Summary

This document includes installation and user guide of the 4E-SW6 and 4E-SW6-LITE, zone expander module dedicated for 4EVAC voice evacuation systems. It explains how the 4E-SW6 should be installed and configured. Installation instructions are addressed to the trained technical personnel, such as installers, service technicians and commissioning engineers. User instructions explain how to operate 4E-SW6 by the end users as well as technical personnel, such as service technicians.

REVISION and APPROVAL

Rev.	Date	Nature of Changes	Approved By
043	10-03-2020	Spec change max. load SW6 output to 200W	AJH
044	01-03-2021	SW6-LITE reference added	AJH
045	03-08-2021	Revision of technical spec. section	AJH
046	15-08-2022	SW6 – A/B loop application described	AJH

https://www.4evac.com

INDEX

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

4EVAC is manufacturer of Impact Rack-build and Compact 500 all-in-one-box Voice Evacuation Systems. All 4EVAC Voice Alarm systems are capable of both standalone and network operation. 4EVAC Voice Alarm systems are certified in accordance with EN54-16 and EN54-4, which are harmonized standards under Construction Products Regulation, mandatory in the European Union.

1. What is the 4E-SW6?

4E-SW6 is a DIN-rail mounted 100V audio matrix with 2 inputs and 6 outputs, dedicated for both 4EVAC Compact and Impact systems.

4E-SW6 has two 100V audio inputs (CHA, CHB) which connect directly to amplifier outputs. 4E-SW6 expands the number of independent loudspeaker lines with individual surveillance and short-circuit isolator units (Loopdrive). Each loudspeaker line can handle up to 200 W load and can be assigned as a separate individual zone. One input can accept maximum 500 W of power, this is also the limit for total load of all 6 output lines together.

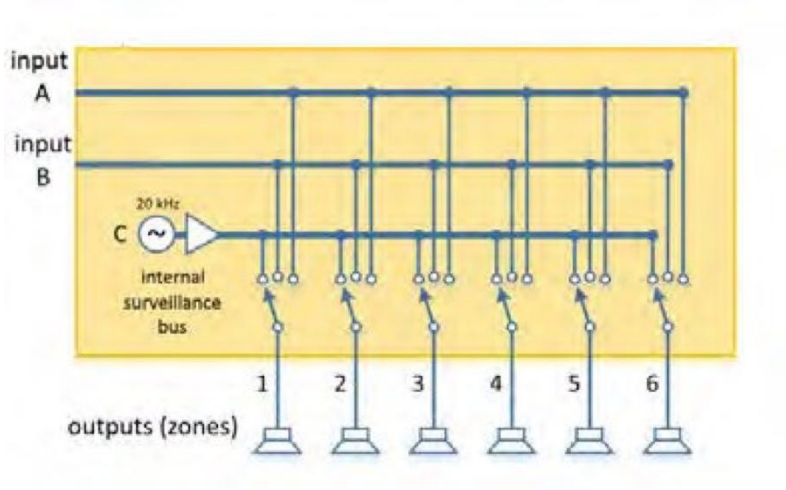
NOTE:

With IMPACT: *Multiple (N) 4E-SW6 modules can be fed in parallel from the same pair of amplifiers, creating 2 x 6*N matrix.*

With COMPACT: *Amplifier output (i.e. loudspeaker line output of Compact 500) can be connected to maximum one 4E-SW6 module, feeding maximum 6 loudspeaker lines – outputs of 4E-SW6.*

4E-SW6 is controlled by the main system controller (Compact 500 or Impact Controller) via L-Net, receiving in real time routing information for each output line in order to connect to channel A, channel B or internal bus C.

Because of higher power demand routing information for each output line in order to connect to channel A, channel B or internal bus C, compared to other L-Net devices it features additional 24V power input. 4E-SW6 supports also redundant network link.



4E-SW6 matrix diagram

2. What is the SW6-LITE?

SW6-LITE is a special version of the SW6 that works with LoopDrive LDB ***ONLY!***
SW6-LITE has no ability to provide speaker line integrity. The SW6-LITE 'sits' in front of LDB and provide audio zoning from amplifier (COMPACT / IMPACT) to LDB.
LoopDrive is providing the loudspeaker line surveillance.
The installation and programming of SW6-LITE is same as for SW6. The loudspeaker line surveillance needs to be set: OFF

3. Where do I start?

First, make sure that you are officially allowed to access the hardware of Compact 500 & Impact system devices.

This is usually the case if:

- you are an authorized representative of 4EVAC;
- you have been trained by 4EVAC or its authorized representative for installation, service and commissioning of Compact 500 & Impact Voice Evacuation System.

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

Important note: Access level 3 explanation

Opening 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.

4. Configuration settings

Settings for 4E-SW6 are included in the configuration file located on micro SD memory card installed in the Compact 500 / Impact CONTROLLER unit.

Configuration file includes user-defined settings, such as:

a) Definition of amplifier channels connected to SW6
b) Input / output surveillance settings,
c) Zone settings

Configuration file should be prepared in 4EVAC Manager. 4EVAC Manager is GUI software running on Windows OS. All configuration settings are explained in the manual "4EVAC Manager guide".

NOTE: Please make sure that configuration file is prepared with the version of 4EVAC Manager compatible with current firmware of your Compact 500 and/or Impact system.

Installation file of the latest 4EVAC Manager and the manual are available at our website HTTPS://www.4evac.com

5. Hardware installation and settings

5.1. AMP Inputs (CH A, CH B)

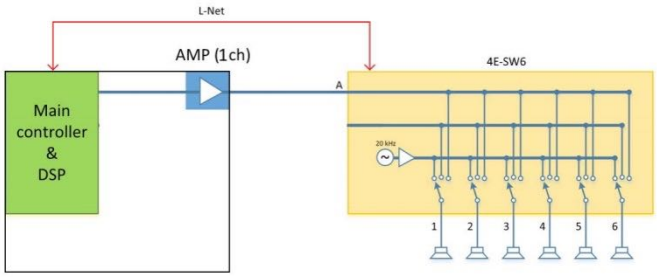
There are 2 inputs A and B for connecting outputs of power amplifiers to the SW6. When one input is enabled (defined in settings), then SW6 becomes a 1 x 6 matrix (Single channel mode). If both inputs are enabled (in settings) then SW6 becomes 2 x 6 matrix (dual channel mode). Single/dual channel mode is defined automatically, based on configuration settings.

Inputs can be optionally enabled with 20 kHz detection surveillance. If enabled, SW6 will trigger a fault if 20 kHz signal is not detected at the monitored input.

Both inputs A and B can accept 100V audio signal of maximum 500 W each.

Amplifier CHA / CHB input connector is doubled (direct internal parallel connection) for convenient daisy-chaining of multiple SW6 modules using the same amplifier.

5.1.1 Single channel mode

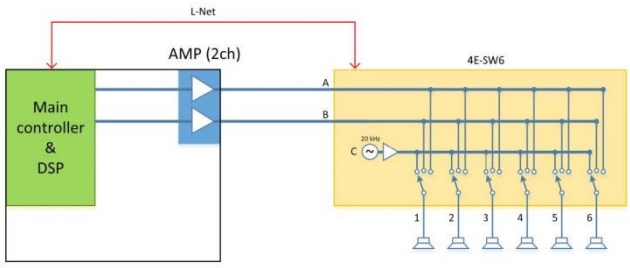


In single channel mode 4E-SW6 works as 1x6 matrix. Only one audio signal can be distributed over 6 output zones. Each output zone of SW6 can be either transmitting signal from input A, or remain silent (internal surveillance bus). In case of multiple sources attempting to occupy channel A, system controller (Compact or Impact) transmits the top priority signal, while the other signals are suspended.

In this mode 4E-SW6 does not provide built-in backup amplifier function (see chapter "Backup amplifier function"), because only one amplifier is physically connected to 4E-SW6. If 4E-SW6 is used in single channel mode in combination with Compact 500 system, then dedicated backup amplifier board must be used in Compact, if backup function is required.

Compact 500 is capable to operate with max. 6 x 4E-SW6 in single channel mode, each fed by one of 6 amplifier channels available in Compact. Maximum total load in this case is 6 x 100W (100W per 4E-SW6), maximum number of individual zones is 36.

5.1.2 Dual channel mode

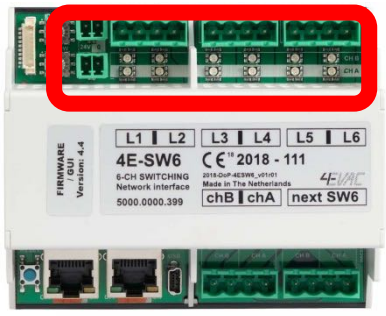


In dual channel mode 4E-SW6 works as 2x6 matrix. Two independent audio signals can be distributed over 6 output zones. Each output zone of SW6 can be either transmitting signal from input A, or input B, or remain silent (internal surveillance bus). In case of more than 2 sources attempting to occupy channels A and B, system controller (Compact or Impact) transmits the top priority signals, while the other signals are suspended.

In this mode 4E-SW6 provides built-in backup amplifier function (see chapter "Backup amplifier function"), because two amplifiers are physically connected to 4E-SW6.

Compact 500 is capable to operate with max. 3 x 4E-SW6 in dual channel mode, each fed by 2 of 6 amplifier channels available in Compact. Maximum total load in this case is 3 x 100W (100W per 4E-SW6), maximum number of individual zones is 18.

5.2. Speaker outputs (Line 1 – 6)

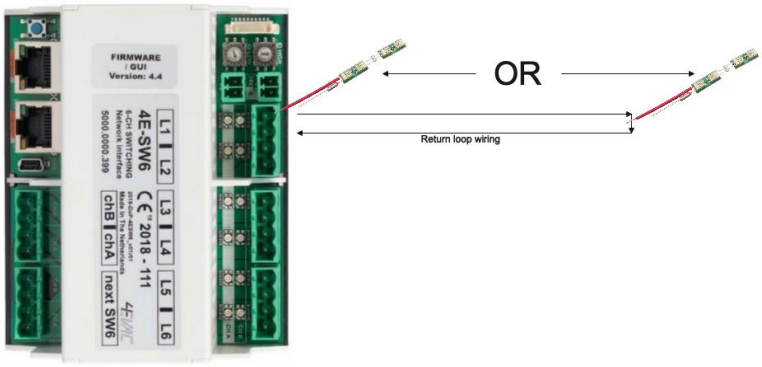


There are 6 independent loudspeaker outputs. Single output can handle from 20W to maximum 200W load. Total maximum load of all 6 lines is limited to 500W (equal to maximum input rating). Every combination of loudspeaker lines may be linked to any zone in the system, with maximum 6 zones per single SW6.

Loudspeaker lines can be individually monitored for short/open circuit with 20kHz EOL measurement. EOL surveillance requires calibration procedure, as described further in this manual.

5.3. A/B – loop output (Line 1-2, 3-4, 5-6)

The speaker-lines 1 to 6 can also be used in: Loop A/B configuration (Class-A). Go into the manager-software and program lines: 1+2, 3+4 and 5+6 as 'Zone-groups'. Apply a 'double-load' of EOL i.e. 2x EOL 'Bridged'', and connect these, ideally, in the middle of the A/B-loop. Alternatively, the double-load EOL can also be fitted at the RACK end. Beginning or return-loop.

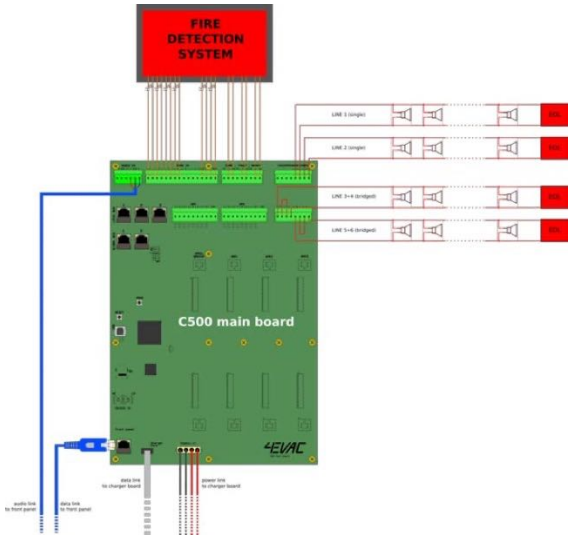


5.4. EOL module

Loudspeaker lines must be equipped with an EOL module in order to be under stable surveillance. EOL boards are not supplied with 4ESW6 and are available at 4EVAC as separate product.

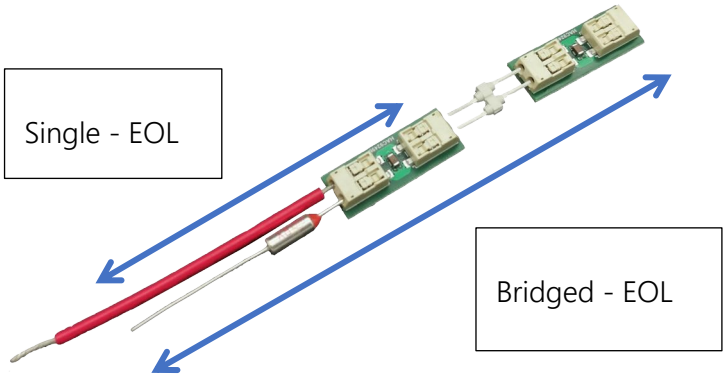
SW6 supports surveillance of loudspeaker lines based on impedance measurement @ 20 kHz.

For reliable monitoring of speakerline use EOL board. Connect EOL board to the end of the loudspeaker line in parallel, preferably inside the last loudspeaker on the line. EOL is not polarity-sensitive.



Loudspeaker line with EOL module

NOTE: EOL module features a 145°C thermal fuse, minimizing the risk of line short-circuit under fire conditions. Exposing EOL board to temperatures exceeding 145°C will damage EOL circuit and cause open fault of the loudspeaker line.
The purpose of EOL is to create reference load at the monitoring frequency 20kHz. With EOL connected, monitoring of load impedance is more accurate and less sensitive to slow and long-term impedance drift of the loudspeakers due to aging and weather conditions. It also gives more reliable fault indication when a large number loudspeakers is placed on one long line.



5.4.1 EOL measurement calibration

Once the loudspeaker lines are connected and EOL boards mounted at the end of every line, you can calibrate EOL measurement to currently detected impedance value @20kHz. As result of calibration the reference impedance value is saved for every line to the internal memory of SW6.

It is highly recommended to re-calibrate the impedance measurement:

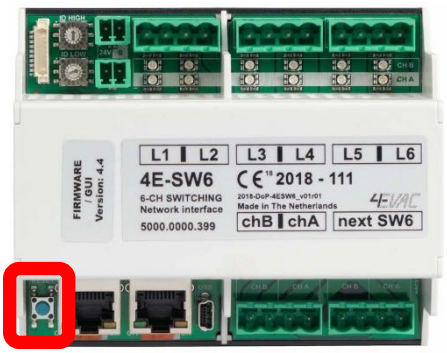
- After every modification of the loudspeaker line installation,
- After replacing power amplifier feeding the SW6 module.

NOTE: Before calibrating impedance please check the health state of every line with an impedance meter:

1. Check load: measure every loudspeaker line individually with impedance meter and check if the load is as expected. During measurement lines should be disconnected from SW6.

2. Check EOL: make sure that EOL board is properly connected at the end of every loudspeaker line. Check if the impedance setting is correct on each EOL board.

In order to start calibration, use CAL button located next to the network port.



1. Press CAL button. If calibration is started, you will see all LEDs start blinking yellow.
2. Release the CAL button and wait until ;
3. SW6 will indicate result of calibration on LEDs (see chapter Indications).

If the impedance of the line is within acceptable range, calibration should be successful. If line calibration is not successful, impedance of this line is not acceptable. This could be caused by one of following faults:

- line is overloaded,
- line is shorted,
- line is open,
- EOL is disconnected or damaged.

5.4.2 Live monitoring of EOL impedance measurement

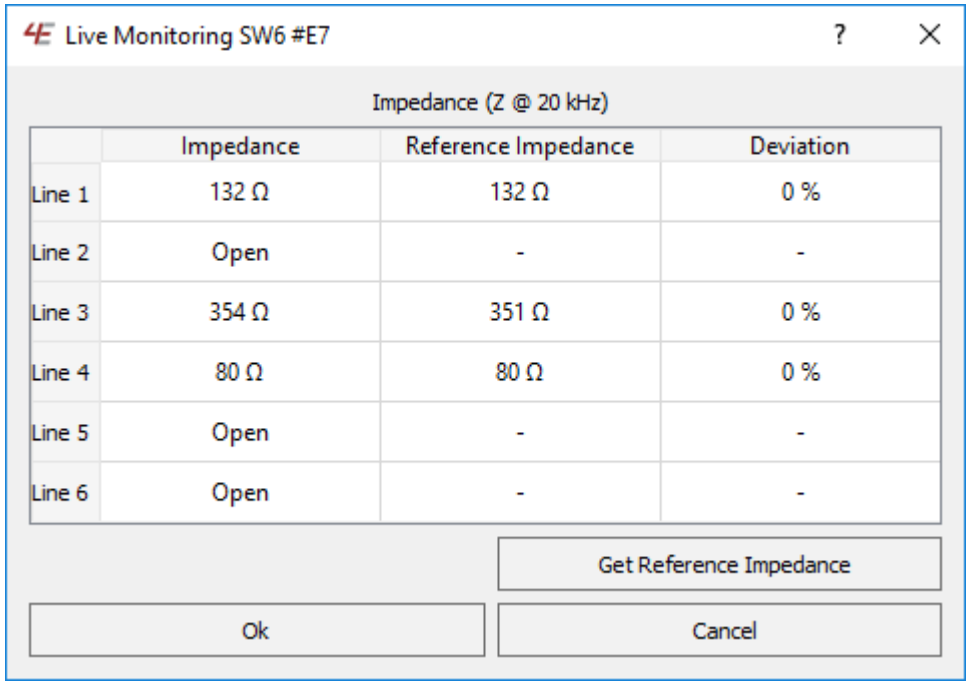
4EVAC Live monitoring – real time measurement of 20kHz impedance

4EVAC systems implement AC line monitoring at 20kHz with EOL. The purpose of EOL monitoring is to detect:

- Any short circuit between + and – conductors of the loudspeaker cable, which would result in total loss of audio signal;
- Any interruption in the loudspeaker line cable, which would result in loss of audio signal in (part of) loudspeakers powered by that line.

Lack of reliable specifications of loudspeakers and loudspeaker cables, as well as complex nature of combined total impedance of a loudspeaker line makes it impossible to predict or calculate impedance at 20kHz without real measurements.

In order to effectively assess loudspeaker lines monitoring in 4EVAC systems, it is necessary to use *Live Monitoring* feature of the 4EVAC Manager GUI application, where you can observe exact impedance at 20kHz of each loudspeaker line, in real time. (More information on how to use 4EVAC Manager you can find in 4EVAC Manager User Manual).



Live Monitoring in 4EVAC Manager GUI

In the screenshot above you can see Live monitoring window of 4E-SW6. For each output line following parameters are displayed in real time:

- Impedance
  This is the actual 20kHz impedance measured in real time by the system. Values below 10Ω are considered as short circuit. Values above 5kΩ are considered as open line.
- Reference impedance
  This is the reference impedance saved in system memory during impedance calibration.
- Deviation
  This is the difference between reference impedance and actually measured impedance, expressed in %. Deviation relates directly to Tolerance setting of EOL monitoring (see 4EVAC Manager User Manual)

In this example above SW6 has following loads connected to output terminals:

- Line 1: 200Ω resistor + EOL module (in parallel)
- Line 2: open
- Line 3: EOL module (~300Ω @20kHz)
- Line 4: 100Ω resistor + EOL module (in parallel)
- Line 5: open
- Line 6: open

5.4.3 EOL monitoring - step plan for commissioning

In order to properly carry out system commissioning, you need to walk through following step plan, for each loudspeaker line separately.

1) Preparation
   A. Disconnect loudspeaker line from the system;
      a) Briefly connect + and – wire of loudspeaker cable in order to discharge any residual electrical charge remaining in the circuit. If line has loudspeakers with internal DC-blocking capacitors, the residual charge may be significantly influencing further measurements. After few seconds disconnect + and – wires.

   B. Measure loudspeaker line with multimeter:
      a) Check if + and – wires are not shorted;
      b) Check continuity of loudspeaker cable (open circuit)
         (1) Connect + and – wires together at the end of the line (usually right at the last loudspeaker).
         (2) Measure loop resistance of the loudspeaker cable at the connection terminal, where the line is supposed to connect to the system (resistance between + and – terminal);
         (3) Check if loop resistance of the loudspeaker cable corresponds with total length of the cable, according to installation design;
         (4) Disconnect previously connected + and – wires at the end of the line.

   C. Measure the line with 1kHz impedance meter or LCR meter;
      a) Measure rated total impedance at 1 kHz ($Z_{1k}[\Omega]$)
      b) Calculate the total rated power load of the line in watts using formula
         $$P[W] = 10000 / Z_{1k}[\Omega]$$
      c) Compare if the measured power load corresponds with the total load provided by the installation design.
      d) Make sure the power load does not exceed the maximum total line capacity as well as amplifier capacity.

2) EOL measurement in 4EVAC Manager

A. Turn on Live monitoring
   a) Open 4EVAC Manager and load system configuration,
   b) Connect to the system in order to have live link
   c) Go to "Live monitoring" tab and find the right device
      (1) If necessary, refresh the device list by pressing "Refresh device list" button
   d) Click "Live monitoring" button for that device
      (1) If necessary, wait for the measurement to stabilize.

B. Connect the loudspeaker line to the system

C. Find limits and set tolerance
   a) Open
      (1) Make sure the line is not loaded with EOL module (only cable + loudspeakers)
      (2) Wait for the measurement to stabilize
      (3) Note down impedance value as Z_{open}
      If Live Monitoring displays "Open" instead of a number, take 5kΩ as open impedance.

   b) Short
      (1) Connect + and – wires together **at the end of the line** (usually right at the last loudspeaker).
      (2) Wait for the measurement to stabilize
      (3) Note down impedance value as Z_{short}
      If Live Monitoring displays "short" instead of a number, take 10Ω as short-circuit impedance.
      (4) Disconnect previously connected + and – wires at the end of the line

   c) EOL module (reference load)
      (1) Connect EOL module **at the end of the line** (usually right at the last loudspeaker or behind it).
      (2) Wait for the measurement to stabilize
      (3) Note down impedance value as Z_{EOL}

D. Calculate deviations and tolerance
   a) Short deviation

$$D_{open}\ [\%] = 100 * (1 - Z_{EOL} / Z_{open})$$

   b) Open deviation

$$D_{short}\ [\%] = 100 * (1 - Z_{EOL} / Z_{short})$$

   c) Determine optimum tolerance of EOL measurement:

(1) Compare D_{open} and D_{short} and pick the one of smaller absolute value. This absolute value is your minimum deviation D_{min}.
(2) Calculate optimum tolerance as:

$$T_{opt}\ [\%] = ½ * (D_{min} + 5\%)$$

E. Set tolerance
   a) In EOL monitoring settings in 4EVAC Manager (tab Devices) set tolerance of the tested line to T_{opt};
   b) Upload new configuration;
   c) Open "Live monitoring" again.

3) Perform final check
   A. Set the line in the final configuration
      a) Connect and secure EOL module at the end of the line;
      b) Calibrate impedance measurement (press the button on SW6);
      c) Wait for the measurement to stabilize;
      d) In "Live monitoring" window click "Get Reference Impedance";
      e) Compare "Reference Impedance" with "Impedance";
   B. Short test:
      a) Create short-circuit **at the end of the line**
      b) Observe the "Deviation" value
      c) Wait for line fault detection
   C. Open test:
      a) Disconnect EOL module **at the end of the line**
      b) Observe the "Deviation" value
      c) Wait for line fault detection

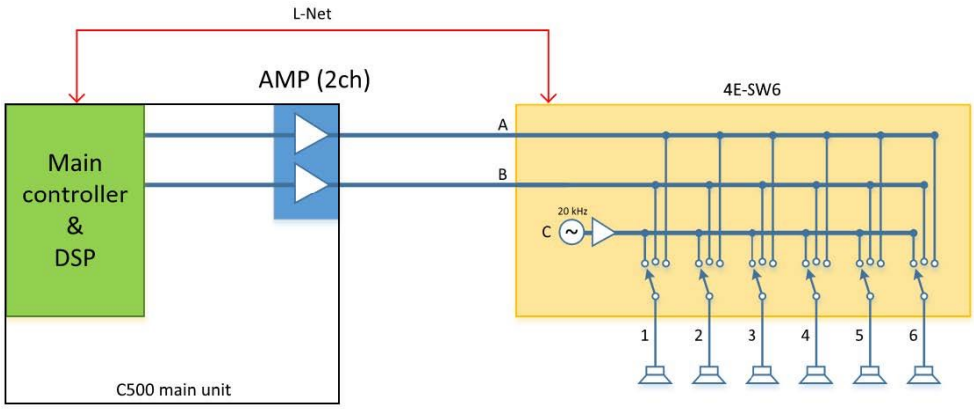
5.4.4 Operation of SW6 with Compact:

If inputs of 4E-SW6 are attached to power amplifier of Compact 500 in system settings (see 4EVAC manager GUI manual), and output lines of 4E-SW6 are attached to zones, then the 4E-SW6 can route each of the outputs to any input, depending on routing command from main controller.

4E-SW6 can transmit to its output lines maximum 2 different audio signals (channel A, channel B) and silence (internal surveillance bus C). If user attempts to transmit more than 2 signals (e.g. bgm to zone 1, paging to zone 2, pre-recorded message to zone 3), then system will automatically assign available channels to the top priority audio signals and route the output lines to the appropriate positions (CH A / CH B). Lower priority signals will be discarded.

NOTE: You may connect maximum one 4E-SW6 unit per amplifier channel in Compact 500. 4E-SW6 may not be fed from two different amplifier cards (restricted in configuration settings).

Power amplifiers of Compact 500 are rated 100WRMS per channel.

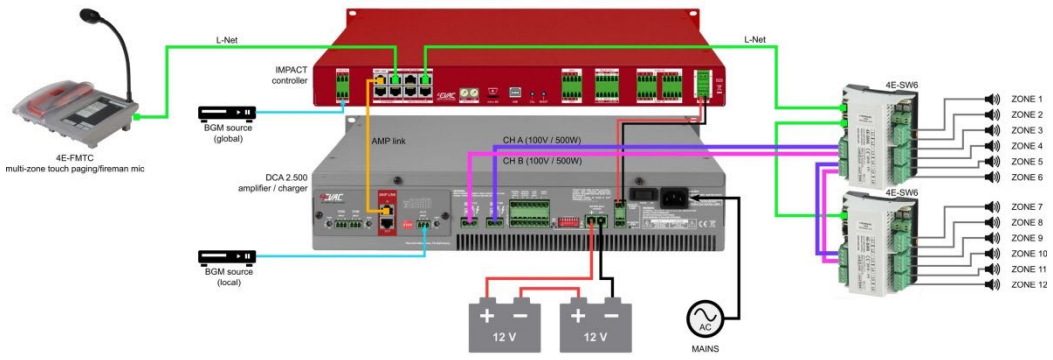


Example setup for SW6 + Compact 500 (2 x 100W, 6 zones)

5.4.5 Operation of SW6 with Impact:

If inputs of 4E-SW6 are attached to an amplifier in system settings (see 4EVAC manager GUI manual), and its output lines are attached to zones, then the 100V matrix can route each of the outputs to any input, depending on routing command from main controller.

4E-SW6 can transmit to its output lines maximum 2 different audio signals (channel A, channel B) and silence (internal surveillance bus C). If user attempts to transmit more than 2 signals (e.g. bgm to zone 1, paging to zone 2, pre-recorded message to zone 3), then system will automatically assign available channels to the top priority audio signals and route the output lines to the appropriate positions (CH A / CH B). Lower priority signals will be discarded.



Example setup for SW6 + Impact (2 x 500W, 12 zones)

5.4.6 Fault detection, backup amplifier function

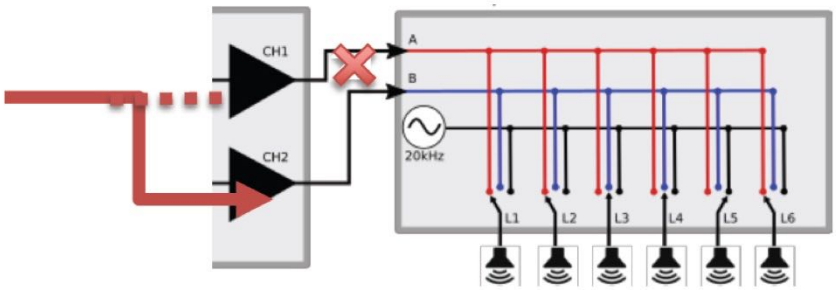
5.4.6.1. Input fault

If input monitoring is enabled, then SW6 will measure of 20 kHz tone coming from this input. If the signal is not detected, input fault is generated.

5.4.6.2. Backup amplifier function

When both inputs CHA and CHB are enabled and monitored, 4E-SW6 by default supports automatic backup amplifier function.

If an input fault is detected by SW6 (no signal from amplifier), then main system controller (Compact 500 or Impact Controller) will re-route the highest priority signal transmitted at that moment to the zones powered by SW6.



Backup amplifier function example: failure of Channel A, EVAC signal transmitted .

In the example above, initially two audio streams were transmitted to output zones:
CHA (high priority - EVAC) -> L1, L2, L6
CHB (low priority - paging) -> L3, L4
L5 idle (no audio transmitted)

As soon as the input failure is detected, SW6 reports input fault and main controller (source of signal) re-arrange Input-output routing, so that the highest priority signal takes over the healthy amplifier. All lower priority signals are suspended. After fault detection, following routing will be applied in the example above:

CHA (no signal) -> no zones connected
CHB (high priority EVAC) -> L1, L2, L6
L3, L4, L5 idle (no audio transmitted)

5.4.6.3. Output fault:

Output faults are detected only for lines, where EOL monitoring is enabled in settings, provided that calibration has been performed successfully. If a line is not calibrated, then it will not report any faults (SW6 has no reference load value).

a) Short circuit – low 20 kHz impedance fault

If an output line is detected as shorted, it will be automatically disconnected from channel A or B. Shorted line will be moved to internal surveillance bus, where it will be still under constant surveillance, without affecting other lines. Shorted line will generate fault status and short indication.

Short circuit is detected whenever load measurement at 20 kHz:

- Falls below the calibrated reference value, minus the impedance tolerance threshold, or
- Falls below approximately 15 Ohm (@ 20 kHz), which is the absolute minimum impedance required for correct measurement.

b) Open circuit / speakers missing / EOL missing – high 20 kHz impedance fault

If an output is detected as open, the line will enter open fault status and indication. Further, open line will behave as a healthy line and will be routed to input A or B, depending on the zone activation.

Open is detected whenever load measurement at 20 kHz:

- Gets above the calibrated reference value, minus the impedance tolerance threshold, or
- Gets above approximately 10 kOhm (@ 20 kHz).

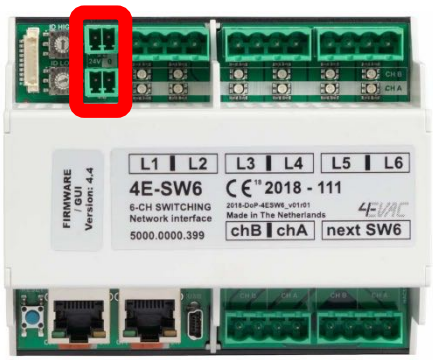
5.5. 24V DC input

4E-SW6 is normally powered via L-Net cable. Single L-Net port of Compact / Impact Controller delivers maximum 500 mA, thus for reliable operation maximum 2 pieces of 4E-SW6 may be powered over single L-Net port (see power consumption in specification sheet).

If you need to connect more than 2x SW6 modules to the same L-Net bus, then you need to provide additional 24V DC power line via the power connector on all SW6 modules connected to the same L-Net bus.

DC power input is doubled (two parallel connectors), for easy daisy-chaining multiple units from power source.

NOTE: Power leads connected to this 24V input must be installed inside the cabinet of Voice evacuation system.



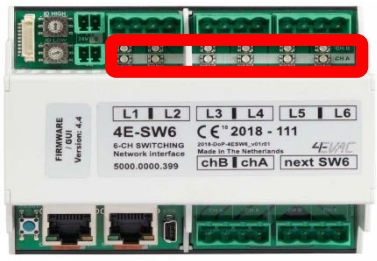
4E-SW6: 24V DC input

5.6. Indications

SW6 has 2 bi-colour LED indicators per output. Status is given individually per speaker line. Additionally general status of booting mode or calibration mode is also displayed on LEDs.

LED indicators show status of each output line, including:

a. Whether a line is connected to channel A / B or none
b. Fault status (short / open)
c. EOL measurement calibration result.



	status	which LED's	colour	mode	pattern
1	SW6 booting (no config)	all	blue	sequence	running circular
2	line disabled in config	both			continuous off
3	line not monitored in config	both	orange	simultaneous	flash
4	line under calibration	both	orange	alternative	fast blink
5	line not calibrated	both	orange	alternative	slow blink
6	line short (calibrated)	both	orange	simultaneous	continuous on
7	line open (calibrated)	both	orange	simultaneous	slow blink

10	line connected to CHA	CHA	blue		continuous on
11	line connected to CHB	CHB	blue		continuous on

Following blinking patterns for LEDs are defined:

continuous off

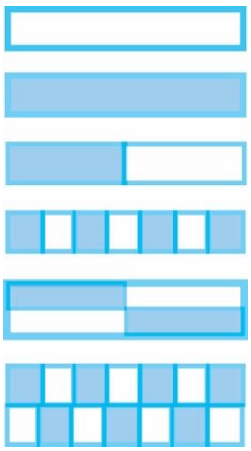
continuous on

slow blink (0.5s/0.5s)

fast blink (0.125s/0.125s)

alternative slow blink (for 2 LEDs)

alternative fast blink (for 2 LEDs)

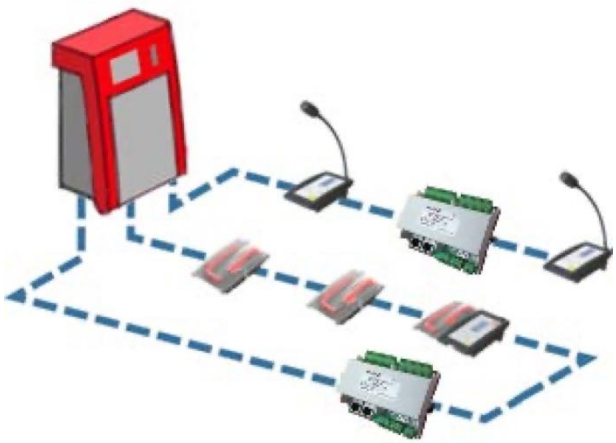


5.7. L-Net

4E-SW6 is a network device connected to L-Net port of C500 main unit. Multiple 4E-SW6 interfaces may be used in the same L-Net, with following limitations:

- maximum 2 units per L-Net port (without additional power cable)
- maximum 16 units per single C500 main unit (total sum of all 3 L-net ports, units powered with additional power cable)

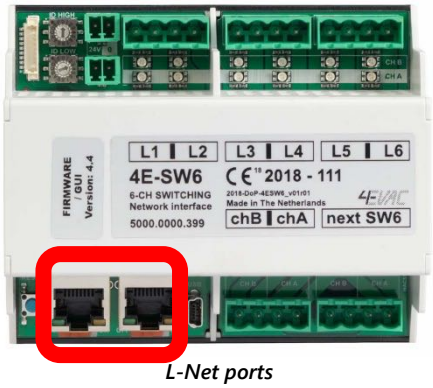
The SW6 interface may be also daisy-chained together with other L-Net devices.



Compact 500 L-Net (local network)

5.7.1 Network ports

4E-SW6 offers 2 L-Net ports (RJ-45) for network connections to C500 main unit and distributed parts of the 4EVAC Voice Evacuation System. Both L-Net ports are equal, therefore it makes no difference which port is connected to which side of L-Net daisy-chain.



L-Net ports

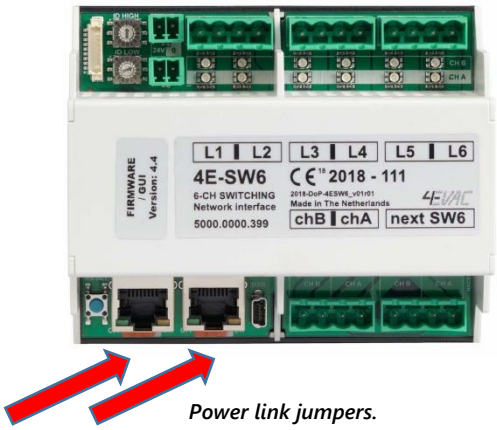
5.7.2 Redundant link

If you need to make redundant L-Net connection to Compact 500 main unit, connect both L-Net ports of the device to two L-Net ports on the C500 main unit. You can choose any L-Net port on the C500 main unit. This creates double daisy-chain of redundant A/B power and data link to the device and ensures fail-safe networking in case of single cable or port failure.

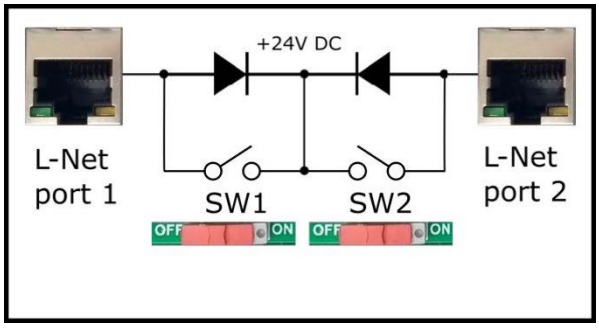
Both spurs of the redundant A/B link may be populated with other L-Net devices.

NOTE: The device is equipped with a power link jumper, by default in CLOSED position (pass-through power over L-Net). In order to create redundant link, the jumper must be moved in OPEN position. The device will be then immune to a single port short-circuit of power bus.

Location of power link jumpers



Power link jumpers.



When jumper 1 is closed (switch 1 on) the corresponding port 1 will pass through 24V DC from port 2 to devices connected to port 1. Jumper 2 (switch 2) works accordingly, passing 24V DC received from port 1.
Power jumper should be used if the device is supposed to be connected via redundant link. In this case the device must not pass through power towards C500 on either of 2 spurs of the redundant link.

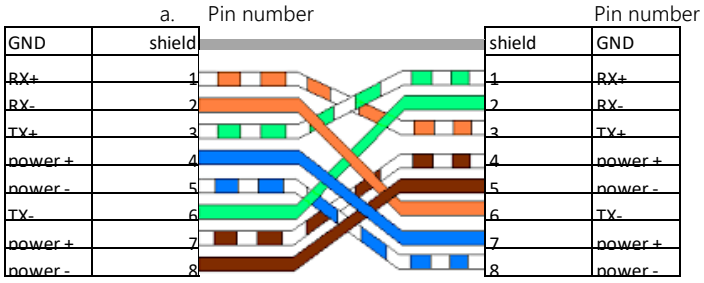
5.7.3 Network cabling

4EVAC network features full duplex RS-422 data link and 24V DC power to remote devices.

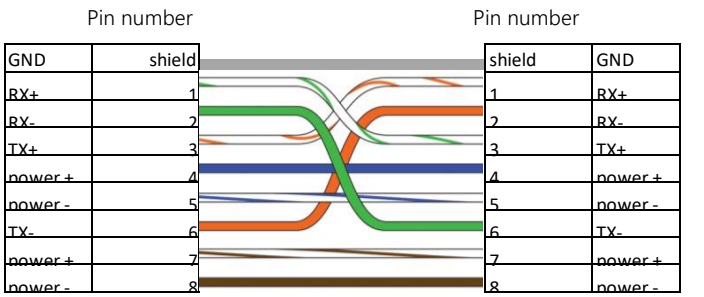
If you're building distributed system using 4EVAC network, you should make physical links between devices using the right cables. Cabling should meet following requirements:

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

a.



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 communication fault between L-Net device and C500 main unit. The L-Net device will not be able to initialize, thus will remain in boot-sequence, not operational.

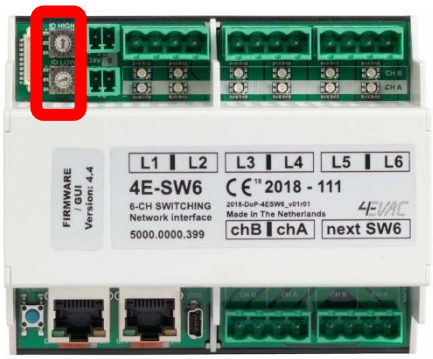
Caution! Use only crossover cables and keep correct pinout! Connecting power pins to data pins will damage the network port.

5.8. Device ID

SW6 needs 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 correct configuration settings from the master Compact 500 main unit. In this case the network device will be stuck in boot sequence and remain non-operational.

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

NOTE: Device ID must be different than 00 or FF (these ID's are reserved for service purposes).

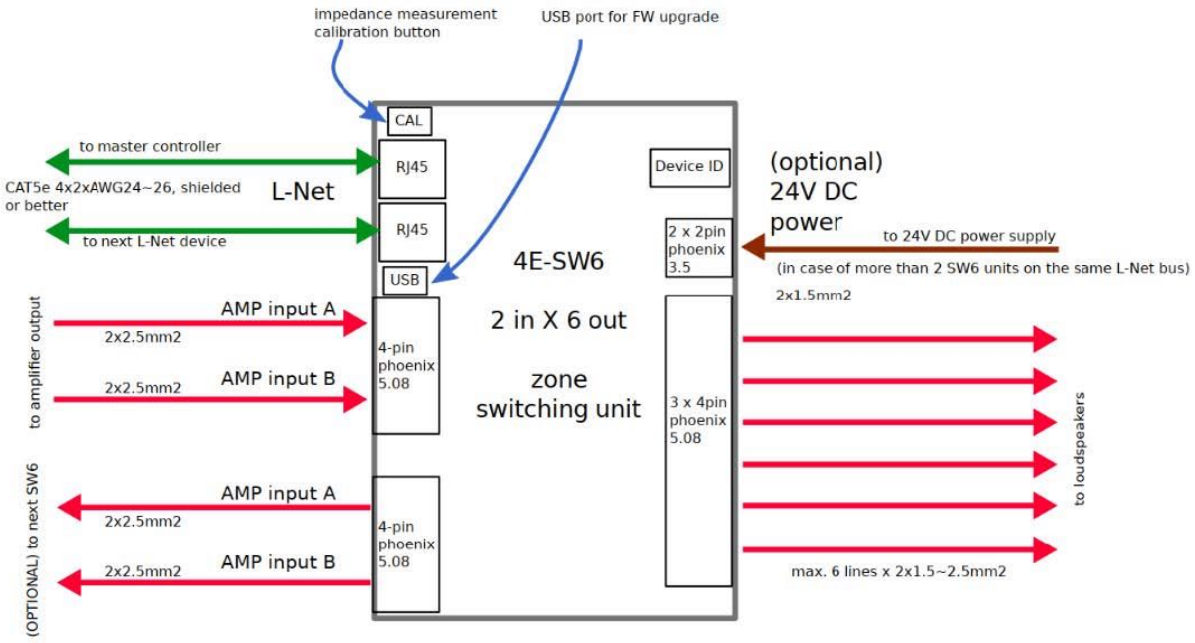


4E-SW6: Device ID setting

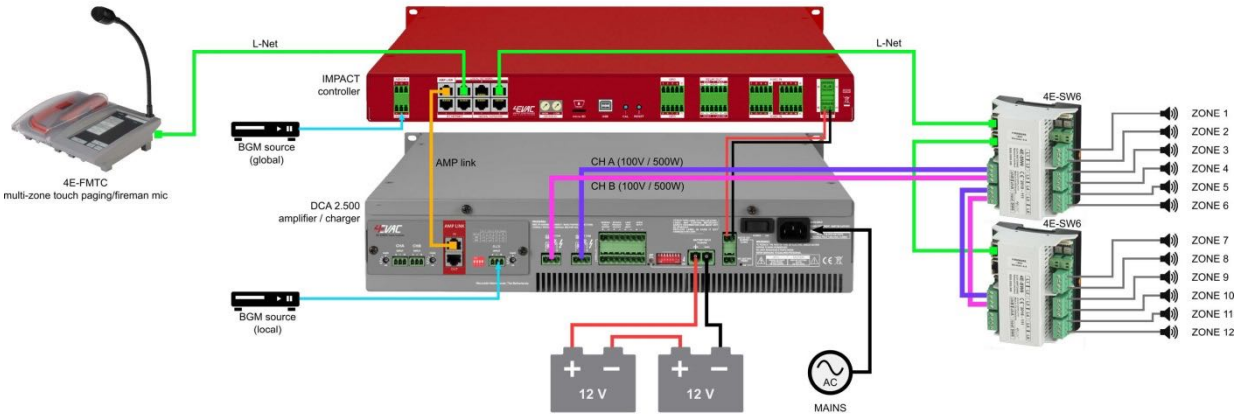
6. Connections and recommended cable types

	How many	Connector type	Signal type	Additional information	Recommended cable (minimum)	Max. length
Inputs CH A, CH B	2	pluggable screw terminal block 5.08 mm	100V audio	20kHz tone presence surveillance	typ. 2 x 1.5~2.5mm^2	10 m
Outputs 1 ~6	6			EOL surveillance @20kHz		1000 m
24V DC input	2	pluggable screw terminal block 3.5 mm	24 V DC	Both 24 inputs are connected in parallel for daisy-chain multiple units	2 x 0.5 mm^2	10 m
L-Net port	3	RJ-45	Full duplex RS-422	Daisy chain with power delivery and redundant link	FTP CAT5e	250 m (from master C500)

7. Connection diagram

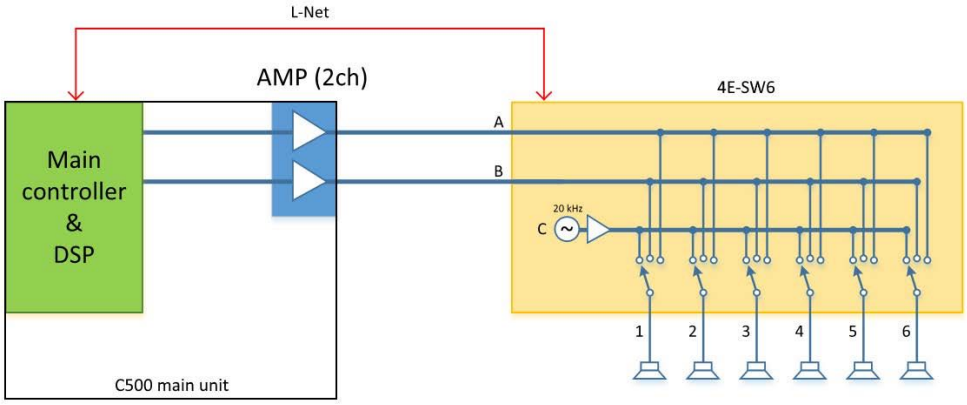


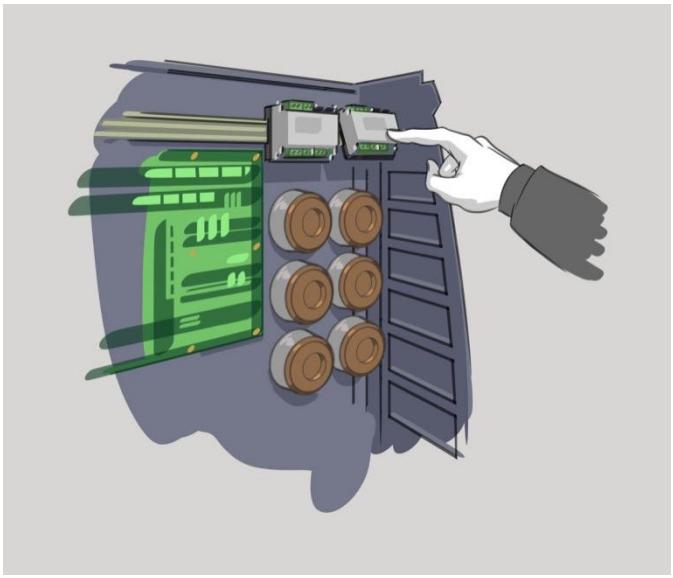
8. Examples of use with Impact:

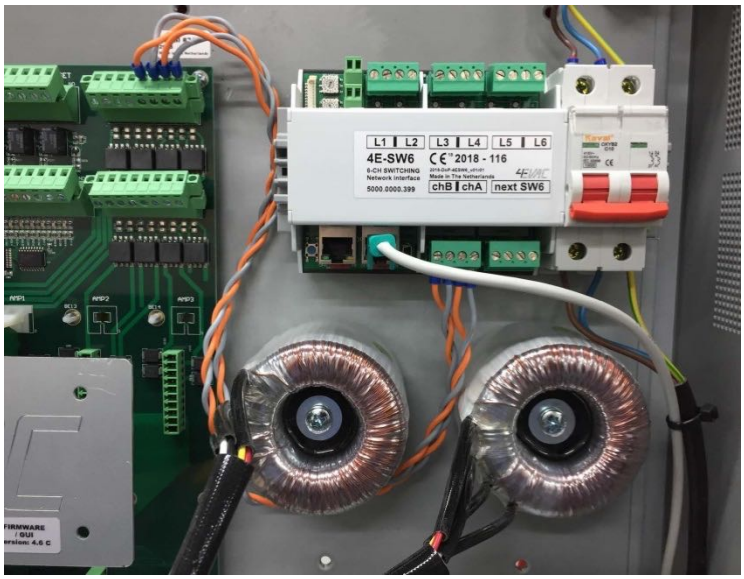


Impact system, 2x500W, 12 zones

9. Example of use with Compact:







Compact system, 2x100W, 6 zones

10. Technical specifications

4E-SW6	
Inputs	
Number / type	2 x 50/70/100V audio inputs
Rating	max. 500W continuous per input (2ch)
Surveillance	20kHz impedance measurement with EOL
Outputs	
Number / type	6 x 50/70/100V loudspeaker lines
Rating	20W to 200W continuous per output.(6-lines)
Surveillance	
Built-in	20kHz AC monitoring of EOL module, short/open/impedance deviation
Loopdrive	Loop DC monitoring with short-circuit isolators, short/open/earth leakage, EN54-17
Number of zones	max. 6 zones per SW6
Power consumption	
24V (L-Net / 24V DC in)	continuous 175mA (quiescent), peak 225mA (all relays activated)
Audio performance	
Frequency response	20 Hz – 20 kHz
Local network interface	
Architecture	Master-slave, up to 16 slave devices per main controller unit
Connection	RJ-45, powered daisy chain, digital audio & control data, redundant
Cabling	X-over FTP CAT5e (or higher)
Current rating via single link	max. 500 mA via L-Net port,
Max. length of L-Net link	250 m
Mechanical	
Dimensions HxWxD)	9 x 11.8 x 6.5 cm
Weight	375 g
Housing material	ABS
IP rating	IP 30
Mounting	DIN rail
Operating conditions	
Temperature (ambient)	10–40°C
Temperature (max. device)	65°C
Relative humidity	max. 90% (non condensing)
Storage temperature	-40 to 70°C

COMPACT500

MADE IN THE NETHERLANDS

4EVAC is a trade name of:

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

www.4EVAC.com