

RCS[®]
AUDIO-SYSTEMS

LIFE SAVING VOICE EVACUATION



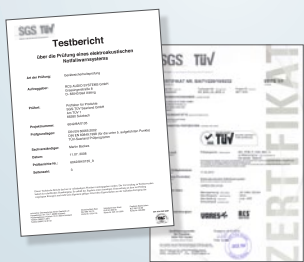
THE ADVANTAGES OF VOICE EVACUATION

A Life saver in any case of an emergency!

An electroacoustic evacuation system is crucial to deliver clear alarm messages and avoid panicking. This ensures a much quicker and safer evacuation of a building than with sirens or bells.

Of course this security system has to be functional at all times. Requirements for functionality and monitoring of evacuation systems are therefore defined in the European norm **EN 60849**.

MAIN FEATURES OF THE RCS SOLUTION



- **EN 54-4 / EN 54-16 / EN 54-24 / EN 60849 (all certified)**
- **According to VDE-0833-4**
- Expandable in steps of 8 paging zones to a maximum of 224 zones
- Configuration via PC based software
- Backup of all configuration and setup data
- Up to 24 desktop call stations can be connected
- Speaker lines can be assigned freely to any zone
- Training courses by RCS for your staff

OPERATIONAL AREA – ANY POPULATED ENVIRONMENT

- Office and industrial premises
- Hotels, shopping malls
- Educational institutions like schools, universities etc.
- Sports arenas and gyms
- Stations, hospitals
- Theatres, museums, cinemas
- Theme parks and recreation centres
- Indoor and outdoor swimming pools

EFFECTIVE ALARMING FOR A QUICK EVACUATION

? Screaming sirens should warn us from danger.
But – what danger?
What are we to do, what is the danger actually?

Countless case studies and laboratory experiments have proven that people only react immediately and correctly to an alarm if enough information is provided about the reason and the seriousness of the alarm. Especially for persons who are in an unfamiliar environment clear and unmistakable instructions about what to do can and will be life-saving. If this vital information is missing, for example

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because they only hear a siren tone instead of a spoken warning message, people will most likely react in an unfavourable manner or even ignore the alarm completely.

Not open fire is the greatest hazard in a building, but smoke and toxic gases. Therefore most casualties occur during the early phase of a fire, during the

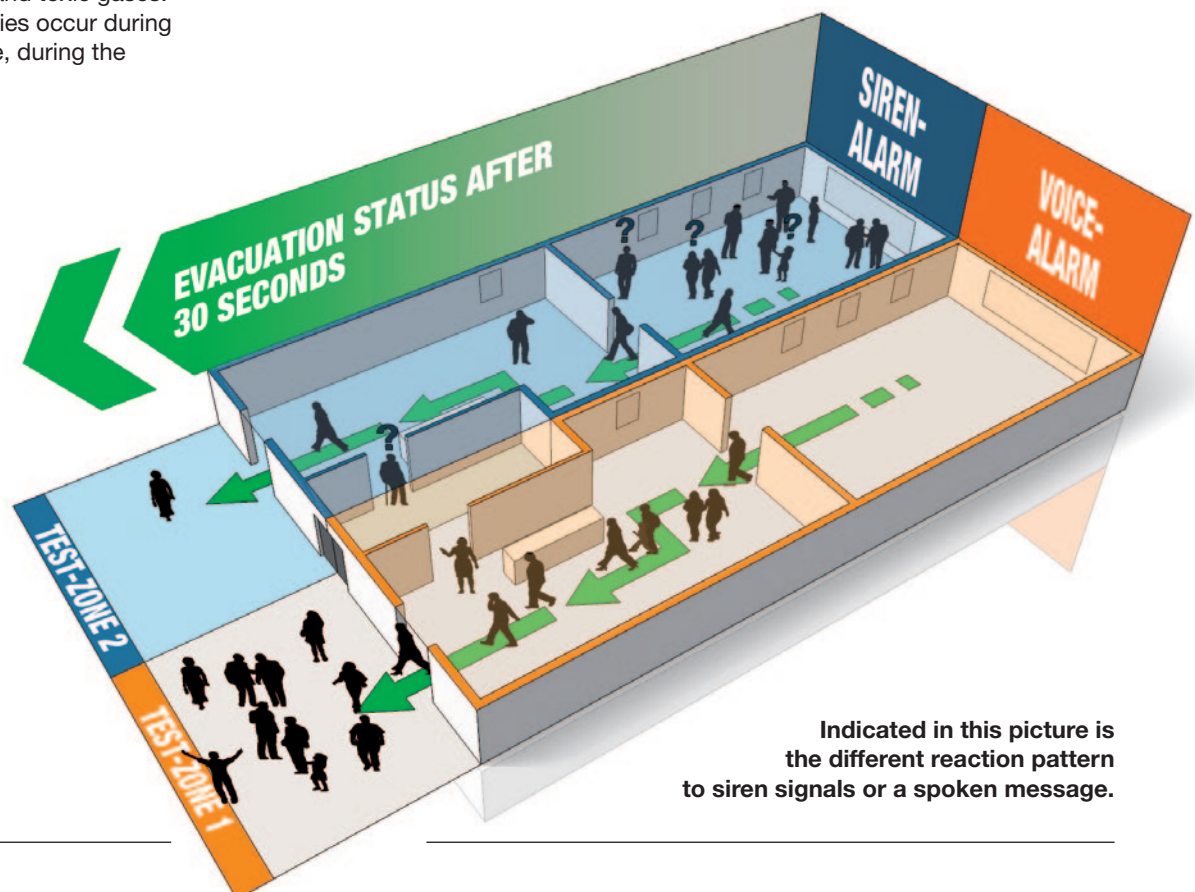
smouldering fire phase. That's why a quick and orderly evacuation is the best way to save lives.

The unexcitedly spoken message of a voice evacuation (VA) system communicates the need for action clearly. The addressees react without hesitation and leave the building, before smoke has spread and blocked the escape. Panic will be avoided, and it's even possible to safely guide all people to their nearest emergency exit.

Additionally, rescuers is given the opportunity to communicate a changing situation directly to all persons still inside the building.



Voice evacuation of selected floors in a Hotel.



Indicated in this picture is the different reaction pattern to siren signals or a spoken message.

EN 54 FIRE ALARM SYSTEMS

While EN 60849 as an application norm covers the evacuation system as a whole, EN 54 addresses the individual products this system comprises of. The demands for VA products are regulated in the following parts of EN 54:

EN 54-4 Power supply equipment

Crucial and new demand is mainly an ageing control for the accumulators by monitoring the internal resistance of the complete uninterruptible power supply. Additionally, the charging characteristic of the used accumulators has to be considered in the layout of the charger.

EN 54-16 Voice alarm control systems

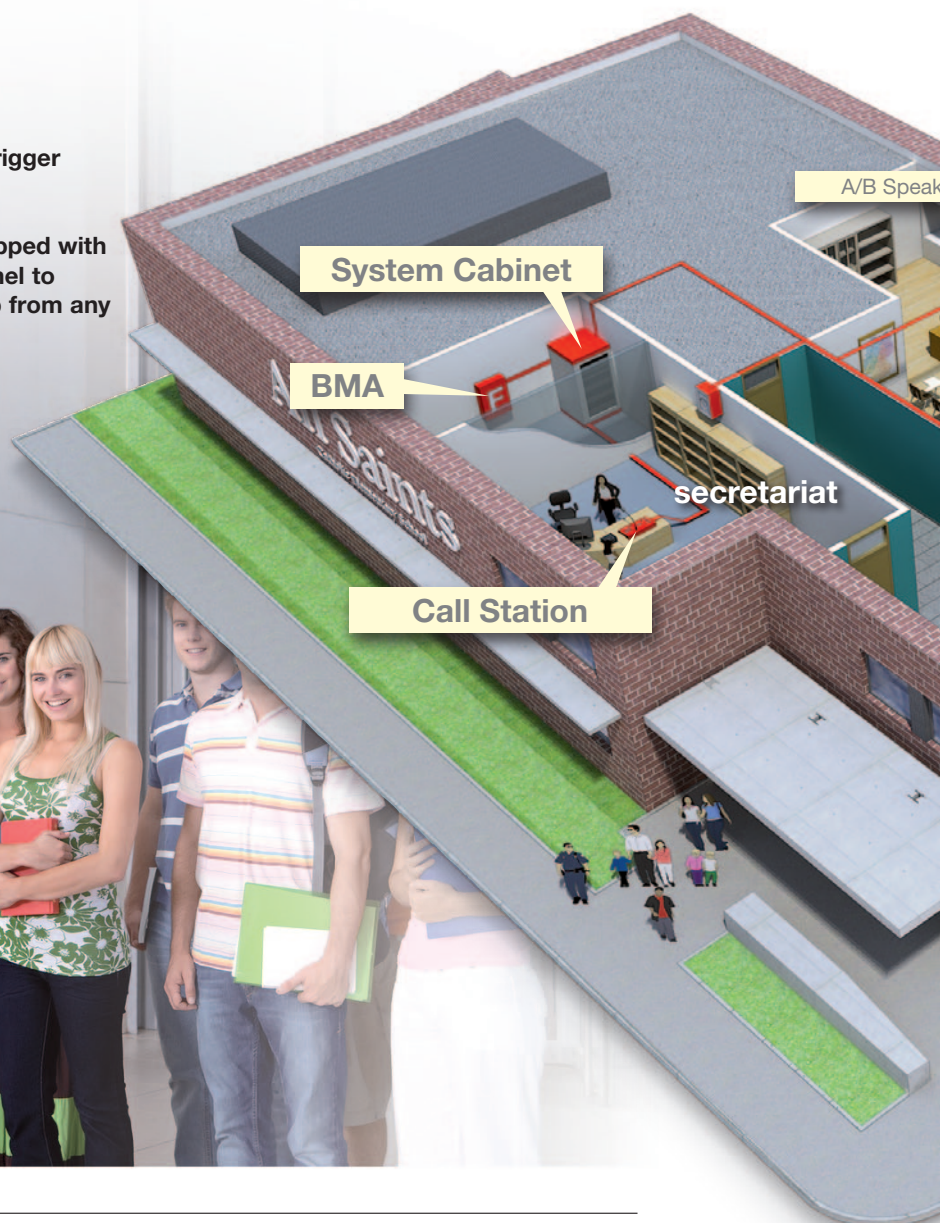
Demands on the functionality of a VA system are very similar to EN 60849. EN 54 enhances the older norm with a wide variety of tests to validate a high level of refractiveness against environmental impacts and durability under heavy load. Additionally, the demanded quality level for electrical and acoustical parameters has been raised substantially.

EN 54-24 Loudspeakers for Voice Alarm

Core parts of EN 54-24 are reviews of the production tolerances, long-term stability and corrosion resistance. The demands for refractiveness against environmental impacts have been raised substantially, too.

» RCS systems offer various possibilities to trigger a 'silent alarm'. «

» RCS evacuation solutions have been equipped with extra features, for example an extra channel to communicate directly with the central hub from any classroom. «



LIVE SAVING VOICE EVACUATION

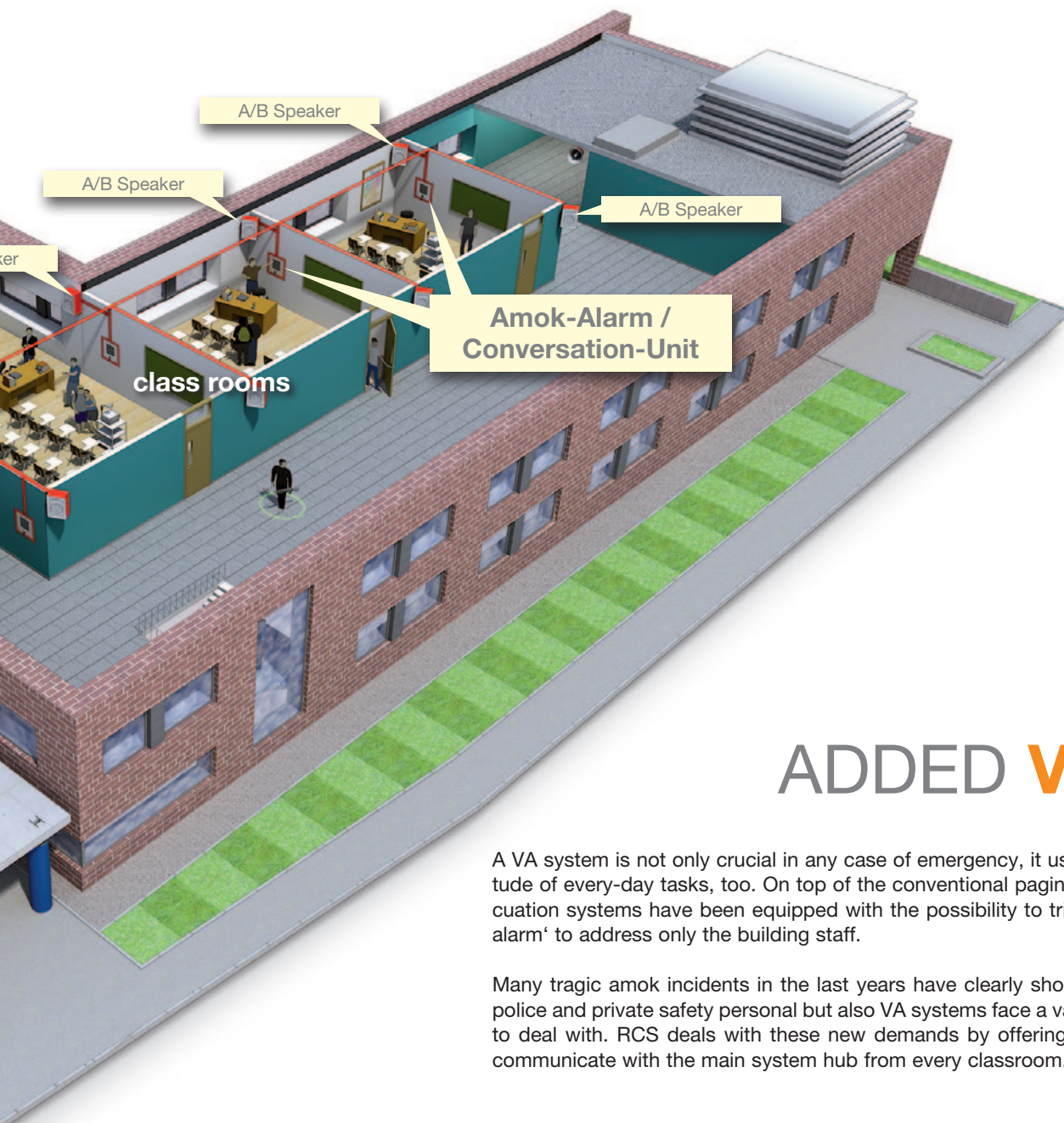
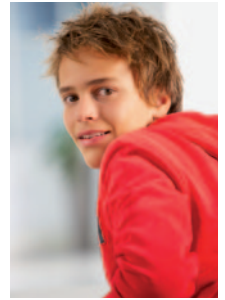


THE RCS SOLUTION



Our experts for VA systems work hand in hand with engineering offices. They ensure that project engineers can benefit from new development and extended product features already in early stages of a system design to gain advantages in a highly price-sensitive market.

RCS's proven digital technology offers outstanding functionality and scalability, combined with the reliability and durability you can expect from a security installation. System racks can be provided fully assembled and preconfigured by our rack building department to minimize the effort for our customers and installers.



ADDED VALUE

A VA system is not only crucial in any case of emergency, it usually serves a multitude of every-day tasks, too. On top of the conventional paging features RCS evacuation systems have been equipped with the possibility to trigger a coded 'silent alarm' to address only the building staff.

Many tragic amok incidents in the last years have clearly shown that not only the police and private safety personnel but also VA systems face a variety of new threats to deal with. RCS deals with these new demands by offering a direct channel to communicate with the main system hub from every classroom.

QUALITY, GUARANTEED BY **NORMS**



Because of its life-saving purpose, a voice evacuation (VA) system should meet high requirements. Those are fixed in various norms. Not only the hardware is regulated, but the planning, setup and operation of a VA system, too.

»The norms ensure a consistent minimum standard that's valid in all EU countries. These regulations give planners, erecting and operating companies mandatory guidelines to work with.«

The norms ensure a consistent minimum standard that's valid in all EU countries. These regulations give planners, erecting and operating companies mandatory guidelines to work with. If agreed upon in private contracts, these norms become binding. Even if they are not mentioned in a contract, they do serve as a legal standard in an arbitration between business partners. By their nature norms are very helpful to completely avoid any litigation between contracting parties.

The important norms for the planning and installation of VA systems are:

EN 60849

Sound systems for emergency purposes

The roots of EN 60849 date as far back as 1999. It's based on the German norm VDE 0828 that has been launched after a fatal fire in the Düsseldorf airport. The unnoticed defect of a part of the voice evacuation system was responsible for the death of sixteen persons.

Consequently the demands in VDE 0828 / EN 60849 take great care of ensuring a flawless function of the safety-critical system. Therefore a voice evacuation system has to monitor itself and all critical accessories and inform the operator instantly if a fault occurs.



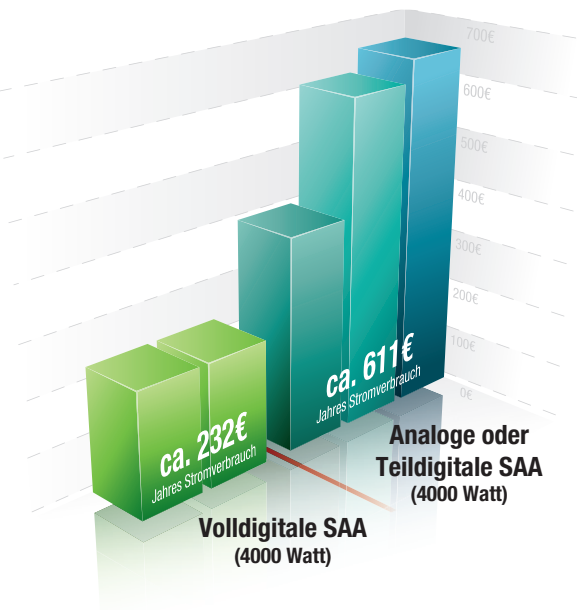
EN 54

Fire detection and fire alarm systems

The close relationship between fire detection and voice evacuation system has been addressed by including the VA systems into EN 54. Since 2008 all VA components are part of this product norm and have to be tested and certified by independent laboratories. An important part of this certification cycle is a yearly inspection of the manufacturing plant to ensure a constant product quality.



ENVIROMENT-FRIENDLY



Connected to the fire detection system, a VA unit guards a building every day and every night. Keeping that in mind, our engineers did not rest and optimised RCS system solutions to reach the highest energy efficiency levels. By using this advanced technology, you not only make your contribution to the preservation of a healthy environment, over the lifetime of the system you'll save considerable expenses, too.

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The modular layout of RCS VA systems ensures that each rack is matched to meet the demands of an individual building management exactly. No unnecessary units are applied. Another crucial point is the efficiency of our class D amplifiers. They do not only use very little energy themselves, they also offer great cost-reduction potential because of their reduced need for emergency backup power. In many cases, even a climate control of the engineering room might be unnecessary.

DESIGN AND ADVANTAGES OF A FULLY DIGITAL VA SYSTEM

WHAT ARE THE CORE COMPONENTS OF A FULLY DIGITAL VA SYSTEM?

- From message handling and alarm management to the power amplifiers all relevant components are implemented in digital technology.
- Digital (class D) power amplifiers provide an efficiency of 80% or more.
- The energy consumption of RCS digital power amplifiers is 80% lower compared to conventional amplifiers.
- In digital amplifiers an automatic standby mode further reduces the energy consumption when the system is not in use.
- The massively reduced power draw helps save money spent on energy consumption.
- The battery capacity of the emergency backup supply can be reduced considerably, saving cost and space.
- Digital power amplifiers run cool without fans, so there are no moving parts inside them, which results in an increased reliability.
- The typical life expectancy of a RCS digital amplifier is 20 years.
- Very low heat loss of the digital amplifiers offers the possibility to design VA systems that do not need to reside in AC cooled rooms.

Digital Alarm Management

Digital Main Clock

Digital Programswitch

Digitale Amplifier

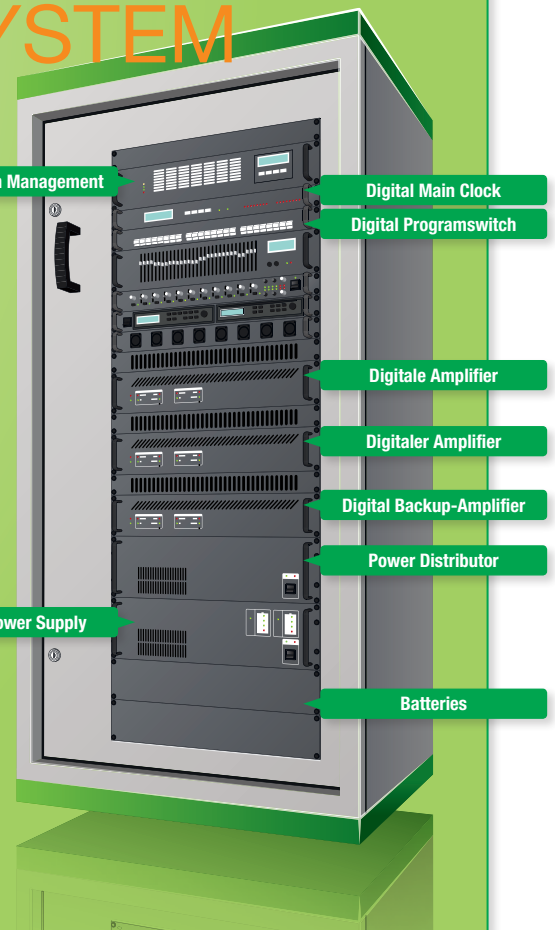
Digitale Amplifier

Digital Backup-Amplifier

Power Distributor

EN 54-4 Power Supply

Batteries





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