# PSD-S AE V15/1

**Voice output element, 24 V DC,
max. 50 mp3 or wav files can be saved,
max. 15 files can be controlled, black**

Data sheet
7942_en_03

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## 1 Description

This audible signal element is designed as a component of a modular signal tower.

According to your requirements, a signal tower may comprise any combination of up to five signal elements. You may use up to five optical signal elements or up to four optical and one audible signal element.

An audible signal element can be used as top element only.

A bayonet locking system establishes the mechanical and electrical connection between the elements.

Connection elements with spring-cage or screw connection can be used for electrical connection of the signal tower.

Mounting elements for base or tube mounting can be used to mount the signal tower.

**Features**

- Voice output element for 24 V DC
- Maximum of 50 mp3 or wav files can be saved
- Maximum of 15 files can be controlled
- 2 Gbyte memory capacity
- Volume can be adjusted using potentiometer
- The volume can be set via software
- The volume can be reduced using up to two control cables
- Degree of protection: IP65, when mounted
- "Vocal element configurator" software

This data sheet is valid for voice output elements produced as of December 16, 2013 (see label in element: 16.12.13).

For elements produced after this date, the volume can be adjusted by the “vocal element configurator” software and up to two control cables in comparison to older elements.

For information on voice output elements produced prior to this date, please contact Phoenix Contact.

Make sure you always use the latest documentation.
It can be downloaded from the product at phoenixcontact.net/products.

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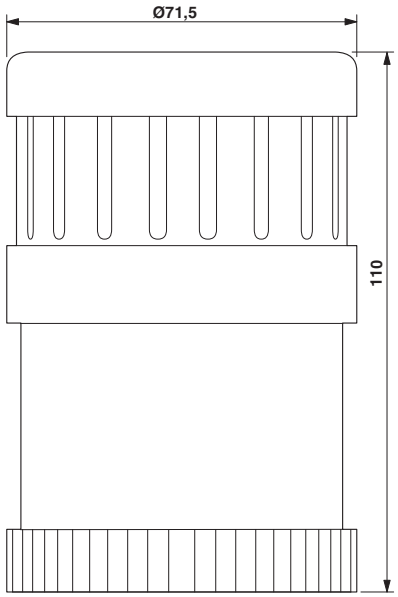
# 3 Ordering data

| Description | Type | Order No. | Pcs. / Pkt. |
|---|---|---|---|
| Voice output element, 24 V DC, max. 50 mp3 or wav files can be saved, max. 15 files can be controlled, black | PSD-S AE V15/1 | 2700140 | 1 |

| Documentation | Type | Order No. | Pcs. / Pkt. |
|---|---|---|---|
| User manual, English, Vocal element | UM EN PSD-S AE V15/1 | - | - |

# 4 Technical data

## Dimensions (in mm)




| | |
|---|---|
| Diameter | 71.5 mm |
| Height | 110 mm |

## General data

| | |
|---|---|
| Material | Polycarbonate PC |
| Color | black |
| Weight | 184 g |
| Ambient temperature (operation) | -20 °C ... 50 °C |
| Degree of protection | IP65, when installed |
| Mounting position | any |
| Scope of delivery | USB cable, software for configuring the voice output element, and user manual on the element |

## Electrical data

| | |
|---|---|
| Input voltage | 24 V DC |
| Inrush current | max. 3 A (for approximately 2 ms) |
| Current consumption | < 50 mA (in standby mode)<br>< 500 mA (during playback) |

| Electrical data | |
|---|---|
| Type of acoustic signal | Voice, max. 15 texts |
| Volume | approx. 88 dB(A) |
| Service life, electrical | min. 5,000 h |
| Operating time | 100 % |

| Approvals / conformities |
|---|
| Conformance with EMC Directive 2004/108/EC |
| For the latest approvals, please visit phoenixcontact.net/products. |

# 5 Setting the volume

## 5.1 Set the volume via potentiometer, software as well as connection 4 and 5

Set the volume using the potentiometer.

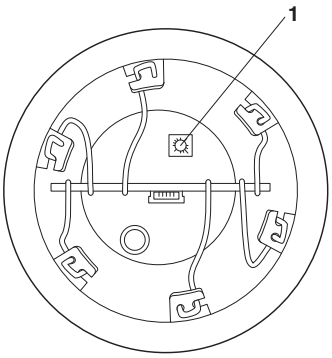



Figure 1 Potentiometer (1) to regulate the volume (view from below)

As an alternative or in addition to setting the volume via the potentiometer, you can set it via the “vocal element configurator” software. The software and the user manual are saved on the voice output element.

The voice output element can optionally be configured in the software, so that the volume can be lowered using connection 4 (input 3) and/or connection 5 (input 4) via control cables (see the following section).

## 5.2 Volume depending on the settings

The actual volume results from multiplication of all volume settings.

Volume = <1> x <2> x <3> x <4>

Where:

| No. | Volume set via | See illustration | Example |
|---|---|---|---|
| 1 | Potentiometer | 1 | 100 % |
| 2 | Software: configuration, settings, max. volume | 2 | 80 % |
| 3 | Software: configuration, settings, decrease volume externally, reduce volume with input 3 and 4 | 2 | 25 % |
| 4 | Software: player, voice output position x (in example position 1) | 3 | 70 % |

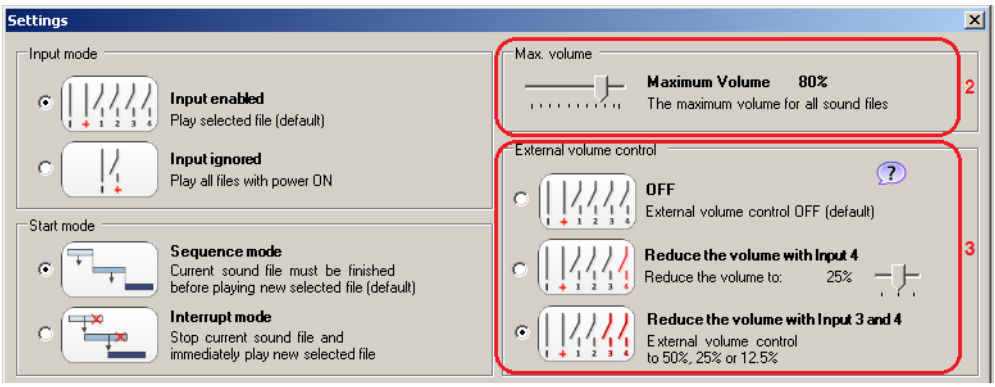



Figure 2 Konfiguration, Einstellungen, ...

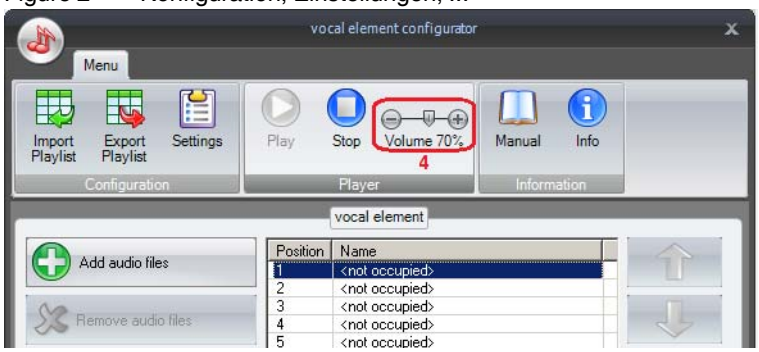



Figure 3 Player

You can determine the volume individually for each sequence via “player, voice output position x”. All other settings apply consistently for all sequences.

For the example values specified in the table, the actual volume is 14 % for sequence 1.

Volume = <1> x <2> x <3> x <4>
= 100 % x 80 % x 25 % x 70 %
= 14 %

# 6 Specifying voice sequence

Define the voice sequence through the assignment of the control lines.

The number of possible sequences depends on the following:

– The number of signal elements in a signal tower
– Using the volume setting via control cables or not

The following figures and tables illustrate the options.

Disconnect the power to the signal tower before changing the sequence!

The connections in the **connection element** are illustrated in following tables 1 to 5.

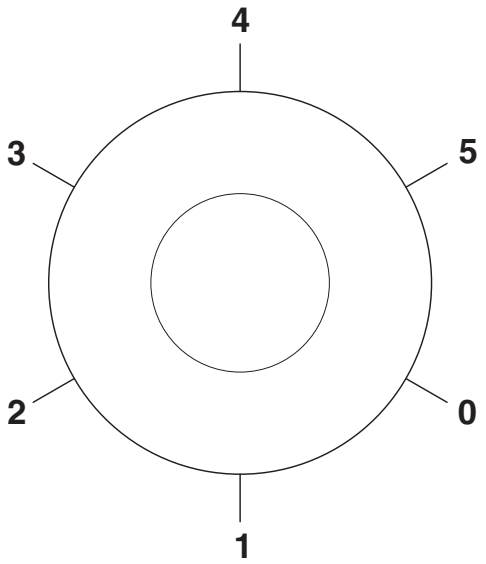



Figure 4 Connections in the connection element

### 6.1 Sounds depending on the number of signal elements set with the volume setting via connection 5 (input 4)

Once you have selected the corresponding option in the software, you can control the volume remotely via connection 5 (input 4).
Set the volume via the volume controller in the software to 50 %, 25 %, or 12.5 %.

For detailed information, please refer to the software and the associated manual.

Keys for the following table:

| | |
|---|---|
| NC | Not used or 0 V |
| L | Control cable for setting the volume (24 V DC: volume adjustment active) |

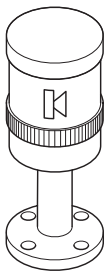


Figure 5 Signal tower: Voice output element

| 1 | 2 | 3 | 4 | 5 | Voice sequence |
|---|---|---|---|---|---|
| +24 V | +24 V | NC | NC | L | 1 |
| +24 V | NC | +24 V | NC | L | 2 |
| +24 V | +24 V | +24 V | NC | L | 3 |
| +24 V | NC | NC | +24 V | L | 4 |
| +24 V | +24 V | NC | +24 V | L | 5 |
| +24 V | NC | +24 V | +24 V | L | 6 |
| +24 V | +24 V | +24 V | +24 V | L | 7 |

Figure 6 Signal tower: Optical signal element and voice output element

| 1 | 2 | 3 | 4 | 5 | Voice sequence |
|---|---|---|---|---|---|
| S1 | +24 V | +24 V | NC | L | 1 |
| | +24 V | NC | +24 V | L | 2 |
| | +24 V | +24 V | +24 V | L | 3 |

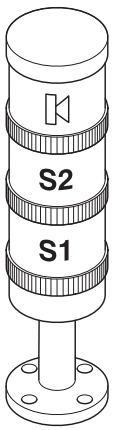



Figure 7 Signal tower: Two optical signal elements and one voice output element

| 1 | 2 | 3 | 4 | 5 | Voice sequence |
|---|---|---|---|---|---|
| S1 | S2 | +24 V | +24 V | L | 1 |

### 6.2 Sounds depending on the number of signal elements set with the volume setting via connection 4 (input 3) and connection 5 (input 4)

Once you have selected the corresponding option in the software, you can control the volume remotely via connections 4 and 5 (inputs 3 and 4).

You can adjust the volume according to the following table.

| Input 3<br>Connection 4 | Input 4<br>Connection 5 | Volume as a percentage |
|---|---|---|
| 0 | 0 | 100 % |
| 1 | 0 | 50 % |
| 0 | 1 | 25 % |
| 1 | 1 | 12.5 % |

For detailed information, please refer to the software and the associated manual.

Keys for the following table:

| | |
|---|---|
| NC | Not used or 0 V |
| L1 | Control cable 1 for setting the volume |
| L2 | Control cable 2 for setting the volume<br>(24 V DC: signal active (= 1)) |

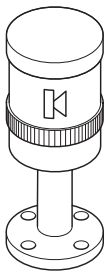


Figure 8 Signal tower: Voice output element

| 1 | 2 | 3 | 4 | 5 | Voice sequence |
|---|---|---|---|---|---|
| +24 V | +24 V | NC | L1 | L2 | 1 |
| +24 V | NC | +24 V | L1 | L2 | 2 |
| +24 V | +24 V | +24 V | L1 | L2 | 3 |

Figure 9 Signal tower: Optical signal element and voice output element

| 1 | 2 | 3 | 4 | 5 | Voice sequence |
|---|---|---|---|---|---|
| S1 | +24 V | +24 V | L1 | L2 | 1 |

### 6.3 Tones depending on the number of the signal elements used

Keys for the following table:

NC Not used or 0 V

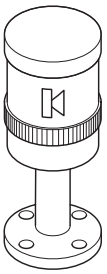


Figure 10 Signal tower: Voice output element

Figure 11 Signal tower: Optical signal element and voice output element

| 1 | 2 | 3 | 4 | 5 | Voice sequence |
|---|---|---|---|---|---|
| +24 V | +24 V | NC | NC | NC | 1 |
| +24 V | NC | +24 V | NC | NC | 2 |
| +24 V | +24 V | +24 V | NC | NC | 3 |
| +24 V | NC | NC | +24 V | NC | 4 |
| +24 V | +24 V | NC | +24 V | NC | 5 |
| +24 V | NC | +24 V | +24 V | NC | 6 |
| +24 V | +24 V | +24 V | +24 V | NC | 7 |
| +24 V | NC | NC | NC | +24 V | 8 |
| +24 V | +24 V | NC | NC | +24 V | 9 |
| +24 V | NC | +24 V | NC | +24 V | 10 |
| +24 V | +24 V | +24 V | NC | +24 V | 11 |
| +24 V | NC | NC | +24 V | +24 V | 12 |
| +24 V | +24 V | NC | +24 V | +24 V | 13 |
| +24 V | NC | +24 V | +24 V | +24 V | 14 |
| +24 V | +24 V | +24 V | +24 V | +24 V | 15 |

| 1 | 2 | 3 | 4 | 5 | Voice sequence |
|---|---|---|---|---|---|
| S1 | +24 V | +24 V | NC | NC | 1 |
| | +24 V | NC | +24 V | NC | 2 |
| | +24 V | +24 V | +24 V | NC | 3 |
| | +24 V | NC | NC | +24 V | 4 |
| | +24 V | +24 V | NC | +24 V | 5 |
| | +24 V | NC | +24 V | +24 V | 6 |
| | +24 V | +24 V | +24 V | +24 V | 7 |

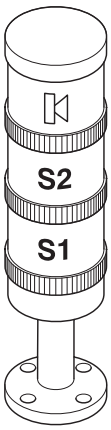



Figure 12 Signal tower: Two optical signal elements and one voice output element

| 1 | 2 | 3 | 4 | 5 | Voice sequence |
|---|---|---|---|---|---|
| S1 | S2 | +24 V | +24 V | NC | 1 |
| | | +24 V | NC | +24 V | 2 |
| | | +24 V | +24 V | +24 V | 3 |

Figure 13 Signal tower: Three optical signal elements and one voice output element

| 1 | 2 | 3 | 4 | 5 | Voice sequence |
|---|---|---|---|---|---|
| S1 | S2 | S3 | +24 V | +24 V | 1 |

# 7 Voice or sound sequences on the voice output element

**Information on voice output element**

1. The element is already formatted. Reformatting must be carried out using FAT (File Allocation Table).
2. Using USB interface, data can be transmitted between PC and voice output element. The USB cable is supplied with the element.
3. You can use any mp3 files or wav files as a voice or sound sequence.
   The number of sequences depends on the respective play time and quality of the sequences stored on the element and is limited by the memory capacity.
4. You can store up to 50 files on the element, however only the first 15 files, maximum, are played.
5. The “vocal element configurator” software is stored on the voice element for handling files with voice or sound sequences.
   This software can be used to add files to the voice element, change the sequence of files, delete files, and import or export playlists. The software functions are described in the integrated user manual.

To save or change the recording position, proceed as follows:

- Connect the voice output element to your PC via USB cable.
- The voice output element is detected as a mass storage device. Open the mass storage device to view the data stored on it.
- Start the software by double-clicking on the vocal_element.exe file.
- Perform the necessary actions via the software.
- Complete the actions in the software by clicking on the "Copy to device and disconnect" button.

In "Active inputs" connection mode, 15 file items are displayed in the software interface.

To display the 50 possible items, switch the software to "Ignore inputs" connection mode via the "Settings" menu item.

In "Ignore inputs" connection mode, you have the option of playing back all saved sequences one after the other. To do this, supply pin 5 with 24 V DC.

After saving the sequences and performing the test for normal operation, switch back to "Active inputs" connection mode.

## 8 Example of a signal tower

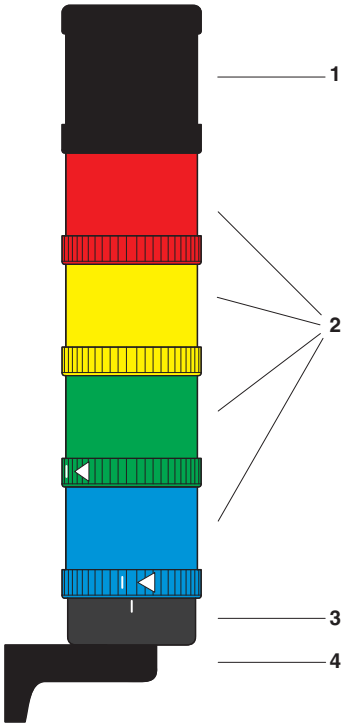



Figure 14 Example of a signal tower

Key:

**1** Audible signal element
**2** Optical signal element
**3** Connection element
**4** Assembly element

## 9 Assembly notes for a signal tower

– Only use a maximum of five elements within a signal tower.
– Use only one audible element in a signal tower and position this element on top.
– When closing the bayonet locking system, observe the markings (see "Assembling the individual elements").

## 10 Assembling the individual elements

Audible and optical signal elements are assembled in the same way. The illustration shows the assembly of two optical elements.

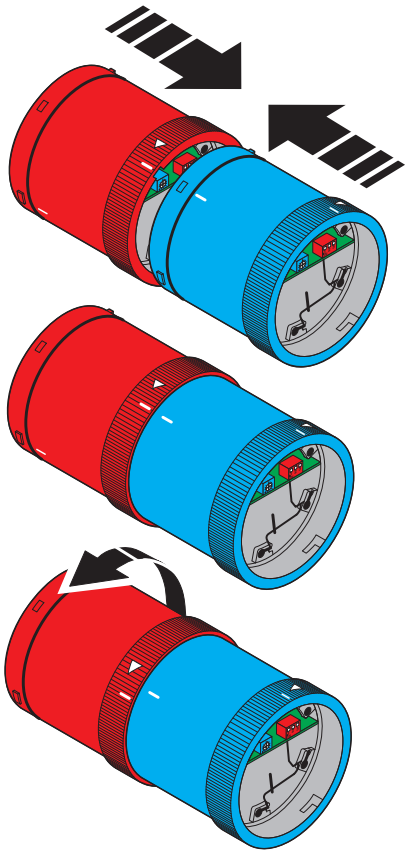


Figure 15 Assembling the individual elements

- Select the elements for your application.
- Connect the elements to be assembled so that the markings are aligned.
- Turn the upper element in the direction of the arrow.

## 11 Example for signal tower dimensions

The following figure shows the dimensions of a typical signal tower.

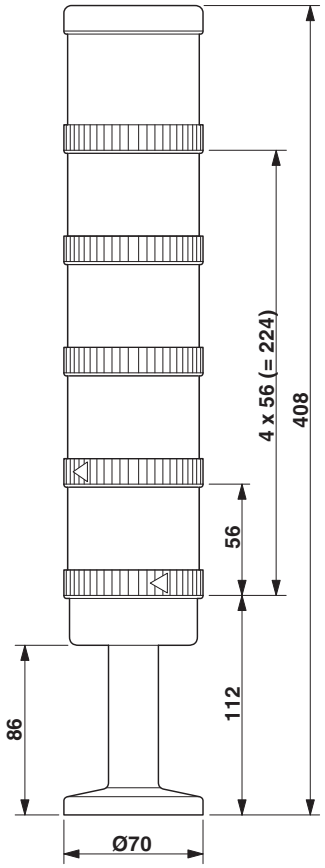



Figure 16 Dimensions of a signal tower (example)

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