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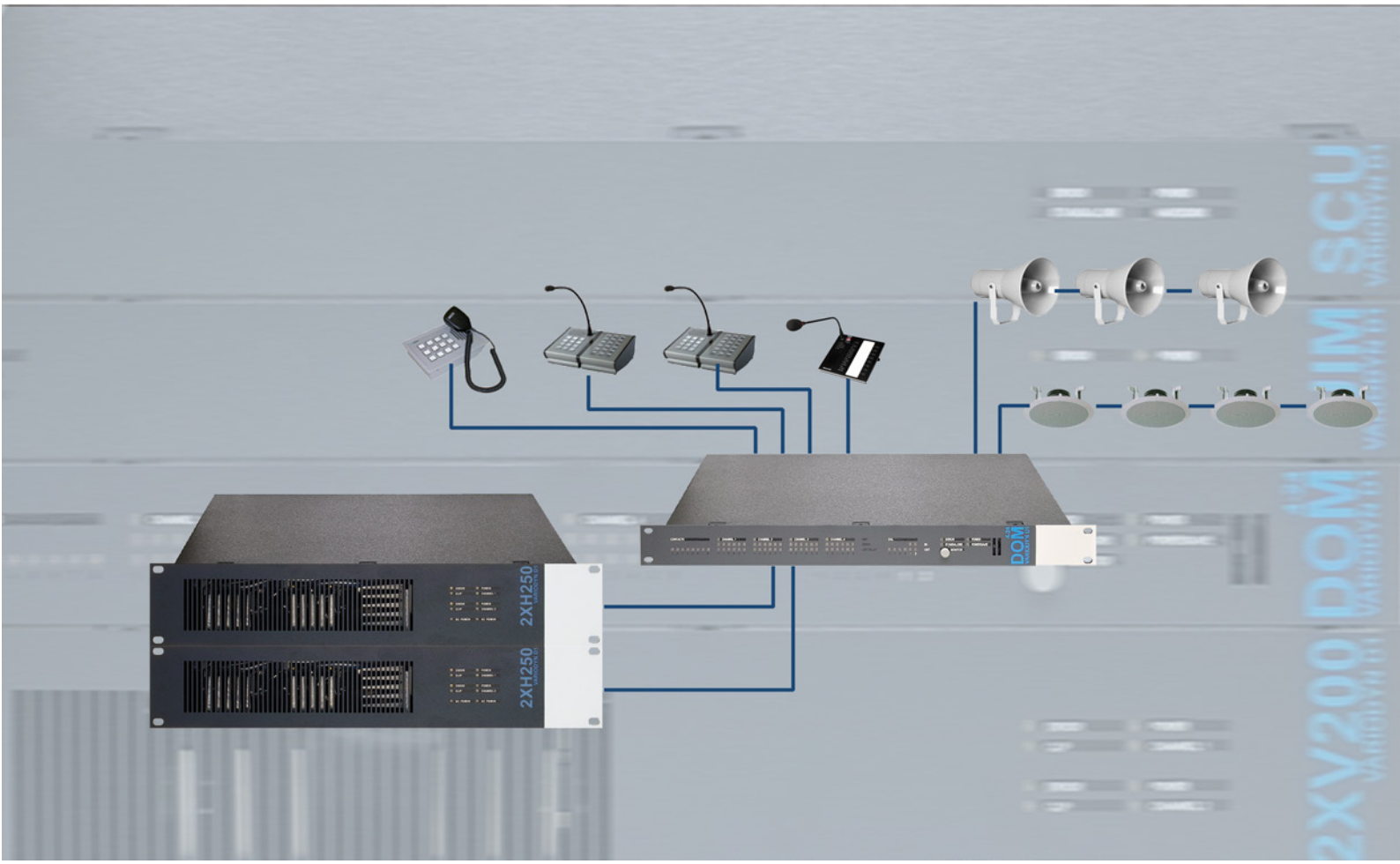
Notification



VARIODYN® D1 System

GB Operation Instruction

798662.GB0
05.2019

Intended purpose
This products may only be used for the applications outlined in the catalogue and in the technical description, and only in conjunction with the recommended and approved external devices and components.
This documentation contains registered and unregistered trademarks. All trademarks are the property of the respective owners. The use of this documentation does not grant you a licence or any other right to use the name, logo and/or the label.

The information contained in this documentation is provided without warranty.

Safety-related user information
This manual includes all information required for the proper use of the products described.
In order to ensure correct and safe operation of the product, all guidelines concerning its transport, storage, installation, and mounting must be observed. This includes the necessary care in operating the product.
The term 'qualified personnel' in the context of the safety information included in this manual or on the product itself designates:

- project engineers who are familiar with the safety guidelines concerning fire alarm and extinguishing systems.
- trained service engineers who are familiar with the components of fire alarm and extinguishing systems and the information on their operation as included in this manual.
- trained installation or service personnel with the necessary qualification for carrying out repairs on fire alarm and extinguishing systems or who are authorised to operate, ground and label electrical circuits and/or safety equipment/systems.

Symbols
The following information is given in the interest of personal safety and to prevent damage to the product described in this manual and all equipment connected to it.
Safety information and warnings for the prevention of dangers putting at risk the life and health of user and maintenance personnel as well as causing damage to the equipment itself are marked by the following pictograms.
Within the context of this manual, these pictograms have the following meanings:

Warning - Designates risks for man and/or machine. Non-compliance will create risks to man and/or machine. The level of risk is indicated by the word of warning.

Note - Important information on a topic or a procedure and other important information!

Standards and guidelines - Observe configuration and commissioning information in accordance to the national and local requirements.

Hazard warnings on the system components

Warning – risk source.

Warning – dangerous electrical voltage.

Dismantling

In accordance with Directive 2012/19/EU (WEEE), after being dismantled, electrical and electronic equipment is taken back by the manufacturer for proper disposal.

Table of contents

1 General / Application

Thank you very much for choosing VARIODYN® D1.

In line with the applicable standards, the following systems must all consist of components that satisfy the standards of the EN 54 series: a sound system for emergency purposes (SEP), as per EN 50849 ; a voice alarm system (VAS), as per DIN VDE 0833-4, and, in Austria, a sound system for emergency purposes (SEP), as per TRVB 158 S.
It must be ensured that these components interact together in a manner appropriate to the function. Devices for use in demanding ambient conditions, such as cold stores, galvanising plants or corrosive atmospheres, must be suitable for this particular application or must be adapted using suitable protective measures.

Designation of the system depending on the region of use

Depending on the location of use (country, applicable standard), the system is designated as e.g.:

(D) Voice alarm systems (VAS) ➔ according to DIN VDE 0833-4 and EN 54
or Sound system for emergency purposes ➔ according to EN 50849

(A) Sound system for emergency purposes ➔ according to TRVB 158 S

In the interests of readability, only the term “voice alarm system” is used in the following chapters.

A voice alarm system can be used for issuing alarms anywhere that hazards to people can be expected. Voice alarms are particularly effective in buildings and rooms frequented by visitors or other people who are not trained how to act in an emergency or where visual signal devices cannot always be clearly recognised. An especially high level of risk exists in the case of people who are dependent on external help in an emergency, such when evacuation of the building is necessary. This may include people who are ill, the elderly and children.

The voice alarm system is mainly used in combination with a fire alarm control panel for emitting alarms. In practice, the voice alarm system is also used for tasks outside of this area of application. Typical examples of this include spoken messages such as advertising or calling people in airports, announcements at train stations or playing background music.

Different requirements are placed on the voice alarm system depending on this combined use as an alarm and as a general public address system. For example, external loudspeakers which can generate a high volume level are required for voice alarms. At the same time, however, it should be possible to transmit a high-quality music signal in other areas and ideally also to control the volume for individual areas. The requirements for the areas of safety, comfort and flexibility demand a high level of specialised skill for the planning and implementation of a system as well as very good knowledge of individual product components.

The VARIODYN® D1 system is assembled at the factory as a modularly expandable version with various components according to the specific building requirements. This means that special solutions can be implemented economically and effectively for buildings of different sizes and for various alarm tasks.

1.1 Responsibility of the Operator

In addition to the standard-compliant design, a definition of the minimum requirements and functions between the operator of the system and the responsible authorities is needed for the setup and operation of a voice alarm system.
The standard TRVB 158 S applies in Austria (ENS) and the standard DIN VDE 0833 in Germany (SAA) if the system is controlled automatically by a fire alarm control panel.

Basic stipulations

- Definition of the safety level (I, II, III)
- Scope of public address system
- Alarm areas, detection areas, fire sections
- Site of the voice alarm control panel (VACP), configuration levels and accessibility
- Need for fire microphones and number of terminals, as well as their usability
- Alarm organisation and stipulation of the announcement texts

1.2 Associated Documents

These instructions contain all important information for operation of VARIODYN® systems.
Additional information on assembly, installation, start-up and configuration can be found in the following documents:

Part No.	Name
798661.GB0	Planning Principles for Voice Alarm Systems
798663.GB0	Installation Instructions for the VARIODYN® D1 System
798664.GB0	Commissioning Instructions for the VARIODYN® D1 System and VARIODYN® D1 Comprio
798683.GB0	Installation Instruction VARIODYN® D1 devices and accessories

Additional and current information

The features, specifications and product information described in this documentation are correct at time of printing (see cover for date); however the information specified in this document may differ slightly from the actual product as a result of product changes and/or changed standards and guidelines in the planning, installation and start-up.
Updated information and conformity declarations are available for reference on the website www.variodyn-D1.com.

2 Display and Operating Elements

2.1 Digital Output Module (DOM)

The DOM is the central control unit of the VARIODYN® D1 system. A DOM has interfaces to all input/output modules and also manages and monitors the loudspeaker circuits. Components such as the call stations, the double power amplifiers as well as the loudspeakers are connected to a DOM.

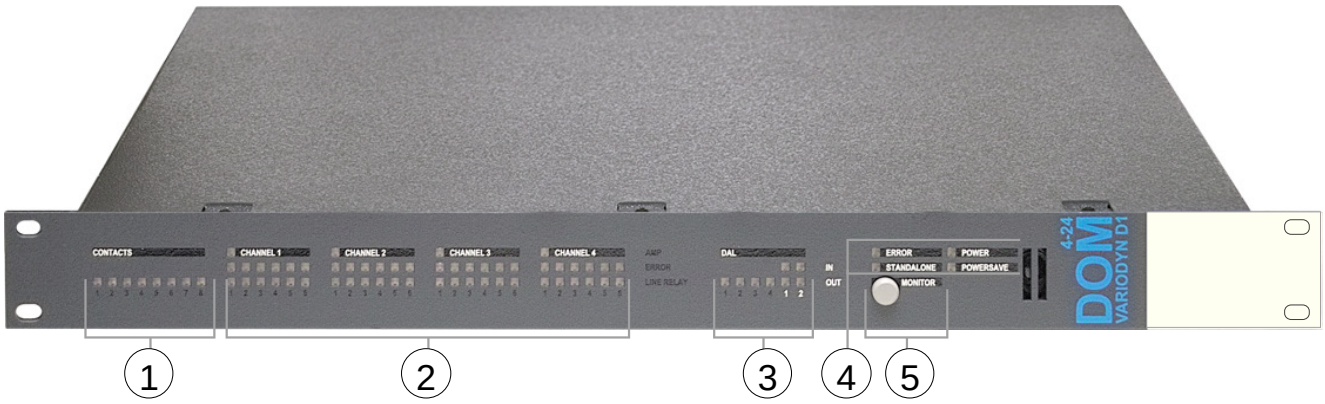


Fig. 1: Front view (the DOM4-24 is shown here)

①	LED indicators of control contacts 1-8
②	LED indicators of the audio outputs 1-4 (amplifier channels), LINE RELAY and LINE ERROR
③	LED indicators of the DAL connections
④	Collective LED indicators for : Power Error Stand-alone operation Powersave
⑤	Monitor button
⑥	Buzzer/sounder

By linking together multiple DOMs via Ethernet, it is possible to realise system configurations of any complexity. The DOM4-8 and DOM4-24 modules are equipped with four independent audio outputs in order to control four amplifier channels.

Each audio output can operate two switched loudspeaker circuits (for a total of 8 circuits) via the DOM4-8 or six switched loudspeaker circuits (for a total of 24 circuits) via the DOM4-24. All power amplifiers are permanently monitored. In event of a fault, a backup amplifier (optional) can dynamically replace a faulty power amplifier.

Depending on the configuration, the proper function of the DOM is automatically monitored; identified faults are reported to the system. Messages are also indicated visually or acoustically with the LED indicators and built-in buzzer. The loudspeaker lines are constantly monitored for short-circuit, earth fault and interruption. Faulty loudspeaker circuits are disconnected without affecting the rest of the system.

With the automatic volume regulation (AVR/AVC), the volume of each audio channel can be continuously and separately adjusted to the corresponding ambient volume in real-time. Up to 8 sensor microphones can be connected for this. The AVC adjusts the volume of an announcement such that it is not drowned out by ambient noise and to ensure that the announcement is easy to hear.

A DOM provides memory of up to 260 seconds for up to 16 audio signals, which can be used for any alarm texts (fire alarm, evacuation, etc.) and attention signals (e.g. gong).

LED indicators for the control contacts

The status of control contacts 1-8 is indicated with these LED.

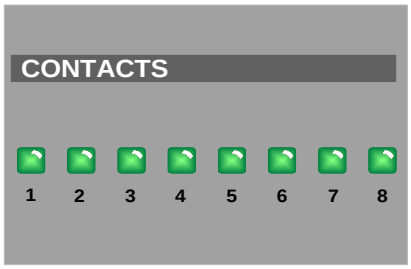


Fig. 2: LED of the CONTACTS (example)

	OFF	Control contact not activated
	ON, green	Control contact activated

LED indicators – Status of an amplifier channel

The functioning of the amplifiers is constantly monitored. The result of this check is indicated by the LED of the amplifier channels CHANNEL 1 and 2 (see Fig. 3). The following status indications are possible:

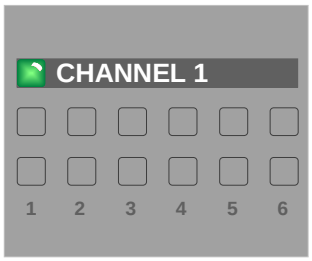
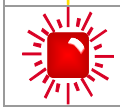


Fig. 3: LED of amplifier CHANNEL 1 (example)

	OFF	Amplifier channel not in use
	ON, green	Amplifier channel connected and ready for operation
	Flashing green	Amplifier channel currently prelistened
	ON, yellow	Fault - amplifier channel defective
	ON, red	Alarm connection for amplifier channel active (indication depends on the hardware model)

LED indicators of the LINE RELAY loudspeaker circuit display

If a loudspeaker circuit is currently in use by e.g. an announcement, this is indicated by the corresponding LED. A separate relay (LINE RELAY) for each loudspeaker line is used for this with object-specific programming. The LINE RELAY LEDs indicate which loudspeaker lines are active.

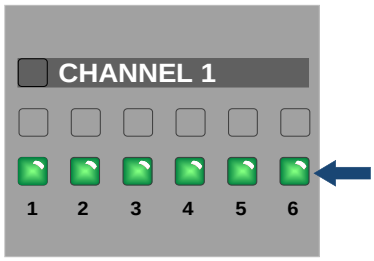


Fig. 4: LED of the LINE RELAY

LED LINE RELAY for amplifier channels 1 - 6		
	OFF	Loudspeaker circuit not in use
	ON, green	Loudspeaker circuit in use

LED indicators of the LINE ERROR

Depending on the system configuration, every loudspeaker circuit is constantly monitored for short-circuit, earth fault, impedance deviation and interruption. In event of a fault in the loudspeaker circuit, the associated LED glows yellow.

In event of a short circuit, the loudspeaker line is no longer connected until the error is corrected.

In event of the other faults, the loudspeaker line continues to remain available for announcements.

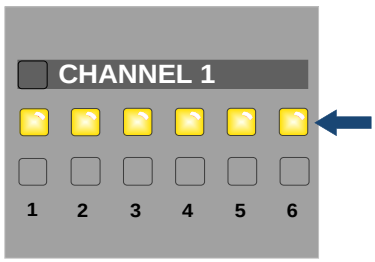


Fig. 5: LED of the LINE ERROR

LED LINE ERROR for amplifier channels 1 - 6		
	OFF	Normal operation
	ON, yellow	Fault ➔ Short-circuit, earth fault, interruption or impedance deviation

LED indicator for the DAL BUS

Digital call stations (DCS) or Universal Interface Modules (UIM) can be connected to the four digital audio links (DAL). The modules are controlled via the DAL BUS and are supplied with 24 V operating voltage.

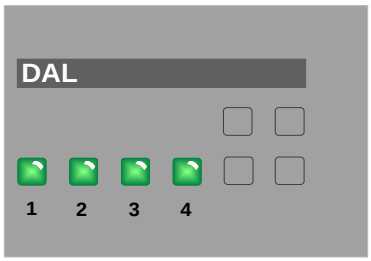


Fig. 6: LED of the DAL BUS

DAL Bus		
	OFF	No device configured
	ON, green	Device connected and ready for operation
	ON, yellow	Device not connected, faulty or microphone defective. If a UIM is present or the connection of the monitored inputs is faulty.
	Flashing green	Device being prelistened

LED indicators of the DAL channel

The LEDs indicate which channel of the DAL Bus is being listened to over the integrated loudspeaker of the DOM (see >Monitor< button).

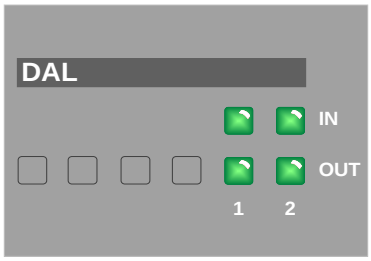


Fig. 7: LED of the DAL channel

DAL channel		
	OFF	Prelistening not activated
	Flashing green	Prelistening activated

Collective LED indicators

These LED indicators show the general status of the DOM.

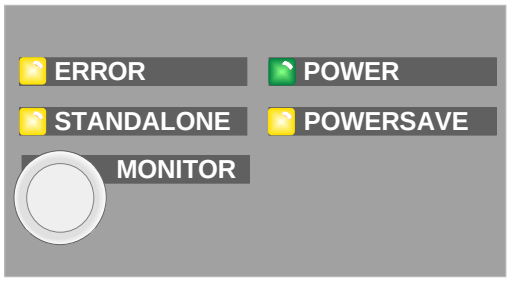


Fig. 8: Common displays of the DOM

ERROR / Acknowledge error message		
	OFF	Normal operation
	Flashing yellow, with alarm sound	Depending on the hardware model, the ERROR LED of the individual modules (DOM, UIM, SCU, …) may have the colour YELLOW or RED. The integrated buzzer can be acknowledged by pressing the >Monitor< button. The ERROR LED changes from flashing to steady glowing. The buzzer is triggered upon the next error message.
	ON, yellow	Fault acknowledged. However, the fault is still present.

POWER		
	OFF	No operating voltage
	ON, green	Operating voltage present, device active

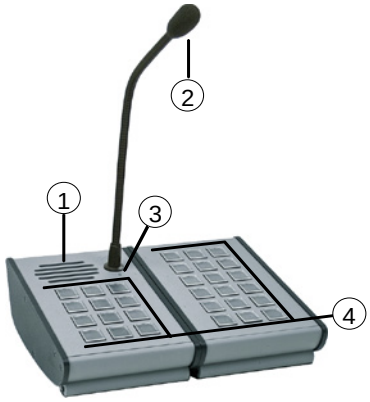
STANDALONE		
	OFF	Linked to another DOM
	ON, yellow	No linking to another DOM / SCU = Stand-alone operation

POWERFAIL		
	OFF	Normal operation
	ON, yellow	Failure of one of the power supplies

Monitor button	
	The buzzer can be switched off by pressing the button. To check whether an audio signal is currently present on an amplifier or DAL channel, the audio inputs and outputs can be listened to via the integrated loudspeaker using the monitor button. Pressing the button repeatedly will run through the individual listening points. The current listening point is indicated by the green flashing LED of the corresponding amplifier channel. Prelistening is automatically ended after a preset time (180 seconds: factory setting) or can be manually ended by a long press of the monitor button.

- Upon acknowledging of the buzzer, only the acoustic warning signal is temporarily deactivated.
- Resetting of the alarm and fault messages is only possible after correcting of the fault cause and may only be performed by a qualified technician.

2.2 Digital Call Station (DCS)



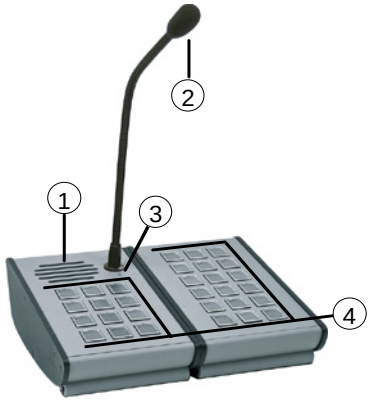
The term “call station” is used for the microphone in voice alarm systems.

Fig. 9: Digital call station DCS15 with button module DKM18

①	Loudspeakers e.g. for listening to saved messages or intercom conversations (two-way, asynchronous communication).		
②	Microphone The gooseneck microphone is constantly evaluated acoustically for proper function. A speaking distance of approx. 15 cm to the microphone should be maintained. If there is not enough distance, the comprehensibility of speech will suffer.		
③	2 LED status indicators The call stations are equipped with 2 LEDs. With the standard DCS, the right LED provides information on the operating state. The left LED is not active.		
		OFF	Device does not function ➔ No connection cable connected or digital output module (DOM) is switched off or there is a short circuit or line break in the power supply.
		ON, yellow	Fault ➔ The call stations start with a delay of roughly 45 seconds. If this time is exceeded, the connection to the DOM is interrupted ➔ Device is <u>not</u> ready for use!
		Flashing alternates between yellow and green	Fault ➔ Microphone error
		ON, green	Device is ready for use.
④	Operating buttons DCS15 (= 12 buttons) with optional button module DKM18 (= 18 buttons)		

Depending on the programming, the corresponding button must be pressed during the announcement. Alternatively, the function of the button is activated when pressed and deactivated when pressed again (toggle function).

2.3 Redundant Call Station (DCS)



The term “call station” is used for the microphone in voice alarm systems.

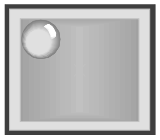
Fig. 10: Redundant call station DCS15RE with button module DKM18 for redundant call station

①	Loudspeakers e.g. for listening to saved messages or intercom conversations (two-way, asynchronous communication).		
②	Microphone The gooseneck microphone is constantly evaluated acoustically for proper function. A speaking distance of approx. 15 cm to the microphone should be maintained. If there is not enough distance, the comprehensibility of speech will suffer.		
③	2 LED status indicators Redundant call stations are equipped with two active LEDs, one for each DAL connection.		
	LED left	**LED right**	
	OFF	OFF	Device does not function ➔ No connection cable plugged in or digital output module (DOM) is switched off or there is a short-circuit or line break in the power supply.
	ON, green	ON, yellow	Redundancy faulty Fault ➔ The call stations start with a delay of approx. 45 seconds. If this time is exceeded, the connection to the DOM is interrupted. ➔ Device remains ready for use (MAIN output active).
	ON, yellow	ON, green	Redundancy faulty Fault ➔ The call stations start with a delay of approx. 45 seconds. If this time is exceeded, the connection to the DOM is interrupted ➔ Device remains ready for use (backup output active).
	ON, yellow		Fault ➔ The call stations start with a delay of approx. 45 seconds. If this time is exceeded, the connection to the DOM is interrupted ➔ Device is <u>not</u> ready for use as both outputs are faulty!
	Flashing yellow / green		Fault ➔ Microphone error
	ON, green		Redundant device is ready for use. Both outputs active.
④	Operating buttons DCS15RE (= 12 buttons) with optional button module DKM18RE (= 18 buttons)		

Depending on the programming, the corresponding button must be pressed during the announcement. Alternatively, the function of the button is activated when pressed and deactivated when pressed again (toggle function).

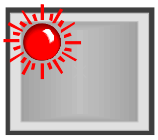
2.4 Buttons of the Call Station

The buttons of the call Station are freely programmable. The desired function is programmed in the system configuration by the installer with features specific to the building and customer. The buttons can be used to start announcements or execute system functions. To prevent accidental pressing of buttons with important functions (e.g. fire alarm announcement), it is possible to protect these buttons with an optional flip cover (Part No. 583311). Corresponding label sheets are included for labelling of the buttons.



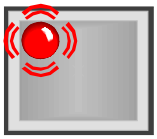
LED off

Function not active



LED on

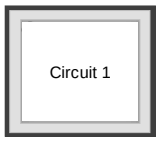
e.g. preselection active
or announcement running



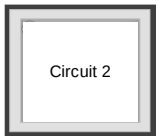
LED flashing

e.g. speaking not possible
(occupied)

Example of function key assignment



Pre-selection of circuit 1 *(button with toggle function)*
Selects circuit 1 (or multiple circuits, if programmed), which can be used as the target of an announcement.



Pre-selection of circuit 2 *(button with toggle function)*
As described above, except circuit 2

Announcement / speak *(keep button held pressed)*
Starts an announcement to the preselected circuits. If a gong has been programmed as an attention signal for the announcement, it is only possible to speak after this signal has finished.

Music on / off *(button with toggle function)*
Switches the background music on/off. The music can be played from an external CD player or other audio source (via the available audio inputs of the DCS, UIM or via digital audio data of the SCU).

Intercom DCS 2: *(keep button held pressed)*
Establishes an intercom connection to another terminal. Communication takes place using the microphone and built-in speaker.

Fire announcement *(button with toggle function)*
Pressing the button starts a previously saved fire announcement for the assigned loudspeaker circuits (areas).

Toggle function ➔ Press once = ON ➔ Press again = OFF

The button labelling can be created on a project-specific basis. The labels are laid in the button recesses and held in place with the covers.
Detailed information on this topic by the voice alarm specialist and in the Commissioning Instruction (Part No. 798664.GB0).

2.5 Digital call station DCS plus

The term “call station” is used for the microphone in voice alarm systems.

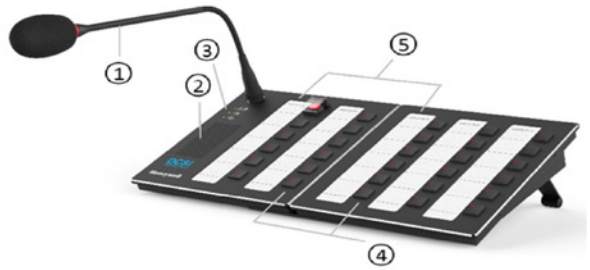


Fig. 11: Redundant call station DCS plus with button module DKM plus

①	Microphone	The gooseneck microphone is constantly acoustically checked for proper function. A speaking distance of approx. 15 cm to the microphone should be maintained. If there is not enough distance, the comprehensibility of speech will suffer.
②	Loudspeakers	e.g. for listening to saved messages or intercom conversations (two-way, asynchronous communication).
③	Three LED status indicators Redundant call stations are equipped with 3 LED in order from top to bottom.	
	System / Microphone LED	
	OFF	No fault condition within the system and the microphone is ready to use
	ON, yellow	1) When this occurs during start up of the call station: Approximately 45 seconds is required for start up of the call station. If this time is exceeded, the data connection to the system may have been interrupted. The call station is not ready for use! 2) When this occurs after a successful start up: There is a fault within the system. The VARIODYN D1 control device (DOM or COMPRIO) will also show a fault status (Fault LED will be on or flashing yellow)
	Flashing yellow	There is a local microphone fault. Microphone faults have highest priority (which means if there is both a system fault and the call station has a microphone fault, this LED will flash YELLOW).
	The Main connection status LED and the Backup connection status LED.	
	OFF	Call station will not function ➔ No connection cable plugged in or digital output module (DOM) is switched off or there is a short-circuit or line break in the power supply.
	ON, yellow	Call station start up in progress. Approximately 45 seconds is required for completion. If this time is exceeded the connection to the DOM could be interrupted. The call station will not be ready for use as both outputs are faulty.
	Flashing green	The call station is starting. The start-up process takes roughly 45 seconds
	ON, green	The call station is ready for use.
④	Operating buttons DCS plus (12 buttons) with optional button module DKM plus (18 buttons)	
⑤	Replaceable label to indicate the button purpose	

Depending on the configuration, the corresponding button must be pressed during the announcement. Alternatively, the function of the button is activated when pressed and deactivated when pressed again (toggle function).

2.6 Buttons of the DCS plus call station

The buttons of the call station DCS plus are freely configurable. The desired function is programmed in the system configuration by the installer with features specific to the building and customer. The buttons can be used to start announcements or execute system functions. The first button of the call station is protected by a cover to avoid accidental activation and could be used for important functions such as emergency call. Corresponding label sheets are included for labelling of the buttons.

LED off

Function not active

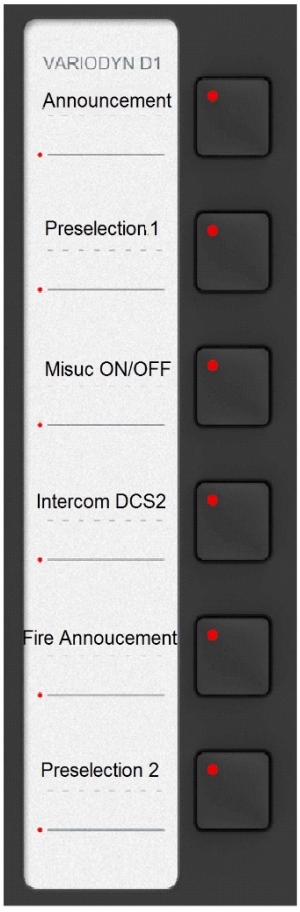
LED on

e.g. preselection active
or announcement running

LED flashing

e.g. speaking not possible
(occupied)

Example of function key assignment



Announcement / speak *(keep button held pressed)*
Starts an announcement to the preselected circuits. If a gong has been programmed as an attention signal for the announcement, it is only possible to speak after this signal has finished.

Pre-selection of circuit 1 *(button with toggle function)*
Selects circuit 1 (or multiple circuits, if programmed), which can be used as the target of an announcement.

Music on / off *(button with toggle function)*
Switches the background music on/off. The music can be played from an external CD player or other audio source (via the available audio inputs of the DCS, UIM or via digital audio data of the SCU).

Intercom DCS 2: *(keep button held pressed)*
Establishes an intercom connection to another terminal. Communication takes place using the microphone and built-in speaker.

Fire announcement *(button with toggle function)*
Pressing the button starts a previously saved fire announcement for the assigned loudspeaker circuits (areas).

Pre-selection of circuit 2 (button with toggle function)
As described above, except circuit 2

Toggle function ➔ Press once = ON ➔ Press again = OFF

The button labelling can be created on a project-specific basis. The labels are laid in the button recesses and held in place with the covers.
Detailed information on this topic by the voice alarm specialist and in the Commissioning Instruction (Part No. 798664.GB0).

2.7 Ethernet Touch Call Station ETCS

Ethernet Touch call station is a device that broadcasts audio files to various devices using wired Ethernet connections. The device will broadcast the audio files recorded from the end user to selected areas using the touch interface that is built into the device. This will allow time-sensitive messages to reach the intended group of audience in a timely manner. The device is also capable of firmware update by connecting it to the local laptop/desktop through the Ethernet connection.

Fig. 12: Ethernet Touch Call Station (ETCS) with button module DKM plus for redundant call station

①	Microphone	The gooseneck microphone is constantly evaluated acoustically for proper function. To ensure vocal clarity, maintain a speaking distance of approx. 10 cm from mic.	
②	Emergency button with a cover	A Freely programmable button with an important function. The LED have below status:	
	off	Inactive	
	lits red	Active (e.g. running an announcement).	
		flashing quickly	(0.2 s on and 0.2 s off): Unavailable (occupied)
		flashing slowly	(0.6 s on and 0.6 s off): Partially connected
		blinking	(different on and off time): Playing presignal

③	Status indicator	Four LED indicate device status: • Power supply status (3.1) • System/microphone error (3.2) • Main connection status (3.3) • Backup connection status (3.4)
LED 3.1	 off	No voltage
	 lits green	Voltage present and active
LED 3.2	 off	No error displays on the ETCS and device microphone is good for use
	 lits yellow	A Network device (DOM / Comprio) has an error or the ETCS has errors other than an open/short circuit of the microphone. The common fault LED of DOM is yellow/flashing yellow. Retrieve detailed error information from the screen (“Error” list).
	 flashing yellow	Microphone has an error (displayed prior to a system error) and is not ready for use.
LED 3.3 und LED 3.4	 off  off	Missing connection cables and working in standalone mode.
LED 3.3 und LED 3.4	 lits green  off	The device is ready for use. (The MAIN output is active without a BACKUP connection cable.)
LED 3.3 und LED 3.4	 off  lits green	The device is ready for use. (The BACKUP output is active without a MAIN connection cable.)
LED 3.3 und LED 3.4	 lits green  lits green	The device is ready for use. (MAIN output is active, and BACKUP output deactivates.)
④	Loudspeakers	The built-in loudspeaker can be used to play stored audio files or serve as a two-way intercom.
⑤	7" / 17,8 cm touchscreen	

2.8 Power Amplifiers (PA)

The power amplifiers (PA) serve to amplify the voice/audio signal. Amplifiers are connected to the Digital Output Module (DOM) and also controlled via the DOM. The amplifiers as well as the cabling are constantly monitored depending on the configuration.

2.8.1 Power Amplifier 2XH series

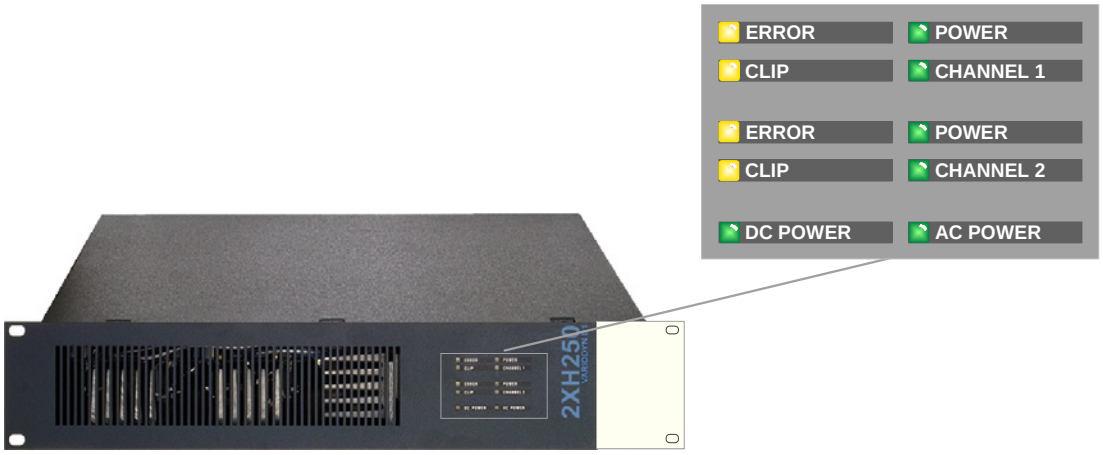


Fig. 13: Front view of the power amplifier (the 2XH250 is shown here)

CLIP		
	OFF	Level control of the amplifier channel in the normal range
	ON, yellow	Amplifier channel is operating at its limits (e.g. 0.5 dB under full load or signal level too high - higher amplifier power may be required).
ERROR		
	OFF	Normal operation
	ON, yellow for approx. 3 seconds	Automatic function test after switching on
	ON, yellow	The surge protection is activated ➔ A circuit breaker has triggered or the device was recently switched off - e.g. power saving mode.
POWER		
	OFF	Device switched off or no operating voltage
	ON, green	Normal operation
Channel 1 / Channel 2		
	OFF	No audio signal present
	ON, green	Audio signal present
DC Power / AC Power		
	OFF	One of the power supplies (DC emergency power / AC mains supply) is faulty.
	ON, green	Normal operation

2.8.2 Power Amplifier 2XD series

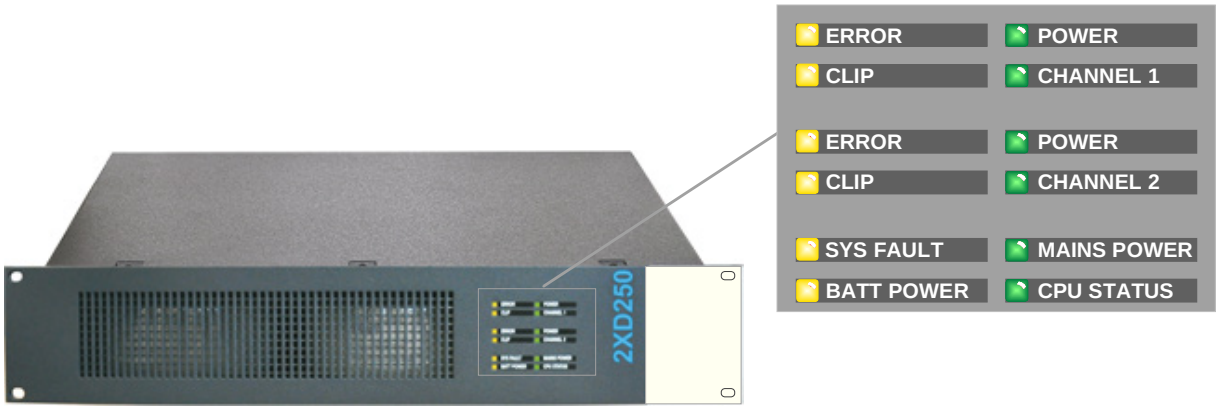


Fig. 14: Front view of the power amplifier (the 2XD250 is shown here)

CLIP		
	OFF	Level control of the amplifier channel in the normal range
	ON, yellow	Amplifier channel is operating at its limits (e.g. 0.5 dB under full load or signal level too high - higher amplifier power may be required).

ERROR		
	OFF	Normal operation
	ON, yellow	Fault or overload of the respective amplifier channel

POWER		
	OFF	Device switched off or no operating voltage
	ON, green	Normal operation

Channel 1 / Channel 2		
	OFF	No audio signal present
	ON, green	Audio signal present

SYS FAULT		
	OFF	No error present
	ON, yellow	System fault of the amplifier

BATT POWER		
	OFF	Normal operation
	ON, yellow	Emergency power operation (amplifier is supplied by the battery)

MAINS POWER		
	OFF	No operating voltage present
	ON, green	Normal operation

CPU STATUS		
	OFF	CPU error (operating software without function)
	Flashing green	CPU OK (normal operation)

After the amplifier has booted up, the LEDs SYS FAULT, BATT POWER, MAINS POWER or CPU STATUS light up for 4 seconds in a specific combination.

2.9 Power Amplifiers (PA) 4XD Series

The power amplifiers (PA) serve to amplify the voice/audio signal. Amplifiers are connected to the control module and also controlled via the control module. The amplifier as well as the cabling is constantly monitored depending on the configuration.

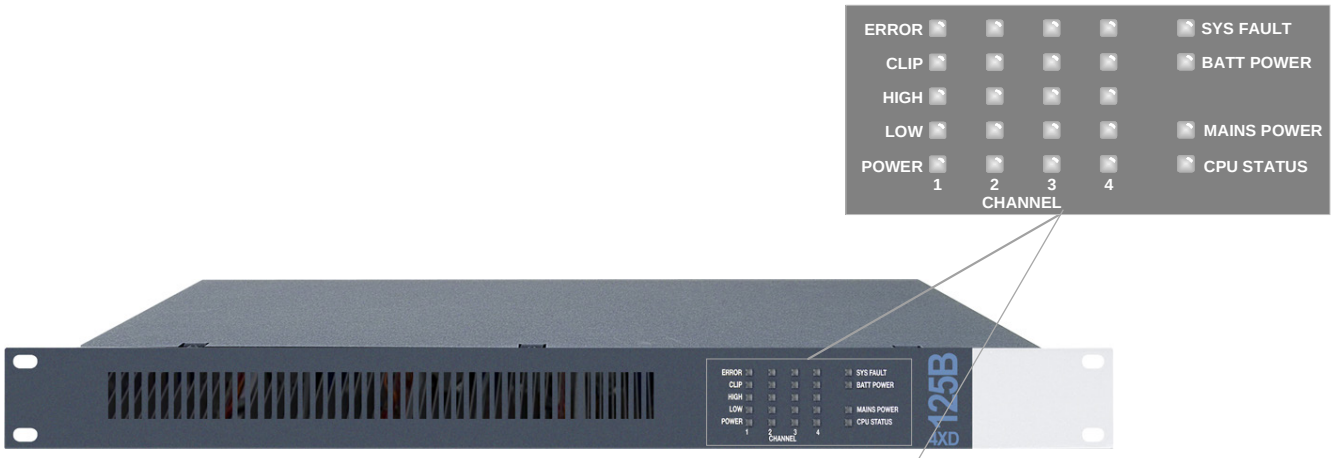


Fig. 15: Front view of power amplifier 4XD125B

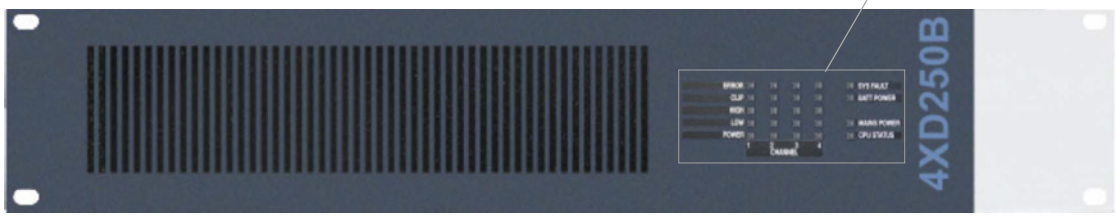


Fig. 16: Front view of power amplifier 4XD250B

ERROR CHANNEL 1 - 4		
	OFF	Normal operation
	ON, yellow	Fault or overload of the respective amplifier channel

CLIP CHANNEL 1 - 4		
	OFF	Level control of the amplifier channel in the normal range
	ON, yellow	Amplifier channel is operating at its limits (e.g. 0.5 dB under full load or signal level too high - higher amplifier power may be required).

With the two LED for “High” and “Low” channel, the range of the detected audio signal level can be displayed Factory setting the range is set to -20 dB (low) to -6 dB (high). The setting is configured via the DIL switches on the back side of the amplifier.

HIGH CHANNEL 1 - 4		
	ON, green	The detected level of the audio signal is -3 dB or -6 dB below the expected nominal level for the high signal. The setting is configured via the DIP switch.

LOW CHANNEL 1 - 4		
	ON, green	The detected level of the audio signal is -6 dB or -20 dB below the expected nominal level for the low signal. The setting is configured via the DIP switch.

POWER CHANNEL 1 - 4		
	OFF	Amplifier final stages switched off
	ON, green	Normal operation

SYS FAULT		
	OFF	No error present
	ON, yellow	System fault of the amplifier

BATT POWER		
	OFF	Normal operation
	ON, yellow	Emergency power operation (amplifier is supplied by the battery)

MAINS POWER		
	OFF	No 230 V AC operating voltage present
	ON, green	Normal operation

CPU STATUS		
	OFF	CPU error (operating software without function)
	Flashing green	CPU OK (normal operation)

After the amplifier has booted up, the LED SYS FAULT, BATT POWER, MAINS POWER or CPU STATUS light up for 4 seconds in a specific combination.

2.10 View-Control-Modul (VCM)

The View Control Module allows standard-compliant display and operation of collective messages. These are indicated audibly via the integrated buzzer and visibly via the LEDs. Using the 5 operating buttons, it is possible to switch off or mute messages or perform a lamp test of the system. The module is connected to a Universal Interface Module (UIM) and supplied with power via the emergency power supply.

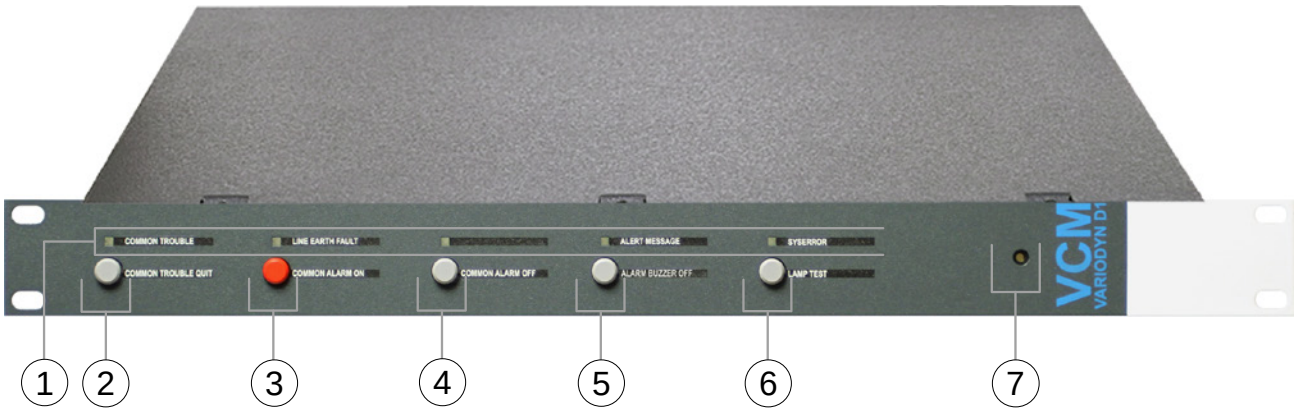


Fig. 17: Front view VCM

①	LED indicator for collective messages Faults of the voice alarm system are displayed here. The indication takes place via the LED (yellow / red) and the integrated buzzer ⑦.
②	COMMON TROUBLE QUIT button If a common fault exists in the system, the integrated buzzer can be switched off again with this button.
③	COMMON ALARM ON button The red button starts an evacuation message throughout the entire system. The LED "ALERT MESSAGE" lights up and the buzzer is activated.
④	COMMON ALARM OFF button This button ends a previously started evacuation message. The LED goes out and the buzzer is switched off.
⑤	ALARM BUZZER OFF button This button switches off the buzzer for a previously started evacuation message. The LED does not go out.
⑥	LAMP TEST button This button performs a lamp and buzzer test of the VCM and the connected DOM. The test is only active for as long as the button is pressed.
⑦	Integrated buzzer for audible signalling of faults.

COMMON TROUBLE		
	Off	Normal operation - No collective faults
	ON, yellow with alarm sound	A collective fault exists The buzzer is switched off with the button ②.

LINE EARTH FAULT		
	Off	Normal operation – No earth fault
	ON, yellow	An earth fault exists on one or more loudspeaker lines. The LED goes out as soon as the earth fault has been corrected.

Only earth faults of the loudspeaker lines of DOM connected to the VCM are shown.

ALERT MESSAGE		
	Off	Normal operation - No alarm state
	ON, red with alarm sound	The system is in an alarm state. The buzzer is switched off with the button ④.

SYSERROR		
	Off	Normal operation - DOM have no faults
	ON, yellow with alarm sound	A fault exists on one or more DOM connected to the VCM. The buzzer is only switched off after correction of the fault.

2.11 Main Switch Unit (MSU)

The MSU ensures the supply of power to all VARIODYN® D1 components. All connected voice alarm system components can be switched on or off by the installer using the switches.

The protective function is automatically triggered by a short-circuit or overload. The connected voice alarm system components are disconnected from the power supply. The switch ③ also switches the IEC power socket ②.

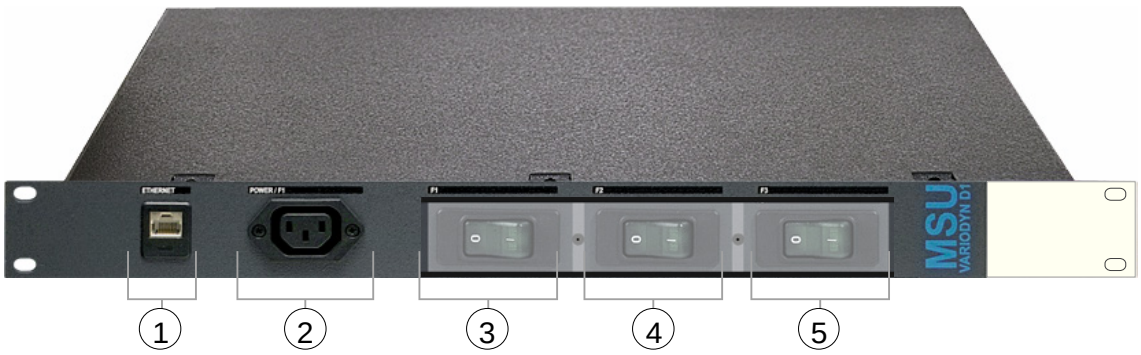
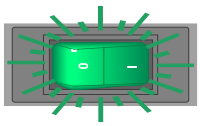
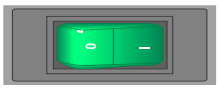
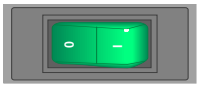


Fig. 18: Front view of the Main Switch Unit (MSU)

①	RJ45 socket for the Ethernet connection (network)
②	IEC power socket, switched with phase L1, mains voltage
③	Circuit breaker phase L1, mains voltage
④	Circuit breaker phase L2, mains voltage
⑤	Circuit breaker phase L3, mains voltage

	Indicator lits green (switch in pos. 1)	Connected devices are supplied with power. Normal operation
	Indicator off (switch in pos. 1)	Power supply interrupted
	Indicator off (switch in pos. 0)	Manually switched off or the protection has been triggered. The system is currently in the limited, message-ready state. **Notify the service/maintenance personnel!**

If the overvoltage protection of phase L1 has been tripped, the IEC power socket ② also has no power.

2.12 Universal Interface Module (UIM)

The universal interface module serves as interface of the VARIODYN® D1 system for the connection of external analogue audio signals. In addition to the 2 analogue inputs / outputs, the UIM has 48 control contacts for inputs/outputs to control external devices, such as analogue call stations (DIGIM) and fire alarm systems.

Fig. 19: Front view of the Universal Interface Module (UIM)

SIGNAL		
	ON	The signal LED glow when an audio signal is present.

POWER		
	OFF	Device not functioning / power supply not connected
	ON, green	Normal operation

ERROR		
	OFF	Normal operation
	ON, yellow	Communication fault of the DAL BUS, the UIM is incorrectly configured or defective or the monitored inputs 14 to 48 are faulty.

2.13 System Communication Unit (SCU)

The System Communication Unit is used as digital audio memory for the VARIODYN® D1 system. Voice information (announcements, etc.) and music can be saved in the SCU and loaded later using the buttons of the call station, for example. The storage of alarms and messages for evacuation measures takes place in an electronic memory element with a capacity of approximately 120 minutes.

Additional audio signals, such as various announcements, acoustic signals, music or advertising texts, are saved on the internal hard drive (capacity approx. 150 hours). The SCU can also be used for logging and recording remote DOM announcements. These are also stored on the internal hard disk and are saved with the date, time and trigger information.

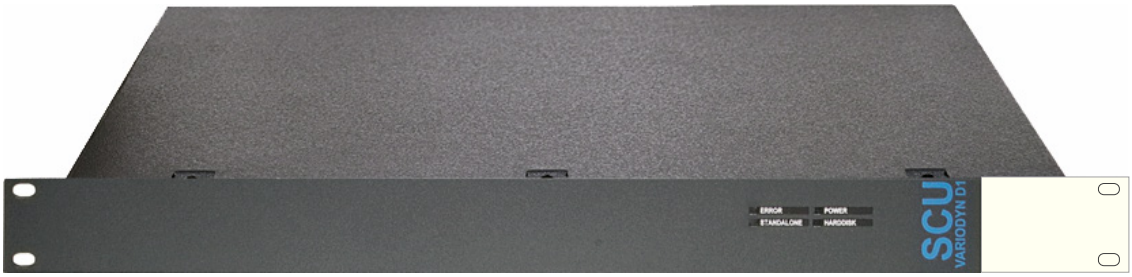


Fig. 20: Front view of the System Communication Unit (SCU)

ERROR		
	OFF	Normal operation
	ON, yellow	Active for max. 1 minute while switching on – otherwise the device may be faulty.

POWER		
	OFF	Device switched off or no operating voltage
	ON, green	Normal operation

STANDALONE		
	OFF	SCU with network connection
	ON, yellow	No networking (network not available or no connection to DOM)

HARDDISK		
	OFF	Rest state – no access to the memory
	ON, green	Accessing of the internal hard drive / flash memory

3 Maintenance and Installation

Operation and maintenance of hazard warning systems (HWS)
Requirements as per VdS guidelines and VDE 0833-1 and 2:

The operator of the HWS must have received proper training or must have the work performed by someone who has received proper training. The operator or the person he/she commissions must take responsibility for ensuring that inspections are carried out when there are signs that the constant readiness of the system may have been impaired, in event of irregularities in the functioning of the system and in cases of alterations (e.g. in the use or design of the room) that may influence the monitoring tasks of the HWS. All necessary maintenance and alteration work on the HWS must be carried out immediately by the operator or the trained person who he/she commissions. HWS must be regularly serviced by an electrician. If there are faults, the HWS must be immediately inspected and corrected by an electrician.

Inspections
Must be carried out at least four times per year at roughly even intervals acc. to VDE 0833-1.

Repairs
Must be carried out immediately if it is confirmed during an inspection that there unauthorised deviations from the nominal conditions of the HWS.

Maintenance work
Maintenance work should be carried out according to manufacturer instructions, however no less once a year. This work may include, for example: maintenance of system parts, replacing elements with limited service life (e.g. light bulbs), alignment, resetting and adjusting of components and devices. The specifically required annual maintenance work may be performed along with the quarterly inspections. In addition, the HWS must be inspected every five years to ensure that it fulfils all requirements of this standard.

Regular tests
In principle, the statutory specifications, standards and local requirements apply for the maintenance of the voice alarm system. However, these may be additionally restricted by the manufacturer's specifications. This may be the case if, for example, the manufacturer stipulates that the maintenance intervals or replacement cycles of the devices must be shorter than required by law.

- Regular tests must be carried out to ensure that there is not and will not be any restriction on the emission of sound from the loudspeakers or on their function.
- Regular tests must be carried out to check whether rooms excluded from the public address system in the planning documents now need to be included in the public address system.
- Regular tests must be carried out to ensure that when the voice alarm system or even one of the individual parts of the voice alarm system is switched off or malfunctions there is a suitable backup measure available (e.g. security personnel with megaphones etc.).
- Loudspeaker testing must be carried out at least once per year using suitable audio tests. If there is any doubt, a measurement must be carried out to prove the speech comprehensibility.

- In accordance with EN 50849, a maintenance contract must be concluded.
- Maintenance work must be carried out in accordance with DIN VDE 0833-4 or TRVB 158 S.
- All events such as fault / replacement / maintenance / calibration of the VAS must be documented in a log book.
- The operating log must be stored near the system (or on the operator's premises).

Important information
After the power supply has been interrupted for maintenance or service work or upon changing the location of call stations during maintenance or service work, every call station, and especially the fire brigade / evacuation call stations, must be tested to ensure proper operation by executing the relevant functions, in particular by performing a "test call“.

4 Service / Maintenance Contact Information

The following service / maintenance contract information as well as important contact persons should be recorded.

Service / maintenance personnel

Maintenance contract :_____(No.) _____from:_____

Company : _____

_____

_____

Contact person : _____

Address : _____

_____

Phone : _____

Mobile phone : _____

Fax : _____

E-mail : _____

In case of an incident, contact:

Contact person : _____

Function : _____

Address : _____

_____

Phone : _____

Mobile phone : _____

Fax : _____

E-mail : _____

Remarks : _____

_____

_____

_____

_____

_____

Notes

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