

Ref: 596384 Date:16/11/2015 Version: 1

VULCA VOICE Installation instructions

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CHANGE HISTORY

Edition	Date	Written by	Remarks
1	04/11/2015	P. ROSSI	

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1. OBJECT

This document presents the different steps required to install the products in the Vulca Voice VACIE range; these products are safety sound systems compliant with standards EN54-16-16 (VACIE) and EN54-4 (PSE).

The following steps are described:

- general description

- installation and connection

- putting into service

The Vulca Voice range includes several different versions differentiated by the number of loudspeaker lines, the maximum power available per loudspeaker line and the total power available; the table below recaps the different configurations and describes how they differ.

			Maximum power per loudspeaker line*			ker line*
Versions	Total power available for	No. of	L1	L2	L3	L4
	the loudspeakers	loudspeaker				
		lines				
CSC1-0101	60W	1	60W			
CSC1-310	280W	1	280W			
CSC1-102	120W	2	60W	60W		
CSC1-311	340W	2	280W	60W		
CSC1-420	400W	2	280W			280W
CSC1-412	400W	3	280W	60W	60W	
CSC1-421	400W	3	280W	280W	60W	
CSC1-430	400W	3	280W	280W		280W
CSC1-422	400W	4	280W	280W	60W	60W
CSC1-431	400W	4	280W	280W	280W	60W
CSC1-440	400W	4	280W	280W	280W	280W

* The sum of the maximum powers per loudspeaker line must never exceed the total power available for the loudspeakers; it is therefore necessary to distribute the loudspeakers respecting for each line, L1, L2, L3 and L4 the maximum power according to the configuration.



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2. APPLICABLE AND REFERENCE DOCUMENTS, TERMINOLOGY

2.1. Glossary

VACIE: Voice Alarm Control and Indicating Equipment

PSE: Power Supply Equipment

CIE: Control and Indicating Equipment

2.2. Related documents

- Vulca Voice and Serenity Voice User's Manual: no. 596385



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3. GENERAL DESCRIPTION

3.1. Introduction

In accordance with standard EN54-16-16, the VACIE manages a voice alarm zone.

The optional functions with requirements included in the VACIE are:

- emergency microphone
- sound signals
- interface with the external control system
- redundant power amplifiers
- voice alarm manual control
- voice alarm condition manual reset

The extra functions are:

- public address sound system (1 Aux input, 1 Telephone input, 1 Animation input, 1 Public Address Console input, 1 USB input)

- external interfaces (1x Ethernet interface, 4xGPI, 4xGPO)
- impedance measurement



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3.2. Presentation

3.2.1. Front panel



3.2.2. Inside box





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3.3. Equipment

The VACIE includes the following equipment and components:

3.3.1. Microphone

The microphone is a palm-held microphone with a telephone-type lead and a male XLR 4-pin connector.



3.3.2. Safety sound system

CS2700: Monitoring unit





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3.3.3. Amplification

3.3.3.1. Amplifier modules AA-0300 (280 Watts)



3.3.3.2. Amplifier modules AA-0600 (60 Watts)



3.3.4. Accessories supplied

The product comes with the following set of accessories: 1 USB dust protection cover for the USB interface

1 XLR dust protection cover for the XLR interface RCA dust protection cover for the RCA interfaces
2 10kOhm 1W 5% resistors: item to be placed at the end of the loudspeaker line
1 470Ohm 1/2W 5% resistor, 1 1kOhm 1W 5% resistor, 1 4.7kOhm 1/2W 5% resistor for connecting the CIE interface
1 connecting cable to link the 2 batteries.
Two 6-pin connectors, pitch 508 mm for connecting the loudspeaker lines
Four 6-pin connectors, pitch 3.81 mm for connecting the GPI, GPO, CIE1 and CIE2.

Batteries are not supplied.



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3.3.5. EN54-24 loudspeakers

Bouyer brand loudspeakers can be used:

RB2035-EN54: sound projector 20W,

RB2033-EN54: spherical loudspeaker 20W

RB6501-EN54: ceiling loudspeaker 10W

RB6502-EN54: ceiling loudspeaker 20W

RB6504-EN54: ceiling loudspeaker 40W

MHE-50T/EN5424: horn speaker 50W

ML-260/EN5424 B: loudspeaker 30W

ML-260/EN5424-N: loudspeaker 30W

VOICE-15T/EN5424: horn speaker 15W

DESIGN WLA-230/EN5424: wall-mounted loudspeaker 6W

SPOT-2010/EN5424: sound projector 20W

KM-180T/EN5424: spherical loudspeaker 10W

CS-50-WA/EN5424: column speaker 50W

Remark: it's possible to use other 100V loudspeakers that meet EN54-24 subject to the following wiring instructions being followed:

- addition of a closed connector box
- addition of an interconnection strip
- addition of a non polarised 100µF 63V capacitor



AES 24V 24A BOARD: 24V 24A output on primary source and on batteries



3.3.7. Batteries

3.3.7.1. References of batteries that can be used

Choose only batteries that can be fastened with a screw of maximum size M6.

The batteries must have a capacity comprised between 17Ah and 42Ah.

The batteries that can be used with the internal power supply referenced must have an internal impedance of $82m\Omega$ (±10%) maximum seen from the PSE (wiring including); for example, the following models can be used:

YUASA:	NP38-12L
POWERSONIC:	PSGL12380
IDEM:	EP40-12 FR
FIAMM:	12FGL42

Given all the technical constraints, the minimum capacities of the batteries that can be used for each manufacturer are:

For Yuasa:	NP17-12L
For PowerSonic:	PSGL12170
For IDEM:	EP17-12FR
For Fiamm:	12FGL17

Any other reference from a different manufacturer may be used provided all the conditions above are met.

3.3.7.2. Determination of battery capacity

The capacity of the batteries is determined using the Excel document "*Dimensionnement batteries Vulca Voice et Serenity Voice EN 54-4 ed-1.xls*" (Battery dimensioning for Vulca Voice and Serenity Voice EN 54-4).



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4. INSTALLATION AND CONNECTION

4.1. Enclosure

The products are supplied in 9U enclosures.

The enclosure is made of metal and plastic and contains all the components.

IP rating: the enclosure meets the requirements for IP 30.

4.2. Installing the box

4.2.1. Fastening

Generally and in order to enable easy use and maintenance of the product, it is indispensable that it be installed so that the front panel is at a height between 1.4m and 1.7m so that the alphanumerical display can be read

Fasten the enclosure solidly to the wall, taking account of the weight of the batteries: without the batteries the enclosure weighs 20.5 kg.

The enclosure has 5 mounting holes accessible from inside the enclosure; open the door to access the 5 holes.

Make sure there is enough space around the enclosure to be able to open the door.

Allow a space of at least 20 cm on the right-hand side of the enclosure for cooling purposes.

4.2.2. Installing the batteries

Once the enclosure is fixed to the wall, put the batteries in place without making the electrical connections. Fix the batteries with the straps provided. For connection, see paragraph 4.3.1.3: Connecting the batteries

4.2.3. Passing the cables

The connection cables enter through the top of the enclosure.

Remove the plate covering the cable entry by hitting the plate sharply with a mallet (so as not to scratch it).

Keep the plate so that you can partially close the cable entry hole again in order to preserve the initial IP rating, IP30.



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4.3. User connections

4.3.1. Power

4.3.1.1. General diagram

The power supply for an installation compliant with EN54-16-16 is based on the use of a 24V/24A PSE.

The wiring diagram is as follows:





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4.3.1.2. 230V power supply

NB: before any intervention on the power supply part of the enclosure, make sure it is disconnected from the mains using the external intermediate device on the building's electrical installation.

It will be connected to the 230V--50Hz mains by a rigid conductor $3 \times 1.5 \text{ mm}^2$ cable. A packing gland and a clamp are supplied with the enclosure to fix the mains cable. The enclosure must be earthed.

The enclosure is not fitted with a system to isolate it from the primary source; the upstream installation must include a double pole isolating switch external to the enclosure (e.g. a double pole circuit breaker that meets standard NFC15-100).

The 230V connection is made inside the enclosure with 3 COMPACT terminals each with 5 poles.

4.3.1.3. Connecting the batteries

CAUTION: there is a risk of explosion if the batteries are of the wrong type. Dispose of spent batteries in accordance with the manufacturer's instructions.

First of all, open the 2 circuit-breaking contacts situated in the bottom of the enclosure. Make the connection between the 2 batteries to connect them in series using the connection cable supplied.

Connect the 2 cables from the circuit-breaking terminals to the batteries making sure the polarity is correct: red to the + pole on the battery, black to the - pole on the battery.

CAUTION: Do not close the circuit-breaking contacts.



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4.3.2. Connections to the CS2700 module

Certain user connections are made directly on the CS2700 board; the image below shows all these items:



100V Lines connector: connection of the loudspeaker lines

CIE1: connection to the CIE

CIE2: duplication of the General Fault information (present on CIE1) between points 3 and 4

GPI: connection of the GPIs

GPO: connection of the GPOs

Tel: connection of the telephone audio input

CMN: common to the GPIs and the GPOs

Ethernet: connection to an Ethernet network for maintenance operations.

Console-Security: connection of a safety console (outside the EN54-16 framework)

Console-Bus: connection of PA bus type consoles



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4.3.3. Loudspeaker lines

For its safety sound system, BOUYER has adapted all its range of 100V line loudspeakers.

In order to detect any loss of a loudspeaker, the installer will wire the loudspeakers in series with an end-of-line resistor (10kOhm - 1Watt).

The loudspeaker lines will be connected to the system via the plug-in connectors of the CS2700.

The loudspeaker lines will be wired in a daisy chain configuration.

- \rightarrow line open detection
- \rightarrow short circuit detection



4.3.3.1. Number of loudspeaker lines

The VACIE is connected to a CIE system; this system constitutes a single alarm zone. This alarm zone is divided into 1 to 4 elementary loudspeaker lines for this version in a 9U enclosure.

4.3.3.2. Minimum power of connectable LSs

The principle of monitoring the loudspeaker lines does not impose a minimum power for the LSs connected to the installation.

4.3.3.3. Maximum number of LSs per loudspeaker line

The maximum number of LSs per line is imposed by the maximum power supported by the amplifier modules (280W or 60W): the only limit is that the total power of the loudspeakers installed on the 4 must be lower than 400W.

4.3.3.4. Maximum length of LS lines

The table below summarises the maximum lengths of the loudspeaker lines according to the power consumed on the line, the cable cross section and assuming a 15% power loss.



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				Power c	consumption	n on line	
Diameter of copper wire	Cable cross section	Loop resistance per km	30W	60W	120W	240W	280W
14/10ths	1.50mm ²	22 Ω	2000 m	1000 m	500 m	250 m	200 m
18/10ths	2.50mm ²	15 Ω	3000 m	1500 m	750 m	375 m	300 m

4.3.3.5. Cable type for LS lines

Independently of the power and line loss considerations described above, from the sound broadcasting viewpoint, there is no requirement regarding the type of cable to be used. In practise, it is the site requirements (installation, safety consideration, etc.) that will decide the choice of the type of cable.

For example, industrial RO2V cables and cables certified with C1, CR1-CR1-C1 fire resistance are commonly used.

4.3.3.6. Connections

The connection of the 4 loudspeaker lines is made via the plug-in connectors at the back of the CS2700. For each loudspeaker line the connection is made by separate 1 twisted pair cables.





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4.3.4. CIE link

4.3.4.1. Maximum length of CIE link

The cable used for the connection between the VACIE and the CIE must guarantee that the level of the triggering voltage coming from the CIE is within the range permitted by the VACIE, i.e. from 15V to 58V DC. The cross section of the cable must be dimensioned to guarantee compliance with these values for a maximum cable length of 300 m.

The monitoring voltage ranges are 1.5V to 58 V DC for Inverse, from 1.5V to 10V for Direct.

4.3.4.2. Cable type for CIE link

See local regulations for the type of cable.

4.3.4.3. Connection

In the EC version, the CIE must be connected as shown below: wiring it in this way ensures the CIE/VACIE link is monitored by the CIE.



CIE connection



Remark: the connection must IMPERATIVELY be made on the terminals of the input marked CIE1. The CIE2 input is not operational for the link with the CIE.

The table below summarises the different configurations enabling the activation of the "Voice Alarm" condition as well as the monitoring of the VACIE link by the CIE:

Voltage in A	Voltage in B	Function
+15V to +58V DC	0V	"Voice Alarm" condition
Monitoring voltage whose level and polarity depend on the CIE		Monitoring of the presence of the end-of-line resistor $R_{\rm fl}$ (defined by the CIE manufacturer)

The value of $R_{\rm fl}$ depends directly on the reference of the CIE connected.

Remark concerning General Fault information:

In the connection diagram above, this information is available on the terminal block marked CIE1 between points 3 and 4; it is also available between points 3 and 4 of the terminal marked CIE2.

4.3.5. Auxiliary Input

The system has one Auxiliary input, stereo type, asymmetric, 0dBu.

4.3.5.1. Cable length and type

The cross section of the cable must be at least 0.28mm² and the connection distance must be less than 3 m.

4.3.5.2. Connection

The connection is made on the 9U enclosure, on the top of the enclosure by means of 2 RCA sockets (1 red and 1 white).

There is no particular specification for the type of cable to be used.

If there are interfering signals present (noise, hum), connect the non-safety source to the earth.

4.3.6. Animation Inputs

The system has one Animation input, mono type, symmetrical, -30dBu/0dBu.

4.3.6.1. Cable length and type

The cross section of the cable must be at least 0.28 mm^2 and the connection distance must be less than 3 m.

4.3.6.2. Connection

The -30 dBu sensitivity enables the connection of the GZ2802 product via a 6.35mm socket; if a GZ2802 is connected, it may be necessary to earth the GZ2802 frame to avoid problems with a low frequency hum. -30dbu/0dbu is selected via a configuration item in the menu accessible in the HMI.

The connection is made:



On the 9U enclosure: on the top of the enclosure via an XLR-jack combo socket, which enables the connection to be made with either an XLR plug or a 6.35mm jack plug whose connection pins are described below:



6.35 mm jack: T: "Hot" pin S: Ground

Remark: connection of a stereo jack leads to the loss of one of the 2 channels (right channel)

There is no particular specification for the type of cable to be used.



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4.3.7. Telephone Inputs

The system has one Telephone input, mono type, symmetrical, 0dBu.

4.3.7.1. Cable length and type

The cross section of the cable must be at least 0.28 mm^2 and at most 1.5mm^2 and the connection distance must be less than 50m. In there is a problem with interference (a hum for example), one solution consists of inserting a 0db/0db transformer before the telephone input.

The characteristics of the cable must guarantee a sufficient signal level on arriving in the CS2700 given the characteristics of the front end on the CS2700. There is no other particular specification for the type of cable to be used.

4.3.7.2. Connection

The connection is made at the back of the CS2700 board:



4.3.8. USB Inputs

The Vulca Voice enclosure has a USB connector situated on the top designed to receive mass storage devices of the "USB stick" type only.

Its functioning and use are described in the instructions for use.



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4.3.9. Comfort console for selective calls

The system enables the connection of comfort public address consoles of the GX3016 and GXT4000 type, which are designed to make announcements to selected zones; these consoles are not monitored and are considered as non-safety related items.

The comfort PA console bus can take up to 4 GX3016 type consoles and 2 GXT4000 type consoles if they are supplied via the bus. It is possible to add more comfort PA consoles if they are powered by another source.

4.3.9.1. Cable types for comfort public address consoles

The cable used for the public address console must have the same characteristics as Cat 5e F/UTP cable (4 twisted pairs with external shielding): 1 twisted pair for the RS485 link, 1 twisted pair for the audio signal audio, 1 twisted pair for the power connection.

4.3.9.2. Maximum length for GX3016

The communication bus used for the dialogue is of the RS485 type; the maximum distance between the enclosure and the last console must be less than 500 m.

The supply voltage to the consoles is at least 12V DC. The current consumed by the console is 140mA for a supply voltage of 12V.

The table below summarises the theoretical distances to be respected to ensure a sufficient power supply to the console; the voltage supplied by the enclosure is 27.2V. The consoles are considered as being in the same place.

Diameter of	Cable cross	Loop	1	2	3	4
copper wire	section	resistance	console	consoles	consoles	consoles
		per km				
5/10ths	0.20mm ²	175 Ω	500m	310m	207m	155m
6/10ths	0.28mm ²	135 Ω	500m	402m	268m	201m
8/10ths	0.50mm ²	68Ω	500m	500m	500m	397m
9/10ths	0.63mm ²	60 Ω	500m	500m	500m	452m

If it is absolutely necessary to have the consoles further away than recommended in the table, it is possible to provide a local power supply to the console and thereby eliminate the line loss problem.

4.3.9.3. Maximum length for GXT4000

The communication bus used for the dialogue is of the RS485 type; the maximum distance between the enclosure and the last console must be less than 500 m.

The supply voltage to the consoles is at least 12V DC. The current consumed by the console is 190mA for a supply voltage of 12V.

The table below summarises the theoretical distances to be respected to ensure a sufficient power supply to the console; the voltage supplied by the enclosure is 27.2V. The consoles are considered as being in the same place.



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Diameter of	Cable cross	Loop	1	2
copper wire	section	resistance	console	consoles
		per km		
5/10ths	0.20mm ²	175 Ω	457m	228m
6/10ths	0.28mm ²	135 Ω	500m	296m
8/10ths	0.50mm ²	68Ω	500m	500m
9/10ths	0.63mm ²	60 Ω	500m	500m

If it is absolutely necessary to have the consoles further away than recommended in the table, it is possible to provide a local power supply to the console and thereby eliminate the line loss problem.

4.3.9.4. Connection

Public address consoles must be connected to the RJ45 bus socket on the CS2700.

The number of public address consoles is limited by the 24V consumption; the CS2700 can supply a maximum of 0.5A at 24V.





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4.3.9.5. External interfaces

4.3.9.5.1. GPI

The system has 4 GPIs (General Purpose Inputs) which are logic inputs intended to be used for a certain number of functions: source remote control, level change, etc.

The logic inputs are of the opto-isolated type and must be controlled by a dry contact as follows:



4.3.9.5.1.1. Cable length and type

The table below gives the maximum distances between the VACIE and the peripherals connected to GPIs; the calculation takes account of a permissible ohmic loss of 100 Ohms:

Diameter of copper wire	Cable cross section	Loop resistance	Maximum distance on GPI
5/10ths	0.20mm ²	175 Ω	571 m
6/10ths	0.28mm ²	135 Ω	740 m
8/10ths	0.50mm ²	68Ω	1470 m

There is no particular specification for the type of cable to be used.



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4.3.9.5.1.2. Connection

The GPOs are connected at the back of the CS2700 on a plug-in terminal block as described below:





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4.3.9.5.2. GPO

The system has 4 GPOs (General Purpose Outputs) which are logic outputs intended to be used for a certain number of functions: fault indication, etc.

These logic outputs are of the relay type and provide information in the following way:

+24V ----- GPO

4.3.9.5.2.1. Cable length and type

The table below gives the maximum distances between the VACIE and the peripherals connected to GPOs; the calculation takes account of an ohmic loss leading to a 15% drop in the initial input voltage, 27.2V:

Diameter of	Cable cross	Loop	1W GPO	5W GPO	10W GPO
copper wire	section	resistance	peripheral	peripheral	peripheral
		per km	(24V/42mA)	(24V/208mA)	(24V/420mA)
5/10ths	0.20mm ²	175 Ω	555 m	112 m	55 m
6/10ths	0.28mm ²	135 Ω	718 m	141 m	72 m
8/10ths	0.50mm ²	68Ω	1426 m	288 m	142 m

There is no particular specification for the type of cable to be used.



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4.3.9.5.2.2. Connection

The GPOs are connected at the back of the CS2700 on a plug-in terminal block as described below:



The length of the connection to control an external peripheral via a GPO must provide an ohmic resistance on the link that is low enough to guarantee a high enough operating voltage on the peripheral. The maximum voltage that can be delivered by all the 4 GPOs must be less than 0.4A.



4.3.9.5.3. Ethernet

The CS2700 has an Ethernet interface intended to connect maintenance devices

4.3.9.5.3.1. Cable types for the Ethernet interface

The cable used for the Ethernet interface must be Cat 5e F/UTP cable (4 twisted pairs with external shielding):

4.3.9.5.3.2. Maximum length

The length of the link must be less than 3 m. The connection of a local peripheral (maintenance PC) or to a network must therefore be made by installing suitable equipment (Ethernet switch for example) with a maximum distance of 3m.

The type of cable to be used is Cat5 or Cat5e.

4.3.9.5.3.3. Connection

The connection is made on the RJ45 on the back of the CS2700 board as shown below:



4.3.10. Emergency microphone

The emergency microphone is equipped with a telephone-type lead which, when extended, measures less than 2.5m.



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4.4. Internal connections

All the internal connections are made in the factory and must not be modified on any account.

4.4.1. 230V mains power supply





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4.4.2. 24V power supply

The CS2700 board and the amplifier modules are powered with 24V DC from the PSE as shown in the connection diagram below:





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4.4.3. PSE fault connections

Fault information must be analysed and must therefore be connected to the CS2700, which manages it.

The connection principle is as follows:





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4.4.4. Connection of power amplifier modules

The power amplifier modules AA-0300 and/or AA-0060 are connected to the CS2700, which monitors them according to the principle shown below (example with four AA-0300 modules):



The connection of a spare amplifier module (redundant power amplifier: option with requirements) follows the wiring principle above; if the redundant power amplifier is present, it is connected to input No. 4.



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5. PUTTING INTO SERVICE

The system can go into service after installation and connection of the components making up the system. See the Installation and Connection paragraph of this document.

It breaks down into several phases:

- a start-up phase

- a configuration phase

- an audio adjustment phase

5.1. Starting up

The installation must be started up following the steps below STRICTLY in the order specified:

- open the enclosure door
- switch on the 230V power supply to the enclosure
- check the welcome message appears on the enclosure display

- check the red light comes on on the power board situated on the front left panel as you look at the enclosure.

- ensure that each battery has a minimum voltage of 11.5V DC.

- close the circuit-breaking contact corresponding to the – on the battery connection (black wire))

- close the circuit-breaking contact corresponding to the + on the battery connection (red wire)

- check the green light comes on on the power board situated on the front left panel as you look at the enclosure.

5.2. Configuration

Configuration is only accessible at level 3 by a trained, accredited person; level 3 access requires the entry of a password. Access to configuration is only possible in STANDBY mode or in FAULT mode.

The parameters that can be configured are described in the user's manual.



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5.3. Audio settings

The audio adjustment phase of an EN54-16-16 installation is broken down into several steps, which must take place in the order set out below:

- Ensure each loudspeaker in the installation is correctly dimensioned (power and sound pressure)
- If possible adjust the output levels on the public address sources (0dBu max)
- If necessary adjust the input level of the public address sources on the VACIE (see user's manual)
- Also adjust the output level for each LS line (see user's manual)

IMPORTANT: the audio adjustment of this type of installation requires that all the components making up the audio chain be suitably dimensioned.

Remark: choosing a setting causing a signal that is insufficient at the outputs of the amplifier modules can cause a fault to appear on the installation; this type of problem can occur when the power selection made on the loudspeakers is not suited to the acoustic environment.



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6. DETAILED TECHNICAL CHARACTERISTICS

6.1. Mechanical properties

Dimensions: height : 520mm, width : 530mm, depth : 240mm

Weight: 20.5 kg without batteries

Colour: Industrial grey – RAL 7035

IP rating: IP30

6.2. Environment

Operating temperature: -5°C to +40 °C

6.3. Power

6.3.1. Primary source

Mains voltage: from 195V to 264V

Mains frequency: from 47 to 63Hz

Primary current: 4A@195V

6.3.2. Secondary source

2 accumulator batteries , sealed, lead acid, 12V, with capacity between 17Ah and 42Ah .

6.4. Public address console interface

Power supply: 24V DC - 550mA max @25°C

6.5. Safety Console Interface

Power supply: 24V DC – 550mA max @25°C

6.6. Aux Input

Audio input: RCA connector x 2, stereo, sensitivity 0dbu, asymmetric signal

6.7. Animation Input

Audio input: XLR-6.35 mm jack combo connector, mono, sensitivity 0dbu/-30dbu



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6.8. Telephone Input

Audio input: 2-pin plug-in connector, mono, level 0dbu

6.9. CIE

Voltage triggering: from +15V to +58V DC

6.10.PSE

Fault information: dry contact, max. input current 10mA

6.11.GPIs

Opto-isolated type: input current max. 10mA

Pulse duration: 100ms minimum (in pulse mode)

6.12.GPOs

Voltage/Current: 24VDC/0.1A per GPO @25°C

6.13.Others

6.13.1. Messages

Evacuation message

Duration: 22s

Content: NFS32001 siren + message "Votre attention s'il vous plait, nous vous demandons de quitter les lieux par les sorties les plus proches. Votre attention s'il vous plait, nous vous demandons de quitter les lieux par les sorties les plus proches. Le signal d'évacuation va retentir. Attention, attention, because of a technical hitch in our building, we ask you to evacuate the premises. Please go to the emergency exit".

6.13.2. Emergency microphone

Type: dynamic, one direction (noise cancelling)

Sensitivity: -68dB/µbar (-48dB/Pascal)

Impedance: 600Ω

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7. MARKING



BOUYER INDUSTRIE

1270 Avenue de Toulouse ZA Albasud 82000 MONTAUBAN

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0333-CPR-075536

EN 54-16

Voice alarm control and indicating equipment for fire detection and fire alarm systems for buildings

VULCA VOICE

Options included:

- Emergency microphone
- Audible warning
- Interface to external control devices
- Redundant power amplifiers
- Voice alarm manual control
- Manual reset of the voice alarm condition

EN 54-4

Power supply equipment for fire detection and fire alarm systems for buildings