TELIKOU Intercom System

MS-800T Main Station

Instruction Manual

I. Introduction

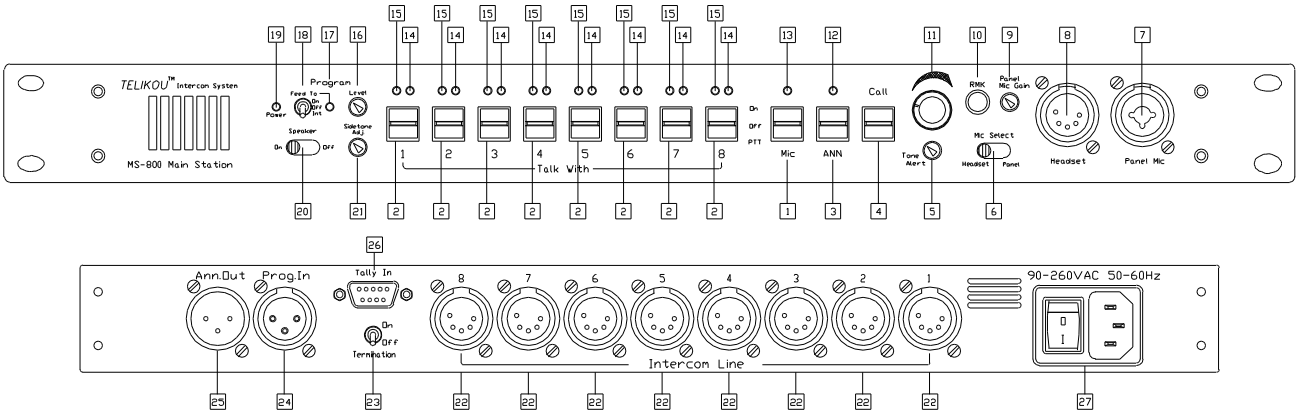
Thank you for choosing TELIKOU intercom product. MS-800T main station is suitable for television station, communication center, UB truck, live performance and any other environment which requires communication. We recommend you read through this manual to better understand the functions of MS-800T.

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).
- Operation distance more than 800m
- 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.
- Tally function with BK-500 belt pack

III. Basic operations



Front Panel

1. Microphone Switch (Mic.)

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.

2. Talk Switches (Talk With)

Switches 1~8 correspond to 1~8 channels. Turn the talk switch handle up or down will talk to the corresponding channel. When the switch is turned to ON or PTT, the LED above will light (GREEN). The switch position settings are as follow:

ON: The corresponding channel is activated, the switch is self-locked.

OFF: The corresponding channel is off.

PTT: The corresponding channel is activated, release and reset.

3. Announce Switch (ANN)

Send the activated microphone signal to ANN. Out connector which is at rear panel. When this function is active, the LED above will light. The switch position settings are as follow:

ON: Send signal from selected microphone to ANN. OUT, the switch is self-locked.

OFF: break the connection between selected microphone and ANN.OUT rear back.

PTT: Send signal from selected microphone to ANN. OUT, release and reset

4. Call Switch

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.

5. Tone Alert Level Control

When MS-800T receives external call signal, the internal buzzer will sent a hum to panel speaker and earphone. This knob adjusts the hum level.

6. Mic Select Switch

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

7. Panel Mic Connector

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

The wiring of XLR-3M is as follow:

Pin 1 -- Mic common

Pin 2 -- Mic hot

Pin 3 -- Null

8. 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

9. 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.

10. Remote Mic Kill Switch (RMK)

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.

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.

11. 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.

12. Announcement LED (ANN.LED)

This LED lights when announcement switch is turned to ON or PTT.

13. Mic LED

This LED lights when microphone switch is turned to ON or PTT.

14. Talk LED

This LED lights when Talk switch is turned to ON or PTT.

15. Call LED

Each call LED corresponds to one exactly channel. This LED will light under two cases: a) called: The call signal from communication channel is received; b) calling: if one channel is expected, please turn on corresponding Talk switch first, then press Call switch, the call LED above this channel will light. A call signal been sent to the channel.

16. Program Level Control

Adjust program audio level which goes into MS-800T, by clockwise or counterclockwise direction.

17. Feed To LED

This LED lights when Program Feed To function works.

18. Program Feed To

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 can not 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.

19. Power LED

This green LED constantly lights on when power supply working properly. If MS-800T meets any circuit short problem, it will keep on flashing until the problem has been solved.

20. Speaker Switch

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

21. Sidetone zero-adjusting

The MS-800T 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 MS-800T main station.

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

Rear Panel

22. Intercom Line connector

5-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

Pin 4 --- Control Signal

Pin 5 --- Null

23. Termination switch

When this switch is turned to ON position, one 220 ohm 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.

24. Program Input

The external program signal sent into intercom line through Prog. In connector when Program Feed To Switch is turned on. The program level can be adjusted by the Program Level Control 14. When Mic Switch 1 is activated, this program input is automatically cut off. XLR-3F balanced input.The pinout of the Program Input connector is as follows:

Pin 1 --- Common (Shield)

Pin 2 --- + Audio

Pin 3 --- - Audio

25. Announce Out

This connector is 3-pin XLR male. Press the Announce button to make stage or PA system announcements. It directs the audio from the selected headset or panel microphone to the Ann Out rear panel connector. The output impedance is 600 ohm for balanced output.

The pinout of Announce Out is as follows:

Pin 1 --- Common (Shield)

Pin 2 --- +Audio

Pin 3 --- -Audio

26. Tally In

DB9 pin definition:

Pin 1 --- tally signal to channel 1

Pin 2 --- tally signal to channel 2

Pin 3 --- tally signal to channel 3

Pin 4 --- tally signal to channel 4

Pin 5 --- tally signal to channel 5

Pin 6 --- tally signal to channel 6

Pin 7 --- tally signal to channel 7

Pin 8 --- tally signal to channel 8

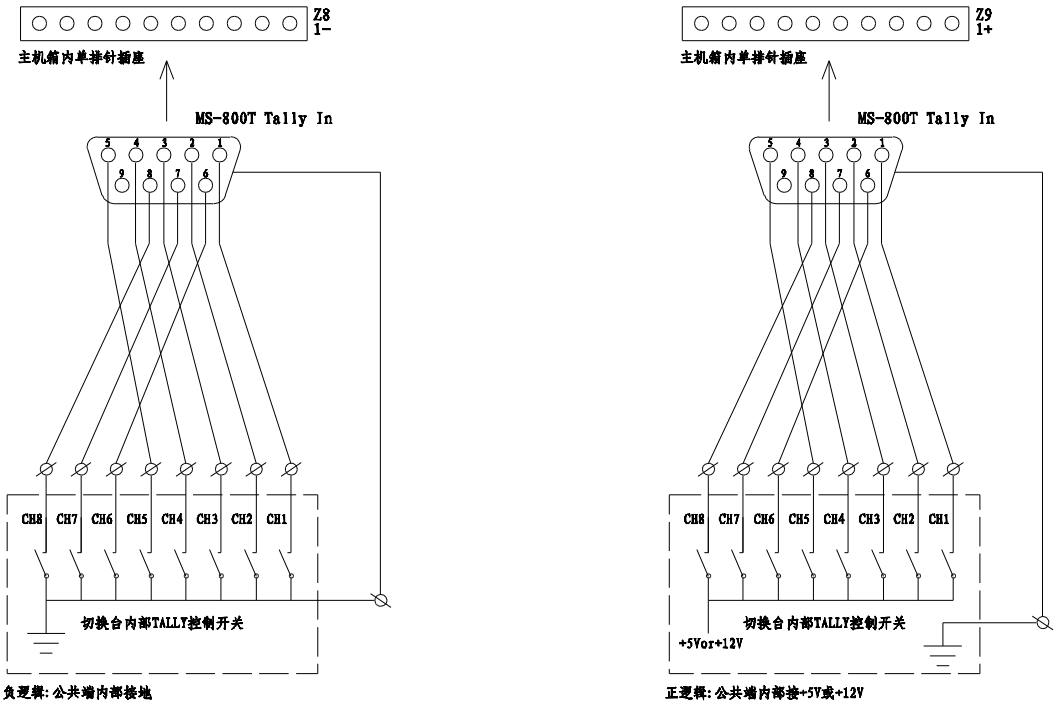
Pin 9 --- +12VDC

Shell --- Ground

MS-800T is negative logic as default. It can be set to positive logic. The step is as follow:

Turn off the power. Open the top cover of MS-800T. Plug the DB9 connector to the proper slot. When DB9 connector is connected to Z8(-1) slot, MS-800T is negative logic. The low level control signal is active. When DB9 connector is connected to Z8(+1) slot, MS-800T is positive logic. The high level control is active. The low level control signal voltage is less than +2V. The high level control signal is higher than +5V, less than +12V.

The following two drafts show the two different logics.



If switcher common is not connected, the positive logic can be connected as following left draft. And negative logic can be connected as following right draft.

27. AC Power Connection and Power Switch

Input 85V-265V, 50-60Hz AC, and the power consumption is less than 95VA.

IV. Installation and cable

1. Installation

MS-800T 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 MS-800T. 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 MS-800T 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.

Cause 3: 10 Ohm chassis ground resistor is open.

Solution 3: Bridge a 10 Ohm resistor between system ground (G) and earth ground (⏚) of any power supply.

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 beltpacks

Cause 1: The connection among TELIKOU main stations must go via Online connector on rear panel. The Online connector of this station connected to the Intercom Line connector of another station.

Solution 1: Check the connection of Online connector

Cause 2: If there is SPK-200 in the system. The Online connector of SPK-200 can connect to other station's Intercom Line connector. But Connect To switch of SPK-200 must be place on Intercom Line position. The setting of Connect To switch is not correct.

Solution 2: Place Connect To switch on Intercom Line position.

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.

Cause 2: Some stations are not TELIKOU. So these stations do not have Online connector.

Solution 2: Change to TELIKOU main station.

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: XLR-3F

Pin 1 -- Mic common

Pin 2 -- Mic hot

Pin 3 – Null

Headset connector: XLR-4M or 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

Program Input: XLR-3F

Pin 1 --- Common (Shield)

Pin 2 --- + Audio

Pin 3 --- - Audio

Announce Out: XLR-3M

Pin 1 --- Common (Shield)

Pin 2 --- +Audio

Pin 3 --- -Audio

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Pin 8 --- tally signal to channel 8

Pin 9 --- +12VDC

Shell --- Ground

POWER SUPPLY:

AC 85-265V, 50-60Hz, <90VA

Output voltage: 24V DC,

Output current: 2.5A peak (single), 5A peak (dual), 1.5A max (single), 3A max (dual)

Short circuit start current: 1.2-1.5 times max current

Short circuit reset time: 2 sec

STATION CAPACITY:

17 beltpacks

ENVIRONMENTAL:

0° - 50°C（32°-122°F）

DIMENSION:

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

WEIGHT:

2.6kg