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***TELIKOU* Intercom System**

**SPK-200 Two-Channel Speaker Station**

**Instruction Manual**

While **TELIKOU** makes every attempt to maintain the accuracy of the information contained in its product manuals, the information is subject to change without notice.

## I. Introduction

Thank you for choosing TELIKOU intercom product. The SPK-200 Two-channel main station is a powerful, yet user friendly unit that serves as a heart of a TELIKOU intercom system. We recommend you reading through this manual to better understand the function of SPK-200. If you have any question that does not addressed on this manual, please contact your dealer or call us. We are standing by to assist you.

## Description

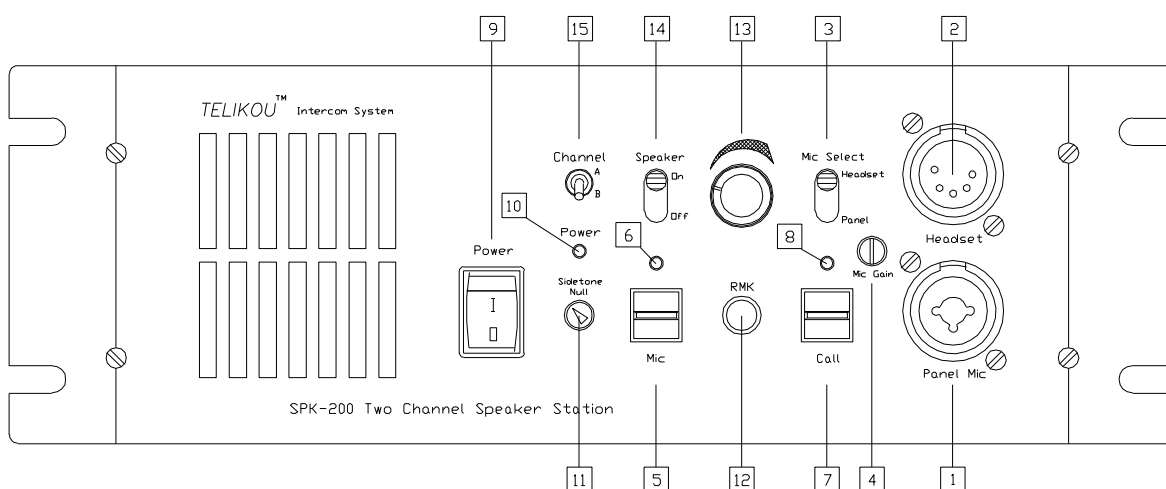
The SPK-200 suits for TV station, communication command center, outside broadcast vehicle, theater, project test field, and other applications which communication is required.

This system adopts wired connection, and has following features, free of external emission interference, stable and reliable performance, flexible configuration, full-duplex communication, clear and loud communication sound, easy operation, and strong noise resistance.

## II. Characteristics

- All operations can be finished on panel easily.
- Remote Microphone kill Switch (RMK).
- The level of speaker will lower when talk button is activated.
- XLR and 1/4 inch compatible microphone jack.
- Automatic circuit short protection and indication.
- Sidetone Null adjustment.

## III. Basic operations



## **Front Panel**

### **1. Headset connector**

4-pin XLR Male or 5-pin XLR female connector

EARPHONE: Dynamic 50-2000 ohm

MICROPHONE: Dynamic 100-600 ohm

The wiring of headset is as follows:

Pin 1--Mic common

Pin 2--Mic hot

Pin 3--headphone common

Pin 4--headphone hot

Pin 5—Null

### **2. Panel Mic Connector**

This is a double-purpose connector, supports both of unbalanced input microphone with XLR plug and 1/4inch plug.

The wiring of 3-pin XLR microphone is as follows:

Pin 1 -- Mic common

Pin 2 -- Mic hot`

Pin 3 -- parallel connected with Pin 2 internal

### **3. Mic Select Switch**

Set the Mic select switch to select whether the panel microphone or the headset microphone is active.

### **4. Panel Mic Gain**

It is used to increase or decrease the gain for panel microphone to achieve proper microphone output level. It has no effect on the sensitivity of the headset microphone.

Note: For earlier models, this adjustment button is in cabinet, and you can find this adjustment potentiometer at the right side of front panel after opening the top cover of cabinet. The microphone is set according to the Electret type before delivery. If the type of panel microphone is changed, re-adjustment is required.

### **5. Mic Switch (Mic)**

That turn up or down the Mic switch handle will send microphone signal intercom line after amplification. When the switch is turned to ON or PTT, the LED (6)

above will light. The settings are as follows:

ON: The selected microphone is activated, the switch is self-locked.

OFF: The selected microphone is off.

PTT: The selected microphone is activated, release and reset.

When the front panel speaker is turned on, pressing Mic button will reduce the speaker output level about 6dB and help minimize feedback.

## **6. Mic LED**

This LED lights when Mic switch (5) turns to ON or PTT.

## **7. Call Switch**

Send call signal from host to the channel. Turn up or down the handle of call switch, the LED (8) above selected channel will light (RED). This switch is without self-locking function, release and reset.

## **8. Call LED**

This LED will light under two cases: a) called: when the call signal from communication channel is received; b) call: the call switch (7) is turned on.

## **9. Power Switch**

Power switch is turned on, Power LED (10) light.

## **10. Power LED**

This green LED lights on when the SPK-200 is receiving AC power. This LED will flash when the SPK-200 senses a short or overload on the circuit. When the fault is removed, the power supply will automatically reset and LED

## **11. Sidetone zero-adjusting**

The SPK-200 uses full-duplex audio (the same as a conventional telephone line) in which the talk and listen audio are sent and received on the same line. Thus, when you talk on a channel, you will also hear your own voice back in the speaker or headphones. This is called sidetone. If you are using the SPK-200 with a microphone and speaker, sidetone could cause unwanted feedback, since the

microphone may pick up your returned voice audio and reamplify it. This could also happen if you are using a headset where the ear cushions do not completely cover the ears, although it is probably much less likely. In either case, you should minimize the amount of sidetone.

Typically, different sidetone null settings are needed depending upon whether you are using the gooseneck panel microphone along with the speaker or not. Use one of the following procedures to correctly set the sidetone level controls.

***A) Sidetone Adjustment Procedure for Gooseneck Microphone with Speaker turned on:***

- 1 Turn on the Mic switch. Set Mic select switch to panel.
- 2 Turn the level control to a comfortable level.
- 3 Speak into the microphone while turning the sidetone null control slowly back and forth. There should be a point where your voice (and any accompanying acoustic feedback) is the lowest. This is the null point.

***B) Sidetone Adjustment Procedure for Headset:***

- 1 Turn on the Mic switch. Set Mic select switch to headset.
- 2 Turn the level control to a comfortable level by having someone talk to you from another station.
- 3 Speak into the microphone while turning the sidetone null control slowly back and forth. There should be a point where your voice (and any accompanying acoustic feedback) is the lowest. This is the null point.

***C) System Sidetone Adjustment***

- 1 Turn off all the microphones on sub-stations and beltpacks.
- 2 Followed by A) and B), adjust sidetone on MS-800 main station.
- 3 Turn on the microphone on sub-station and beltpacks one by one, and then adjust the Sidetone to satisfied level.

**12. Remote Mic Kill Switch (RMK)**

The Remote Mic Kill (RMK) switch will turn off the microphone of every beltpack remotely. If the Talk Functions of a large number of beltpacks have inadvertently been left activated, incidental noise and talking can make it difficult or impossible

to communicate with the intercom system. The Remote Mic Kill switch can be pressed to quiet the line in this situation.

**Notice:** if any beltpack microphone within intercom line can be turned off in remote way, each powered working station within this intercom system must be interconnected via online interface on its rear panel.

### 13. Listen Level Control

Turn this control to set the listen level of received audio signal within communication system. It adjusts listen level of headset and speaker. Turn the control completely counterclockwise to silence the channel.

### 14. Speaker Switch

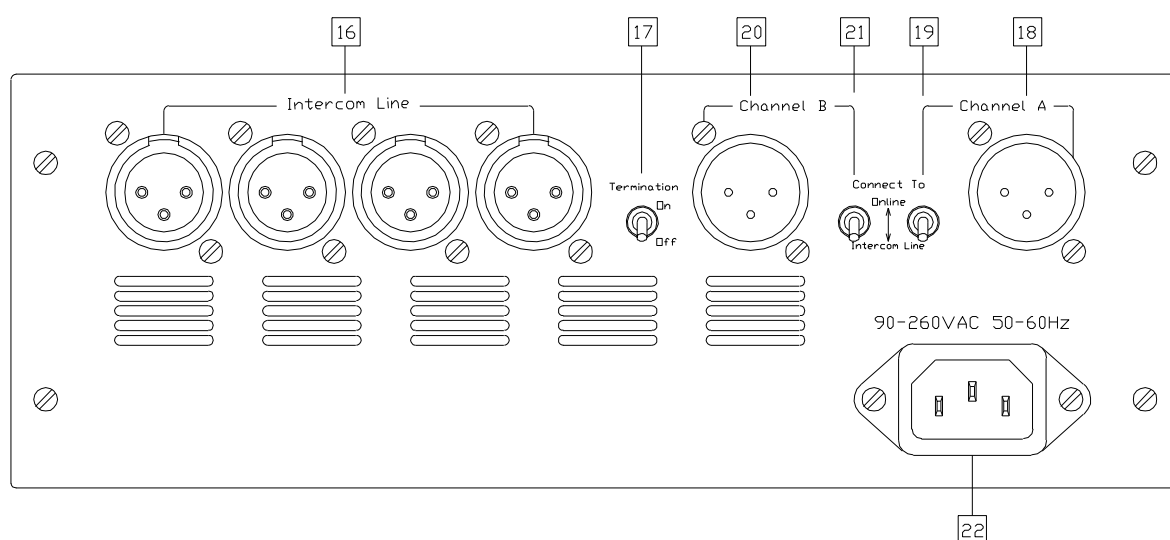
The Speaker Switch turns the front panel speaker on or off.

When the front panel speaker is turned on, pressing Mic button will reduce the speaker output level about 6dB and helps minimize feedback.

### 15. Channel Switch

Channel switch is used to select the communication channel.

## Rear Panel



### 16. Intercom Line connector

3-pin XLR female socket, eight interfaces corresponding to eight channels; the pinout of the intercom connectors is as follows:

Pin 1 --- Common (Shield)

Pin 2 --- Power (+24 VDC)

Pin 3 --- Audio

## 17. Termination switch

This switch provides switchable termination for system. In most systems, termination should be in the ON position. The fundamental concept of Party-Line intercom is that all the channels are terminated in one location, preferably at a main station. For example, the termination switch on main station should be set to the ON position, and termination switches on other sub stations should be set to the OFF position.

When termination switch is set to the ON position, one 220 ohm termination resistor is connected to intercom line. If intercom system is not terminated, the level of intercom line will become high, and the system stability will be influenced. However, only one termination point is allowed within same intercom line. If multiple termination points are used incorrectly, the driving load will be overloaded, and the level of intercom line will become low.

Before using, you should set termination switch to the ON or OFF position according to the actual connection of intercom line.

**NOTE: All intercom lines must be terminated only once, whether they are used or not. Never "double-terminate" a line.**

## 18. Online Connector on Channel A

It is used for Online connection among TELIKOU working main stations.

The pinout of Online Connector is as follows:

Pin 1 --- Common (Shield)

Pin 2 --- Control Signal

Pin 3 --- Audio Signal

Notes: Connect To Switch (19) must be set correctly before using. Otherwise the system will not work properly.

### Notice:

1. This connector only can be connected to **TELIKOU** main station. It is not allowed to be connected with **Intercom Line Connector** (Intercom Line); otherwise, the system will not work properly.

2. When connecting those non-**TELIKOU** main stations to **TELIKOU** main station, must use Intercom Line Connector.

### **19 Connect To Switch with Channel A**

To achieve Mic on the beltacks can be turned off by RMK function. All the TELIKOU main stations in the system must be connected by the Online connector which is on the rear panel. And Connect To switch turns to 'ONLINE' position. Otherwise, RMK switch can not function on those beltacks which are connected to Channel A.

If SPK-200 must be connected to Intercom Line on Channel A, Connect To switch need turns to 'INTERCOM LINE' position. Otherwise SPK-200 can not work properly. And RMK switch can not affect belt packs on Channel A.

### **20. Online Connector on Channel B**

It is used for Online connection among TELIKOU working main stations.

The pinout of Online Connector is as follows:

Pin 1 --- Common (Shield)

Pin 2 --- Control Signal

Pin 3 --- Audio Signal

Notes: Connect To Switch (21) must be set correctly before use. Otherwise the system will not work properly.

#### **Notice:**

1. This connector only can be connected to **TELIKOU** main station. It is not allowed to be connected with **Intercom Line Connector** (Intercom Line); otherwise, the system will not work properly.
2. When connecting those non-**TELIKOU** main stations to **TELIKOU** main station, must use Intercom Line Connector.

### **21 Connect To Switch with Channel B**

To achieve Mic on the beltacks can be turned off by RMK function. All the TELIKOU main stations in the system must be connected by the Online connector which is on the rear panel. And Connect To switch turns to 'ONLINE' position. Otherwise, RMK switch can not function on those beltacks which are connected



to Channel B.

If SPK-200 must be connected to Intercom Line on Channel B, Connect To switch need turns to 'INTERCOM LINE' position. Otherwise SPK-200 can not work properly. And RMK switch can not affect belt packs on Channel B.

## **22. AC Power Connection**

Voltages from 90 to 240 VAC at 50 or 60Hz is acceptable. The power consumption is less than 45VA.

## **IV. Installation and cable**

### **1. Installation**

SPK-200 main workstation is 273mm wide, 88.5mm high and 215mm deep. And this workstation can be mounted on rack or placed on desktop. If it is placed on desktop, it is required to adhere 4 rubber foot pads provided with machine to four corners at the bottom of cabinet with double-face adhesive tape.

### **2. Intercom cable**

#### **A). Rules for cable selection**

TELIKOU intercom system adopts double-core shielded audio cable, one core is used for transmitting audio signal, another core is used for transmitting DC power or control signal, and the shielded layer is used as common line for audio and power supply. To decrease resistance of common line and crosstalk interference, the cable with larger cross section area should be used. When it is used in fixed way, the cross section area of single line should be at least  $1.5\text{mm}^2$ , when it is used in mobile mode, the cross section area of single line should be at least  $0.75\text{mm}^2$ . When the cable is longer, the cross section area of cable should be larger. If the cable has more than 2 cores, it is recommended to use the additional core as common line.

#### **B). Cable connection**

The standard TELIKOU intercom cable is connected with a pair of 3-pin XLR connectors, one male and one female. If longer cable is required, you can connect several cables together with head-end method.

The wiring of connector is as follows:

Pin 1 --- Common (Shield)

Pin 2 --- Power or Control Signal

Pin 3 --- Audio Signal

**Notice:** the pin-1 GND connection for each XLR connector must be insulated from cabinet, and cannot be connected to shell of XLR connector.

## **V. Troubleshooting**

### **Problem: Power LED wink**

Cause 1: Direct short on the intercom channel

Solution 1: Remove all the intercom cables from SPK-200. Check each channel one by one until find the short channel.

Cause 2: Overload

Solution 2: Decrease the amount of remote stations.

### **Problem: System feedback (Acoustical)**

Cause 1: Listen level control at this station or a remote station is set too high.

Solution 1: Adjust.

Cause 2: Sidetone null control at this station or a remote station is not adjusted correctly

Solution 2: Adjust. Refer to the procedure in the Front Panel section of this manual.

Cause 3: Channel unterminated.

Solution 3: Set the SPK-200 termination switch to the ON position.

Cause 4: A headset cord is too long or jointing quality.

Solution 4: Check headset cord

### **Problem: Excessive crosstalk**

Cause 1: High DC resistance in ground return.

Solution 1: Use heavier cable; add additional conductor(s) to ground return.

Cause 2: Headset cables are not wired properly or shielded properly.

Solution 2: Correct wiring. Use headsets with properly shielded wiring.

**Problem: Hum or buzz in system**

Cause 1: **Be earth-free or imperfect earth.**

Solution 1: **Check the plug, and make sure it is perfect earth.**

Cause2: Inductive pickup caused by close proximity of this main station or connected remote stations to power lines or transformers.

Solution2: Relocate the offending unit.

Cause 3: Intercom line cable is not wired properly; the shield of microphone cable is not connected to Pin-1 of 3-XLR

Solution 3: Check intercom line cable. Make sure all the cables' Pin-1 of 3-XLR connects correctly.

Cause4: 10 Ohm chassis ground resistor is open.

Solution 4: **Bridge a 10 Ohm resistor between the common port of direct current output of power supply and earth terminal (crust).**

**If this condition occurs, it is because the system ground came into contact with something that was "HOT" with respect to the power supply earth ground. Carefully check the system ground and AC distribution in the area.**

**WARNING: THIS IS A POTENTIALLY DANGEROUS SITUATION. A SHOCK HAZARD MAY EXIST BETWEEN A REMOTE STATION HEADSET AND GROUND.**

**Problem: Can not turn on the Mic function on all the beltacks**

Cause: The connection among TELIKOU main stations better go via Online connector on rear panel. The Online connector connected on this station connects

to the Intercom Line connector on another station. But Connect To switch set to 'ONLINE' position.

Solution 1: Reconnect by Online to Online.

Solution 2: Set Connect To switch of working channel to 'INTERCOM LINE' position. (Especially SPK-200 connects to no TELIKOU main station)

**Problem: Can not turn off the Mic function on all the beltpacks after pressing RMK button**

Cause 1: The connection among TELIKOU mains stations must go via Online connector. If main stations are connected by Intercom Line connector, RMK function will not work properly.

Solution 1: Check the connection among main stations. Please use Online connector, and switch 'Connect To' to Online position.

Cause 2: TELIKOU main stations are connected with Online connector. But Connect To switch is set to 'INTERCOM LINE' position.

Solution 2: Check Connect To switch, set it to the proper position.

Cause 3: Some main stations are not TELIKOU. So these main stations do not have Online connector. The connections among these main stations are with Intercom Line connector.

Solution 3: Change to TELIKOU main station.

**Problem: The volume of front panel speaker is too weak**

Cause: When the front panel speaker is turned on, pressing Mic button will reduce the speaker output level about 6dB and help minimize feedback

Solution: Turn off the Mic button after each speaking.

## **VI. Technical Specification**

### **PRE-AMP:**

Microphone impedance: Dynamic 200ohm

Gain form Mic to intercom line: +49dB

Bandwidth: 40Hz-8000Hz ±2dB

### **POSTPOSITION-AMP:**

Load impedance: 50-2000ohm

Output level: +17dBv

Distortion: <0.1% (1000Hz)

Gain from line to output: +31dB

### **BANDWIDTH:**

200Hz-800Hz ±2dB

### **SIDETONE:**

Adjustable range: -40dB, 32dB

**EARPHONE:**

Dynamic 50-2000 ohm

**MICROPHONE:**

Dynamic 100-600 ohm

**CONNECTOR:**

Panel Mic connector:  $\varnothing$ 6.35mm/XLR-3F

Pin 1 -- Mic common

Pin 2 -- Mic hot

Pin 3 -- parallel connected with Pin 2 internal

Headset connector: XLR-5F

Pin 1--Mic common

Pin 2--Mic hot

Pin 3--headphone common

Pin 4--headphone hot

Pin 5—Null

Intercom cable connector: XLR-3F

Pin 1 --- Common (Shield)

Pin 2 --- Power (+24 VDC)

Pin 3 --- Audio

Online Connector: XLR-3F

Pin 1 --- Common (Shield)

Pin 2 --- Control Signal

Pin 3 --- Audio Signal

**POWER SUPPLY:**

AC 90-260V, 50-60Hz, <45VA

Output voltage: 24V DC,

**ENVIRONMENTAL:**

0° - 70°C (32°-158°F)

**DIMENSION:**

10.75" (W) x3.48" (H) x8.46" (D), 273mm x 88.5mm x 215mm

**WEIGHT:**

2.6kg

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