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Site Name:

Address:

Contractor:

Commissioned:
1. Introduction

Voice Alarm (VA) systems are the quickest way to evacuate the public and staff from a building.

Following fire detection, automated messages control the flow of people in stairwells and corridors allowing an orderly evacuation without panic. These messages are supplemented by spoken announcements from the fire service or management suite confirming the validity and need to leave the building.

This positive confirmation speeds evacuation and avoids the “false alarm” mentality reducing the risk of death from fire.

1.1 System Description

The VoCALL Voice DAU (Distributed Amplifier Unit) and the VoCALL Voice EMA (Emergency Microphone All-call) form a simple distributed Voice Alarm system. Each VoCALL Voice DAU is a single zone Voice Alarm unit. A maximum of 32 VoCALL Voice DAUs and a maximum of 8 VoCALL Voice EMAs, can be connected via the 8-core network to form a distributed Voice Alarm system.

The network is dual redundant, with isolators on each device for both the audio and data, so a single short circuit or open circuit will not affect system operation. Failure of any node will only affect the zone that node serves.

The BS EN54-16:2008 optional functions with requirements for the VoCALL Voice DAU that were assessed by LPCB are:

- Clause 7.6.2: A manual option to silence the Voice Alarm unit.
- Clause 7.7.2: A manual option to reset the Voice Alarm unit.
- Clause 8.3: Indication of faults related to the transmission path to the Cooper loop fire interface unit, which sits on the Cooper analogue addressable fire panel loop.
- Clause 12: VoCALL Voice EMA emergency microphone.

A single VoCALL Voice DAU with a single VoCALL Voice EMA networked together has been assessed by LPCB. All other network configurations including multiple VoCALL Voice DAUs and multiple VoCALL Voice EMAs have not been assessed by LPCB.
2. VoCALL Voice DAU

Each VoCALL Voice DAU is a self-contained unit. It can be operated by a FACIE system via local opto-isolated inputs designed to be connected to sounder circuits.

A VoCALL Voice emergency microphone can be used for emergency paging, and manual operation of the three DAU onboard emergency messages: Evacuate, Alert, and Test.

Each VoCALL Voice DAU has a unique network address between one and thirty-two.

In addition to the emergency functions, each VoCALL Voice DAU has a local paging input and a local background music input, both of which are overridden in emergency mode. A microphone used for non-emergency purposes can be attached to the local paging input of the DAU for local paging.

The VoCALL Voice DAU has four LED indicators on the front panel: Power On (Green), System Fault (Yellow), General Fault (Yellow), and Emergency (Red). These are complimented with a two line twenty character, backlit LCD module.

Menus on the VoCALL Voice DAU are accessed using four navigation buttons. The menu structures have three levels of access: User (access level 1 - no PIN), Manager (access level 2 - PIN protected), and Engineer (access level 3 - PIN protected).

The VoCALL Voice DAU network connections provide power to remote devices such as the VoCALL Voice EMA microphone. Each network port reports faults occurring on any of the network cable cores. The audio short and audio earth faults cause the operation of the associated audio isolator, preventing these faults affecting other nodes.

Resetting the VoCALL Voice DAU can be performed by a reset command issued by activating the external fire interface reset opto-isolated input, or manually via menu at Manager or Engineer access level.

Any fault on the VoCALL Voice DAU will trigger a fault on the Cooper Fire loop interface. It is the responsibility of the FACIE to react to the fault triggered on the DAU.
3. VoCALL Voice EMA

The VoCALL Voice EMA is an All Call emergency microphone designed to section 12 of EN54-16 designed to be used with the VoCALL Voice DAU.

Each VoCALL Voice EMA has a unique network address between one and eight. There are two different priority levels available, with both priority levels greater than all other inputs. If two units are of the same priority, a first come, first served operation is observed. The winning microphone illuminates the Speak LED, and the losing one illuminates the Busy LED. If the system is in use by a lower priority microphone, the Busy LED on the high priority will illuminate, and pulse at 1Hz to indicate that it can over-ride the currently used microphone, if required. If over-ridden, the Busy LED will illuminate on the lower priority unit, and the Speak LED will illuminate on the high priority microphone.

A pre-announcement chime is available on each VoCALL Voice EMA. The chime can be selected as one, two or three notes, allowing different control points to identify themselves. This chime, if selected, is operated when the Speak LED illuminates and can be seen on the articulation meter. To help keep the speech level constant, a compressor limiter is provided in the audio signal processing. The bass level, treble level, output level, and chime level are adjustable for optimum balance.

The audio processing, address, priority and chime settings are restricted from user access with a hinged plate and access to the microphone is via a key lock door.

The VoCALL Voice EMA has four manual controls in addition to the PTT. These are buttons that trigger the Evacuate, Alert, and Test messages, and the Cancel message button. Beside each message button there is an LED to show operation of that message on one or more VoCALL Voice DAUs.

The Cancel message button will manually silence the VACIE and stop all messages until another fire condition is indicated, or the manual control buttons re-initiate a message.

The microphone contains a close-coupled, noise-cancelling capsule, which is fully monitored for open and short circuit. The audio chain has short circuit isolators that activate to isolate the line, and allow operation in the redundant direction. The data network is protected for open, short and stuck data, so a single network fault will not affect operation.

The VoCALL Voice EMA all call emergency microphone is housed in the same enclosure type as the VoCALL Voice DAU, with a clear front window and fire key lock preventing unauthorised access to the microphone and controls.
4. Suitability

Voice Alarm systems are recommended for all public buildings and multi-story buildings over four floors by BS9999 and Building Regulations Document B allows smaller evacuation stairwells in buildings with Voice Alarm fitted.

In public buildings it is not possible to fire drill the public, as they visit the premises infrequently, so systems such as Voice Alarms save valuable time in evacuating the building.

The use of phased messages in multi-story buildings prevents over-crowding in stairwells and at exits, thus preventing secondary injuries. In phased evacuation, the floor in fire receives the evacuate message. The floor above and the floor below receive an Alert message preparing them for evacuation.

In more complex scenarios the use of multiple Alert and Evacuate messages can be beneficial, with messages telling the evacuees that they are going the right way, and messages asking people to make way for people leaving evacuated areas. These additional messages can dramatically speed up the evacuation process, especially in malls and large airport environments.

VoCALL Voice DAU has been developed to replace talking sounders in many Voice Alarm applications, and is available in several forms. The VoCALL Voice DAU is a complete Voice Alarm system in a single wall mount box which is complete with messages, fire interface, dual 50W monitored amplifiers, EN54-4 compliant power supply, monitored battery charger and the ability to connect non-monitored paging and music directly.

The VoCALL Voice DAU has been developed to draw the minimum of current in standby conditions and mutes the music and low priority paging when the AC supply fails, reducing quiescent current to 60mAH, and thus allowing the use of SAH commodity SLA batteries for full compliance with BS 5839-8.

Connection to fire alarm systems could not be simpler. The VoCALL Voice DAU has a built in independent Alert and Evacuate inputs that can be connected to reverse monitored sounder circuits directly. Once activated, the fire signals need to be de-latched by the Reset (Silence) input. For retrofit to systems with relays, a protected 24V auxiliary supply is available on the page port connector.

The speaker lines are monitored using a continuous low current DC system that works with the audio playing. Speaker faults reported are open, short and earth faults. Each speaker fitted to VoCALL Voice DAU must have a DC blocking capacitor fitted. The use of DC monitoring allows all cable types (MICC and soft skin) to be used with the system.

Music sources can be plugged directly into the VoCALL Voice DAU. The music level can be set using the menu system. When used with a paging microphone, the music mutes instantly and restores gently after paging.
Important Instructions

5. Priorities

The VoCALL Voice DAU has fixed priorities for the audio and control inputs.

VoCALL Voice EMA Emergency Microphone in Priority Mode has the highest priority input on the system, designed to be used by the controlling officer.

VoCALL Voice EMA Emergency Microphone in Secondary Mode has the second highest priority input on the system, designed to be used by a secondary control point such as the security office.

External Paging Microphone in Emergency Mode has the third highest priority input on the system, designed to be used by other responsible staff.

Message Generator has three messages. All messages latch until reset. Messages are reset from the VoCALL Voice DAU Manager/Engineer menus, from the Cancel message button on the VoCALL Voice EMA microphone, or by the RESET input from the Fire Alarm input. Messages are prioritised in the following order:

**EVACUATE:** Triggered from the fire alarm interface or from the VoCALL Voice EMA, highest priority message.

**ALERT:** Triggered from the fire alarm interface or from the VoCALL Voice EMA, second highest priority message.

**TEST:** Triggered from the front panel or from the VoCALL Voice EMA, lowest priority message.

Local Page Input in Page Mode is designed for non-emergency functions such as reception paging. This input has a higher priority than the test message, and other non-emergency messages, but has a lower priority than any emergency input.

Music Input is the lowest priority input and is automatically selected when no other input is exerting a priority. If music is not used, set the level control in the music volume menu to mute.
6. VoCALL Voice DAU Operation

The VoCALL Voice DAU is fully automatic in normal operation and needs no user intervention, however manual control of some functions can be accomplished via the Manager menu or the Engineer menu.

The VoCALL Voice DAU has fully compliant fault monitoring when correctly installed and commissioned. Contact Service if any status indicators are illuminated YELLOW. This is also indicated by a Sounder or Voice Alarm fault on the Fire Alarm Panel.

6.1 Indications and Controls

The VoCALL Voice DAU has four indicators, a four button navigation system and a two line, twenty character backlit LCD for all configuration functions and status display.

- **Power On**: Illuminates when a power source is available and the unit is energised.
- **System Fault**: Illuminates when a watchdog or checksum event occurs at the local unit.
- **General Fault**: Illuminates when any fault is detected by the local unit. Emergency Illuminates when any emergency message is being broadcast on any unit on the network system, including the local unit.
- **System Fault**: Illuminates when a emergency message is playing.

6.2 Menu Actions

In all configuration menus, the menu actions are displayed in the top right corner of the LCD. The menu actions are Next, Save, and Quit. If the cursor “>” is by a menu action, it can be changed by using the UP and DOWN buttons.

Pressing the TICK button will execute the selected menu action:

- **Next**: moves cursor back to first menu item, or to next page, depending upon menu
- **Save**: stores data in working memory and configuration memory, then exits the menu
- **Quit**: exits the menu without storing the data

Pressing the CROSS button will exit the menu without storing the data.
Operating Instructions

6.3. Status Display

The status display shows the panel name, the current fault status, and the current audio status.

The panel name is editable via menu accessible as an Engineer. This is usually location, installer, or area served.

The current fault status relates to the number of faults that have occurred on this unit and any network microphone, e.g. VoCALL Voice EMA.

If there are no faults, then a healthy banner is shown.

If there are any faults, then the number of faults is shown.

Press the tick key to show the User menu.

6.3. User Menu List

The User menu list allows the operator access to all menus available at access level 1.

The User menu list includes status menus and action menus. Accept faults may not be visible if so configured (see Accept faults menu).

6.4. Accept Faults Menu

This menu is only visible if there a fault has occurred that has not been accepted.

This menu is an action menu. It is used to accept faults that have occurred.

If a fault is present on the system, or a fault has appeared and gone when buzzer is set to latching, the fault buzzer will sound.

Pressing the TICK button will silence the buzzer. As long as a fault is present, the fault buzzer will beep once every 15 seconds. If the fault remains present for 8 hours, the fault buzzer will resound in accordance with BS 5839-8. Press the TICK or CROSS button to exit this menu.

If the VoCALL Voice DAU is in an access level 1 area, then it is recommended that this menu is not shown in the User menu by setting the User option in the Buzzer Settings menu to NO. This is to prevent an unauthorised user silencing the fault buzzer.
6.5. Current Faults Menu
This menu is a status menu. It displays one fault entry from the list of all current faults.
The top line shows the number of the current fault entry and the total number of faults. The bottom line shows the fault text for the current fault entry.
Use the UP and DOWN buttons to scroll through all fault entries. See Appendix A for a list of all faults. Press TICK or CROSS to exit this menu.

6.6. Panel Version Menu
This menu displays the software version number and release date.
Press TICK or CROSS to exit this menu.

6.7. Panel Test Menu
This menu is an action menu. It performs a panel indicator test.
Press the TICK button to execute the action selected.
START will start the panel indicator test. This will illuminate the general fault LED, the system fault LED, and the emergency LED in sequence. The buzzer will sound. The LCD is tested by filling the screen with block characters, and then deleting these block characters.
QUIT will exit this menu, stopping the panel indicator test if necessary.

6.8. Log in Menu
This menu is an action menu. It allows the operator to enter the PIN to gain access to either the Manager or Engineer menus.
The PIN is a 4 digit number. The current digit is shown, with the other digits hidden behind an asterisk. The UP and DOWN buttons are used to change the currently selected digit.
The TICK button is used to move to the next digit. If on the last digit, the TICK button will accept the 4 digit number entered.
The Manager menu is shown if the PIN matches the Manager PIN.
The Engineer menu is shown if the PIN matches the Engineer PIN.
If an invalid PIN is entered, a warning is displayed. Press TICK or CROSS button to return to the User menu.
Press the CROSS button at any time to return to the User menu.
Operating Instructions

7. VoCALL Voice EMA Operation

The VoCALL Voice EMA has three push buttons with associated LEDs to initiate messages, and a push button to cancel messages and a fist microphone with push to talk button which addresses all VoCALL Voice DAU units present (as an ALL CALL). The status LEDs indicates the Fault and Audio state of the unit.

7.1 Controls

PTT: Push to Talk (located on the side of the Microphone) Pressing this button will cause the microphone audio to go live to all VoCALL Voice DAU units on the network.

Evacuate: Pressing this button broadcasts the Evacuate message to all VoCALL Voice DAU units on the network. If the Evacuate message is playing on any VoCALL Voice DAU, the red LED will be illuminated.

Illuminated: If a message has been cancelled and is on its last cycle, the red LED will flash.

Alert: As Evacuate, but the message broadcast is the Alert message, and the yellow LED is illuminated.

Test: As Evacuate, but the message broadcast is the Test message, and the green LED is illuminated.

Cancel: Pressing this silences all messages on the system, causing the associated message LEDs to start flashing till cycle ends.

7.2. Indications

Power: The unit is receiving power from the network.

Fault: A fault condition exists on this unit that is relayed to all VoCALL Voice DAUs on the network.

Speak: The PTT switch has been activated, and speech can now take place.

Busy: The PTT has been activated, and the system is busy with someone of equal or higher priority.

VU Meter: Indicates the volume of the announcement.
7.3 Operation

To Page

1. Open the door of the VoCALL Voice EMA unit
2. Lift the fist microphone from its holder
3. Press the Button on the microphone side
4. Wait for the green speak LED to light (if the yellow busy light illuminates, either wait till the speak light illuminates or release the PTT and try later)
5. Make the announcement in a clear and paced tone
6. Release the PTT, the system will revert to either the next lowest priority or the quiescent state
7. Replace the microphone in the holder and secure the door of the VoCALL Voice EMA.

To manually activate a message

1. Open the door of the VoCALL Voice EMA unit
2. Press the button associated with the message you wish
3. The message will now play in all zones (unless a message of higher priority has been activated)
4. To stop the message press the Cancel button (the message will complete the current cycle, indicated by the associated message LED flashing)
5. Close and secure the door of the VoCALL Voice EMA
8. Maintenance

It is a requirement of BS 5839-8 that a maintenance agreement be in place for Voice Alarm systems. The maintenance schedule should be as follows.

Weekly: Broadcast the test message to all zones, and check speaker operation. Microphones should be checked for operation if fitted. Record results in the site log.

Monthly: Trigger the fire alarm system when the building is empty and check the Evacuate message broadcasts. Record results in the site log.

Quarterly: Engineer call to check system operation.

Yearly: Engineer call to check system operation and check battery health.

5 Yearly: Engineer call to check system operation and replace the batteries.

9. Important Safety Information

This Equipment must only be installed and maintained by suitably skilled and competent person. This Equipment is defined as Class 1 in EN60065 (Low Voltage Directive) and must be EARTHED.

Caution

Indoor use only

Warning

Shock hazard: Isolate before opening

Warning

To reduce the risk of fire or electric shock, do not expose this unit in rain or moisture

Warning

This unit must be earthed

Warning

No user serviceable parts

Each VoCALL Voice DAU should have a 3A spur, returning to a breaker clearly marked Voice Alarm DO NOT TURN OFF. If the units are distributed around a site, it is essential all units are on the same mains phase, as they are classified TEN 230V, powering from different phases can mean a 440V potential can be present in a unit during a major fault incident.
10. Anti-static Handling Guidelines

**CAUTION**

MAKE SURE THAT ELECTRO-STATIC HANDLING PRECAUTIONS ARE TAKEN IMMEDIATELY BEFORE HANDLING PCBS AND OTHER STATIC SENSITIVE COMPONENTS.

BEFORE HANDLING ANY STATIC-SENSITIVE ITEMS, OPERATORS SHOULD GET RID OF ANY ELECTROSTATIC CHARGE BY TOUCHING A SOUND SAFETY EARTH, SUCH AS A RADIATOR. ALWAYS HANDLE PCBS BY THEIR SIDES AND AVOID TOUCHING ANY COMPONENTS. PCBS SHOULD BE STORED IN A CLEAN, DRY PLACE THAT IS FREE FROM VIBRATION, DUST AND EXCESSIVE HEAT.

STORING THE PCBS IN A SUITABLE BOX WILL ALSO GUARD THEM AGAINST MECHANICAL DAMAGE.

11. Safety Information

**CAUTION**

**BATTERIES**

SEALED LEAD ACID BATTERIES CONTAIN SULPHURIC ACID WHICH CAN CAUSE BURNS IF EXPOSED TO THE SKIN, THE LOW INTERNAL RESISTANCE OF THESE BATTERIES MEANS LARGE CURRENTS WILL FLOW IF THEY ARE ACCIDENTALLY SHORT CIRCUITED, CAUSING BURNS AND A RISK OF FIRE- EXERCISE CAUTION WHEN HANDLING BATTERIES.

**POWER UP PROCEDURE**

ALWAYS APPLY MAINS POWER BEFORE CONNECTING BATTERIES, DO NOT COMMISSION VoCALL COMPACT ON BATTERIES, AS THE HIGH INRUSH CURRENT REQUIRED BY THE POWER SUPPLY MAY RUPTURE THE BATTERY FUSE.

ALWAYS CONNECT THE POSITIVE (RED +) TERMINAL FIRST.

**POWER DOWN PROCEDURE**

DISCONNECT THE BATTERIES BEFORE REMOVING THE MAINS POWER; ALWAYS REMOVE THE NEGATIVE (BLACK – TERMINAL) FIRST.

**NOTE:** IF MUSIC IS TO BE BROADCAST ON THE VOCALL VOICE DAU, AN APPROPRIATE PRS LICENCE SHOULD BE OBTAINED WITHIN THE UK.
Certificate of Commissioning for a VoCALL Voice DAU System to BS5839 part 8 (2013)

Certificate of commissioning for the voice alarm system at:

Address: ___________________________ Postcode: ___________________________

I/we being the competent person(s) responsible (as indicated by my/our signatures below) for the commissioning of the voice alarm system, particulars of which are set below, CERTIFY that the said installation for which I/we have been responsible conforms to the best of my/our knowledge and belief with BS 5839-8:2013, Clause 34, except for the variations, if any, stated in this certificate.

Name (in block letters): ___________________________ Position: ___________________________

Signature: ___________________________ Date: ___________________________

For and on behalf of: ___________________________

Address: ___________________________ Postcode: ___________________________

The extent of liability of the signatory is limited to the system described below.

Extent of system covered by the certificate:

Variations from BS 5839-8:2013, Clause 34.

• All equipment operates correctly.
• Installation work is, as far as can be reasonably ascertained, of an acceptable standard.
• The entire system has been inspected and tested in accordance with BS 5839-8:2013, Clause 34.
• The system performs as required by the specification prepared by:

a copy of which I/we have given.

• The documentation described in BS 5839-8:2013, Clause 35, has been provided to the user.

The following work should be completed before/after (delete as applicable) the system becomes operational:
### Site Specific Information

**Fire Alarm Panel Location:**

**Paging Microphone Location:**

**Music Source Location:**

### SPEAKER CIRCUITS

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## MAINTENANCE WORK

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