ISO7240

PAVIRO

BOSCH

Eng Installer checklist

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1. EMERGENY Sound Systems

BOSCH has made a great effort for the design and manufacturing of the components and also supplies all documentation that enables the assembly of a safe and high quality voice alarm unit in accordance with ISO7240. BOSCH has made up this list of requirements, based on the standard, which needs to be filled in and subsequently signed off by both parties.
The signed paper has the nature of a certificate and can have significant meaning in the case of a legal investigation of the liability issue for personal injuries.

- This checklist is an addendum to the EN54-16 checklist, the EN54-16 and ISO7240-16 are very similar standards. The following list in this document gives a summary of the differences between for the EN54-16 and the ISO7240-16 standards for voice alarm control and indicating equipment. Only essential differences are listed. Differences in phrasing between the standards (that occur very frequently) are omitted. Also similar clauses that have a different number in ISO7240-16 compared to EN54-16 are not listed.

- The changes are divided into sections:

    - **Additions**:
      clauses in ISO7240-16 that do not exist in EN54-16;
      the ISO7240-16 text is generally given.

    - **Changes**:
      clauses in EN54-16 and ISO7240-16 that are basically the same but differ in detail, the change is given by using italic typeface.

    - **Exclusions**:
      requirements that are in EN54-16 but are not valid for ISO7240-16.

- Compliancy responsibility of the installer.
  The installer must use the checklist for EN54-16 before proceeding with this list for ISO7240-16

- Modifications of the system should only be executed by authorized persons in accordance with the safety concept and need to be registered in the system documentation.

- BOSCH refuses any liability for damage that might result from non-observance of these instructions.

- The installer has to ensure that he uses certified firmware running on the devices. Information, which firmware versions are applicable can be found in de DoP which is available on the Bosch Security Systems web page. In case of doubt, please contact your local sales organization.

2. List of authorized end-users

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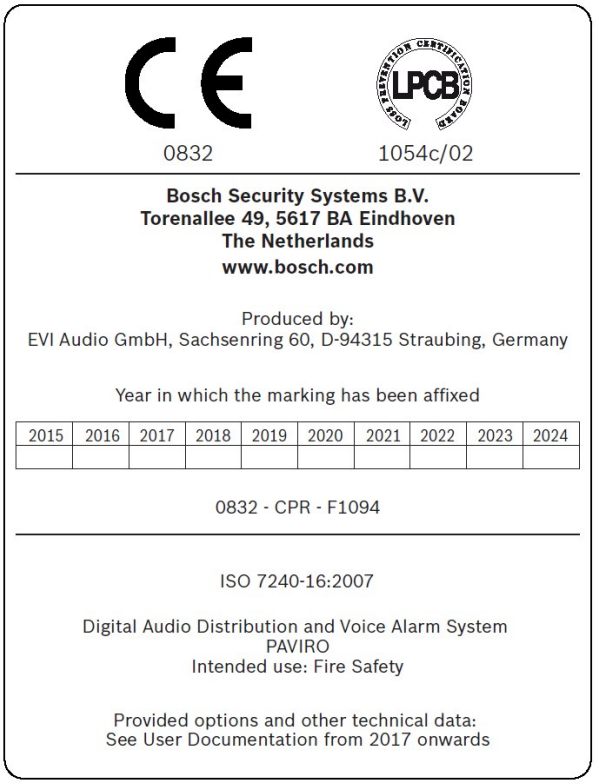
3. ISO7240 VACIE label (Including EN54)



IMPORTANT

The proper functioning of an emergency sound system (VACIE) in accordance with ISO7240 is the responsibility of the manufacturer of the system. Because a PAVIRO emergency sound system contains system elements that are built together and interconnected during system installation, the correct design, installation and configuration of the system are crucial for compliancy to ISO7240. Therefore, Bosch Security Systems and the Notified Body that certified the PAVIRO system have agreed that a strict adherence to the following rules is a necessity for compliancy of an installed PAVIRO emergency sound system (VACIE) to PAVIRO.

1 Bosch Security Systems shall provide training courses for VACIE installers. Such a training course will cover all necessary subjects to do successful installations of the products for which this course is intended, including the specific requirements for ISO7240, such as how to configure an ISO7240 compliant VACIE using the correct components (correct HW/SW).
2 VACIE installers who have participated in the Bosch Security Systems training and passed the examination will be certified. Certified VACIE installers need to renew their certification once every 2 years by participating in the Bosch/Dynacord follow-up training course on this subject and/or successfully pass the exam to extend their certificate.
3 Bosch Security Systems shall keep and maintain a list of all certified VACIE installers.
4 VACIE installations:
- The VACIE shall be installed according to the applicable clauses mentioned in the ISO7240 standard by or under the supervision of a certified VACIE installer.
- The certified VACIE installer shall check each clause of the ISO7240 checklist, clause.

Note: Some requirements will be met by design of the equipment used, some other requirements may need a specific configuration in hardware or software.

- The certified VACIE installer shall fill-in the year and project file number on the VACIE label and affixes the VACIE-label to one of the main equipment rack(s) of the VACIE, in accordance with the checklist and instructions in the Installation and User Instructions. Filling-in the year and project file number on the label shall be done legibly and indelibly.

Note: Indelibly means that it cannot be easily removed with water or petroleum spirits.

4. ISO7240: 2008 products description

BRE has issued a Certificate of Constancy of Performance with the following certificate number:

0832-CPR-F1094

Certification of the PAVIRO Digital Public Address and Emergency Sound System includes the cabinets (i.e. the enclosed 19"-racks) in which the system elements are mounted. It is allowed to use one or more cabinets, depending on the size of the PAVIRO system. Within the same cabinet family, different heights are allowed up to a maximum height that depends on the brand and type of an approved cabinet. The approved equipment, firmware and cabinets are listed on the DoP which can be found on the Bosch website.

5. ISO7240-16: 2008 optional functions overview

The table below gives a functions overview for ISO7240:

Listed optional functions	The following optional functions, with requirements, are included in PAVIRO from software version IRIS-Net V3.0.0 upwards: – Audible warning – Manual silencing of the voice alarm condition – Manual reset of the voice alarm condition – Voice alarm condition output – Indication of faults related to the transmission path to the CIE – Indication of fault related to voice alarm zones – Voice alarm manual control – Emergency microphone(s) – Redundant power amplifiers The following optional functions, with requirements, are not included in PAVIRO and are not used: – Delay(s) to entering the voice alarm condition – Output to fire alarm devices – Disabled condition – Interface to external control device(s) – Phased evacuation

6. ISO7240-16: 2007 compliancy checklist

6.1 Additional clauses

Clause / Requirement	Compliance	Signature
7 Voice-alarm condition		
7.1 Reception and processing of alarm signal		
7.1.4 Where the s.s.c.i.e. is used for non-emergency purposes, the voice-alarm condition shall disable or override any functions not connected with the emergency functions.	The installer has to ensure that priorities related to voice alarm functions are above the voice alarm priority level	
7.2 Alert signal - Optional function		
7.2.1 The s.s.c.i.e. may produce one or more alert signals complying with ISO 7731.	The installer must ensure that an alert signal is selected or a alert message made available in the message manager that complies to ISO7731. The preferred signal and required sound pressure level must be adjusted and is depending the actual application. The installer must ensure that the parameters of the danger signal (signal level, frequency spectrum, temporal pattern, etc.) shall be adjusted to stand out from all other sounds in the reception area and shall be distinctly different from any other signals. The sound pressure level shall be at least 65dBA at any position in the signal reception area, while being at least 15dB above A-weighted ambient noise, but it may not exceed 118dBA. The installer has to ensure that the used danger signal shall include frequency components between 500Hz and 2500Hz. Pulsating danger signals are preferred to signals that are constant in time, while the repetition frequencies shall be in the range from 0.5Hz to 4Hz. Hint: An example of a compliant PAVIRO signal is the ‘DIN alarm’ (sweeping signal from 1200Hz down to 500Hz in 1s, repeating).	

7.2.2 Where a voice signal is used as part of the alert signal, the alert signal shall precede the first pre-recorded voice message for 3 s to 10 s. Successive alert signals and messages shall then continue until either automatically or manually changed or silenced. The interval between successive messages shall not exceed 30 s and alert signals shall be broadcast whenever periods of silence might otherwise exceed 10 s.	The installer has to ensure that signals are required for 7.2.2 are configured in PAVIRO. Hint: this can be realized using a prerecorded (wav) message which is can hold any signal combination.	
7.2.3 Where more than one alert signal is provided, each signal shall be clearly distinguishable.	PAVIRO offers a wide choice of independent alert and alarm signals, on top of this, the installer can use prerecorded message. The installer has to ensure that each signal shall be clearly distinguishable.	
7.3 Evacuate signal		
7.3.1 The evacuate signal may be preceded by an alert signal (see 7.2). The use of an alert signal, together with an evacuate signal, should be assessed as part of an emergency management plan (see ISO 7240-19). For buildings and structures where the plan requires the unassisted evacuation of occupants, the s.s.e.p. may be configured to generate a warning signal that does not incorporate an alert signal.	The installer has to ensure the correct warning and alert signal handling is configured.	
7.3.2 The evacuate signal shall include the tone signal and pre-recorded voice messages, as specified in ISO 8201. Manufacturers may implement other signal templates to satisfy specific mandated national requirements.	The installer has to ensure to configure one of the dedicated ISO8201 compliant evacuate signals that PAVIRO offers. ISO8201 does not specify about pre-recorded voice messages, but PAVIRO also offers the possibility to store and select custom voice messages to satisfy specific mandated national requirements. The installer has to ensure the use signal complies to ISO8201. The installer has to ensure that the sound pressure level of the evacuate signal is at least 65dBA, or 75dBA if the signal is intended to arouse sleeping occupants.	

8 Fault-warning condition		
8.6 Fault-warning condition output signal		
s.s.c.i.e. shall have an output to transmit the fault-warning condition specified in 8.2. The output signal shall be given if the s.s.c.i.e. is de-energized.	The installer has ensure to use the ready contact on the PAVIRO system to transmit fault-warning signals. The ready contact has a normally open and normally close state.	
11 Manual mode control - Optional function		
11.1.2 In the manual mode, the receiving and display of of signals shall not be inhibited.	PAVIRO does not inhibit the receiving and display signals in the manual mode.	
11.1.3 In the manual mode, any phased evacuation shall be halted. Returning the system to automatic mode shall reinstate the phased evacuation sequence as if it had not been halted.	Phased evacuation is normally organized by the fire system. The installer has to ensure that a signal is provided to the fire system when switching to manual mode. The fire system has to provide a phased evacuation halt. The installer has to ensure when switching back to phased evacuation the fire system resumes at the point where phased evacuation was halted. In case the full sequence is programmed in PAVIRO, eg into the Task Engine, the installer has to ensure that PAVIRO resumes from the point where it was halted.	
13 Emergency microphone - Optional function		
13.1 General		
c. The emergency microphone control shall mute alert and evacuate signals within the selected emergency loudspeaker zone.	The installer has to ensure to configure calls from the emergency microphone with a higher priority than generate alerts and evacuation signals within the same emergency loudspeaker zone, to ensure these calls shall be aborted or muted.	
d. Use of the emergency microphone shall not reset an existing functional condition. After the microphone is no longer used, the functional condition shall be re- established.	The installer has to ensure the emergency microphone is configured in a way that PAVIRO will resume overruled emergency conditions after a call has finished, providing that the overruled condition was not an emergency life call that already overruled conditions.	

e. Unless 13.3 applies, the microphone shall broadcast voice messages to a pre-configured set of emergency loudspeaker zones.	PAVIRO allows for free assignment of emergency loudspeaker zones to calls that may contain live speech or prerecorded messages. Unless 13.3 is applied, the installer has to ensure to predefine loudspeakers zones for broadcasting emergency voice messages. This assignment has to be done in advance during configuration.	
13.2 Microphone priority - Optional function		
13.2.2 Where more than one microphone is configured at each priority level, only one microphone shall be active at any one time. If more than one microphone at the same priority is activated, the most recently activated microphone shall be enabled.	Within PAVIRO only one microphone is active in a certain zone or group. PAVIRO however allows more than one microphone to be configured for calls with the same or with a different priority. In case the same priority is assigned, first activated is first served. To comply to ISO7240, this is not allowed. The installer has to ensure that there is no microphone configured with the same priority when the system is in evacuation state.	
13.3 Microphone emergency loudspeaker zone control - Optional function		
The s.s.c.i.e. may be configurable to route microphone messages to groups of emergency loudspeaker zones, with each group containing at least one emergency loudspeaker zone.	In case groups are configured, the installer has to ensure to configure at least one emergency loudspeaker zone for each group.	

14 Design requirements		
14.3.3 The s.s.c.i.e. may be housed in more than one cabinet. If the documentation shows that the cabinets may be installed in locations distributed within a site, then all of the mandatory manual controls and indicators shall be on one cabinet or on cabinets declared to be suitable only for mounting adjacent to each other. NOTE: For the purposes of 14.3.3, adjacent cabinets are those that are mounted in physical contact with each other.	In case PAVIRO is installed in multiple cabinets in locations distributed within a site, the installer must ensure that all mandatory manual controls and indicators are on the same location, either by installing them in a single cabinet or on adjacent cabinets that are mounted in physical contact with each other.	
14.8 Indications on alphanumeric displays		

14.8.2 Alphanumeric displays used for mandatory indications shall have at least one clearly distinguishable window, consisting of at least two clearly identifiable fields.	The installer has to ensure that all customer configurable faults which appear in the LC Display from the call station is clearly identifiable.	
14.8.3 If not included in the displayed information, the purpose of each field shall be clearly labelled.	The installer has to ensure that all indication which are not in the LC-Display are clearly labeled.	

6.2 Changed clauses

4.3 Power supply Supply equipment shall comply with the requirements of ISO 7240-4 and may be internal or external to the s.s.c.i.e. cabinet. The power supply may be shared with that of the emergency detection system.	The installer must use power supplies and battery charging Power-equipment in accordance with ISO7240-4, with separate wiring for mains (230Vac) and battery backup (24Vdc) from the power supply to the PAVIRO system. The installer has to ensure the power supply equipment is installed in a separate cabinet, unless the combination of the actual power supply equipment and PAVIRO system elements in the same cabinet has been certified. The PAVIRO amplifiers are supplied with a mains supply and DC backup supply (24V) input. Switch over between the both takes place automatically, without any interruption or status change other than the power supply related indications. The installer has to ensure the amplifiers are connected to the mains and to the ISO7240-4 24V power supply.	

6.3 Excluded clauses

For ISO7240, the excluded classes from EN54-16 checklist are not to be taken in account

EN54-16, clause 12.1 Emergency microphone - option with requirements.		
c Where a pre-announcement attention drawing signal is provided, an indicator adjacent to the microphone shall show when the signal has finished and live speech can commence.	This clause is not part of ISO7240-16.	

EN54-16, clause 13.4.1 Electrical and other design requirements.		
The processing of signals shall give the highest priority to the voice alarm condition	This clause is not part of ISO7240-16.	
EN54-16, clause 13.13 Message store(s)		
Pre-recorded messages shall be stored in non-volatile memory that retains the messages when all power sources are removed. NOTE: The use of tapes or magnetic or optical data disks for the storage of emergency messages is not acceptable at the time of drafting this European Standard.	The NOTE is not part of ISO7240-16.	

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