TELIKOU   Intercom System

TM-200 Main Station

# Instruction Manual

I. Introduction

Thank you for choosing TELIKOU intercom product. TM-200 main station is suitable for television station, communication center, UB truck, live performance and any other environment which requires communication. We recommend you read through this manual to better understand the functions of TM-200。

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

- Remote Microphone kill Switch (RMK).
- Program input interrupts during talk.
- Announcer send signal from microphone to external device.
- Speaker level auto turns down when talk button is pressed.
- XLR and 1/4 inch compatible microphone jack.
- Automatic circuit short protection and indication.
- Sidetone Null adjustment.

III. Basic operations
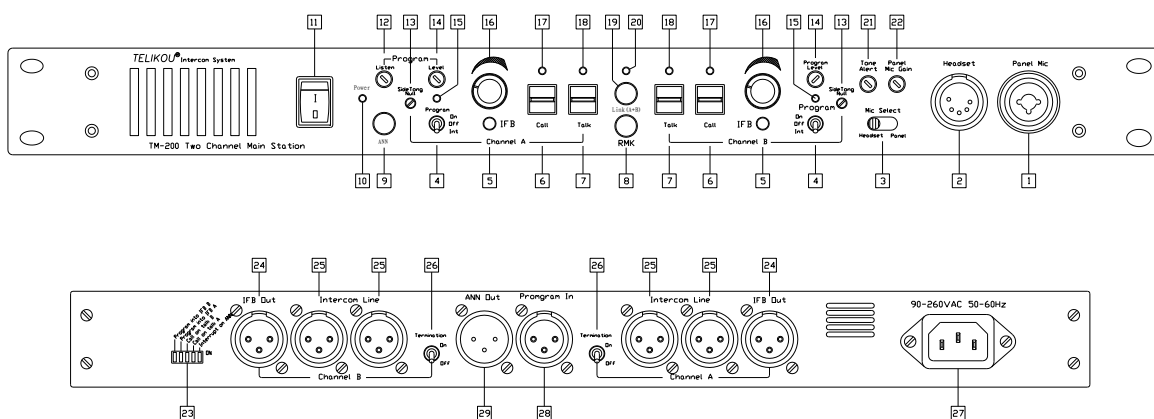
Front Panel

1. Panel Microphone Connector

This is a double-purpose connector, supports XLR-3M and 1/4inch plug. It is compatible with

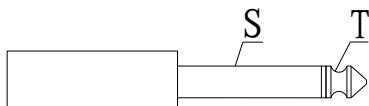dynamic and electret condenser microphone. Unbalanced input

The wiring of XLR-3M is as follow:

A) Pin 1 -- Microphone common

   Pin 2 -- Microphone hot

   Pin 3 – Null

B) ⌀6.35mm Plug

  S --- Microphone Common

  T --- Microphone Hot

2. Headset connector

4-pin XLR Male or 5-pin XLR Female

Earphone: Dynamic 50-2000 ohm

Microphone: Dynamic 100-600 ohm

The wiring of headset is as follow:

   Pin 1—Mic. common

   Pin 2—Mic. hot

   Pin 3--headphone common

   Pin 4--headphone hot

   Pin 5—Null

3. Mic Select Switch

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

4. Program Feed

Turn the switch up or down will send the external input signal to intercom channel.

   ON: Activated channel always receives external program signal.

   OFF: External program signal cannot be sent into system.

   INT: Activated channel receives external program signal. Activated channel receives external program signal. It will be interrupted when microphone is turned on.

5. IFB Button

When IFB button of channel A is pressed, the microphone signal of channel A and B is cut off. Microphone signal is only sent to IFB OUT of channel A. The program audio at IFB OUT of channel A is also cut.

IFB button of channel B is same as channel A.

6. Call Button

Before use call function, please turn on the channel which want to talk. Turn up or down the call switch handle will sent a call signal to all the connected channels. The call LED above lights red. This switch is without self-locking function, release and reset.

7. Microphone Switch (TALK)

Turn up or down the switch handle will send amplified microphone signal through intercom line. When the switch handle is turned to ON or PTT, the LED above will light. The switch position settings are as follow:

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.

8. Remote Mic Kill Switch

Microphone on belt pack may forget to be turned off by operators. Noise will disturb the whole intercom system.

The Remote Microphone 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 on the intercom system. The Remote Microphone Kill switch can be pressed to quiet the line in this situation.

9. Announcement Button (ANN)

When this button is pressed on, microphone signal is sent to ANN. Out connector which is at rear panel.

10. Power LED

This green LED constantly lights on when power supply working properly. If TM-200 has any circuit short problem, it will keep on flashing until the problem has been solved.

11. Power

Power switch

12. Program Listen Level Control

This knob is used to adjust the volume level of background program level which heard from earphone and speaker.

13. Sidetone zero-adjusting

The TM-200 uses full-duplex audio 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 here your own voice back in the speaker or earphone. This is called sidetone. Sidetone could cause unwanted feedback, since the microphone may pick up your returned voice audio and re-amplify it. In either of these cases, 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 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 belt packs.

2 Followed by A) and B), adjust sidetone on TM-200 main station.

   3 Turn on the microphone on sub-station and belt packs one by one, and then adjust the Sidetone to satisfied level.

14. Program Level Control

Adjust program audio level which goes into TM-200, by clockwise or counterclockwise direction.

15. Program Feed LED

This LED lights when Program Feed function works.

16. Listen Level Control

This control is to set the listening level of audio signal in headset or panel speaker. Turn the control on counterclockwise completely will silence the channel.

17. Call Light

This light becomes red under two situations: a) Called: An external call signal is detected; b)Call: When channel switch is turned on, press call button, LED light lights red, and a call signal is sent to the channel.

18. Talk LED

This LED lights when Talk switch is turned on.

19. Link Switch (A+B)

When this switch is released, Channel A and Channel B are individual.

When this switch is pressed, The LED indicator right above this switch will light. Channel A and Channel B are connected to each other. Under this situation, all the user station on Channel B are added to Channel A. And the Channel B controls and switches will be inactive. The Sidetone zero-adjusting for Channel A may required some re-adjustment.

20. Link (A+B) LED:

This green LED is lit when the Link (A+B) switch is pressed.

21. Tone Alert Level Control

When TM-200 receives external call signal, the internal buzzer will sent a hum to panel speaker and earphone. This knob adjusts the hum level.

22. Panel Mic Gain

It is used to adjust panel microphone gain to achieve proper microphone output level. It does not affect headset microphone's sensitivity.

The gain has pre-set as electrets microphone as default. If panel microphone is changed,

please re-adjust panel Mic. gain.

23. Function DIP Setting

5 digits dipper has following settings:

DIP1 (Interrupt on Ann):

    On: Disable microphone signal to intercom channel when announcement is ON.

    Off: Enable microphone signal to intercom channel when announcement is OFF.

DIP2 (Call on Talk A):

    On: Enable auto call function of Channel A. When Talk switch is turned on, it automatic sent a call signal to Channel A.

    Off: Disable auto call function.

DIP3 (Call on Talk B):

    On: Enable auto call function of Channel B. When Talk switch is turned on, it automatic sent a call signal to Channel B.

    Off: Disable auto call function.

DIP4 (Program into IFB A):

    On: Enable background program audio sent to channel A IFB OUT.

    Off: Disable background program audio sent to channel A IFB OUT.

DIP5 (Program into IFB B):

    On: Enable background program audio sent to channel B IFB OUT.

    Off: Disable background program audio sent to channel B IFB OUT.

24. IFB Output Connector

3-pin XLR female socket, The pinout is as follows:

    Pin 1 --- Common (Shield)

    Pin 2 --- Power (+24 VDC)

    Pin 3 --- Audio

25. Intercom Line connector

3-pin XLR female socket, The pinout is as follows:

        Pin 1 --- Common (Shield)

        Pin 2 --- Power (+24 VDC)

        Pin 3 --- Audio

26. Termination switch

When this switch is turned to ON position, one 300ohm termination resistor will be connected to

intercom line. If the intercom system is not terminated, the level of intercom line will be too 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 aggravated, and the level of intercom line will be too low.

This switch is set to ON position by factory default. Before using, you should set it to ON or OFF position according to the actual connection of intercom line.

Note: When TM-200 connects more than ten ends, this switch can be set as OFF.

27. AC Power Connection

Input 90V-260V, 50-60Hz AC, and the power consumption is less than 45VA.

28. Program Input

XLR-3F balanced input.The pinout of the Program Input connector is as follows:

Pin 1 --- Common (Shield)

Pin 2 --- + Audio

Pin 3 --- - Audio

29. Announce Out

This connector is 3-pin XLR male. 0dBu balanced output.

The pinout of Announce Out is as follows:

Pin 1 --- Common (Shield)

Pin 2 --- +Audio

Pin 3 --- -Audio

IV. Installation and cable

1. Installation

TM-200 main workstation adopts 19-inches 1U cabinet, 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 1.5mm^2, when it is used in mobile mode, the cross section area of single line should be at least 0.75mm^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 TM-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 un-terminated.

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

Cause 3: A headset cord is too long or jointing quality.

Solution 3: 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: Inductive pickup caused by close proximity of this main station or connected remote stations to power lines or transformers.

Solution 1: Relocate the offending unit.

Cause 2: Intercom line cable is not wired properly; the shield of microphone cable is not connected to Pin-1 of 3-XLR

Solution 2: Check intercom line cable. Make sure all the cables' Pin-1 of 3-XLR connects correct.

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.

VI Technical Specification

BANDWIDTH:

300Hz-4000Hz ±3dB

SIDETONE:

Adjustable range: >32dB

EARPHONE:

Dynamic 8 - 300ohm

MICROPHONE:

Dynamic 200-600 ohm

POWER SUPPLY:

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

DIMENSION:

19" (W) x1.75" (H) x9.48" (D), 482mm x 44.5mm x 241mm

WEIGHT:

2.6kg