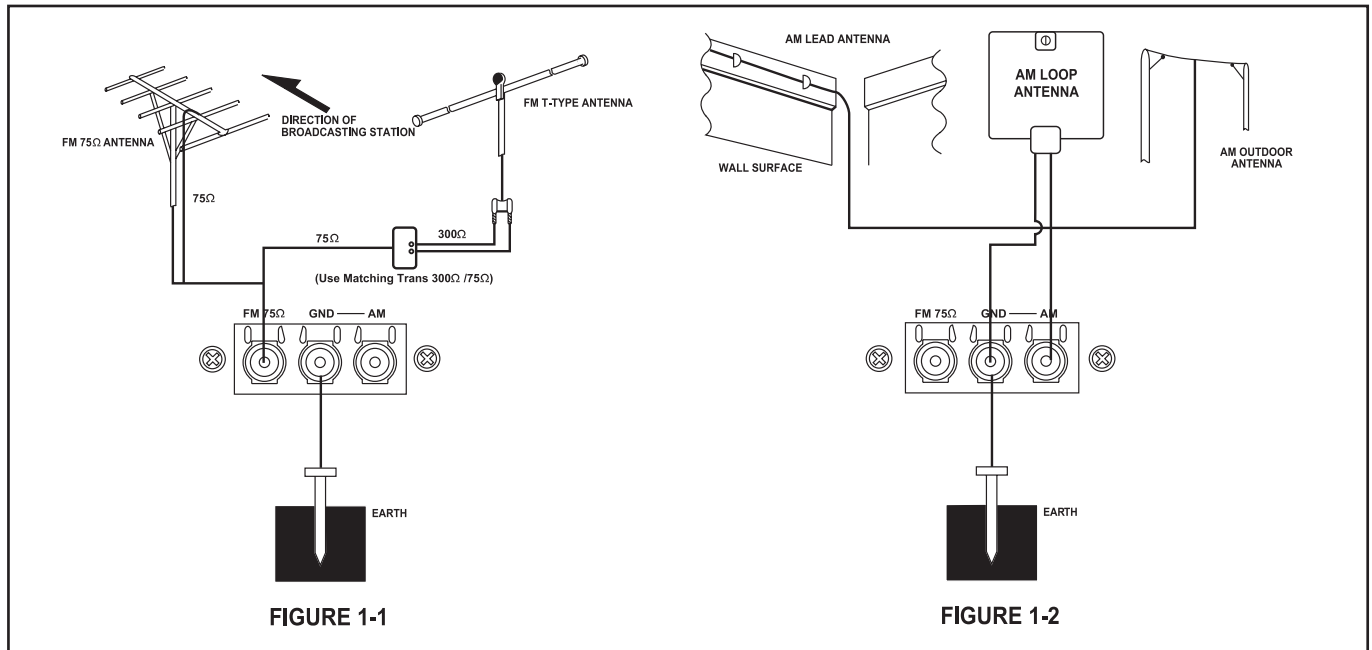## VERBINDUNG ZUM ANTENNEN- UND ERDUNGSKABEL

FIGURE 1-1

FIGURE 1-2

1. **FM RECEIVNG ANTENNA** (Fig.1-1)

   The electric wave of FM broadcasting is weakening in valleys, around buildings and in iron-reinforced buildings because if its own nature.

   ● **Installation of an antenna exclusively for FM**

   Connect the 75ohm coaxial cable of the antenna to the terminal of 75ohm. Listening to the broadcasting, fix it after deciding the location and the direction so that the receipt condition may be optimum.

   ● **Installation of an antenna using the coaxial cable**

   You may have noise at the crowded downtown, city streets and factory sites as well as around power cables, even in the case of using an antenna exclusively for FM. In these regions, install it through connection with a coaxial cable of 75ohm.

   ● **FM Indoor antenna**

   In the regions where FM broadcasting is heard comparatively well due to good signal strength. You can receive broadcasting of good quality b y using T-type antenna at the best place for reception after connecting it with a terminal of 75ohm.

2. **AM RECEIVING ANTENNA** (Fig.1-2)

   ● **AM lead antenna**

   Connect 6 ~ 8M cable to the AM terminal and route cable to give the best reception. Keep away from power cables and fluorescent lights.

   ● **AM outdoor antenna**

   Install the vinyl-coated cable outdoors if indoor reception is poor.

   ● **Earthing cable (GND)**

   Broadcasting may be heard well without earth connection. But connect the earthing cable to earth for safety and reduction of noise.

1. **FM EMPFANGSANTENNE** (Fig.1-1)

   Der Empfang des FM-Funks kann in Tälern oder in der Umgebung von Häusern mit eingelassenen Metallgeflechten ein wenig abgeschwächt sein.

   ● **Installation der FM-Antenne**

   Verbinden Sie das Antennenkabel mit dem 300 Ohm Anschluss. Hören Sie der Funkverbindung zu und justieren Sie diese, nachdem den Ort und die Richtung an die das Gerät gestellt werden soll, optimiert wurde.

   ● **Installation der Antenne mit Koaxialkabel**

   Unter Umständen können Geräusche/Störungen auftreten, wenn Sie sich in der Innenstadt oder in einem Gewerbegebiet befinden. Die kann sogar passieren, wenn Sie eine Antenne nur für den FM-Bereich verwenden. In diesen störanfälligen Regionen sollten Sie ein 75 Ohm Koaxialkabel verwenden.

   ● **FM innen Antenne**

   In den Gebieten, wo die FM-Frequenz, aufgrund eines guten Signals gut zu empfangen ist, können Sie durch den Anschluss einer T-Antenne die Qualität steigern. Verbinden Sie diese mit dem 300 Ohm Terminal.

2. **AM EMPFANGSANTENNE** (Fig.1-2)

   ● **AM-Führungsantenne**

   Verbinden Sie 6 – 8 m Kabel mit dem AM-Termianl um den besten Empfang zu sichern. Halten Sie das Gerät von Stromkabeln und fluoreszierendem Licht fern.
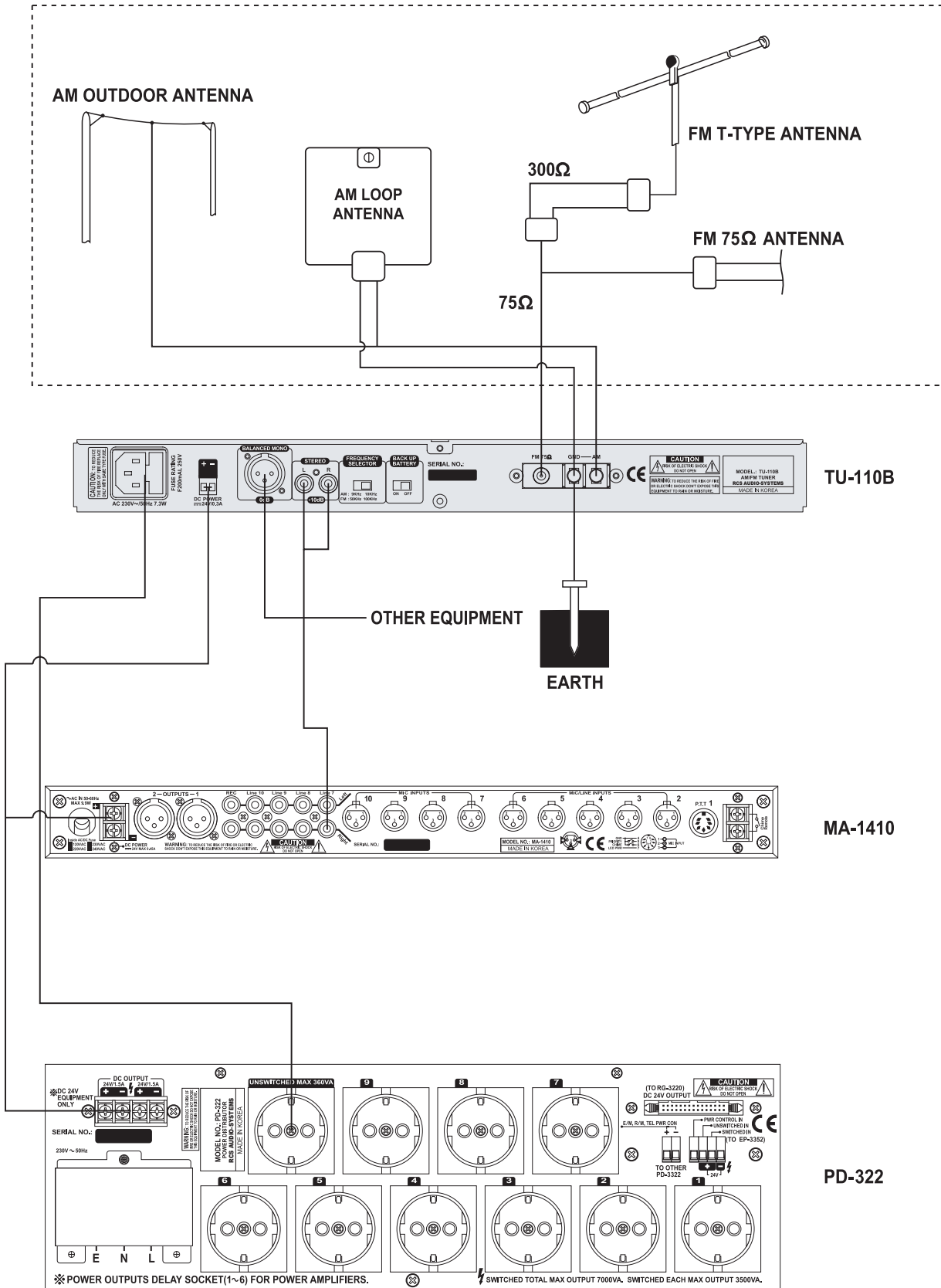
   ● **AM-Aussenantenne**

   Installieren Sie das Vinyl beschichtete Außenkabel wenn der Innenempfang schlecht ist.

   ● **Erdung**

   Der Empfang ist unter Umständen auch ohne Erdung gut. Verbinden Sie die Erdung mit dem Erdungs-Terminal. (GND für die Sicherheit und Lärmvorbeugung)

TU-110B SYSTEM CONNECTIONS

R·C·S

SYSTEM CONNECTIONS / SYSTEM ANSCHLUSSBEISPIEL

AM OUTDOOR ANTENNA

FM T-TYPE ANTENNA

AM LOOP ANTENNA

300Ω

FM 75Ω ANTENNA

75Ω

TU-110B

OTHER EQUIPMENT

EARTH

MA-1410

PD-322

RCS

19″-TUNER

TECHNICAL DATA / TECHNISCHE DATEN   TU-110B

Tuning range / Empfangsbereich	FM: 87.5 – 108 MHz
	AM: 522 – 1620 kHz
Antenna Inputs / Antennen Eingänge	FM: 75ohm coaxial cable
	AM: Loop antenna and lead antenna
Usable Sensitivity / Nutzbare Empfindlichkeit	FM: 2µV
	AM: 4.5µV
Signal-to-noise ratio / Signal-Rauschabstand	FM: 60 dB
	AM: 45 dB
Memory Back-up / Speicherzeit	45 days (after AC Power Off)
Power consumption / Leistungsaufnahme	7.3 W
Power supply / Stromversorgung	AC 120~230 V, 50 – 60 Hz
	DC 24V
Dimensions (W x H x D) / Abmessungen (B x H x T)	483 x 44 x 120 mm; 1 RU
Weight / Gewicht	approx. 3.2 kg

Hardware and Software specifications subject to change without notice.
Technische Änderungen in Hardware und Software vorbehalten.

Delivered by / Lieferung durch: