Hacousto Holland bv Industrieweg 87 2651BC Berkel & Rodenrijs	
4E-CSM installation and user guide	**Author:** NR

SUMMARY

This document includes both installation and user guides of the 4E-CSM, The 4E-CSM is a control station microphone that can be used with 4EVAC devices such as Compact and Impact. It is equipped with a gooseneck microphone and a USB hub that is already integrated to connect with a PC that runs 4EVAC control station software. Users can use the control station software in combination with 4E-CSM to make announcements, control zones, perform schedules and broadcast music. The user manual will provide instructions for users to use the device effectively.

REVISION AND APPROVAL

Rev.	Date	Nature of Changes	Approved By
01	03-07-2023	Original draft	NR

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Thank you for choosing 4EVAC as your Voice Evacuation System solution.

1. What is the 4E-CSM?

The 4E-CSM is a Control Station Microphone (CSM) that serves as an interface tool to connect the control station software with 4EVAC equipment's such as Impact and Compact. It features a gooseneck microphone and an integrated USB hub that allows it to connect to a PC that runs 4EVAC control station software. 4E-CSM is communicated over local network (L-Net bus) with the 4EVAC main units.

The CSM microphone is not only used for making announcements through the control station software but can also be used to stream music played from the PC to the 4EVAC network, making it one of the background music (BGM) inputs for the system.

Additionally, with this combination of features, the CSM microphone allows for special features such as zone control, source selection, volume control, scheduling to be implemented.

Unlike other microphone consoles, the CSM does not have two L-net ports. Instead, it only has one L-net port, and the second port is a USB B connection used to connect the CSM with the PC. This means that redundant L-net connections are not possible with the CSM instead the data link (L-Net) is monitored. A user manual will provide instructions on how to use the control station software effectively.

2. Where do I start?

First, make sure that you are officially allowed to access the hardware. This is usually the case if:

- you are an authorized representative of 4EVAC
- you have been trained by 4EVAC or one of its authorized representatives for installation, service and commissioning of the 4EVAC Voice Evacuation System.

Unauthorized hardware and/or software modifications are against the law and outside of the manufacturer's responsibility. If you have doubts about your status and access level permissions, please contact the 4EVAC main office.

Important note: Access level 3 explanation

Opening the device housing or tampering with network cabling is restricted. This gives access to all interfaces, internal system connections and sensitive hardware settings that are of high importance to system operation mode, hardware reliability and safety (Access Level 3 according to EN54-16, Annex A). This access level (and higher) is strictly protected by the manufacturer and reserved only for service personnel who is trained, approved and officially certified by the manufacturer. Any actions carried out in Access Level 3 without manufacturer's explicit approval may lead to incorrect settings or hardware damage, causing serious system malfunction, and therefore are strictly prohibited and void manufacturer's warranty.

3. Configuration settings

The configuration settings for the 4E-CSM are available on the micro SD card of the 4EVAC main units and can be accessed via the L-net ports. The CSM is configured with the help of the 4EVAC manager software itself.

The configuration file includes user-defined settings, such as:

- **Chime mode:** This option allows users to set the CSM to chime mode, which plays a short sound before announcements are made. This can be useful in alerting listeners to an incoming announcement.
- **Data monitoring link:** This option enables users to monitor the L-net connectivity and ensure that the system is functioning properly.
- **Background music (BGM) enable/disable:** This option allows users to enable or disable BGM over the CSM. This means that the CSM can be used to play music in addition to making announcements.
- **BGM input gain adjustment (-60...+12dB):** This option enables users to adjust the gain for the BGM input on the CSM. This can be useful in ensuring that the music is played at an appropriate volume.
- **Gooseneck microphone gain adjustment(-60...+12dB):** This option allows users to adjust the gain for the gooseneck microphone on the CSM. This can be useful in ensuring that the announcements are heard clearly.

These options can be configured on the 4E-CSM using 4EVAC manager software and then easily exported to the control station software for system control and monitoring. A user manual will provide instructions on how to configure these options effectively "4EVAC Control station Guide"

The configuration file should be prepared in the **4EVAC Manager**. 4EVAC Manager is GUI software running on Windows OS. More information about 4EVAC Manager can be found in the software manual "4EVAC Manager guide".

NOTE: Please make sure that the configuration file is prepared with the version of 4EVAC Manager compatible with the firmware version of the system. Also it is recommended to use the same Firmware version for the control station software.

The installation file of the latest 4EVAC Manager and the manual are available at our website www.4EVAC.com

4. Hardware installation and settings

The 4E-CSM (Control Station Microphone) is a critical component in the 4EVAC network, responsible for managing and controlling the system's operation. As part of the hardware installation and settings, it is crucial to understand the two built-in ports in the 4E-CSM and their purpose.

4.1. USB-B PORT

4E-CSM USB-B PORT

The USB-B port serves as a bridge between the 4EVAC head equipment and the control station software. This port is used to connect the CSM with a PC that has the control station software installed. Once connected, the control station software can configure zones, initiate paging, play background music (BGM), perform scheduling or activate events.

Additionally, the USB B port is used to broadcast BGM from the PC to the 4EVAC network, making it an essential component for data control and music broadcast applications. The USB Type A-B cable is used for this port.

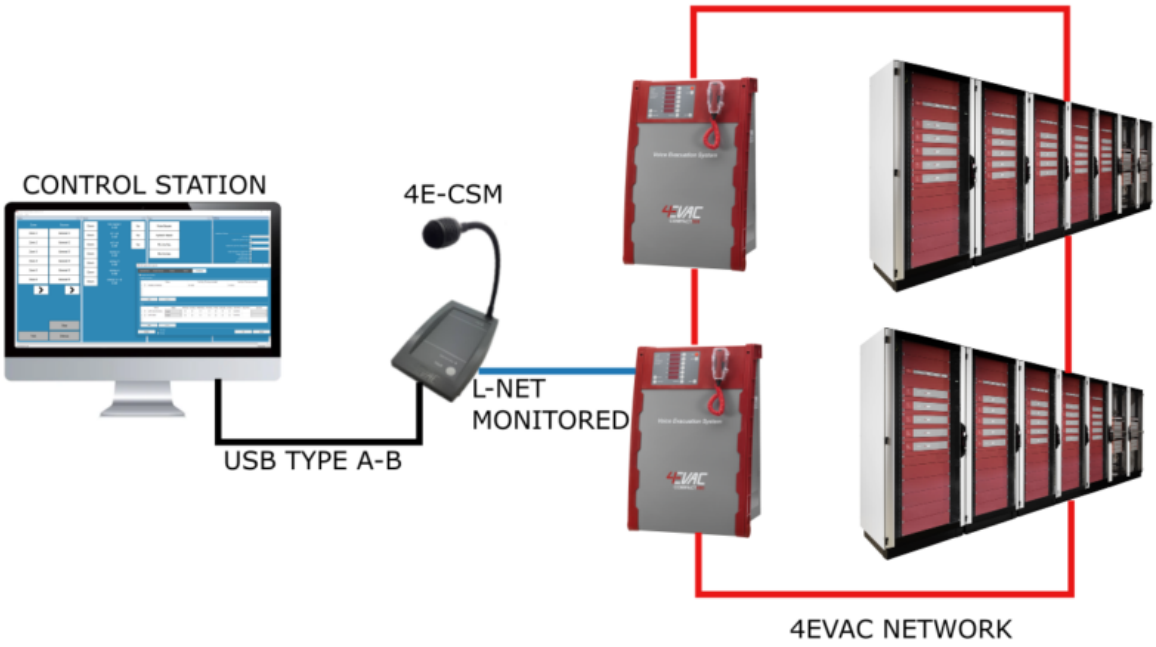
4.2. L-NET PORT

4E-CSM L-NET PORT

The second port on the 4E-CSM is the L-Net port. Unlike other paging consoles, the 4E-CSM has only one L-net port. This port is used to interface between the 4EVAC equipment and the CSM. Data obtained from the control station software is transmitted through this interface to control zones and broadcast audio to the equipment. The L-net port is connected using a Cat6 or higher shielded crossover cable.

NOTE :

It is important to note that daisy-chaining CSM units is not possible. Each controller can connect to a maximum of three 4E-CSM, and with an expander, it can handle more. Understanding the purpose and function of the ports is critical in ensuring the proper installation and settings of the 4E-CSM for optimal performance.



4E-CSM Interface diagram

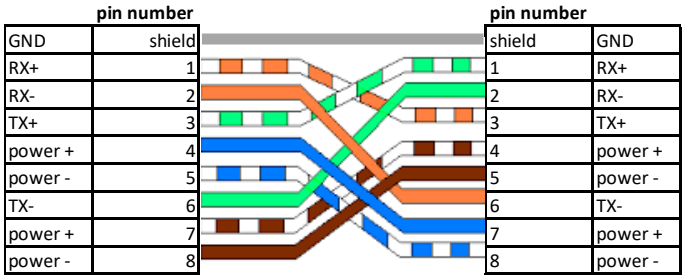
4.3. Network Cabling

4.3.1. Local Network

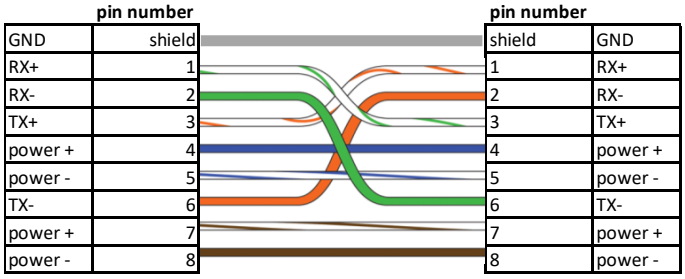
4EVAC network features a full duplex RS-422 data link and 24V DC power to remote devices (L-net)

If you're building a distributed system using the 4EVAC network, you should make physical links between devices using the right cables. Cabling should meet the following requirements:

1. Crossover twisted-pair cable (compatible with Ethernet crossover)



xover type A cable



xover type B cable

2. CAT5e or higher for maximum distance of 250m.
3. Non-CAT / lower than CAT5e: 250m not guaranteed.
4. Shield required (at least FTP)

NOTE: If you use a straight cable, the device will power up but the Tx/Rx data terminals will not be properly connected. This will result in a communication fault between the L-Net device and the C500 main unit. The L-Net device will not be able to initialize, thus will remain in boot-sequence, not operational.

Caution! Use only crossover cables and keep the correct pinout! Connecting power pins to data pins will damage the network port.

4.3.2. USB link

Connection between the CSM and PC is done with the help of USB A-B Type cable. See picture below

4.4. Device ID

The microphone station needs an ID setting in order to be properly recognized in the network and operate.

If the device ID is duplicated or set to a wrong value, the device will not receive the correct configuration settings from the main unit. In this case the remote station will be stuck in a boot sequence and remain non-operational.

The device ID is set by means of two rotary switches, which define the two-digit hexadecimal value of the ID.

In order to check or set the Device ID, you must access the rotary switches on the back side of the unit:

1. Identify the high-significant and low-significant rotary switches. The Device ID is a combination [HI / LO] of those two digits.
2. Make sure the ID value exists in your configuration settings, relates to the right device type and is not duplicated to another device. Allowed values: 01-FE
3. Set the Device ID value according to the configuration settings.
4. Plug-in the L-Net cable connecting the station .
5. Observe the boot sequence and afterwards the unit automatically entering normal operating condition.

4E-CSM bottom view: Device ID setting

4.5. Front View

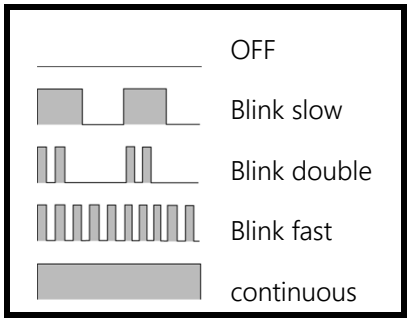
4.6. LED indicators

4.6.1. POWER

Indicates operating status of this station.

- Continuous: device is powered and ready
- Blinking fast: station is booting or not operational
  - Boot sequence
  - No communication with main unit
  - Wrong Device ID

LED indication time chart



4.6.2. BUSY – Blue LED

Talk busy LED. Indicates the current status of the microphone station.

- Blinking slow: indicates that the set of zones are currently transmitting an audio signal (except BGM) from another device.
- Blinking double: indicates that the set of zones is currently transmitting audio signal from this microphone station.

NOTE: BGM transmission & Device not communicating is not indicated. Connection status can be checked in the control station software and data link can be monitored by the corresponding 4EVAC equipment.

4.7. Manual Controls

4.7.1. Talk

This button starts voice transmission to selected zones (Zone selected from Control station software)

Depending on configuration settings, the TALK button works in one of two ways:

- PTT (push to talk)
- Toggle

4.8. CSM - Software controls using control station software

4.8.1. Talk

One of the primary actions that the CSM performs with integration to Control station software is paging, which allows the user to make announcements or broadcast messages to a specific zone or group of zones. This can be done using the soft key talk button in software that is provided through the control station interface. The user can disable or Enable the Talk button in the software if in case the button in CSM is only utilized.

4.8.2. Zone selection

The zone select function allows the user to select specific areas or zones within a facility where the paging, BGM or message events will be played. This can be useful in large facilities where different announcements or music may need to be played in specific areas. The user can select multiple zones at once and also create zone groups for more efficient zone selection.

4.8.3. Source selection

The source select function allows the user to select the audio source for the paging, BGM or message event. The user can select the appropriate audio source for each zones / Zone groups.

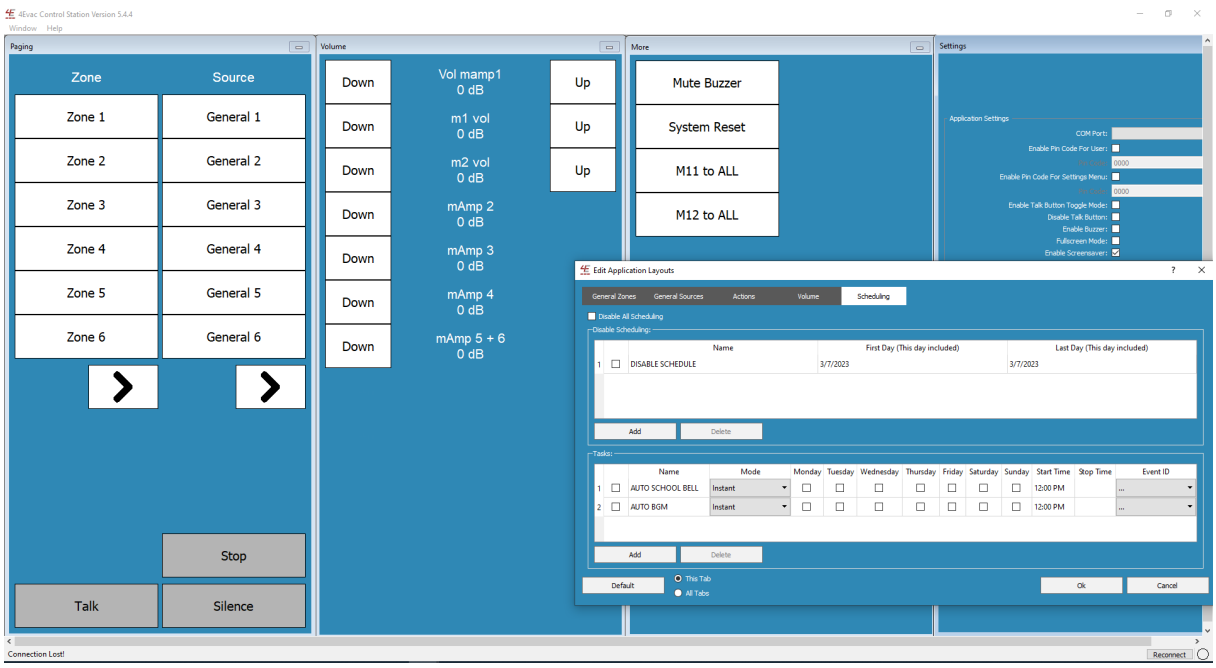
4.8.4. Volume Control

The volume control function allows the user to adjust the volume levels of the BGM events. This can be useful in environments where the ambient noise level changes.

4.8.5. Scheduler

The scheduler function allows the user to preconfigure events or actions that will occur at specific times or days of the week. This can be useful for scheduling regular announcements or music events, or for automating specific actions, such as turning on or off the specific messages at specific times. The user can set up multiple events or actions and configure them to occur at specific times or days.

This can be done using the zone select, source select, volume control, and scheduler functions that are available through the control station software interface. For more details refer "4EVAC Control station Guide"



5. Technical specification

4E-CSM	
Number of zones	max. 255 zones (global network access via control station Microphone)
Controls and indications	Talk button, zone select (control station – POWER /BUSY LED indicators)
Microphone	Integrated commercial purpose mic
Type	Condenser, gooseneck
Power consumption	
24V (L-Net)	max. 50mA
Audio	
Frequency response	100 Hz – 12 kHz
Digital audio format	24 kHz sampling, ADPCM compressed
Audio processing	Fixed BP filter, fixed dynamics compression
Local network interface	
Architecture	L-net connectivity to main unit (Daisy chain not possible) / One device per port
Connection	RJ-45, powered, digital audio & control data
Cabling	X-over FTP CAT6 (or higher)
Current rating via single link	max. 500 mA via single L-Net port
Max. length of L-Net link	250 m
USB-B link	Integrated USB-B port to connect PC and access - control station software
BGM input	Stream music from PC to the 4EVAC Network via USB link over L-Net
OS compatibility	Microsoft windows 7, 8, 8.1, 10
Mechanical	
Dimensions (HxWxL)	6 x 13 x 21 cm
Gooseneck mic length	31.5 cm
Weight	520 g
Housing material	Steel / ABS
IP rating	IP 30
Mounting	Desktop wedge / wall-mounted (incl. wall bracket)
Operating conditions	
Temperature	10–40°C
Relative humidity	max. 90% (non condensing)
Storage temperature	-40–70°C

4EVAC is a trade name of:

Hacousto Holland bv
Industrieweg 87
2651BC Berkel & Rodenrijs
The Netherlands

www.4EVAC.com