Conference Discussion System

VZ 4800
User Manual V1.0.5

KLOTZ
systems

Conference System – VZ 4800 - User Manual
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PLEASE MAKE SURE TO READ THIS

MANUAL CAREFULLY BEFORE TAKING

VZ 4800CU CONTROLLER INTO OPERATION

</div>

SAFETY INSTRUCTIONS AND READER'S INFORMATION

There is a certain **hierarchy of warnings** in **this manual**. The warnings are printed in **bold letters** and are marked by a warning sign at the margin.

1. WARNING
2. CAUTION
3. NOTE

The term **WARNING** will be used wherever **danger is imminent**. The possible consequences may be death or severe injury (personal injury).

The term **CAUTION** will be used wherever a **dangerous situation is possible**. The possible consequences include death, severe or light injury (personal injury), damage to property (destruction of modules) or environmental hazards (fire damage). In any case, the failure to observe/comply with these instructions will result in the loss of guarantee.

The term **NOTE** will be used for marking **recommendations on the use**. These sections contain additional information, recommendations, hints and tips. Non-compliance with these recommendations may result in damage to property, e.g. to the system or the software.

General Safety Instructions

1. Read all instructions. Read all safety and operating instructions before operating the product.
2. Retain all instructions. Retain all safety and operating instructions for future reference.
3. Heed all warnings. You must adhere to all warnings on the product and those listed in the operating instructions.
4. Follow all instructions. Follow all operating and product usage instructions.
5. Heat. This product must be situated away from any heat sources such as radiators, heat registers, stoves, or other products (including power amplifiers) that produce heat.
6. Ventilation. Slots and openings in the product are provided for ventilation. They ensure reliable operation of the product and keep it from overheating. Do not block or cover these openings during operation. Do not place this product into a rack or studio furniture unless proper ventilation is provided and the manufacturer's recommended installation procedures are followed.
7. Water and moisture. Do not operate this product in the presence of rain, water or condensing moisture. Failures due to moisture entering the enclosure will not be covered under the warranty.
8. Debris. Do not allow any conductive objects of debris to enter through vents. Conductive debris entering the vents is likely to cause failure or performance degradation. Failures due to foreign objects entering the enclosure will not be covered under the warranty.
9. Attachments. Do not use any attachments not recommended by the product manufacturer as they may cause hazards.
10. Power sources. You must operate this product using the type of power source indicated on the marking label and in the installation instructions. If you are not sure of the type of power supplied to your facility, consult your local power company.

11. Voltage select switch. Ensure that the voltage select switch for the power supply of the product is in the correct position for the type of voltage you use in your country (e. g. 115 V AC or 230 V AC).
12. Grounding and polarization. Precautions should be taken so that the grounding or polarization is not defeated.
13. Power cord protection. Power supply cords must be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to the cords at plugs, convenience receptacles, and at the point where they exit from the unit. Do not defeat the earth grounding connection in the AC power cord.
14. Power cord. If you have not been provided with a power cord you're your product or for any AC-powered option intended to be used with your system, you should purchase a power cord that is approved for use in your country. The power cord must be rated for the product and for the voltage/current marked on the product's electrical ratings label defined in the user manual. The voltage/current rating of the power cord should be greater than the voltage/current rating marked on the product.
15. Lightning. For added protection for this product, unplug it from the AC wall outlet during a lightning storm or when it is left unattended and unused for long periods of time. This will prevent damage to the product due to lightning and power line surges.
16. Overloading. Do not overload AC wall outlets, extension cords, or integral convenience outlets as this can result in a fire or electric shock hazard.
17. Object and liquid entry. Never

push objects of any kind into this product through openings as they may touch dangerous voltage points or short out parts, which could result in a fire or electric shock. Never spill liquid of any kind on the product.

18. Mounting accessories. Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury and serious damage to the product. Any mounting of the product must follow manufacturer's installation instructions.

19. Product and cart combination. Move this product with care. Quick stops, excessive force, and uneven surfaces may cause the product and the cart combination to overturn.

20. Servicing. Refer all servicing to qualified servicing personnel.

21. Damage requiring service. Unplug this product from the wall AC outlet and refer servicing to qualified service personnel under the following conditions:

 a. When the power supply cord or plug is damaged.

 b. If liquid has been spilled or objects have fallen into the product.

 c. If the product has been exposed to rain or water.

 d. If the product does not operate normally (following operating instructions).

 e. If the product has been dropped or damaged in any way.

 f. When the product exhibits a distinct change in performance. This indicates a need for service.

22. Replacement parts. When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original parts. Unauthorized substitutions may result in fire, electric shock, or other hazards and will void warranty.

23. Options and upgrades. Use only the options and upgrades recommended by the manufacturer.

24. Safety check. Upon completion of any repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

25. Hot surfaces and electric discharge.
Allow the equipment's internal components (e.g. heat sinks) and hot pluggable system units to cool and/or discharge before touching them in case of any further handling.

26. Cleaning. Do not use liquid or aerosol cleaners. Use only a damp cloth for cleaning.

C E

This product with the CE marking complies with the following standards and directives of the Commission of the European Community:

73/23/EEC Low voltage directive
IEC 950/EN60950 Electrical safety

89/336/EEC EMC directive
EN 55103-1 Electromagnetic interference - emission
EN 55103-2 Electromagnetic susceptibility - immunity

This product is intended for use in the following electromagnetic environments:
- **E1 (residential)**
- **E2 (commercial and light industrial)**
- **E3 (urban outdoors)**
- **E4 (controlled EMC environment, e.g. broadcast studio)**

All KLOTZ products have been developed, produced and tested accurately and according to the above named directives.

NOTE!

Improper handling of HF equipment like radio transceivers and mobiles can cause radio interferences on KLOTZ devices. For working reliability reasons it is strongly recommended not to use radio transceivers and mobiles near the devices!

Warning Symbols on Equipment

The following table contains safety icons that may appear on KLOTZ equipment. Refer to this table for an explanation of the icons and heed the warnings that accompany them.

This symbol, when used alone or in conjunction with any of the following triangle icons, indicates the need to consult the operating instructions provided with the product. **WARNING!** A potential risk exists if the operating instructions are not followed.

This symbol indicates the presence of electric shock hazards. Enclosures marked with these symbols should only be opened by a KLOTZ DIGITAL authorized service provider. **WARNING!** To avoid risk of injury from electric shock, do not open this enclosure.

This symbol indicates the presence of a hot surface or component. Touching this surface could result in bodily injury. **WARNING!** To reduce the risk of injury from a hot component, allow the surface to cool before touching.

This symbol indicates the presence of a laser beam. **WARNING!** Failure to observe this warning could result in bodily injury, fire or damage to the equipment.

This symbol indicates an electrostatic sensitive device that is susceptible to ESD discharge. **CAUTION!** Failure to observe this warning could result in damage of the device/component.
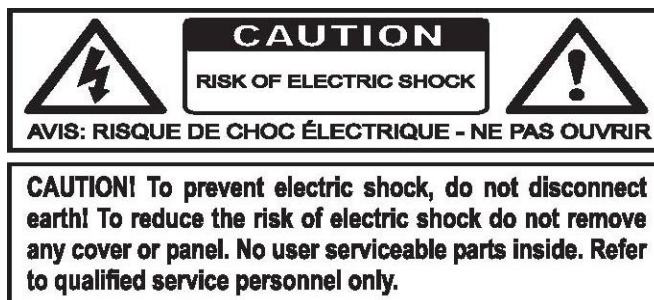
This symbol indicates the need to turn off the main plug of the equipment before open the enclosure. **WARNING!** To avoid risk from electric shock, the equipment must be disconnected from mains.

This symbol defines the terminal for protective conductor (protective earth) only!

This symbol indicates the presence of mechanical parts that can result in pinching, crushing or other bodily injury. **WARNING!** To avoid risk of bodily injury keep away from moving parts.

CAUTION

RISK OF ELECTRIC SHOCK

AVIS: RISQUE DE CHOC ÉLECTRIQUE - NE PAS OUVRIR

CAUTION! To prevent electric shock, do not disconnect earth! To reduce the risk of electric shock do not remove any cover or panel. No user serviceable parts inside. Refer to qualified service personnel only.

1.   Precautions – VZ 4800CU Central Controller

1.1. General Handling of Cards

In order to prevent injuries to persons and damage to the system consider the following directions:

◆ The assembly, disassembly and handling of control surface components must be carried out exclusively by qualified personnel.

◆ Service and repair must only be carried out by authorized service personnel. These directions are part of the warranty agreement.

CAUTION!

Turn off the VZ 4800CU Controller immediately under the following conditions:

◆ The power cord is damaged of frayed

◆ Liquid spills on or into the equipment

◆ Someone drops the control surface or damages the casing

CAUTION!

Do not:

◆ Push any foreign objects into the VZ 4800CU connectors

◆ Clean the VZ 4800CU before it is disconnected from the power supply system

◆ Eat or drink while operating the VZ 4800CU to avoid that crumbs or liquid enter the control surface cabinet

Take care of the following precautions:

◆ Avoid exposing the VZ 4800CU Controller to extreme changes in temperature or humidity. If it is unavoidable, allow your VZ 4800CU Controller to adjust to room temperature before use

◆ Avoid using the VZ 4800CU Controller for extended periods in direct sunlight

◆ Do not use the VZ 4800CU Controller in humid or dusty environments

◆ If the temperature of the VZ 4800CU Controller suddenly rises or falls (for example, when you move it from a cold place to a warm one), water vapour condenses inside the control surface. Turning on the VZ 4800CU Controller under this condition can damage the internal components. Before turning on the VZ 4800CU Controller, wait until the units internal temperature acclimatizes to the new environment and the inside of the control surface is dry again

◆ Maintain storage temperature between -20°℃ and 40°℃

◆ Keep the storage area free from vibration

◆ Keep the VZ 4800CU Controller and its components away from organic

solvents or corrosive gases

◆ Avoid leaving the VZ 4800CU Controller and its components in direct sunlight or near heat sources

If there are heat sinks inside or outside the VZ 4800CU Controller, they can reach a temperature of more than 60°℃, which might cause a fire on the device.

Each VZ 4800CU Controller must be properly grounded according to your local specifications and regulations.

Electrostatic sensitive devices

Boards with electrostatic sensitive devices (ESD) are mostly marked with this symbol.

CAUTION!

If you handle boards assembled with electrostatic sensitive devices you must necessarily consider the following points:

◆ Always discharge yourself before you start working (e.g. by touching a grounded object)

◆ Make sure that the equipment and tools are free of static charges

◆ Pull out the power plug before you insert or remove boards containing electrostatic sensitive devices

◆ Always hold boards with ESDs by their edges

◆ Never touch pins or conductors on boards assembled with electrostatic sensitive devices

◆ Store and transport boards/components only in electrostatic protective wrapping

1.2. Ventilation System

For maximum efficiency of the VZ 4800CU Controller and its power supply's ventilation system a properly balanced airflow must be provided.

CAUTION!

To prevent the unit from being exposed to an over temperature condition, do not block air intakes or exhausts.

2. VZ 4800 Conference Discussion System Introduction

VZ 4800 system is an advanced conference discussing system, which can manage a large number of microphones. Basically the VZ 4800 system can be a fully automatic system with up to 64 microphones with one center unit. VZ 4800 system allows only 1 center unit.

The main features:
- ◆ Can manage up to 64 microphone units
- ◆ Automatic, Manual, FIFO modes available
- ◆ LCD display with calendar and Timer on microphone unit
- ◆ Headphone option for each microphone
- ◆ Can use software to control system
- ◆ Camera connection (video tracing)
- ◆ Can be controlled by RS232/422
- ◆ Portable installation
- ◆ Upgrade available

VZ 4800 system installation is quite easy. All microphone units hold the connection cable themselves and you just need to connect them one by one.

2.1. Applications

The VZ 4800 system is one of the latest and most compact conference systems for commercial applications. By using the state-of-the-art technologies and numerous groundbreaking developments the VZ 4800 system can be used everywhere where flexibility and, above all, operational safety play an important role.
Therefore the VZ 4800 system fulfills the most important criteria which are expected from a modern conference system.
Typical locations are:
- • School & Campus
- • Hotel
- • Conference Room
- • Congress Center
- • Expo Centre
- • Enterprise
- • Government office
- • Convention Center
- • Stadium
- • Department Store
..and many more!

3. Overview of All VZ 4800 System Components

3.1. VZ 4800CU Central Controller

◆ Control of up to 64 of microphones
◆ Multi operation modes
◆ Automatic test program inside
◆ Can connect up to 10 chairman microphones in one system
◆ High quality housing with oxidation brushed finished
◆ Integrated with RS232/RS422 serial ports for Central Control Systems or PC software
◆ Input/output for external equipment
◆ LCD Display for system information

3.2. Discussion Units

◆ Portable Chairman Microphone with LCD display
◆ Portable Delegate Microphone with LCD display

3.3. Optional Accessories

◆ Digital recorder
◆ Headphones
◆ Plated connectors
◆ Cables

4. VZ 4800CU Central Controller

VZ 4800CU is the Central controller of the whole VZ 4800 system.

VZ 4800CU contains the power supply for the system. One central controller support 2 bus, each one can supply 32 microphone units，the unit support up to 64 microphones with 2 buses.

VZ 4800CU has high quality housing with oxidation brushed finished. It can be rack mounted (19"-2HE).
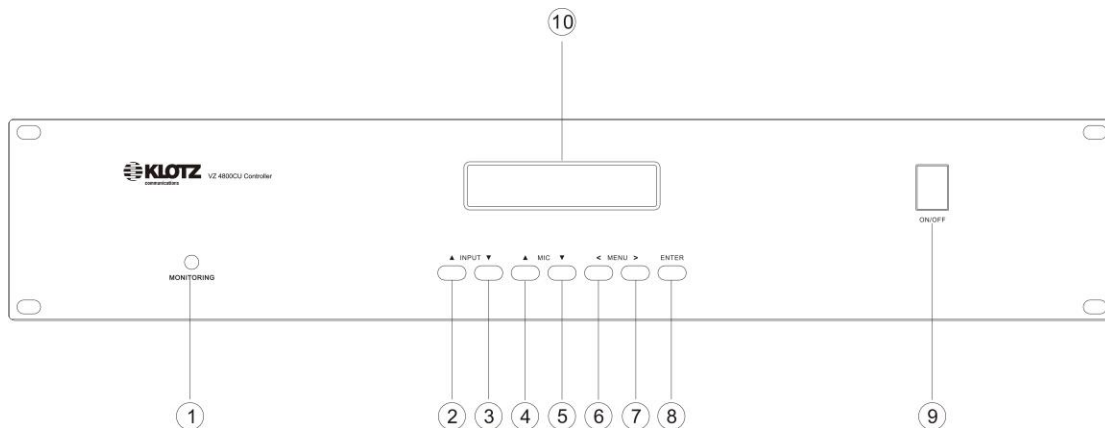
The maximum number of Chairman Microphone for VZ 4800 system is 10. They can be positioned anywhere among the system units in the chains.

Up to 16 microphones can be turn on simultaneity in one system. It includes up to 10 chairman microphones and 6 delegate microphones. User can set simultaneous delegate microphone from 1 to 6, if needed.

Input and output for varieties of external devices, such as handheld microphone, interpretation equipment, background music and PA systems.

VZ 4800CU integrated RS232/RS422 serial ports. With these serial ports, the VZ 4800CU can be controlled by PC software or external equipments.

4.1. Front Panel

Connecter 1: Monitoring

Earphone interface, to monitor local microphone bus.

Button 2&3: INPUT

These buttons are used to control the volume level of an external signal from the Input connector at the rear panel. Each short push will adjust 1dB. If one of the buttons is pressed more than 1 second, the level will be changed in 1 dB steps four times a second, as long as the button is pressed.

If the input is not used, the Input Volume should be set to off to avoid any noise to pick up.

Button 4&5: MICROPHONE

These buttons are used to control the volume level of the microphone signal in the built-in speakers. Each short push will adjust 1dB. If one of the buttons is pressed more than 1 second, the level will be changed in 1 dB steps four times a second, as long as the button is pressed. The level can be changed from +20 dB gain to -42dB attenuation and off. A normal setting will be between -20 to +6dB.

Button 6&7: MENU

These buttons are used to scan the menu with step the markers **< >** left and right respectively for each push.

Button 8: ENTER

This button is used to enter the menus and select a chosen value.

The markers **< >** around exit show the function which can now be selected with the *ENTER* button. If it is pushed again now, we will get back to the master (default) display shown above.
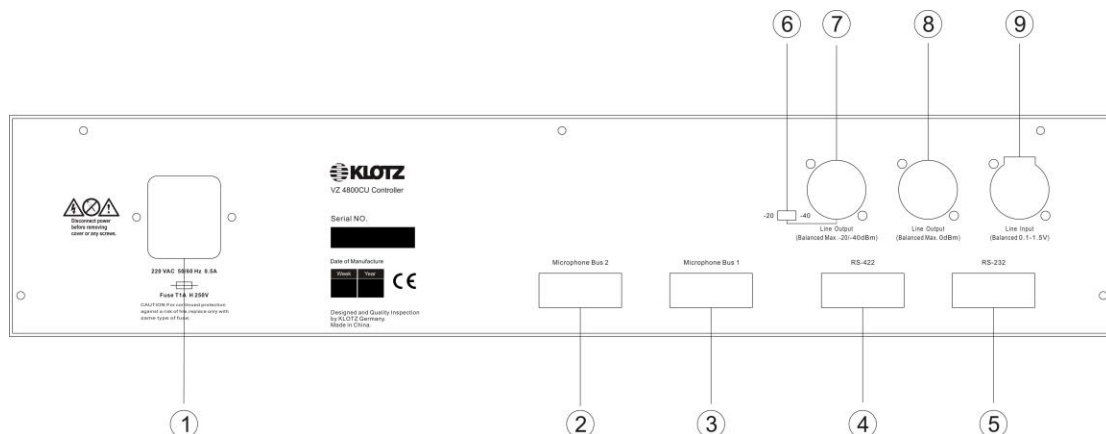
9: POWER ON/OFF:

The switch used to control the power on and off.

10: LCD Display:

The LCD displays the system information and each step of operation.

4.2. Rear Panel

Connector 1: Power Connector

Connector 2&3: Microphone Bus 1&2

The connectors are for microphone daisy bus, which can connect 64 microphones.

Connector 4: RS422 port (Optional)

This connector is used for external control equipments with RS422 serial date communication.

Connector 5: RS232 port (Optional)

This connector is used for external control equipments with RS232 serial date communication.

Switch 6: Switch between -20dBm and -40dBm

This switch is used for gain output of connector 7

Connector 7&8: Microphone Output

Connector 7 is nominal -20dBm and -40dBm balanced signal, typical application is sound-reinforce system. Connector 8 is nominal 0 dBm balanced signal, which usually used for a digital recorder.

Connector 9: Line Input

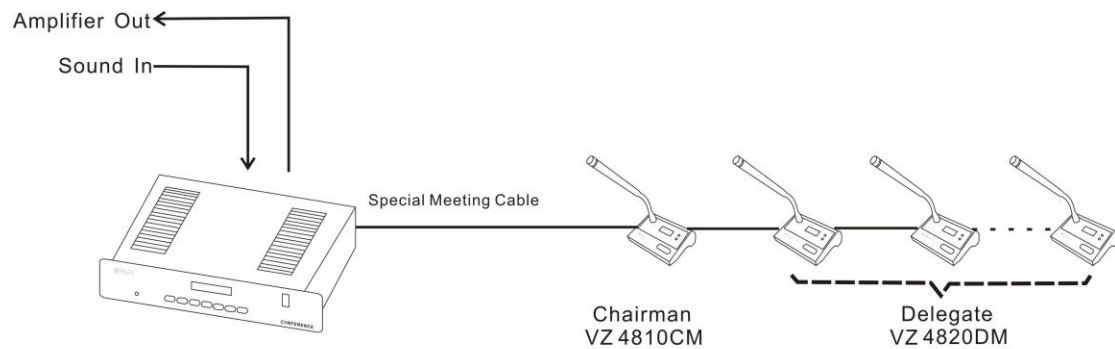Connect to external source.

4.3. Installation

Installation is extremely easy. Just plug the first microphone into the central controller and connection all microphones. The system is daisy chain connection. Each microphone connects to the previous one.

Basically system installation

This is an application of signal chain. And the microphone volume controlled by the central controller.

4.4. Display Functions

LCD Display Content	Features
Power ON	
KLOTZ VZ 4800 V4.0.1	After finished system connection, switch power on the central controller. Then the controller will search for the system units in the buses with 15 seconds. The LCD display will show system version as nearside.
Initialized Successfully	
VO: IN=OFF MICR=OFF MICR:26	After system started up, LCD panel will display the information: **_IN:_** Input level of external source **_MICR:_** Output level of microphone **_MICR:_** Total microphone number
Main Menu	
TEST STATUS SETTING <QUIT>	The four choices in the Main menu are: **_Test:_** Test all the microphone in system **_Status:_** Show current status in the system **_Setting:_** Setup the system **_Quit:_** Returns to the last menu see below description for more detail The markers < > shows the function which can be selected now with the ENTER button. By using the buttons < or > in the front panel, the markers < > can be moved respectively next or previous.
TEST Menu:	
CONT0 BUS1 MICR0 SPE AUTO MANU <QUIT>	When we select **_AUTO,_** an automatic test of all the microphones is started and beginning by setting microphone #1 in chain 1 on CU 0 at Request status for 0,3 second. The text in lower line on display will look like shown above. Then the same microphone unit will be switched on for 0,3 second and the text **REQ** changes to **SPE**. Then the next microphone unit will be set in request, switched on and so on. After completion of testing all the microphones, the test starts from the beginning again. To stop testing, press _ENTER_ again. If a faulty microphone unit is detected, the test will stop at that point. All microphones must be switched off before the test functions are activated. When we select **_MANU,_** each microphone can be switched on once at a time by pushing the > button starting with the first microphone and stepping one up for every push. Pushing < will step backwards. When we select **_QUIT,_** it will return back to previous menu.

STATUS Menu:	
CM:1/2 DRIVENS:0 BUS1:25 BUS2：1	Status menu shows current status of the system. ***CM:1/2*** 1 for Chair microphone connected to the controller 2 for Chair microphones connected in the system. ***Drivens:0*** Indicate there are no driven controllers ***Bus1:25*** 25 microphones on the first bus ***Bus2:1*** 1 microphones on the second bus
SETTING Menu:	
MODE AUTO SPE 3 REQ 50 <QUIT>	In setting menu, we can setup system mode and maximum number of speaker and requester. The ***auto*** or ***fifo*** *mode can be selected by the < and > button of front panel. ***SPE3*** means maximum number of delegate microphones allowed to be ON. The number can be selected with > and <.between 1 and 6. All chairman microphone units can always switch on. ***REQ*** means maximum number of request.
External Controller :	
VO:IN=OFF MICR=OFF MICR:26 PC/MC	VZ 4800CU can be controlled by external devices. When external devices or PC communicate with central unit by RS422/232 port, "PC/MC" will appear at a corner of master menu.

*Auto mode: The microphone turns on when pressing the ON/OFF button. Pressing the button again will turn the microphone off.

FIFO mode: First in first out mode. When the maximum number of microphone is turned on and the next delegate pressing the ON/OFF button will be put in the top of the request queue. This is indicated by the green request lamp flashing slowly. More delegates will be put in the queue when they press their buttons, until the maximum of requests is reached. Their green lamps will light up steadily. When one of the speaking microphone units is switched off, the first microphone in the queue is automatically switched on, and the next in the queue will flash with the green lamp.

5.   VZ 4810CM/4820DM Portable Microphones

The portable microphone units are microcomputer controlled conference units, contained KLOTZ gooseneck microphone, it's completely conference unit.
The units have 2 m cable for daisy chain connection.
The units integrated with patent display module, which support time display, calendar display, clock alarm and speech timing.

5.1. VZ 4820DM Delegate Microphone Features

- Allow participators to speak or monitor conference
- "Speak" LED indicator for microphone ON
- Speak timer
- Calendar
- Single cable "Daisy Chain"
- High quality speaker
- Selectable multiple gooseneck microphone
- A Socket for optional recorder or headphone
- Permanently integrated with 285mm gooseneck microphone

5.2. VZ 4810CM Chairman Microphone Features

- All features of delegate microphone
- Management conference
- Priority of Chairman Microphone
- Switching off (or muting in FIFO mode) all active delegate microphones

5.3. Installation

All conference units are connected to the VZ 4800CU Central controller by one single cable. The VZ 4800CU can control up to 64 microphone units in two buses.

Note: No single extension cable must exceed a length of 100 m. The total cable length in one daisy chain must not exceed 200 m (which includes the 2 m cable on each unit).

6. System Installation Guide

6.1. Microphone Units

There are two versions of microphones, chairman microphone and delegate microphone, which are both portable units.

Always switch off the main power on the central controller before removing or adding units to the system. Otherwise, the system might be damaged.

The system should keep the length of all cables as short as possible to maintain high audio quality and low noise operation. To obtain best performance it is recommended only to use KLOTZ VZ 5090 special extension cable. The maximum cable length between any two units connected together is 100 m and the total cable length in one chain must not exceed 200 m (which includes the 2 m cable on each portable unit).

It does not allow having open cable in the system (no termination unit). It might cause problems for the data transmission and pick up audio noise.

6.2. RS4232 Serial Communication Module

A maximum number of two RS4232 modules can be installed in a system. The module is easily installed inside the backside of the VZ 4800CU controller. Any two controllers in a system can have a module built in.

Both the RS232 and the RS422 serial ports can be used simultaneously. A maximum of four external computers or other external serial devices can thus be connected to a system. If only a single controller is present, the maximum number is two serial devices (one RS232 and one RS422).
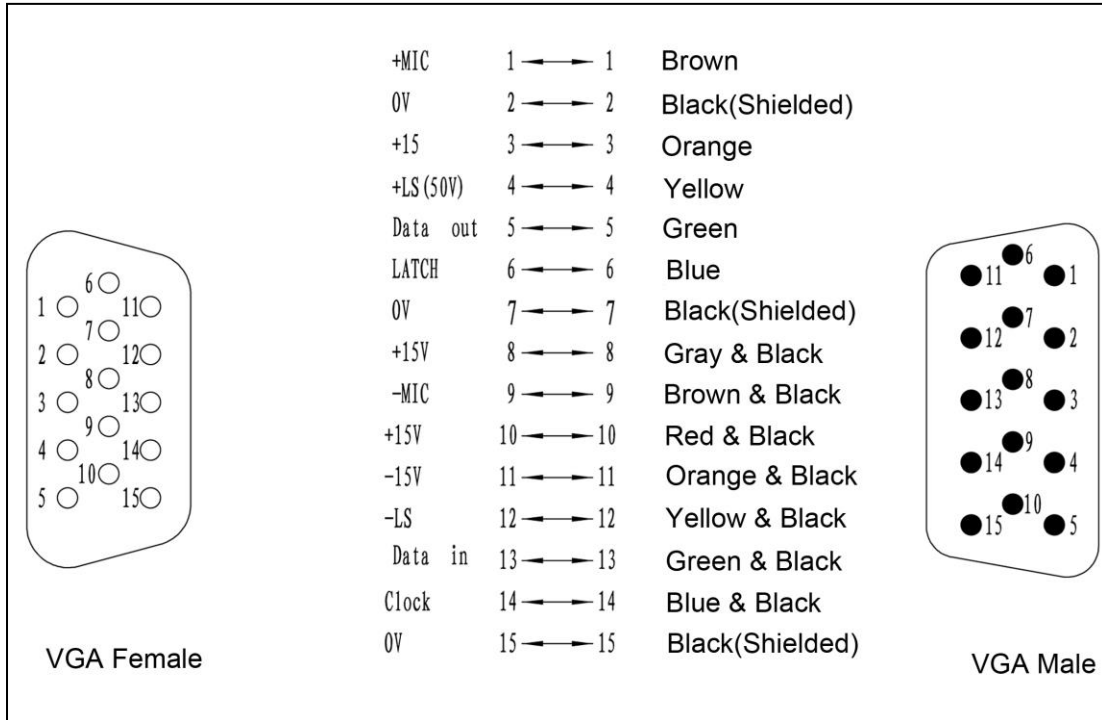
Both ports use a data rate of 9600 baud, 8 bits, No Parity and 1 stop bit. The RTS/CTS handshake signals are in use.
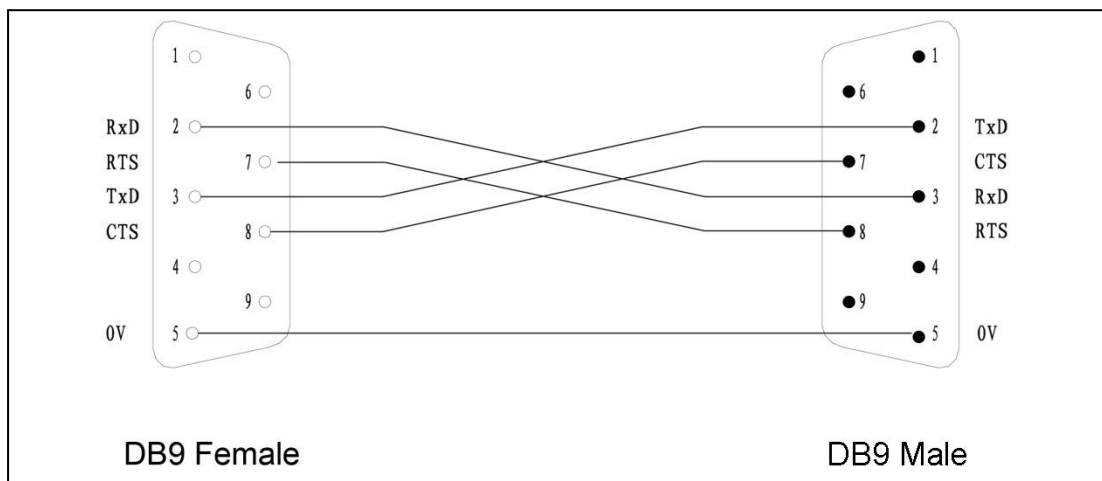RS232 cables should not be much longer than 10 m.
RS422 cables can be up to 1000 m.

6.3. Pin Assignments and Cable Making
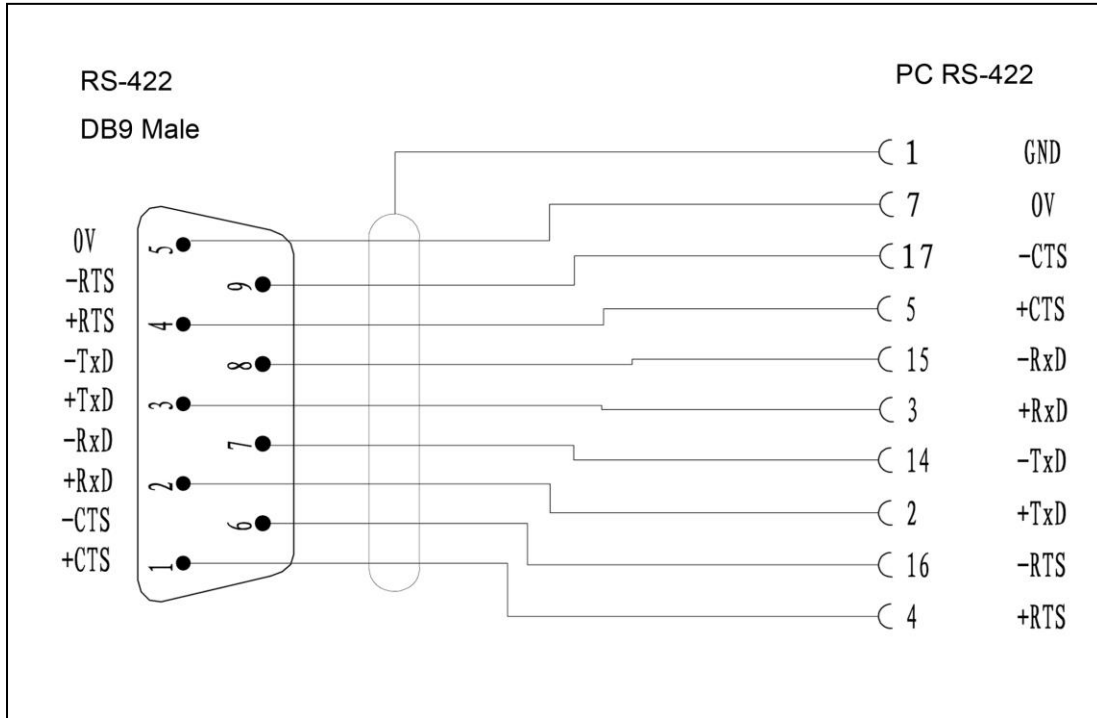
● **VGA 15pins for microphone bus:**

+MIC	1 → 1	Brown	
0V	2 → 2	Black(Shielded)	
+15	3 → 3	Orange	
+LS(50V)	4 → 4	Yellow	
Data out	5 → 5	Green	
LATCH	6 → 6	Blue	
0V	7 → 7	Black(Shielded)	
+15V	8 → 8	Gray & Black	
−MIC	9 → 9	Brown & Black	
+15V	10 → 10	Red & Black	
−15V	11 → 11	Orange & Black	
−LS	12 → 12	Yellow & Black	
Data in	13 → 13	Green & Black	
Clock	14 → 14	Blue & Black	
0V	15 → 15	Black(Shielded)	

VGA Female   VGA Male

● **RS-232 9pins for external device:**

DB9 Female   DB9 Male

RxD 2 — TxD 2
RTS 7 — CTS 7
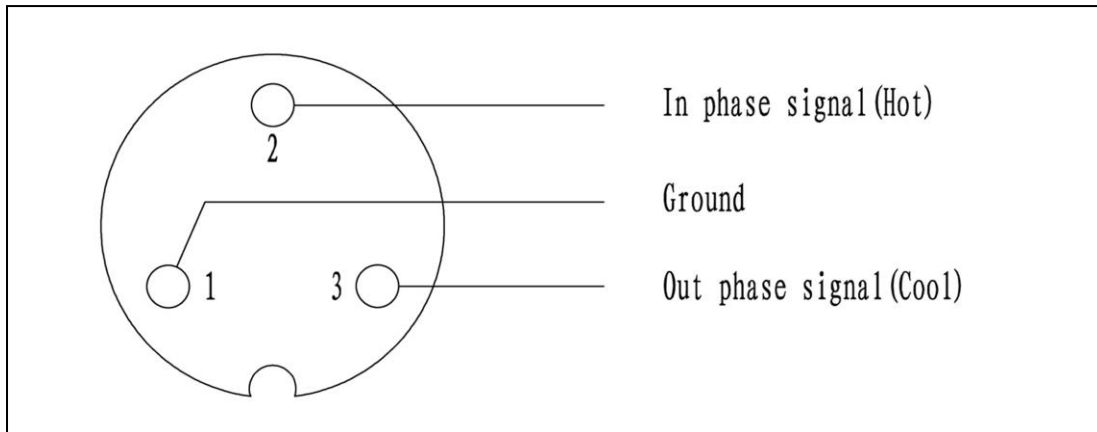TxD 3 — RxD 3
CTS 8 — RTS 8
0V 5 — 0V 5

Cable between 2 DB9 female connectors must be less than 10m.

- **RS-422 9pins for external device:**

Cable between PC and RS-422 must be less than 1000m.

- **XLR balance Line in/ Line out:**

7. Specifications of VZ 4800CU

Indicators and operating elements (front side)

Display with push buttons:	Monochrome, graphics-capable LC display, 16 x 100 pixels, green backlight; 7 push buttons to carry out system settings and selections
Power switch:	1 button for power switch

Connectors and switches (rear side)

1 x 3-pin male power connector:
• Power connector for the connection of the device to the power supply system

2 x 15-pin female VGA connector used for the following:
• Microphone bus
• Power supply for microphone units
• Data transmit

1 x 9-pin female connector used for the following:
• RS232 port for external control

1 x 9-pin male connector used for the following:
• RS422 port for external control

2 x 3-pin XLR female connector used for the following:
• Export microphones signal
• Nominal -20dBm/-40dBm microphones level
• Nominal 0 dBm line-signal

1 x 3-pin XLR male connector used for the following:
• Input mixes with the internal microphone signal

General data

Sampling frequency:	48 kHz
Internal audio resolution:	24 bit
Power requirement:	180~260 V AC 50/60 Hz
Power consumption:	100W maximum
Frequency response:	Mic. in to Line out 100Hz~19KHz Line. in to Line out 46Hz~19KHz
Distortion:	< 0.1%
Dynamic range:	100 dB typ., 95 dB min. @ RMS, A-weighted
S/N ratio:	> 87dBA
Temperature to guarantee specified performance:	5 ℃ to 45 ℃ (20 to 95% humidity)

Storage temperature:	-20 ℃ to 70 ℃ (up to 99% humidity)
Dimensions:	483x332x88mm
Weight:	
Net Weight:	7.0 kg
Gross Weight:	9.5 kg
Color:	Black
Microphone capacity:	64 units
Line Input Level:	0.1~1.5V typ.
Connector:	XLR3P
Line Output Level:	-40/-20 dB Max. adjustable
	0 dB Max
Connector:	XLR3P

8.   System Components Description and Order Number

Model No.	Description	Products No.
VZ 4800CU	Conference system central controller, for 64 microphones	13 480 4800
VZ 4810CM	Portable Delegate discussion unit, permanently integrated with 285mm gooseneck microphone w/ 2m cable	13 480 4810
VZ 4820DM	Portable Delegate discussion unit, permanently integrated with 285mm gooseneck microphone w/ 2m cable	13 480 4820