Public address systems
& Commercial sound systems

TM-600

Interpretation system

Operation manual

www.t-koko.com

Specifications are subject to be changed without notice.

ISO 9001 QUALITY ASSURANCE

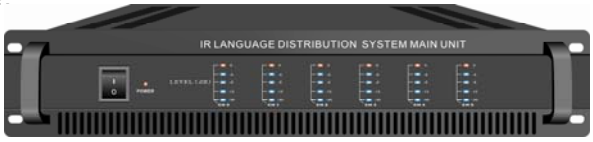
IR Language Distribution System

This system is ideal for use in business and government conferences, international conventions and other multilingual applications, offering simultaneous interpretation and wireless audio distribution for up to 6 different languages plus the floor language using state-of-the-art infrared transmission technology. It complies with the IEC industry standards, operating in the higher frequency band to avoid lighting interference.

PART ONE. System Configuration

Transmission main unit TM-600C, IR Radiator TM-601C, IR Receiver TM-603C, Rechargeable storage box TM-24B and Interpreter unit TM-602C

A. IR Transmission main unit TM-600C



1. High security, prevent external interference
2. Suitable for different conference hall
3. Automatic level control function (ALC).
4. No disturb under daylight lamp
5. Easy to operate and save in project cost
6. With the most advanced technology
7. Elegant configuration in accordance to ergonomics
8. Input channel direct function
9. Has 6CH interpreter's voice for record
10. Self-test function, 6 kinds of testing voices for system test
11. PB test and display function
12. Installed in a 19-inch frame

B. IR Radiator TM-601C

1. Radiates & distributes up to 6 channels of audio signal
2. Auto switched on/off by carrier signals from transmission main unit
3. Auto gain control to ensure diodes with max. efficiency
4. Convection cooled for noiseless, reliable operation
5. Mounted on ceiling, wall, floor stand or optional tripod
6. Easily daisy-chained together to expand coverage
7. Half radiator angle: ±22°

C. Interpreter Unit TM-602C

1. Design by the latest technology.
2. Work with headset earphone
3. 6CH simultaneous interpretation.

4. Easy to operate, just with a single press.
5. IR Transmit main unit could connect 6 interpreter's units.
6. Voice adjustable and with prevention on feedback
7. Ensure that every channel is correspondent to the RELAY function respectively. In case the interpreter couldn't understand the speaker's language, he could switch to other channel to listen another interpreter's voice and then interpret it.
8. Delegates speak too fast; give a request for slow the speed.
9. Automatic numbering on system units
10. Prevention on interpreter's cough
11. More people could take part in the conference when system is connected with IR language distribution system
12. One interpreter's unit can be used for two interpreters in turn.

D. IR Receiver TM-603C

1. Pocket size wireless handheld unit
2. Accommodates up to 6 different languages
3. Channel selector and headphone connector
4. Power on/off switch and volume level control
5. Powered by rechargeable batteries
6. Aluminum carrying cases provided for receivers
7. Volume, channel and signal level display on LCD

E. Rechargeable Storage Box TM-24B

1. Used to recharge the IR receivers
2. Power supply: 110V/220V 50Hz
3. Storage 24 units Receiver

PART TWO. Technical Data

1. IR Transmission main unit TM-600C

a. Modulation mode: FM
b. Frequency synthesis: digital PLL
c. Frequency band: 1.7 - 4.0MHz
d. Frequency response: 100Hz-14kHz
e. Frequency stability: 10ppm
f. Pre-emphasis: 75 μSec.
g. Distortion at 1 kHz: <0.5%
h. Channel separation: >70dB
i. RF output power level: 700mV
j. RF output impedance: 50 ohms
k. Input impedance: 18k ohms
l. Max. input power level: 2V
m. AGC range: 30dB
n. S/N ratio: >75dB

o. Power consumption: 40W
p. Operating voltage: 110/220VAC±5%

2. IR Radiator TM-601C

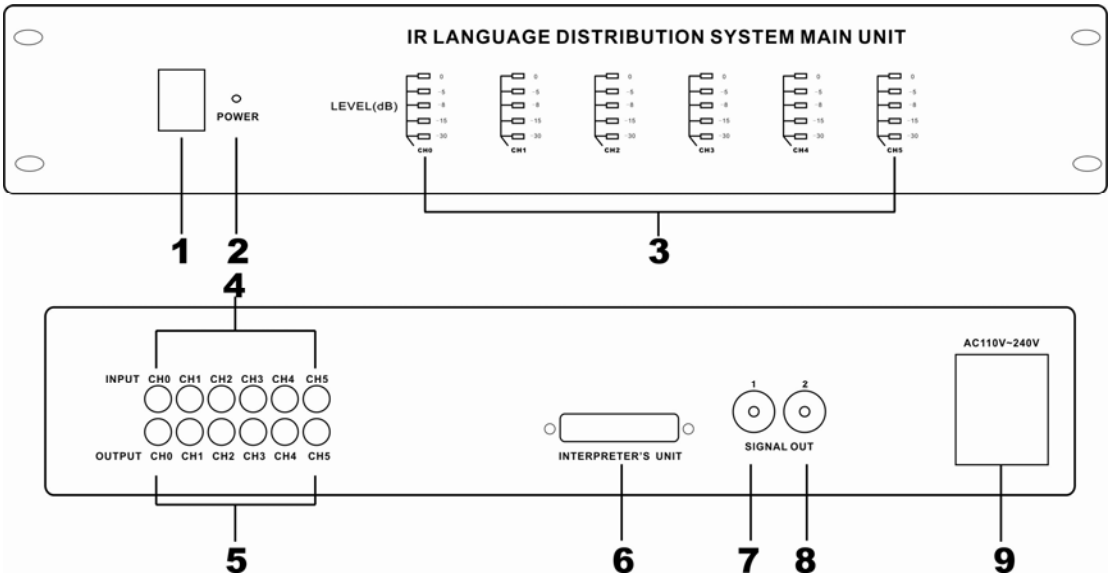
a. Frequency band: 1.7 - 4.0 MHz
b. Max. IR output power: 25W
c. Max. coverage range: 30m
d. Output level control: Low/High (50%/100%)
e. Angle of half intensity: ±22°
f. RF output impedance: 50 ohms
g. RF input voltage: 100-2000mV
h. Power consumption: 55W / Stand-by 8W
i. Power Supply: 110/220VAC±5%

IR Receiver TM-603C

a. Modulation mode: FM
b. Frequency synthesis: digital PLL
c. Carrier frequencies: 1.7 - 4.0MHz
d. Frequency response: 100Hz-14kHz
e. Pre-emphasis: 75 µSec.
f. Distortion at 1 kHz: <1%
g. Channel separation: >55dBA
h. Frequency stability: 10ppm
i. Operating voltage: 3.1V-5V
j. Power consumption: 60mW

PART THREE. OPERATING INSTRUCTION

A. IR Transmission main unit TM-600C

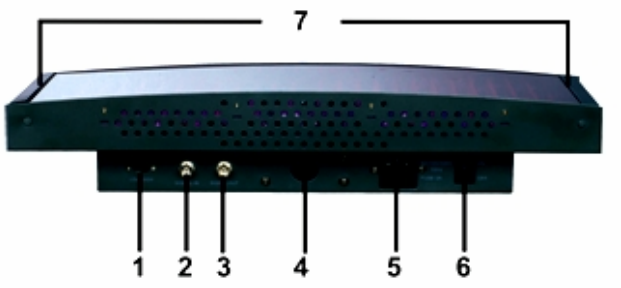


1. POWER SWITCH
2. POWER INDICATOR: The transmission main unit will be on working mode after turn on the power switch, and power indicator will light.
3. LEVEL INDICATOR: When there has audio output, the relevant channel indicator will flashing.
4. AUDIO INPUT CHANNEL CH0-CH5: The original audio can be from wire microphone or wire interpretation audio input equipment.
5. AUDIO OUTPUT CHANNEL CH0-CH5:
6. INTERPRETER'S UNIT: Main unit can connect 1~5 interpreter unit by hand-in-hand connection.
7. SIGNAL OUT 1 (TO IR Radiator)
8. SIGNAL OUT 2 ((TO IR Radiator)

Use BNC cable to connect from the "SIGNAL OUT' port of main unit to "INPUT" port of IR Radiator, and connect the next IR Radiator from "SIGNAL OUTPUT" of previous one to "SIGNAL INPUT" port of nest one by BNC cable.

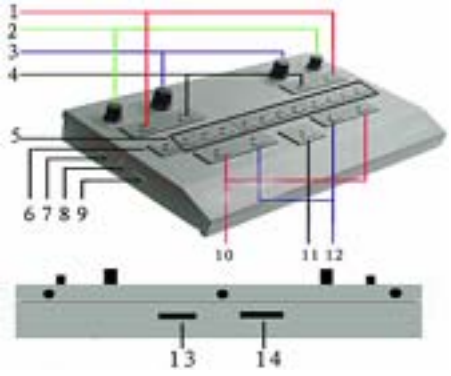
9. AC POWER INPUT: 110/220VAC±5% 50/60Hz

B. IR Radiator TM-601C



1. The adjusting switch of transmit signal
Please adjust the switch to "HIGH" when the meeting room is large, the output consumption can enlarge twice as big, and please adjust the switch to "LOW" when the meeting room is small.
2. Signal input BNC jack: connect to the "SIGNAL OUT' port of main unit or previous IR radiator output port.
3. Signal output BNC jack: connection to the next IR radiator input port
4. Fixable orifice
5. AC POWER INPUT: 110/220VAC±5% 50/60Hz
6. Power on/off switch
7. Power indicator

C. Interpreter Unit TM-602C



1. ORIGINAL: Interpreter can listening the original language from the meeting after press this switch.
2. VOLUME: Interpreter can debug the volume of headphone by this switch.
3. MONITOR: Interpreter can choose other monitor channels by this switch after press REPLAY switch.
4. REPLAY: In case the interpreter couldn't understand the speaker's language, he could switch to other channel to listen another interpreter's voice and then interpret it.
5. MICROPHONE OUTPUT CHANNEL: Please choose the output channel when

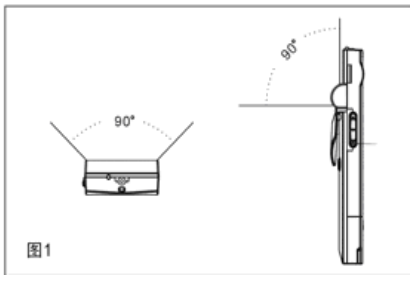
interpreters interpret the languages, the indicator lamp will light if choose channel successful, if the busy lamp flashing, it means other interpreter has occupied this channel.

6. BUSY LAMP: It means other interpreter has occupied this channel, interpreter should choose other output channels.
7. REC. 3.5mm output jack to record the interpretation language by recorder.
8. MIC: 3.5mm input jack to connect the microphone.
9. PHONES: 3.5mm output jack for interpreter listen the original voice or other interpreter' s voice
10. MIC A ON/OFF, MIC B ON OFF: Interpreter can turn on or turn off this microphone with this switch.
11. SLOW: Delegates speak too fast; give a request for slow the speed.
12. COUGH CUT: Prevention on interpreter's cough
13. INPUT: first unit connect to the main unit, and the next unit connect the previous unit output port.
14. OUTPUT: connect the next int erpreter's unit.

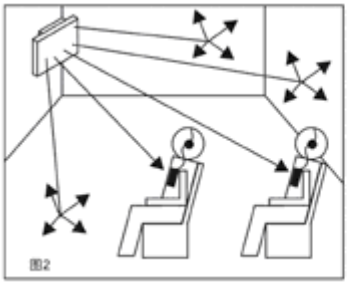
IR Receiver TM-603C

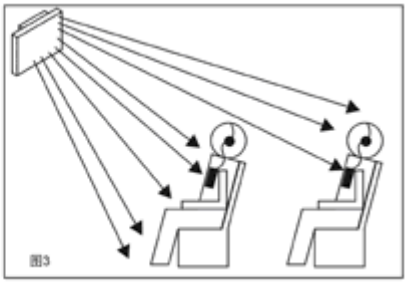
1. IR Lens
2. Earphone jack: used for connect earphone to receiving the sound.
3. Volume +
4. Volume –
5. Monitor earphone
6. Battery cover lock: the cover can be locked, and it can opened with key
7. LED display the signal, channel and power level
8. Power switch
9. Channel switch
10. Rechargeable interface

PART FOUR. The Installation Introduction of IR radiator



The Direction and Sensitivity of IR Receiver (Fig.1)





(Fig.2)

The infrared ray is a kind of directional and sightless light; the sensitivity of the IR receiver is the best when the receiver faces the IR radiator. The receiving angle of the IR receiver is level and vertical ±45º (Fig. 1) The signal receive directionality within this range is the best.

The infrared emission signal is a kind of sightless light, it can transmit the signal to the IR receiver directly or reflecting (Fig.2) so you should consider this factor while installing the IR radiator. It is the best that the IR receiver receives the signal directly, But the reflected signal can also improve the signal effect. The front-seat audience will block the signal of the back row IR receiver in the large-scale meeting-place, it will influence the receiving effect, So you'd better install the IR radiator a little higher.

PART FIVE. Configure

Required Performance

- The area of meeting room is 600 square meters.
- 5 countries' languages are to be interpreted.
- Rostrum holds 20 representatives and 250 delegates

List of Equipment

Name	Model No.	Quantity
IR Transmission main unit	TM-600C	1
IR radiator	TM-601C	4
Interpreter Unit	TM-602C	5
Headset earphone	TM-104	10
IR Receiver	TM-603C	250
Receiver earphone		270
Conference system main unit		1
Delegate unit		19
Chairman unit		1

PART SIX. System set up and debug

1. Connect IR Transmit main unit to Interpreter unit

Use DB25 cable to connect from the "INTERPRETER'S UNIT' port of main unit to "INPUT" port of interpreter unit, and connect the next interpreter unit from "OUTPUT" of previous one to "INPUT" port of nest one by DB25 cable.

2. Connect IR Transmission main unit to conference system main unit

Use the Audio cable connects from the RF output port of conference system main unit to "SIGNAL IN CH0" port of IR Transmission main unit.

3. Connect other equipments to IR Transmission main unit.

Use the RF cable connects from the output port of the equipments to "SIGNAL IN" port of IR Transmit main unit.

4. Connect IR Transmission main unit to IR radiator

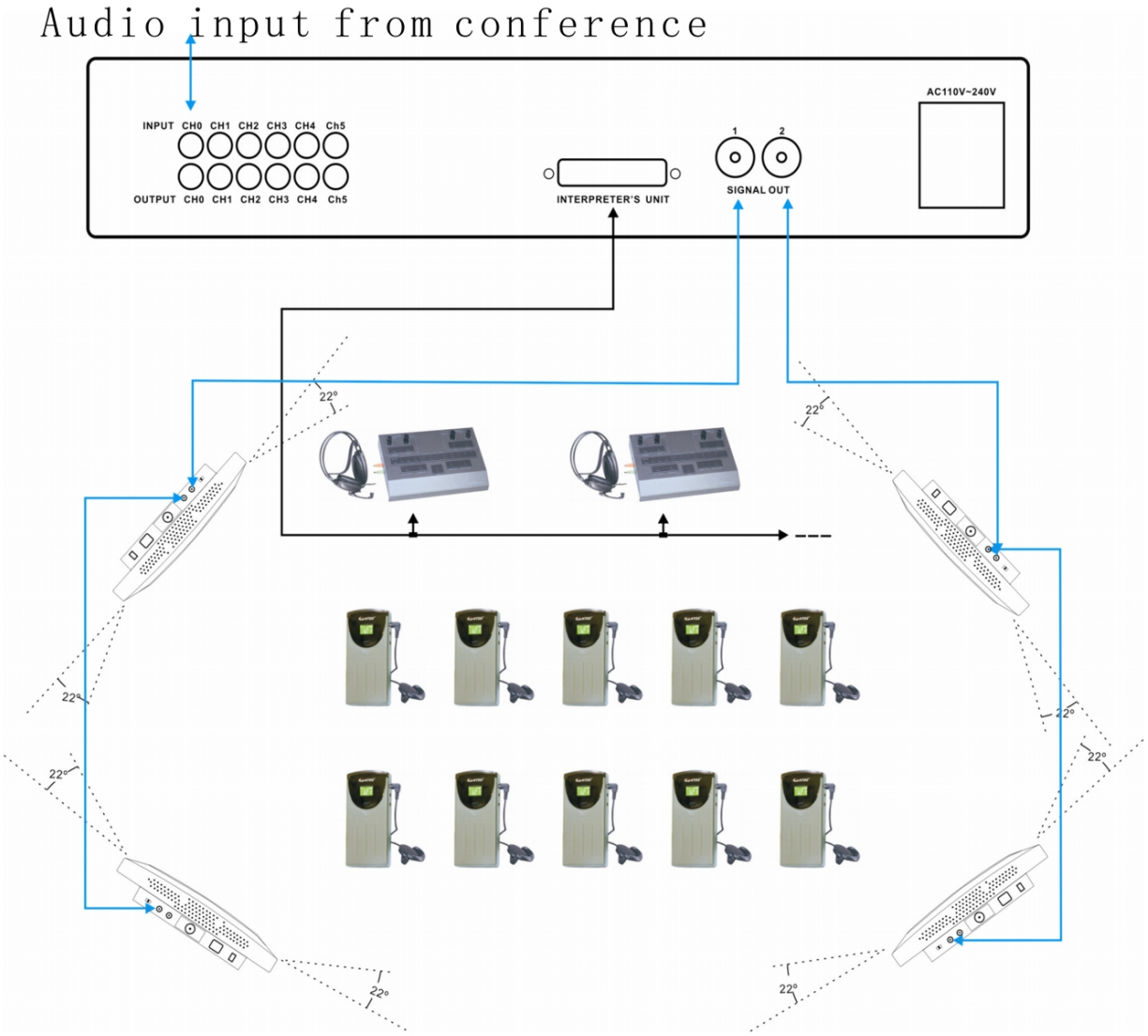
A) Use BNC cable to connect from the "SIGNAL OUT' port of main unit to "INPUT" port of IR radiator, and connect the next IR radiator from "SIGNAL OUTPUT" of previous one to "SIGNALINPUT" port of next one by BNC cable.

B) Switch the "TEST" to "OFF", then turn on the power switch after the equipments connected well, then the indicator will light.

C) Switch the "TEST" to "ON", the level indicator on the front panel of IR main unit will light. Then debug each channel, timbre, and distance by the receiver unit.

D) Turn on other equipments to test if they can work properly.

PART SEVEN. PROJECT FOR INFRARED LANGUAGE DISTRIBUTIO



SERVICE MANUAL OF TROUBLE SHOOTING

TROUBLE	SOLUTION	
No power	Main unit	Please check the connection of power supply cable
		Please make sure the power switch has turn on
		Please check the fuse and replace it if it have fused
	Receiver	Please make sure the battery in the receiver
		Please replace the battery if the power use up
		Please check the power touch panel touch the battery well
	Interpreter	Check interconnection cable connect DB25 port well
	IR Radiator	Please check the connection of power supply cable
		Please make sure the power switch has turn on
Drill noise in the receiver	Please switch the testing on-off to off position in the main unit	
Lower signal or noise in the receiver	Debug the direction of IR Radiator	
	Increase the quantity of IR Radiator	
	Debug the receiving direction of receiver	
Can not receive the signal	Please check the interconnection cable of the equipments	
	Please make sure the receiver earphone and interpreter headset can work well	
Interpreter can not select the channel	Please check if other interpreter has use this channel	