INTERFACE EQUIPMENTS
USER'S MANUAL

User Manual

TS-9101
TS-9103
TS-9106M

Before using the system, please read this manual first

Thanks very much for choosing ITC products, in order to better use it, please read this user manual carefully before installing and debugging. If you have any question, please do not hesitate to contact our company or our agent office, thank you!

This user manual is only using for operating instruction, can't be used for maintenance service. If the products is modified, we will not inform you in prior.

Since 1st October, 2014. If there is any change for the functions or parameters, we will make extra state explanation. You can inquiry to the equipment supplier for more details.

Important instruction

Warning

To ensure the reliable use of equipment and the safety of personnel, when use and maintain the equipment, please observe the following issues:

Precautions during installation

◆ Do not use this product under the following occasions: with dust, soot, conductive dust, corrosive gas, flammable gases; exposed to high temperatures, condensation, wind and rain occasion; vibration, shock occasions. Electric shock, fire, misuse will also result in product damage and deterioration.

◆ During the processing and wiring of screw holes, do not make metal shavings and wire head fall into ventilation holes controller, which may cause a fire, malfunction, misuse.

◆ By the end of the installation of the products, you need to ensure that no foreign body on the surface ventilation, including dust and paper packaging materials, otherwise it could lead to poor run-time heat, causing a fire, malfunction, misuse.

◆ Avoid charging status wiring, plugging the cable plug, otherwise it will easily lead to electric shock, or cause damage to the circuit.

◆ Installation and wiring must be solid and reliable, and poor contact may result in misuse.

◆ For applications in noisy environment, high-frequency signal input or output cable shielded cables should be used, so that improve the anti-jamming performance of the system.

Precautions when wiring

◆ Cut off all of the external power supply before installation, wiring, etc, otherwise it may cause electric shock or equipment damage.

◆ This product is grounded through the grounding conductor of the power cord to avoid electric shock, the grounding conductor must be connected to earth before the end of the input or output of the product is connected, be sure the product is properly grounded.

◆ During the installation wiring is complete, immediately remove foreign matter, please cover the terminal cover before the product is energized, to avoid electrical shock.

Precautions during operation and maintenance

◆ Do not touch the terminals while power, or it may cause electric shock, malfunctions.

◆ Please be clean and tighten terminals work after turning off the power, these operations may cause electric shock when energized.

◆ Please connect after turning off the power or remove the communication signal cables, extension cables to connect or remove a module or control unit and other operations, or may cause equipment damage, misuse.

◆ Do not disassemble the device, to avoid damage to the internal electrical components.

◆ Always read the manual, the safety fully recognized, and then make changes to the program, commissioning, start and stop operations.

Precautions when product obsolescence

◆ Electrolytic capacitor explosion: explosion may occur when the electrolytic capacitor circuit board burned.

◆ Please separate collection and treatment, can not put garbage in.

Contents

1. TS-9101, 8-CH HV power supply controller

1.1 product description

TS-9101 8-CH HV power supply controller is mainly for matching all kinds of central control equipments for all power supply management and protection.

1.2 product characteristics

1) Manual control: in front panel of the machine there are 8 self-locking buttons, in emergency situations you can manually control relay switch, such as when the central control is fault.

2) Protocol compatibility: widely compatible with central control network protocols in the market.

3) ID selection: rotation ID switches to set the network ID identity code.

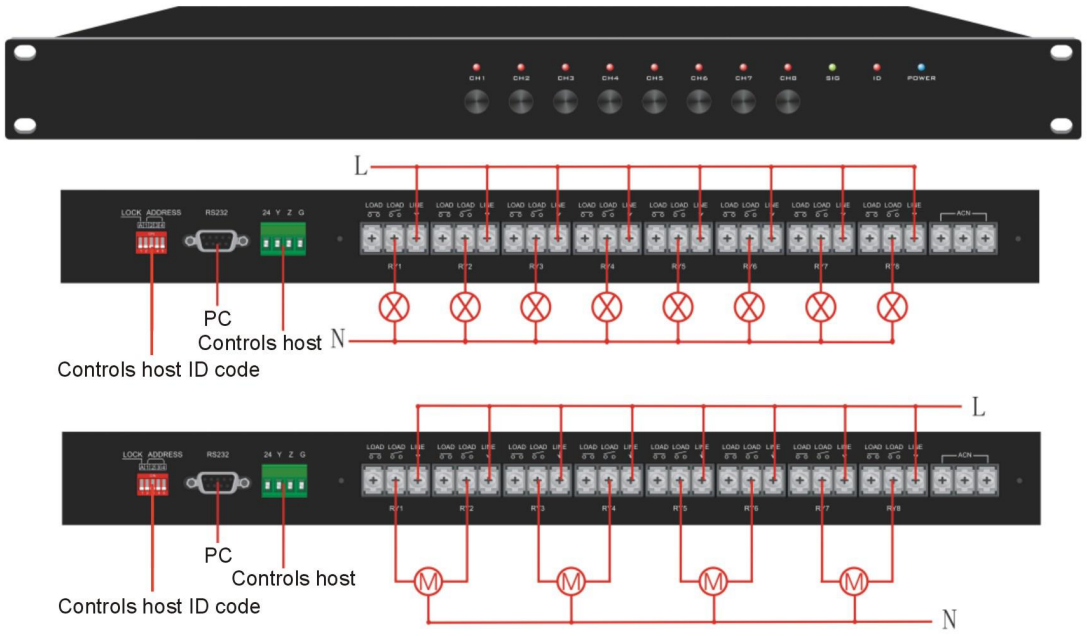
4) Each relay has a 3 connection point terminal, with a normally open and normally closed (optional) function.

5) Add a zero line terminal to facilitate the site construction.

1.3 technical parameters

- 8 channel power switch control
- Load capacity: single path power 20A
- ID selection: rotation ID switches to set the network ID identity code
- Power supply: 24VDC network power supply
- Control method: through the independent network protocol control
- Single or multi channel switch
- Can be connected to a variety of programmable control system
- Size: 484Hx220Wx44D(mm)
- Weight: 2.62Kg

1.4 System diagram



1.5 Control method

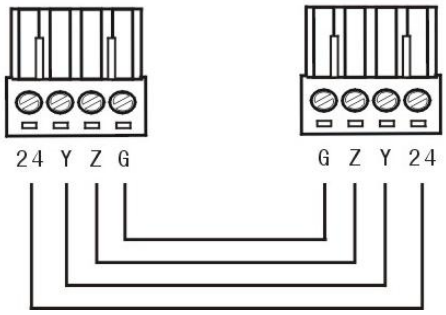
1.5.1 Center control

Connected to the host controller (device bus mode):

As shown in the following figures, using the device bus protocol to connect central control host, the device is generally marked as NET interface, it requires only four lines in which the two are 24V DC power wire and the earth wire, the other two are the data wires.

Att: For convenience, some installers usually use Cat 5 cable for connection in construction. But the network cable is texture brittle, easily broken and the non-professional person like users is hard to find the problems. so we extremely suggest users do not use NETWORK cables to connect the NET port. the power wire or other wires which texture is tough and diameter over 1.0MM would be better choice. In addition, careful checking for power wire and earth wire connections before power on is also very important.

Connected to the central control host NET ports　　Connected to the power management NET ports



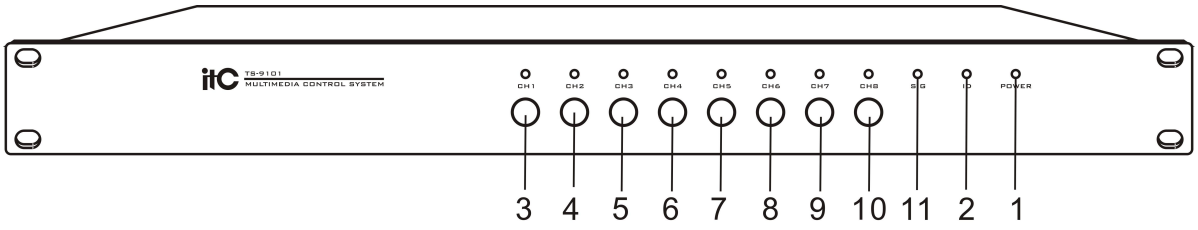
1.5.2 Manual control

As shown in the following figures. Totally eight self-locking keys on the front panel, each key corresponds to one self-locking relay. For example, when the first self-locking key is pressed down, then the first relay was forcibly opened and no longer controlled by the host.

1.5.3 RS-232 protocol control

General speaking, it's only as one of selection method. And also pls do not use NETWORK cable for connection.

As shown below. totally eight self-locking keys on the front panel, each key corresponds to one self-locking relay. For example, when the first self-locking key is pressed down, then the first relay was forcibly opened and no longer controlled by the host. What above the key switcher are 11 LED lights, and defined as followings:



① Power indicator light, Light on when power on.

② ID indicator light, Light on when ID code is right.

③ First relay indicator light, Light on when first replay opened.

④ Second First relay indicator light, Light on when second replay opened.

⑤ Third relay indicator light, Light on when Third replay opened.

⑥ Fourth relay indicator light, Light on when fourth replay opened.

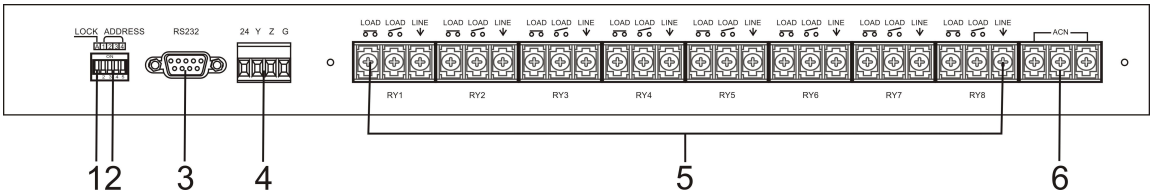
⑦ Fifth relay indicator light, Light on when fifth replay opened.

⑧ Sixth First relay indicator light, Light on when sixth replay opened.

⑨ Seventh First relay indicator light, Light on when seventh replay opened.

⑩ Eighth relay indicator light, Light on when eighth replay opened.

⑪ Indicator light, flashing when received commands.



① LOCK switch, switch on, the button function is normal; switch off, the button function is not working.

② DIP switch.

③ RS232 serial port interface.

④ NET bus communication interface.

⑤ load terminal interface.

⑥ zero terminal interface.

1.5.4 RS232 protocol control commands (9600. N.1)

System commands-set the relay switch command

$+Q: Q is H, I, J, K, L, M, N, O, i.e., corresponding to the 8 power supply channel 1, 2, 3, 4, 5, 6, 7, 8.

For example: switch on the first relay, the command is: $ H1

switch off the first relay, the command is: $ H0

Commands Example:

operation	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 7	Channel 8
Switch on	$H1	$I1	$J1	$K1	$L1	$M1	$N1	$O1
Switch off	$H0	$I0	$J0	$K0	$L0	$M0	$N0	$O0

Extend the host address by DIP switch "SET ID" on the right side

DIP \ ID	1	2	3	4
4	----	----	ON	----
5	ON	----	ON	----
6	----	ON	ON	----
7	ON	ON	ON	----
8	----	----	----	ON
9	ON	----	----	ON
10	----	ON	----	ON
11	ON	ON	----	ON
12	----	----	ON	ON
13	ON		ON	ON
14		ON	ON	ON
15	ON	ON	ON	ON

2. TS-9103 4-channel strong current dimmer and 4-channel power supply controller

2.1 Product description

TS-9103 4-channel strong current dimmer and 4-channel power supply controller, widely applied in occasions of lighting control, and power management, matching with a variety of center control systems

2.2 Features

1) Manual control

There are 8 buttons on the front panel, the left 4 touch buttons are to control lighting, the right 4 self-locking buttons are to control relays. You can manually turn off or turn on the lights in emergency. If turn on the load (eg: $ H01- $ H50), indicator will be on, if turn off load (eg: $ H00), indicator will be off. If in emergency situations, you can manually turn the load on or off fully (Note: there is self-locking DIP switch "LOCK ", when the DIP switch " ON ", the machine is available for manual control, when the DIP switch " OFF ", it will be failed for manual control). You can use this operation when the center control is with fault, to well protect other devices.

2) Compatible protocol

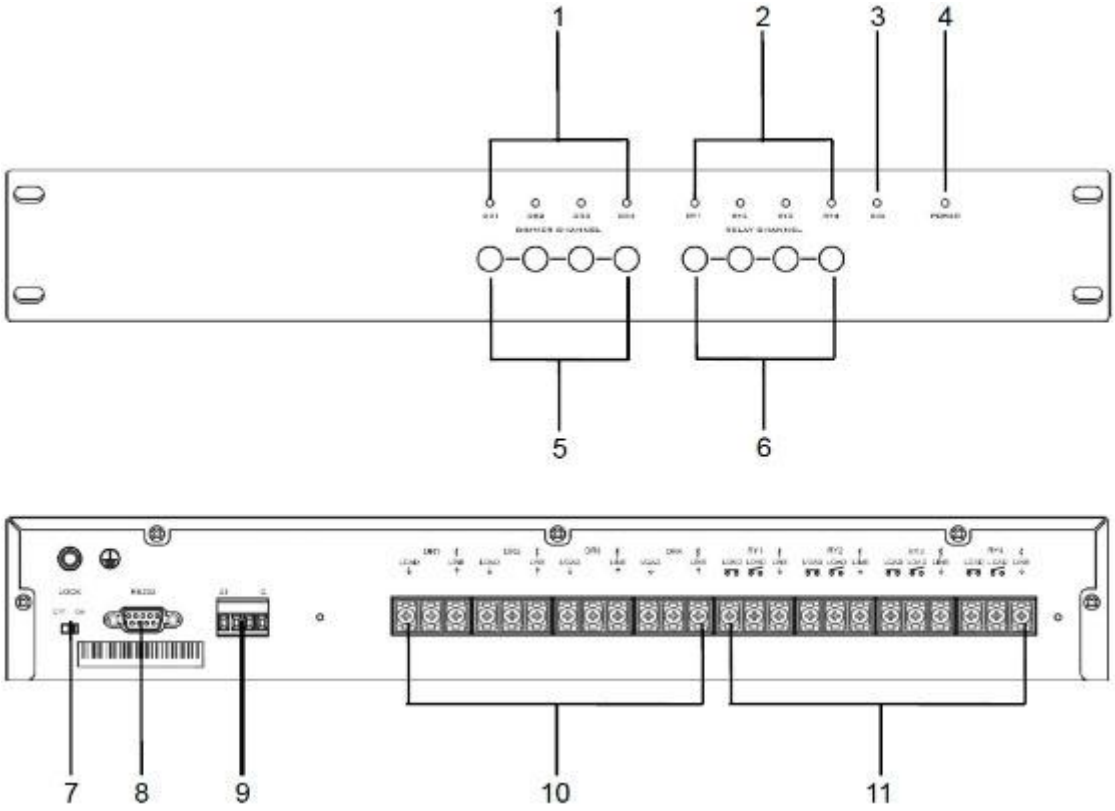
It is widely compatible with the center control network protocol

3) Each relay has three terminal connectors, with normally open and normally closed (optional) function.

2.3 Technical parameters

- 4 channels for strong current dimming and 4 channels for power switch control
- Dimmer load capacity: Single-channel rated current 20A
- Power Controller loading capacity: Single-channel current 20A
- no need setting the dimmer ID
- Power: 24VDC network power supply
- Control Methods: RS232 control, refer to "System Connection Diagram" related systems Connection
- Single or multi-channel switch
- can be accessed to a variety of programmable control system
- Dimension: 380H×200W×70D(mm)
- Weight: 3Kg

2.4 Front panel, rear panel



1. 1-4 channel dimmer control indicator.

2. 1-4 channel power control indicator.

3. Command indicator.

4. Power indicator.

5. 1-4 channel dimmer control button.

6. 1-4 channel power control button.

7. Self-locking DIP switch.

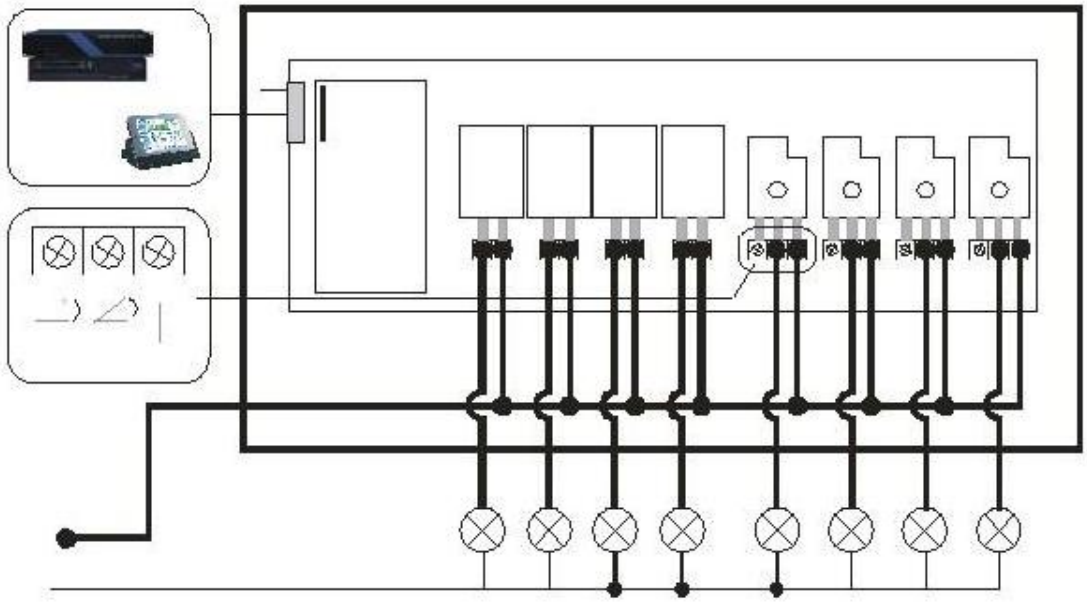
8. RS-232 control.

9. DC24 power input.

10. 1-4 channel dimmer control normally close normally open output terminal (note:1-4 channel DR1/DR2/DR3/DR4 useless).

11. 1-4 channel power control normally close normally open output terminal.

2.5 System connection diagram



2.6 Dimmer usage

Four channels strong electric dimmer and four channels power controller communicate with central controller or computer via RS-232 protocol, so it's applicable to any central control systems.

Communication protocol: Baud rate: 9600 Data bits: 8 Stop bits: 1 check bits : None

System command - set dimmer brightness command

$+Q+nn Q is H, I, J, K, which corresponds to 1, 2, 3, 4 channel of dimmer; nn is brightness value, in the range of 0-50; step value must more than 3.

E.g. Set the first channel dimmer brightness as 10(11/51*100%), send command : $H10

Set the second channel dimmer brightness as 32(100%), send command : $I31

Command example

Action	The first channel	The second channel	The third channel	The fourth channel
1(2%)	$H01	$I01	$J01	$K01
2(4%)	$H02	$I02	$J02	$K02
3(6%)	$H03	$I03	$J03	$K03
4(8%)	$H04	$I04	$J04	$K04
5(10%)	$H05	$I05	$J05	$K05
6(12%)	$H06	$I06	$J06	$K06
7(14%)	$H07	$I07	$J07	$K07
8(16%)	$H08	$I08	$J08	$K08
9(18%)	$H09	$I09	$J09	$K09
10(20%)	$H10	$I10	$J10	$K10
11(22%)	$H11	$I11	$J11	$K11
12(24%)	$H12	$I12	$J12	$K12
13(26%)	$H13	$I13	$J13	$K13
14(28%)	$H14	$I14	$J14	$K14
15(30%)	$H15	$I15	$J15	$K15
16(32%)	$H16	$I16	$J16	$K16
17(34%)	$H17	$I17	$J17	$K17
18(36%)	$H18	$I18	$J18	$K18
19(38%)	$H19	$I19	$J19	$K19
20(40%)	$H20	$I20	$J20	$K20
21(42%)	$H21	$I21	$J21	$K21
22(44%)	$H22	$I22	$J22	$K22
23(46%)	$H23	$I23	$J23	$K23
24(48%)	$H24	$I24	$J24	$K24
25(50%)	$H25	$I25	$J25	$K25
26(52%)	$H26	$I26	$J26	$K26
27(54%)	$H27	$I27	$J27	$K27
28(56%)	$H28	$I28	$J28	$K28
30(60%)	$H30	$I30	$J30	$K30
40(80%)	$H40	$I40	$J40	$K40
50(100%)	$H50	$I50	$J50	$K50
Increase brightness 2%	$H++	$I++	$J++	$K++
Reduce brightness 2%	$H--	$I--	$J--	$K--

2.7 Relay usage

System command - set the relay switch command

$+Q: Q L, M, N, O, which corresponds to 1, 2, 3, 4 channel of dimmer

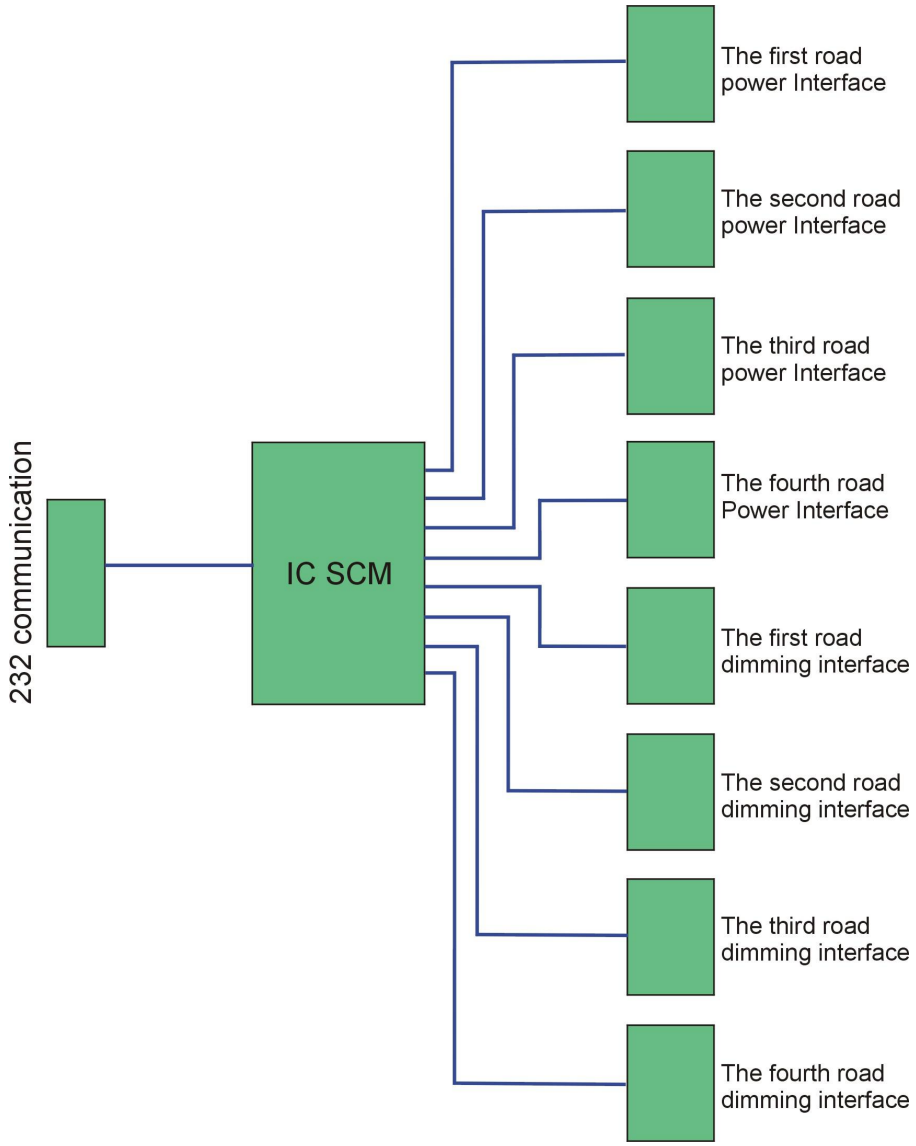
E.g. Connect the first channel relay, the command is: $L00

Disconnect the first channel relay, the command is $L01

Command example:

Action	The first channel	The second channel	The third channel	The fourth channel
Connect	$L00	$M00	$N00	$O00
Disconnect	$L01	$M01	$N01	$O01

2.8 Frame diagram



3. TS-9106M balanced stereo tuner

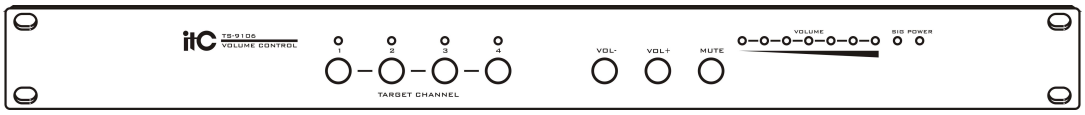
3.1 product description

8 channels unbalanced stereo/ 4 channels balanced stereo tuner, cooperate with various central control systems, users can easily control the volume.

3.2 Technical Parameter

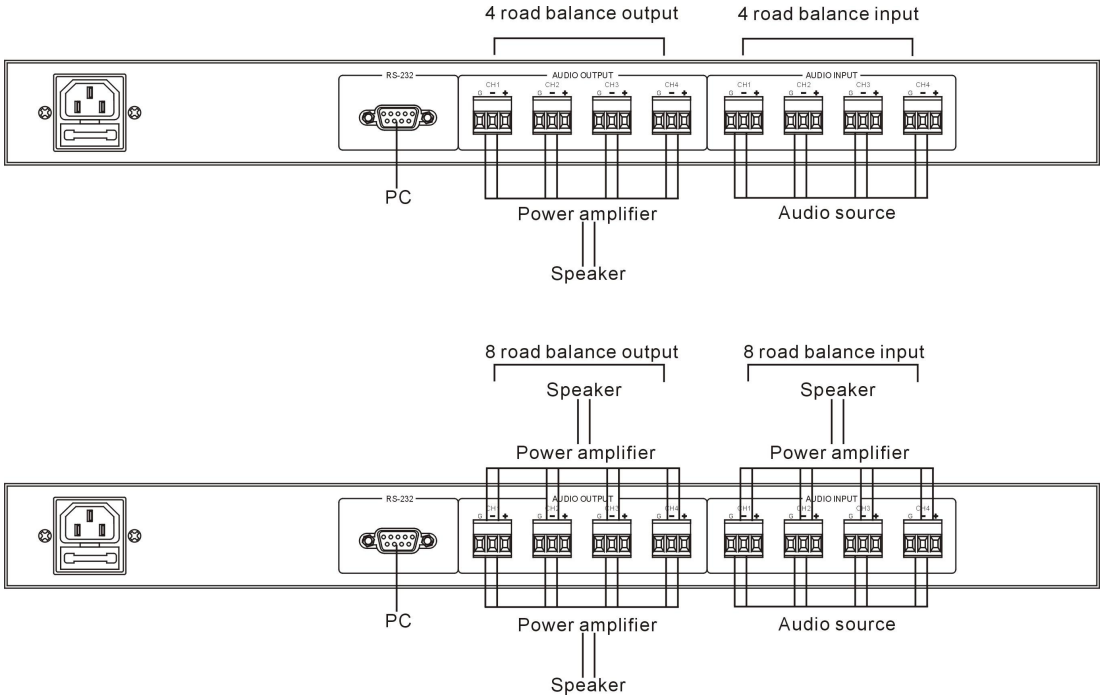
- Input port: 4 terminal modules, support balanced or unbalanced line-level audio input
- Output port: 4 terminal modules, support balance or unbalanced line-level audio output.
- Volume channel input impedance: 680Ω
- Volume channel output impedance: 10Ω
- Input Level: 2VPP
- Channel separation: - 90db mute: -104dB
- Uniformity: 80-16KHz +/- 3dB
- Attenuation range: 0-76dB (non-mute, max)
- Frequency response: 80Hz-16KHz (-3dB, Min)
- Power Specification: AC ~110-240V wide power supply
- Control method: RS232, Baud Rate 9600
- Can connect various programmable control system
- Dimension: 484(length) * 215(width) * 44(height) (mm)
- Weight: 3.22Kg

3.3 Front panel



As above shown, the four buttons 1.2.3.4 of front panel is used for activating a certain channel which needs to adjust volume."VOL-" key is used to turn down, and "VOL+" key is used to turn up. For example,we need to turn up the volume of first channel audio input, press the button "1", then adjust the "VOL+"key. "MUTE" is used for muting the current volume of certain channel. "VOLUME" is electrical level indicator."SIG" is command indicator. "POWER" is power indicator.

3.4 System connection diagram



3.5 Commend system

8 unbalanced stereo / 4 balanced stereo tuner is communicating via the RS-232 protocol and the control or host computer, it is applicable to any control system.

Communication protocol: Baud rate: 9600 Data bits: 8 Stop bits: 1 Parity: None

• System Directive - Directive set the sound intensity

$+Q + nn Q of A, C, E, G, namely correspond to tuners 1,2,3,4 Road; nn loudness value in the range of 0-31; step value must be greater than 3.

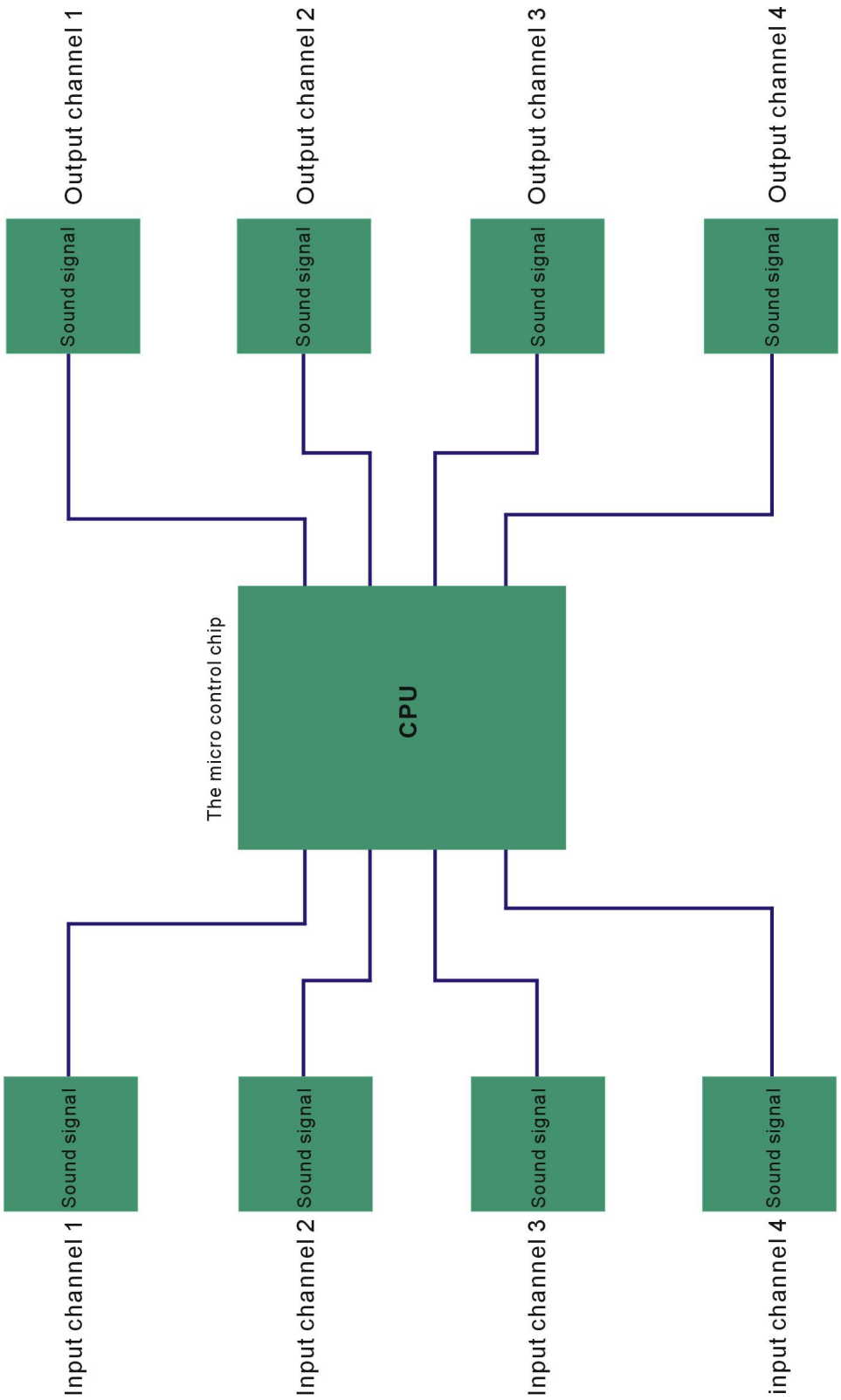
Example: Set the first channel tuner Loudness 10 (11/32*100%), send instructions to: $ A10

Setting a second tuner Loudness Road 32 (100%), to send commands to $ E31.

Commend Example:

Action	The first channel	The second channel	The third channel	The fourth channel
1(3%)	$A01	$C01	$E01	$G01
2(6%)	$A02	$C02	$E02	$G02
3(9%)	$A03	$C03	$E03	$G03
4(12%)	$A04	$C04	$E04	$G04
5(15%)	$A05	$C05	$E05	$G05
6(18%)	$A06	$C06	$E06	$G06
7(21%)	$A07	$C07	$E07	$G07
8(24%)	$A08	$C08	$E08	$G08
9(27%)	$A09	$C09	$E09	$G09
10(30%)	$A10	$C10	$E10	$G10
11(33%)	$A11	$C11	$E11	$G11
12(36%)	$A12	$C12	$E12	$G12
13(39%)	$A13	$C13	$E13	$G13
14(42%)	$A14	$C14	$E14	$G14
15(45%)	$A15	$C15	$E15	$G15
16(48%)	$A16	$C16	$E16	$G16
17(51%)	$A17	$C17	$E17	$G17
18(54%)	$A18	$C18	$E18	$G18
19(57%)	$A19	$C19	$E19	$G19
20(60%)	$A20	$C20	$E20	$G20
21(63%)	$A21	$C21	$E21	$G21
22(66%)	$A22	$C22	$E22	$G22
23(69%)	$A23	$C23	$E23	$G23
24(72%)	$A24	$C24	$E24	$G24
25(75%)	$A25	$C25	$E25	$G25
26(78%)	$A26	$C26	$E26	$G26
27(81%)	$A27	$C27	$E27	$G27
28(84%)	$A28	$C28	$E28	$G28
29(87%)	$A29	$C29	$E29	$G29
30(90%)	$A30	$C30	$E30	$G30
31(100%)	$A31	$C31	$E31	$G31
Increase brightness 3%	$A++	$C++	$E++	$G++
Reduce brightness 3%	$A--	$C--	$E--	$G--

3.6 Frame diagram



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