

***TELIKOU* Intercom System**  
**TM-800 with Tally Main Station**  
**Instruction Manual**

## I. Introduction

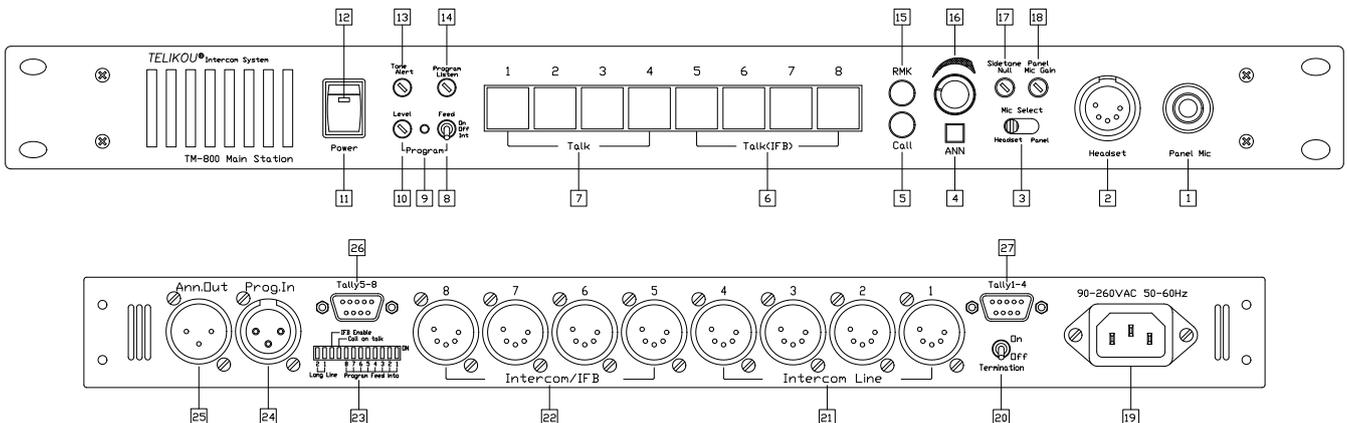
Thank you for choosing TELIKOU intercom product. TM-800 with Tally main station is suitable for television station, communication center, UB truck, live performance and any other environment which requires communication. We recommend you read through this manual to better understand the functions of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

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).
- IFB function.
- Announcement output
- Controllable background input
- Automatic circuit short protection and indication.
- Supports Tally Input
- Supports Dynamic and Electret Gooseneck Microphone

## III. Basic operations

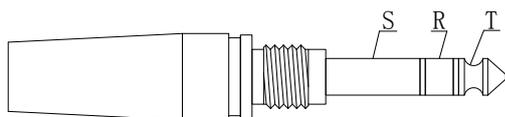


### Front Panel

#### 1. Panel Microphone Connector

Ø6.35mm microphone jack can be used as unbalanced Dynamic or Electret microphone.

Pin definition is as follow:



- S --- Shield
- R --- Common
- T --- Microphone Hot

## 2. Headset connector

4-pin XLR Male or 5-pin XLR Female

Earphone: Dynamic 8-300 ohm

Microphone: Dynamic 200 ohm

The wiring of headset is as follow:

- Pin 1 -- Microphone Common
- Pin 2 -- Microphone Hot
- Pin 3 -- Earphone -
- Pin 4 -- Earphone +
- Pin 5 -- Null

## 3. Mic Select Switch

Mic select switch is used to select panel microphone or headset microphone.

## 4. Announcement Button (ANN)

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

## 5. 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.

## 6. TALK / IFB Button

These buttons are involved with DIP-switch which is at rear panel.

A) When DIP10 is OFF

The function of channel 5-8 is same as channel 1-4. When any channel TALK button is pressed, the button lights green color.

B) When DIP10 is ON

IFB function is activated. Channels 5-8 become four IFB channels. Any channel TALK button of 5-8 is pressed ON, the channel 1-4 are turned off automatically, also background input. Only microphone signal is sent to the channel.

The working mode for TALK / IFB Button:

**PTT:** Hold the button, the channel is connected, release the button, the channel is cut off;

**LATCH:** Quick single press the button in 200ms, the channel is latched on. Press button again, the channel is cut off.

## 7. TALK Button

Press channel TALK button, the microphone signal is sent to corresponding channel. The button lights GREEN.

The working mode for TALK Button:

**PTT:** Hold the button, the channel is connected, release the button, the channel is cut off;

**LATCH:** Quick single press the button in 200ms, the channel is latched on. Press button again, the channel is cut off.

## 8. 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 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.

## 9. Program Feed LED

This LED lights when Program Feed function works.

## 10. Program Level Control

Adjust program audio level which goes into TM-800 with Tally, by clockwise or counterclockwise direction.

## 11. Power

Power switch

## 12. Power LED

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

### **13. Tone Alert Level Control**

When TM-800 with Tally receives external call signal, the internal buzzer will send a hum to panel speaker and earphone. This knob adjusts the hum level.

### **14. Program Listen Level Control**

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

### **15. 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.

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

The TM-800 with Tally 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 hear 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 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 belt packs.
- 2 Followed by A) and B), adjust sidetone on TM-800 with Tally main station.
- 3 Turn on the microphone on sub-station and belt packs one by one, and then adjust the Sidetone to satisfied level.

The different cable length effects the result.

Please reference the following table, to have proper DIP 11 and DIP 12 setting.

Cable Length	<100m	100-200m	200-400m	>400m
DP11	OFF	ON	OFF	ON
DP12	OFF	OFF	ON	ON

**18. 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.

**19. AC Power Connection and Power Switch**

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

**20. 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.

### 21. Channel 1-4 Intercom Line connector

Four 5-pin XLR male sockets corresponding to 1-4 channels; The pin-out of the intercom connectors is as follows:

- Pin 1 --- Common (Shield)
- Pin 2 --- Power (+24 VDC)
- Pin 3 --- Audio
- Pin 4 --- Green Tally Signal
- Pin 5 --- Red Tally Signal

### 22. Channel 5-8 Intercom Line connector and IFB Output

5-pin XLR male socket, The pin-out of the intercom connectors is as follows:

- Pin 1 --- Common (Shield)
- Pin 2 --- Power (+24 VDC)
- Pin 3 --- Audio
- Pin 4 --- Green Tally Signal
- Pin 5 --- Red Tally Signal

### 23. Function DIP Setting

12 digits dipper has following settings:

DIP1 - DIP8 (Program Feed into):

On: Enable background program signal sent to Intercom channel

Off: Disable background program signal sent to Intercom channel

DIP9 (Call on Talk)

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

Off: Disable auto call function.

DIP10 (IFB Enable):

On: Enable IFB function. Channel 5-8 become IFB channel. If talk button of any IFB channel is turned on, channel 1-4 will be turned off automatic. Microphone signal is only sent to the IFB channel which is turned on.

Off: Disable IFB function.

DIP11 (Long line1)

On: Sidetone compensate for long distance intercom line cable

Off: disable compensate (default)

DIP12(Long line2)

On: Sidetone compensate for long distance intercom line cable

Off: disable compensate (default)

Cable Length	<100m	100-200m	200-400m	>400m
DP11	OFF	ON	OFF	ON
DP12	OFF	OFF	ON	ON

## 24. Program Input

This connector is 3-pin XLR Female. Differential input: 1Vp-p.

The pinout is as follows:

Pin 1 --- Common (Shield)

Pin 2 --- + Audio

Pin 3 --- - Audio

## 25. Announce Out

This connector is 3-pin XLR male. Differential output: 1Vp-p.

The pinout is as follows:

Pin 1 --- Common (Shield)

Pin 2 --- +Audio

Pin 3 --- -Audio

## 26. Tally In 5-8

There are two DB9 connectors at rear panel to receive tally signal.

This DB9 connector is beside Channel 8 XLR connector.

It receives Green and Red Tally signal for Channel 5 to 8.

DB9 connector pin definition:

Pin 1 --- Green tally signal to channel 5

Pin 2 --- Red tally signal to channel 5

Pin 3 --- Green tally signal to channel 6

Pin 4 --- Red tally signal to channel 6

Pin 5 --- Green tally signal to channel 7

Pin 6 --- Red tally signal to channel 7

Pin 7 --- Green tally signal to channel 8

Pin 8 --- Red tally signal to channel 8

Pin 9 --- Common

## 27. Tally In 1-4

There are two DB9 connectors at rear panel to receive tally signal.

This DB9 connector is beside Channel 1 XLR connector.

It receives Green and Red Tally signal for Channel 1 to 4.

DB9 connector pin definition:

- Pin 1 --- Green tally signal to channel 1
- Pin 2 --- Red tally signal to channel 1
- Pin 3 --- Green tally signal to channel 2
- Pin 4 --- Red tally signal to channel 2
- Pin 5 --- Green tally signal to channel 3
- Pin 6 --- Red tally signal to channel 3
- Pin 7 --- Green tally signal to channel 4
- Pin 8 --- Red tally signal to channel 4
- Pin 9 --- Common

## **IV. Installation and cable**

### **1. Installation**

TM-800 with Tally main workstation adopts 19-inches 1U cabinet, and this workstation can be mounted on rack.

### **2. Intercom cable**

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

TELIKOU intercom 2-Wire systems adopts 2-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. 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 TM-800 with Tally main station requires 5-pin XLR cable. 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
- Pin 2 --- Power DC
- Pin 3 --- Audio Signal
- Pin 4 --- Tally Green Light Driving Signal
- Pin 5 --- Tally Red Light Driving 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-800 with Tally. 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: Reduce the volume.

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

Solution 2: Adjust sidetone again.

Cause 3: Channel un-terminated.

Solution 3: Set the TM-800 with Tally 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 XLR

Solution 2: Check intercom line cable. Make sure all the cables' Pin-1 of 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  $\pm$ 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